



Analytics and Mobility

Narrowcast Server System Administrator Guide



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SYSTEM ADMINISTRATOR OVERVIEW

This manual provides Narrowcast Server system administrators with information and steps to administer a MicroStrategy Narrowcast Server system.

About MicroStrategy Narrowcast Server

MicroStrategy Narrowcast Server is an information delivery platform designed for proactive transmission of information in the form of personalized messages.

MicroStrategy Narrowcast Server includes a Delivery Engine that can:

- Gather information from any source (such as MicroStrategy Intelligence Server, the web, directly from databases, from flat files, and so on) through an open Service Provider Interface
- Personalize the information gathered based on individual characteristics and preferences
- Format the information into text, HTML, and Microsoft Excel documents
- Deliver the information via any channel such as e-mail, SMS, or a web portal, through an open Service Provider Interface

Narrowcast Server comprises the following technical feature groups:

Narrowcast Administrator

Delivery Engine

Subscription Portal system

Narrowcast Server includes a Subscription Portal through which end users can specify their preferences and choose what types of information they would like to receive.

Narrowcast Server Enterprise Edition clusters across multiple machines to scale with available resources and provide failover support. Narrowcast Server also implements a modular architecture where modules can be added or removed as needed to provide different means of gathering, formatting, and delivering information. For example, alert information can be gathered directly from a database and delivered wirelessly via SMS, or content can be gathered from different websites, combined and reformatted, and delivered via HTML e-mail or posted back to the web. Delivered information can be personalized based on specific individual preferences. Narrowcast Server is an adaptable, scalable, robust platform for information subscription, gathering, processing, personalization, and delivery.

Narrowcast Administrator

Narrowcast Administrator provides a unified console through which Narrowcast Server systems can be developed, controlled, and administered. It can be used on several machines at the same time for a single system, to facilitate rapid development and distributed deployment. Narrowcast Administrator presents an easy-to-use interface for creating information delivery services and for administering a distributed Narrowcast Server system.

Delivery Engine

The Delivery Engine is responsible for the content gathering, formatting, and transmission for information delivery services. Its open architecture is component-based to allow integration with custom data sources, formatting methods, transmission technologies, and directory management systems. The Delivery Engine can be administered remotely and can be clustered easily, providing workload distribution as well as automatic failover and recovery. With the addition of locale and time zone awareness, the Delivery Engine easily supports a multinational user community.

The Delivery Engine provides the information delivery capabilities of a Narrowcast Server system.

Subscription Portal system

Users control the content they receive by specifying what information they want to see using the Subscription Portal system. Through the web-based portal, users determine the frequency, schedule, delivery device, and personalization of information services. Narrowcast Server ensures that individuals receive one-to-one, personalized information where and when it is most useful. The Subscription Portal system includes the following:

- **Portal Administrator Wizard:** The Portal Administrator Wizard provides a web-based interface through which a system can be configured and administered. This wizard allows the portal administrator to specify which Narrowcast Server services are deployed in the Subscription Portal.
- **Subscription Portal:** Each Subscription Portal offers users the ability to view services and any Narrowcast documents generated by Narrowcast Server. Users can also administer user passwords and preferences, addresses, and subscriptions. Users can change schedules for their subscriptions and save preferences for future use.

The Subscription Portal system provides the subscription and personalization capabilities of a Narrowcast Server system. For more information about understanding the functionality of the Subscription Portal system see User Self Subscription in the Narrowcast Application Designer Guide.

Overview of system administrator tasks

System administrator tasks include installing and configuring all of the components of the Narrowcast Server system. They also include monitoring system performance, maintaining the system environment, tuning the

system configuration, and troubleshooting problems. The full list of tasks are described below:

- Plan your Narrowcast system
- Configure machines
- Install software
- Create/configure a Narrowcast Server system
- Test the configuration
- Migrate administration objects
- Migrate application objects
- Perform maintenance
- Upgrade the system
- Monitor the system
- Troubleshoot the system
- Support a development and production environment
- Ensure 7x24 operations
- Perform error recovery

What's new in this guide

MicroStrategy 9.5 (MicroStrategy 9s)

MicroStrategy 9.5 integrates the MicroStrategy Analytics Platform with MicroStrategy Usher. MicroStrategy Usher is a mobile identity platform for enterprise security. Usher enables users to electronically validate their identity using the Usher app and mobile badge on their smartphone, instead of entering a password, displaying a physical ID card, or using a physical key.

MicroStrategy 9.5 supports Usher as a primary authentication method for logging into a project through MicroStrategy Mobile and MicroStrategy Web. Using QR code generation in MicroStrategy, users can scan the code with Usher on their smartphones and gain access to the MicroStrategy project.

Usher is also supported for two-factor authentication in Web.

MicroStrategy 9.5 also provides support for biometric security, location-based access restrictions, and time-based access restrictions.

To configure your MicroStrategy 9.5 installation, see the [help page for MicroStrategy 9.5](#).

Analytics Enterprise

The name of MicroStrategy Desktop has been changed to MicroStrategy Developer.

Organization

The information in this guide is divided into the following sections:

- **Concepts:** Provides information about product components and features.
- **Interfaces:** Provides interface-specific information. Explains the interfaces used to administer your Narrowcast system.
- **How Do I...?:** Provides steps to perform administrative tasks.

The Troubleshooting section at the end of the guide briefs you about the troubleshooting tools that are useful to resolve any errors related to Narrowcast Server.

Reference materials

Before you begin any administration tasks, read the MicroStrategy Narrowcast Server Getting Started Guide, which introduces the functionality of MicroStrategy Narrowcast Server. The Getting Started Guide also

provides basic terminology and information resources that can help you use the software and other manuals.

System administrator task flow

Many of the basic system administrator tasks are part of the System Configuration Wizard, which is detailed in the Narrowcast Server Installation and Configuration Guide. Portal administration tasks are described in the Narrowcast Server Application Designer Guide. The following list describes more advanced configuration tasks.

Task	How Do I...
1. Add or remove a distribution manager.	Manage Distribution Managers
2. Add a new Narrowcast Administrator account.	Manage Administrator Accounts
3. Add or remove an execution engine.	Manage Execution Engines
4. Change system governing settings.	Apply system governing settings
5. Create, modify, or delete a device.	Configure Information Transmitters
6. Create, modify, or delete an information source.	Configure Information Source Modules
7. Create, modify, or delete a locale	Create Locales
8. Register an information source module.	Configure Information Source Modules
9. Create, modify, or delete a document formatter.	Work with Document Formatters
10. Create, modify, or delete an information transmitter.	Configure Information Transmitters
11. Start or stop an individual distribution manager and scheduler.	Manage Distribution Managers

Task	How Do I...
12. Start or stop an execution engine.	<i>Manage Execution Engines</i>
13. Start the Narrowcast Server system.	<i>Configuring a Narrowcast Server System</i>
14. Set the administrative notification.	<i>Configuring a Narrowcast Server System</i>

SYSTEM ADMINISTRATOR CONCEPTS

MicroStrategy Narrowcast Server architecture

This chapter explains how the architecture and object model of Narrowcast Server enable the features and benefits described in the Narrowcast Server Getting Started Guide. This chapter explains how each of the administration objects impacts the behavior of a Narrowcast Server system and what a system can do.

About the Narrowcast Server system

A Narrowcast Server system is a computer application that generates and delivers personalized messages containing analytical content to subscribers. It provides a web-based interface so that recipients can control which messages they get, how often, with what content, and through what technology medium.

The Narrowcast Server system is composed of a collection of machines (hardware), components (software) and objects (data). The machines use the components to process the objects. A Narrowcast Server system includes two major components: the Delivery Engine and the Subscription Portal.

The objects that make up a system are divided into three categories:

- Administration objects: These objects define the architecture, or hardware and software configuration, that Narrowcast Server uses to generate and deliver personalized messages, and to provide a web site to recipients for subscription administration. These objects specify where and how recipient data is acquired and stored, and how content is retrieved, formatted, and transmitted. These objects are created and configured by the system administrator, and are stored in the Administration folder in Narrowcast Administrator. Certain components and administration objects can be set up to exist on two or more machines in a clustered machine configuration, although you can run the

entire system on one machine. For more information about clustering, see [Clustering](#).

- **Application objects:** These objects define the generation frequency, content, and personalization of the messages produced by the system for recipients. At the highest level, an application object called a service defines what end users can subscribe to. The definition of a service is based upon a set of other objects that control when the service is executed to generate messages (schedules), what content is produced in those messages (publications), and which end user addresses receive the messages (subscription sets). These objects are stored in the Applications folder in Narrowcast Administrator. For more information on creating services and other application objects, see the Narrowcast Server Application Designer Guide.
- **Portal objects:** These objects define the appearance and behavior of the Subscription Portal for end users. These objects also specify the hardware locations of the components that comprise the Subscription Portal. For more information on creating portal objects, see the Narrowcast Server Application Designer Guide.

System administrator responsibilities

System administrators for Narrowcast Server systems typically perform the following:

- Provide and maintain a usable network environment. This includes ensuring that the right network configuration, system resources such as relational databases and web servers, and security controls are in place.
- Define the Narrowcast Server architecture and configuration. The System Configuration Wizard in Narrowcast Administrator guides you through setting up and registering your system, and creating and configuring the administration objects needed to support the system.
- Grant system access to other Narrowcast Administrator users such as subscription administrators and application designers.

- Monitor and maintain the system to ensure correct, efficient operation.

The information you need to fulfill these responsibilities is provided in this guide.

System creation and identification

You can create Narrowcast Server systems using the System Configuration Wizard, and through the Tutorial configuration process which is outlined in the Narrowcast Server Installation and Configuration Guide. When a new Narrowcast Server system is created, several tables are created in the specified Object Repository database. In addition, a number of sample services are added to the Narrowcast Server system if the MicroStrategy Tutorial for Narrowcast Server has been installed. Finally, the system is given a name so that it can be easily identified and recognized.

A Narrowcast Server system name is used to identify a system once it has been registered. This name is displayed in Narrowcast Administrator as the root in the Location box and in the Folder List pane. When registering a system during system configuration, if an existing system is chosen, the system is presented using the system prefix. For this reason, it is important to record Narrowcast Server systems by both the system name and the system prefix specified when the Object Repository is created. This enables you to identify each system later when you register it using the System Configuration Wizard.

Best practices for folder use and maintenance

When working with device and application folders, it is important to consider the impact that creating new folders and saving objects to various folders can have on your application.

- Use a folder structure that makes it easy for you and other users to find the objects you create.

- If a folder is published on a Subscription Portal site as a channel, any services or folders that you create inside that folder are also shown automatically on the Subscription Portal.
- If a device folder is selected for a device type using the Portal Administration Wizard, and you add a device to that folder, that device is available automatically on the Subscription Portal.

About the Delivery Engine

A Delivery Engine generates and delivers personalized messages with analytical content to recipients. It is composed of a collection of machines, components, and objects.

System administrators administer the administration objects that the Delivery Engine needs for proper operation, and specify the hardware used by distribution managers, execution engines, and the MicroStrategy Logging Server. They also administer the hardware on which the Delivery Engine software runs.

About the Subscription Portal

A Subscription Portal is the portion of a Narrowcast Server system that provides a website for end users to administer their addresses, preferences, and subscriptions. It is a collection of machines, components, and objects.

These objects control how the website behaves when users interact with the Subscription Portal. Portal objects reside in the Portal Repository and are manipulated with the Portal Administrator Wizard. For more information about understanding the functionality of the Subscription Portal, see User Self Subscription in the Narrowcast Application Designer Guide.

System administrators typically maintain the administration objects that the Subscription Portal needs for proper operation, and specify the hardware used by the Subscription Portal website. Administrators also maintain the hardware on which the Subscription Portal software runs.

Administration objects

Administration objects are the components of a Narrowcast Server system that control system capabilities such as specifying what hardware the system uses, where system information is stored, how and from where content information is retrieved, how content information is transformed into messages, and how those messages are transmitted to recipients.

Subscription Book

The Subscription Book is an administration object that contains all the users, addresses, and subscriptions for the Narrowcast Server system. It is stored in the Subscription Book Repository.

The Subscription Book performs the following tasks when processing a Narrowcast service:

- Divides the set of subscriptions to a service, called a subscription set, into segments for efficient processing. The number of subscriptions in each segment is called the segment size, and can be configured separately for each service from either the Service Wizard or the Service Editor. The Delivery Engine uses segments to control and limit the number of subscriptions that are processed simultaneously, thus ensuring that the memory resources available on an execution engine are not overwhelmed when a service with a large number of subscriptions is run. Segmenting a subscription set takes place on the distribution manager machine. It involves identifying the ID of the first and last subscription in each segment.
- Determines the subscriptions within a segment. This includes information about who will receive the service and any associated personalization instructions. This action is requested by the execution engine and takes place on the execution engine machine.

Only one Subscription Book is allowed per system. You create it through the System Configuration Wizard. For information about creating a

Subscription Book using the System Configuration Wizard on the System Configuration Wizard, see Subscription Book configuration in the Narrowcast Server Installation and Configuration Guide. More detailed information about the Subscription Book is included in the Narrowcast Server Application Designer Guide.

Subscription Book Module

The Subscription Book is implemented as the component object model (COM) component Subscription Book Module (SBM). This component can be replaced by a custom component that implements the `ISubscriptionBook` programming interface. A software developer can write such a COM component and register it with Narrowcast Administrator to provide a custom source for recipient information.

For information about the `ISubscriptionBook` programming interface, see the Narrowcast Server SDK Guide.

Subscription Book Repositories

When a new Subscription Book Repository is created, a number of tables with an optional prefix are created in the specified database. In addition, a number of sample users, addresses, and subscriptions are added to the Subscription Book Repository if the sample MicroStrategy Tutorial project for Narrowcast Server is installed. Subscription Book Repositories can be created using the System Configuration Wizard or in Narrowcast Administrator by right-clicking the Subscription Book icon.

For more information on the configuration process, see the Narrowcast Server Installation and Configuration Guide. For more information on the Subscription Book Repository, see [Subscription Book Repository](#) in this chapter.

Distribution managers

The distribution manager (DM) is the software component that controls system operations. Customers with the Enterprise Edition of the software can have more than one machine running the distribution manager in a Narrowcast Server system. Only one of these machines serves as the primary DM.

The primary DM performs the following:

- Receives requests to execute services from either the Delivery Engine API or from scheduler
- Sends the subscription set definition to the Subscription Book Module to determine the subscription ID boundaries of each service segment
- Distributes service segments to the execution engines for execution and designates backup execution engines for failover
- Tracks the state of execution engines in the system and corrects problems caused by failed software components or hardware

The primary DM constantly updates the backup DMs with its segment processing status, so that if the primary DM machine fails, one of the backup DM machines can take over processing at the point where the primary DM machine failed.

After a distribution manager is started, its Windows Service startup type is switched to "automatic." When a distribution manager is stopped, its Windows Service startup type is switched back to "manual." An individual distribution manager can be started/stopped either from the Windows Service Control Panel or from Narrowcast Administrator. Narrowcast Administrator gives you the ability to start or stop the whole Narrowcast Server system in addition to individual distribution managers. The ability to control a single machine is particularly useful for performing scheduled maintenance on a single distribution manager machine without disrupting system operation. The ability to control the entire system is essential for

system shutdown; otherwise, a backup DM simply takes over system control when the primary DM is shut down.

You can set up the distribution manager using the System Configuration Wizard or the Distribution Manager Configuration dialog box in Narrowcast Administrator. To set up the distribution manager using the System Configuration Wizard, see [Specify Distribution Managers in the Narrowcast Server Installation and Configuration Guide](#). For steps to set up the distribution manager using the Distribution Manager Configuration dialog box, see [Manage Distribution Managers](#)

Execution engines

An execution engine (EE) is a software component that controls service segment processing. The distribution manager receives the segment definitions for a service from the Subscription Book Module, then sends these and the service definition to execution engines. Each execution engine then spawns a segment executor that performs the following actions:

- The segment executor sends each received segment definition and the service definition to the Subscription Book Module. The Subscription Book Module then retrieves and returns the set of subscriptions within the segment. This subscription set includes the list of recipients for the segment as well as their address, subscription, and personalization information.
- Using the service definition and the address, subscription, and personalization information received from the Subscription Book Module, the segment executor determines what information requests need to be made to information sources to retrieve the required content for the service.
- The segment executor instantiates information source modules as needed, and makes requests for dynamic content to them.

- The segment executor receives the results from the information source modules and forwards that information to the appropriate document formatting modules.
- The segment executor receives the formatted content from the document formatting modules in the form of documents.
- The segment executor temporarily stores each personalized document until all of the subscriptions that need it have been fulfilled.
- When all of the documents for a particular subscription are complete, those documents are forwarded to the appropriate information transmission module where they are transmitted to the address used by that subscription.
- When each message is transmitted, the segment executor receives a message transmission notification from the information transmission module. The segment executor notifies the failover or backup execution engine that a message was sent for the related subscription, and records transmission information to the Subscription Book Repository.
- The segment executor notifies the distribution manager when a given segment has been processed.


In a clustered environment, before an execution engine begins to process a segment, it passes a complete copy of the subscription set to its backup execution engine machine. As each personalized message is delivered, the execution engine notifies its backup execution engine of the completion status of the service execution segment, so that both execution engine machines have the most up-to-date information. This ensures that messages are not duplicated or lost if a hardware or software problem occurs on one of the execution engines in the cluster.

Depending on the quantity and type of services you plan to run, your Narrowcast system may require more than one execution engine machine. If your system requirements include high availability, you should use at least two execution engine machines for backup purposes. The ability to have

multiple execution engine machines is available only with the Enterprise Edition of the software.

Execution engine machines with adjacent rank numbers, for example, 1, 2, and 4, 5, should be comparable in workload capacity. This ensures that execution recording and failure recovery are relatively balanced, so that the work being performed by a machine with a higher workload capacity never has to be taken on by a machine with less capacity.

The startup type of an execution engine Windows Service should remain "manual." Also, execution engines should not be started/stopped directly from the Windows Service Control Panel. The life cycles of the execution engines are controlled by the primary distribution manager.

 Because of the failure recovery technology in the product, if you attempt to shut down an execution engine using the Windows Service Control Panel, the primary distribution manager starts it up again.

You can set up the execution engine using the System Configuration Wizard or the Execution Engine Configuration dialog box in Narrowcast Administrator. To set up the execution engine using the System Configuration Wizard, see [Specify Execution Engine](#) in the *Narrowcast Server Installation and Configuration Guide*. For steps to set up the execution engine using the Execution Engine Configuration dialog box, see [Manage Execution Engines](#).

MicroStrategy Logging Server and Clients

The MicroStrategy Logging Server (MLS) and the MicroStrategy Logging Clients (MLCs) capture and store logging data such as statistical data, error messages, system events, and segmentation status. Both the MLS and MLCs run as Windows services, under the System account.

The MLCs capture logging data from the Delivery Engine components that reside on the MLC machine and relay that data to the MLS machine. The MLS provides the messaging infrastructure needed to collect all the

information in one location and then redistribute it to consumers of that information. The MLS does this through a "publish and subscribe" architecture, in which one or more consumers can ask for various types of information (such as errors, statistics, or status) and levels of information (such as critical, high, medium, or low).


Narrowcast Server includes a consumer that you can use to log this information to the Windows Event Log, a set of text log files, or the System Message Viewer.

Narrowcast Server also includes a buffer port that you can use for sending messages to the buffer. These messages are viewed by Narrowcast Administrator.

To learn more about using these features with the Logging Server, see [Configuring the MicroStrategy Logging Server](#). To learn more about how custom modules can be implemented to subscribe to the Logging Server, see Logging Module Directory in the Narrowcast Server SDK Guide.

You can specify the MLS and MLC machines when you configure a Narrowcast Server system using the System Configuration Wizard. For steps, refer to Specify Logging Server in the Narrowcast Server Installation and Configuration Guide.

For steps to set up the execution engine using the System Configuration Wizard, see [Clustering](#).

 All distribution manager and execution engine machines must have the MLC component installed and running, which the System Configuration Wizard automatically accomplishes. The Narrowcast Administrator machine also requires the MLC component.

Information source modules and information sources

Narrowcast Server provides an open architecture that allows information to be gathered from external sources for use in Narrowcast Server services. The system component that enables gathering information from external

sources is called an information source. Narrowcast Server provides several out-of-the-box information sources, one of which gathers reports from MicroStrategy Intelligence Server. These reports, as well as other information objects, can be gathered from any number of sources and added to service content.

When a new information source is added to a Narrowcast Server system, the information source informs Narrowcast Server of the kinds of information objects it can provide. This list of information objects appear in Narrowcast document editors, grouped by the name of the information source. For example, the MicroStrategy Information Source provides MicroStrategy grid and graph report information objects. This section explains what information source modules and information sources are and how they can be used. For information about configuring information source modules and information sources in Narrowcast Administrator, see [Configure Information Source Modules](#).

The information source module (ISM) is an interface between MicroStrategy Delivery Engine software and the various data sources you can access from your Narrowcast system. The ISM receives information requests from the Subscription Book Module and execution engine, and retrieves the requested information from the appropriate source. The ISM then sends the results back to the Subscription Book Module or execution engine.

MicroStrategy Narrowcast Server comes pre-packaged with four information source modules:

- The MicroStrategy Information Source Module, which can get reports and documents from MicroStrategy projects.
- The User Information Module, which can provide personal information for each subscription such as the recipient's first name or phone number.
- The Subscription Information Module, which can provide subscription information such as the physical address, subscription ID, and other information used by the Delivery Engine during service execution.

- The System Information Module, which can provide system information such as service name, service ID, execution time or date.

Additional information source module samples are available with the sample code and through the MicroStrategy Solutions website. To learn more about implementing additional information source modules, see Information Source Module Directory in the Narrowcast Server SDK Guide.

Information source

An information source (IS) is an administration object that represents a specific use of an ISM. For example, you may have three MicroStrategy projects to which you need to connect to gather data from. You can use a single ISM to create three information sources, one for each project. Each information source belongs to a particular ISM and is associated with a specific use.

The ISM is the software component and each IS is a specific instance or implementation of an ISM.

You create information sources using the System Configuration Wizard or by right-clicking the desired ISM in Narrowcast Administrator. You can also specify clustering information and backup server details. Information sources can be stored only in the Information Source Modules folder for an ISM. You must register an ISM before you can create an IS. ISMs can be registered using the *Register Information Source Module Dialog Box* in Narrowcast Administrator.

Remapping information objects: Information Object Remapping Tool

When you merge Narrowcast Server systems, you can merge multiple Information Source Modules to the same project using the Information Object Remapping (IOR) tool. This IOR tool is a standalone executable, which is installed `%Application Path%\Delivery Engine\`, where `%Application Path%` is the folder in which Narrowcast Server is installed.

This tool updates the preference objects answering the remapped Question Objects, which are stored in the Subscription Book Repository. Before remapping the objects, the tool performs simple validations for object integrity. It verifies whether the project IDs match for the Information Sources to be mapped. If the project IDs do not match, it validates whether the report or document ID in the Information Object or Question Object to be remapped exists in the target Information Source. The tool does not verify whether the report or document structure is identical in both the source and target projects. The remapping is allowed if the object IDs match.

Remapping may affect the content of a service that users receive. Any changes in a report or document definition between the source project and the destination project will result in different content. Additionally, if there is a difference in authentication objects or security objects for the information sources, this will also affect content.

Prerequisites

- You must have connectivity access to the Object Repository and Subscription Book Repository.
- You must have an account in the Narrowcast System and have either System Administrator or Application Administrator privileges.
- The Object Repository and Subscription Book Repository must be on a version supported by the current Narrowcast Server product.

to remap information objects

- 1 Browse to the `%Application Path%\Delivery Engine\`, where `%Application Path%` is the folder in which Narrowcast Server is installed. For example, `C:\Program Files\MicroStrategy\Narrowcast Server`.
- 2 Double-click `RemapTool.exe`.
- 3 Enter the parameters in the Data Source Name, Database type, Login, and Password fields. Click Next.

- 4 Select either the Remap new information objects option or Undo a previous remapping option.

 If you have selected Undo a previous remapping, go to step 8.

- 5 The IOR tool retrieves the Information Sources from the repository and displays them. Select the source Information Source in the FROM drop-down list and the target Information Source in the TO drop-down list. Click Next.
- 6 A list of all the Information Objects from the source Information Source are displayed. You can remap a subset of Information Objects or all of them. This list is filtered as follows:
 - Information objects whose document or report does not exist in the target information source.
 - Information objects whose question objects points to a document or report that does not exist in the target information source.
- 7 The IOR tool resolves the dependency link between all the selected information objects. If there are several information objects using the same question object, and you want to remap only a few information objects, the IOR tool prompts for a preferred resolution. You can select Remap All, Remap None, or Just do as I say and Remap Some.
- 8 Click ... (Browse) to specify the location of the log file or the undo file. The IOR tool remaps the selected Information Objects, the associated Question Objects, and Preference Objects (if applicable). The remapping is complete.

Clustering and Failover

Clustering is a strategy in which multiple machines are configured to provide common services in a unified manner. Intelligence Server provides out-of-the-box clustering capabilities. Connecting multiple server machines

together, with each machine running Intelligence Server, leverages the load balancing and resource sharing capabilities of Narrowcast Server.

Failover, as it applies to Intelligence Server, is a strategy by which work is automatically transferred from a failed Intelligence Server cluster node (machine) to another backup node.

Load balancing

Load balancing is a strategy in which work is evenly distributed among a set of Intelligence Server machines within a cluster. The goal of load balancing is to use all the available resources in an efficient manner to improve system performance.

The administrator can set the load balance factor for each of the servers, including the primary server. The default value for the load balancing factor is 1.

- Minimum value= -1
- Maximum value=999999

The value can be increased for more powerful servers in a cluster to provide an appropriate balance. A larger load balance factor for a server implies that the server supports a greater load in the server cluster in which it resides. For example, if two servers make up a cluster, with one server having a load balance factor of 3, and the other server having a load balance factor of 2, and 20 users log in, 12 users are supported by the first server and 8 users are supported by the second server.

The load balance factor can be set to 0 for a machine to act as a backup server that takes the load only if all other nodes are down.

The load balance factor can be set to -1 for a node that should get no jobs from Narrowcast Server even if other nodes in the clusters are down.

Intelligence Server load balancing is session-based. The load is calculated based on the number of sessions open with a node. At the time of

connection, the session is opened on the node carrying the least load, and all requests within that session go to the same node.

When Narrowcast Server is ready to send a job to Intelligence Server, it communicates with the primary Intelligence Server or its cluster, as follows:

- If the primary Intelligence Server is available and not part of a cluster, the job goes to the primary Intelligence Server.
- If the primary Intelligence Server is available and is a part of a cluster, Narrowcast Server sends the job to the node with the least load.
- If no nodes are available in the primary Intelligence Server cluster, Narrowcast Server will try to communicate with the backup Intelligence Server.
- If a backup Intelligence Server is not available or is not defined, the job will fail.
- If a backup Intelligence Server is available but is not part of a cluster, the job will go to the backup Intelligence Server.
- If a backup Intelligence Server is available and is part of a cluster, then Narrowcast Server sends the job to the node with the least load.
- The backup Intelligence Server can be part of the same cluster as the primary Intelligence Server. In this case, the job can be sent to the backup Intelligence Server if it is the node with the least load.

Information Source Module (ISM)

The prepackaged Information Source Module (ISM) provides a way to include reports and Report Services documents in Narrowcast Server service content. These reports and documents can be personalized in various ways, as described below:

- Authentication objects: A distinct Intelligence Server login can be used to run the reports for each subscriber. This allows security filters to be applied to service content, if your Intelligence Server logins have

security filters defined for them. In Narrowcast Server, authentication objects are used to store this login information. You specify a default login in the information source definition. Each subscriber's authentication object, if it exists, is then used to override this default.

- **Security objects:** You can enforce data access security without having a distinct Intelligence Server login for each subscriber. Narrowcast Server provides this option with the security object. A security object is defined for each user by answering an element list prompt. For example, in the MicroStrategy Tutorial, the answer "South" might be a security object for a prompt on the attribute "Region". In the information source definition, you can specify which prompt object should be answered by the prompt answers in the security objects of subscribers. When a subscriber defines preferences, the prompt answer in his security object limits the data that is available for selection. When a report is run for that subscriber, the prompt answer limits the data that is returned for the report.
- **Preferences:** Prompts in MicroStrategy reports are a powerful feature that can help application designers to serve the needs of more users with less work. This is accomplished by having subscribers answer prompts in a report to personalize the information they receive. These prompt answers are called preferences. Preferences can be created for each user, and prompt answers can be reused across multiple subscriptions. Preferences can be created for and applied a specific subscription.
- **Locales:** Intelligence Server can use language information to control various aspects of the report results it generates. This includes number formatting, date and time formatting, and the language used for descriptive text.

Personalizing service content involves prompt and report design, service content development, and subscription administration. See the Narrowcast Server Application Designer Guide for more information on personalizing service content and using the ISM.

Web subscription

Using Web subscription, MicroStrategy Web users can subscribe to reports and documents for e-mail delivery.

Prerequisites for enabling Web subscriptions:


- **Configured information source:** An information source (IS) must be defined for the project containing the reports and documents you want Narrowcast Server to deliver. This IS must have Web Subscription enabled. You can create an IS using the System Configuration Wizard. On the Configure Sources page, select the project for which you want to enable Web subscription, and choose Enable report delivery from Narrowcast Server.
- **Configured MicroStrategy Web server:** Once you have an IS created and configured, you can configure MicroStrategy Web to allow subscriptions. See the Narrowcast Server Installation and Configuration Guide for information on configuring a MicroStrategy Web server for this purpose.
- **The Scheduled Delivery to E-mail, File Export, and Print options are not visible in MicroStrategy Web unless an administrator enables their associated Web privileges in MicroStrategy Developer.**

MicroStrategy offers Scheduled Delivery to E-mail, File Export, and Print. The following table describes these options and their respective Web privileges.

Scheduled Delivery	Description	Web Privilege	Functionality
E-mail	Enables delivery of a report or Report Services document to a specified e-mail address, based on a predefined schedule. You can deliver reports in various formats,	Send Now Scheduled e-mail Create new e-mail address	Allows sending e-mails using Narrowcast Server Allows scheduled e-mails using Narrowcast Server Allows Web user to

Scheduled Delivery	Description	Web Privilege	Functionality
	such as PDF, Microsoft Excel, Adobe Flash, or HTML. You can deliver documents in PDF, Flash, and Excel formats.		create new e-mail addresses for subscriptions
File Export	Enables delivery of a report or document to a specified network file location, based on a predefined schedule. You can export reports in various formats, such as PDF, Excel, Flash, text, or HTML. You can export documents in PDF, Flash, and Excel formats.	Export to file now Scheduled export to file Create new file location	Allows export to file using Narrowcast Server Allows scheduled file delivery using Narrowcast Server Allows Web user to create new file locations for subscriptions
Print	Enables printing of a report or document on a specified network printer, based on a predefined schedule.	Print now Scheduled printing Create new print location	Allows sending print jobs using Narrowcast Server Allows scheduled printing using Narrowcast Server Allows Web user to create new printers for subscriptions

Reports in Flash format can be enabled only through customization; they are not supported automatically. However, customization is not required for

 Report Services documents in Flash format. For details on customization, see the MicroStrategy Developer Library (MSDL). For information about an MSDL product license, contact your MicroStrategy account executive.

User Information

The User Information IS supports an extensible set of subscriber-user properties such as a subscriber's first name. By default, the following user

properties are available:

- First name
- Middle initial
- Last name
- Suffix
- Title
- Salutation
- Street address
- City
- State
- Zip code
- Country

You can add new user properties or remove any of the existing properties by selecting Edit Available User Properties from the Tools menu in Narrowcast Administrator. Changes made to these properties are automatically reflected in the Subscription Portal. The User Information information source is automatically configured when you create a new system using the System Configuration Wizard.

Subscription Information

The Subscription Information information source (IS) supports subscription properties such as a subscriber's ID and physical address. The following subscription properties are available:

- Address ID
- Address display
- Device ID

- Device name
- Locale ID
- Physical address
- PIN
- Subscription ID
- Subscription set ID
- Subscription set name
- User ID
- All subscription data
- Unique message identifier

The values for these properties are determined by Narrowcast Server when each service executes. For this reason, they are not directly accessible through either the Subscription Portal or the User Editor in the Subscription Book Editor.

These properties can be useful for inserting information such as the Unique Message Identifier into service content for response tracking, or for additional personalization of XSL processing using a compound document element containing multiple XML information objects. The Subscription Information IS is automatically configured when you create a new system using the System Configuration Wizard.

System Information

The System Information information source (IS) supports service execution properties such as service name and date. The following properties are available:

- All service execution information
- Service ID

- Service name
- Service description
- Service creation date
- Service execution date
- Service execution time
- Service execution ID
- External service execution ID
- Service segment execution ID

The values for these properties are dynamic system information, based on the specific service execution. Execution date and execution time are provided in either a standardized string format or can be configured by locale. The service execution date, service execution time, and service creation date timestamps match the time zone expressed in Universal Time Coordinates or as specified by the user on the Execution tab in System Settings (see [System Settings dialog box layout](#)). Service description is based on execution locale.

These properties can be useful for tracking and debugging messages, identifying when reports were generated or saved, and maintaining text files containing service names. The System Information IS is automatically configured when you create a new system using the System Configuration Wizard.

Document formatting modules and document formatters

The Delivery Engine uses document formatting modules (DFMs) to format message data. Each execution engine uses the document formatting modules to transform document definitions and personalized dynamic content into personalized, formatted Narrowcast documents.

Each DFM typically supports just one type of Narrowcast document. Narrowcast Server comes with three DFMs:

- The HTML Document Formatting Module, which generates HTML pages for content.
- The Plaintext Document Formatting Module, which renders tabular data into plain text tables and inserts the tables into text files.
- The Excel Document Formatting Module, which produces Excel workbook files from Excel templates and dynamic content.

The source code for a sample DFM is installed with Narrowcast Server, and additional samples are available on the MicroStrategy Solutions website. For details on implementing and adding document formatting modules to a system, see the Document Formatting Module Directory in the Narrowcast Server SDK Guide.

A document formatter is an administration object that stores configuration and other information for using a document formatting module. The System Configuration Wizard automatically creates and configures the three document formatters described below when a new system is created. You can create additional document formatters in the Document Formatters folder using Narrowcast Administrator. For steps to create new document formatters in Narrowcast Administrator, see [Work with Document Formatters](#).

- HTML document formatter: This document formatter lets you include MicroStrategy graph reports in e-mail messages. It supports a variety of information object types including XML (grid), image (graph), plain text (user information), and others. Several devices are configured to work with this document formatter so that graphs appear correctly in message content when delivered via e-mail.
- Plaintext document formatter: This document formatter provides the best possible tabular output on mobile devices. It supports only XML and plain text information objects. Several devices are configured to work

with this document formatter so that tabular results are formatted in the best possible way on a wide variety of mobile devices.

- Excel document formatter: This document formatter provides powerful formatting control capabilities for creating richly-formatted workbooks. XML and plain text information objects are supported. This document formatter does not support images in Excel workbooks, such as MicroStrategy graph reports. You can define the formatting properties of an Excel document formatter using the *Document Formatter - Excel Dialog Box*.

The Excel DFM creates temporary files on a disk while it formats Excel workbooks. The default location in which these temporary files are placed is `%Application Path%\Delivery Engine\Temp`, where `%Application Path%` is the folder in which Narrowcast Server is installed. For example, `C:\Program Files\MicroStrategy\Narrowcast Server`.

See the Narrowcast Server Application Designer Guide for more information on information objects and documents.

Information transmission modules (ITMs) and information transmitters (ITs)

An information transmission module (ITM) is a software component the Delivery Engine uses to package (for example, multi-part MIME-encode) documents into messages, and to send those messages to recipients. When all of the personalized Narrowcast documents for a message are complete, those Narrowcast documents are sent to the appropriate information transmission module for packaging and delivery. The ITM uses an address's device to control how each message is packaged and transmitted to that address.

For example, some devices may indicate that messages should be packaged using multi-part MIME encoding, while others might specify UUencoding. ITMs can support a wide array of distinct recipient devices.

Each ITM typically supports one type of transmission technology, such as SMTP. Narrowcast Server comes with several ITMs. These modules are:

- The E-mail (SMTP) Module, which sends Internet e-mail using SMTP and E-SMTP
- The SMS Transmitter, which sends SMS messages using SMPP
- The Portal ITM, which stores messages in the Subscription Book Repository for retrieval and display by the Subscription Portal

The source code for a sample ITM that writes files to disk is installed with Narrowcast Server, and additional samples are available on the MicroStrategy Solutions website. To learn more about implementing and adding ITMs to a system, see the Information Transmission Module Directory in the Narrowcast Server SDK Guide.

An information transmitter (IT) is an administration object that represents a specific use of an information transmission module (ITM). An information transmitter has characteristics that differentiate it from other information transmitters defined for the same ITM.

The System Configuration Wizard automatically creates and configures several ITs when a new system is created. For information about the use of information transmitters during system configuration, see System configuration process in the Narrowcast Server Install and Config Guide. These include:

- The E-mail (SMTP) information transmitter
- The File information transmitter
- The Print information transmitter
- The SMS (SMPP) information transmitter
- The Web (Portal) information transmitter
- The Wireless (SMTP) information transmitter

You can also create additional ITs in the Information Transmitters folder using Narrowcast Administrator. For information about creating and configuring new information transmitters, see [Configure Information Transmitters](#).

- E-mail (SMTP) information transmitter: This information transmitter (IT) sends e-mail messages over the Internet, using the SMTP and E-SMTP protocols. It supports both UUencoding and multi-part MIME encoding formats, allowing attachments and HTML message content. Devices are configured to enable this IT to support different e-mail clients, so that graphs appear correctly in message contents while attachments such as Excel workbooks appear as attachments.

This IT must be configured with a FROM address and a REPLY-TO address before it can be used, but an advanced execution control document can be used to override these and other transmission parameters. For details on configuring the E-mail (SMTP) IT, see [Information Transmission Module Dialog Set](#). To understand the various transmission scenarios for E-mail IT, see [Setting up Narrowcast Server for e-mail transmission](#).

- File information transmitter: This IT transmits files to networked computers and remote servers. It sends to file locations you designate as well as locations specified by MicroStrategy Web users. This IT is configured automatically by the System Configuration Wizard. To understand the various transmission scenarios for File IT, see [Setting up Narrowcast Server for file transmission](#).
- Print information transmitter: This IT sends services to network printer locations. It sends to printers you designate as well as printers specified by MicroStrategy Web users. This IT is configured automatically by the System Configuration Wizard. To understand the various transmission scenarios for Print IT, see [Setting up Narrowcast Server for printing](#).
- SMS (SMPP) information transmitter: This IT sends SMS messages over the Internet using the SMPP protocol. It must be configured to connect to a short message service center (SMSC) and provide account information

before it can be used. For details on configuring the SMS (SMPP) information transmitter, see [Information Transmission Module Dialog Set](#). To understand the various transmission scenarios for SMS (SMPP) IT, see [Setting up Narrowcast Server for text \(SMS\) transmission](#).

- Web (Portal) information transmitter: This IT stores messages in the Subscription Book Repository. The Subscription Portal retrieves them for display. It supports HTML and plain text message content, and attachments with a variety of MIME-types. This IT is configured automatically by the System Configuration Wizard.
- Wireless (SMTP) information transmitter: This IT sends e-mail messages over the Internet using the SMTP and E-SMTP protocols, and uses the same ITM as the E-mail (SMTP) IT. It supports both UUencoding and MIME encoding formats. Several devices are configured to enable this IT to support a wide variety of mobile devices so that grid report results appear correctly in message contents.

This IT must be configured with a FROM address and a REPLY-TO address before it can be used, but an advanced execution control document can be used to override these and other transmission parameters. For details on configuring the Wireless (SMTP) IT, see [Information Transmission Module Dialog Set](#).


The E-mail (SMTP) and Wireless (SMTP) information transmitters (IT) can be configured to create e-mail (.eml) files on a disk. The location in which these files are placed is specified as part of the IT definitions. If no location is specified, the e-mail files are written to the SavedMail folder in the Delivery Engine application folder.

Devices

A device is an object that specifies how Narrowcast documents should be formatted and transmitted to a recipient. A device corresponds to the type of mechanism a recipient will use to receive the Narrowcast Server message.

For example, if you want to send messages via e-mail, and your recipients are using a mail client that supports SMTP such as Microsoft Outlook, you can create an SMTP information transmitter (IT), then create a Microsoft Outlook device for that IT. If you want to send files to a file location on a computer on your network, you can create a File IT, then create a file device specifying your network file location and file properties. If you want to send services to a printer location on your network, you can create a Print IT, then create a printer device specifying your network printer location and printer properties.

Several devices are created for you by the System Configuration Wizard when you create a new system. You can also create new devices using the *Device Editor* in Narrowcast Administrator. You can import device libraries and device library updates by right-clicking the Devices folder and selecting Import Devices.

 You must have at least one IT and at least one document formatter before you create a device. Default devices and document formatters are created by the System Configuration Wizard.

Locales and internationalization

Locales enable a Narrowcast Server system to support a diverse, multinational user population. Each subscriber selects the locale of his choice. This choice then controls the Subscription Portal display and service content that is delivered to him.

Narrowcast Server includes eleven locales representing different languages and formats, plus the system locale. You can modify these locales and create new ones as needed using the *Locale Editor* in Narrowcast Administrator. For steps to create a new Locale, see *Create Locales*.

Locales impact the behavior of a system in several ways, as described in the following subsections:

- *Localization of Subscription Portal*

- *Localization of object names and descriptions*
- *Localization of service content*
- *Control of MicroStrategy report execution*
- *Selection of character set for e-mail message encoding*


Localization of Subscription Portal

The Subscription Portal uses a subscriber's locale to determine which of the available languages to use to show instructions, labels, and other interface content. The list of locales is available from the Preferences page of the Subscription Portal. This locale selection is also displayed in the Subscription Book Editor in Narrowcast Administrator.

Localization of object names and descriptions

Each object can have one name per locale. Thus, an object such as a folder named "Reports" in the system locale can have the name "Berichte" in the German locale and "Rapports" in the French locale. The name that is displayed in an interface depends on which locale the user has selected as his locale preference. In Narrowcast Administrator, the Display Locale controls which names and descriptions are shown in the object browser, dialogs, editors, and wizards. In the Subscription Portal, the subscriber's locale preference controls which names and descriptions are displayed in the Subscription Portal interface.

Note the following:

If an object has not been given a name in the display locale (Narrowcast Administrator) or user locale preference (Subscription Portal), the name in the  system locale is shown.

If you change the name of a locale as it appears when viewing a list of locales, the Subscription Portal web server must be stopped and restarted for the new name to be displayed on the User Preferences page.

Localization of service content

To vary service content for different recipients, there are two types of locales: selection locales, which determine which users should receive which content, and execution locales, which determine how content is generated for subscribers. Each are described below.

In most cases, the selection locale for a publication should match the execution locale for all Narrowcast documents within the publication. However, it is possible to use one locale for the selection locale for a publication, and several different execution locales in different Narrowcast documents within that publication where execution requirements (such as character sets) vary among documents. For example, for some mobile devices, the character set for the mobile device may differ from the subscriber's conventional alphabet. See the Narrowcast Server Application Designer Guide for information about working with services that support multiple locales and publications.

Selection locales

When a user is created, either the Subscription Administrator (via Narrowcast Administrator) or the user (via the Subscription Portal) selects a locale for which he will receive content. When a publication is created, the application designer chooses a selection locale that determines which users should receive the content in that publication. If a user chooses a specific locale (for example, Locale "A"), the application designer must choose the same locale for a publication as the selection locale, for the user to receive this publication.

If a publication is set up to support the system locale, it can be used to generate content for subscribers from any locale. However, this only occurs if a publication in a given subscriber's locale is not available. For example:

IF

User A is in locale A.

User B is in locale B.

Publication 1 is in locale A.

Publication 2 is in the system locale.

THEN

User A receives Publication 1 and User B receives Publication 2.

This feature can be used to provide either default content or error-handling content to subscribers. In the example above, Publication 2 could contain either generic content that is useful to locales A and B, or it could contain a generic error message (possibly in several languages) indicating that the service does not support subscriptions in the subscriber's locale.

Execution locales

When a Narrowcast document is created, the application designer can specify that the document should be executed in a specific execution locale. The definition of the locale then controls how information should be gathered, formatted, packaged, and transmitted for this document.

For example, an application designer might define a French and a German locale to gather information from Intelligence Server in the appropriate languages. If one of these locales is chosen as the execution locale for a Narrowcast document, all report content in this document is retrieved using the language specified in the definition of that locale. See [Control of MicroStrategy report execution](#) for more information about how the execution locale performs report result localization.


Control of MicroStrategy report execution

Intelligence Server provides multinational language and formatting support. Narrowcast Server leverages this capability by including locale information in report requests. When Narrowcast Server needs to run a report, it specifies which language (locale) Intelligence Server should use.

Intelligence Server languages control such behavior as:

- Number formatting, including decimal and thousands separators

- Date and time formatting, including month representation, year-month-day ordering, and 12/24 hour time representation.
- Descriptive text language, such as standard words that are included with report contents.


 The locale used to run reports is not necessarily the same as the locale preference of the subscriber for whom the report is being run. See the Narrowcast Server Application Designer Guide for details.

Selection of character set for e-mail message encoding

SMTP-based e-mail supports languages and alphabets that use the 128 characters that can be represented with 7-bit SMTP encoding.

The Unicode standard is a 16-bit character encoding standard that can represent every character used in almost every written language. The standard includes specifications for mapping characters from each character set to Unicode and back again.

Many e-mail servers do not support the Unicode character set, and many e-mail clients are not able to properly display Unicode content, although they can display other character sets. Some only accept US-ASCII.

 Narrowcast Server fully supports the Unicode standard.

To send e-mail messages to systems that do not support Unicode, Narrowcast Server uses locales to control the character sets used by information transmitters (ITs) based on the E-mail (SMTP) Module. For example, to send Russian content to e-mail devices that only support the Russian character set, you configure a locale to use the correct Russian character set for any e-mail ITs, and then ensure that content is defined using that locale. See the Narrowcast Server Application Designer Guide for details about defining service content in specific locales.

The following character sets are supported by the E-mail (SMTP) Module:

- Arabic (ISO-8859-6): 8-bit encoding. Also called Windows 1256.

- Baltic (ISO-8850-4): 8-bit encoding. Also called Windows 1257.
- Central European (ISO-8859-2): 8-bit encoding. Also called Windows 1250 and Latin-2.
- Chinese Simplified (GB2312): multi-byte (1 or 2 bytes per character) encoding. Also called Windows 936.
- Chinese Traditional (BIG-5): multi-byte (1 or 2 bytes per character) encoding. Also called Windows 950.
- Cyrillic (KOI8-R): 8-bit encoding. Also called Windows 1251 and Slavic.
- Greek (ISO-8859-7): 8-bit encoding. Also called Windows 1253.
- Hebrew (ISO-8859-8): 8-bit encoding. Also called Windows 1255.
- Japanese (ISO-2022-JP): multi-byte (1 or 2 bytes per character) encoding. Also called Windows 932.
- Kanji (Shift-JIS): multi-byte (1 or 2 bytes per character) encoding.
- Korean (EUC-KR): multi-byte (1 or 2 bytes per character) encoding. Also called Windows 949.
- Thai (WINDOWS-874): 8-bit encoding.
- Turkish (ISO-8859-9): 8-bit encoding. Also called Windows 1254 and Latin-5.
- US-ASCII: 7-bit encoding of the ASCII character set.
- UTF-7: 7-bit, variable-length encoding of the Unicode character set.
- UTF-8: 8-bit, variable-length encoding of the Unicode character set.
- Unicode 1.1 (ISO-10646): 16-bit encoding of the Unicode character set.
- Western (ISO-8859-1): 8-bit encoding. Also called Windows 1252 and Latin-1 (ANSI)

The Narrowcast Server installation and setup program does not install the code pages and conversion support needed for each of these character sets. If you use a character set that is not already supported by your operating system, service execution fails. For information on installing support for additional code pages, see [Language Support](#).

The locales available when you create a new system using the System Configuration Wizard specify the correct character sets to use for the corresponding languages.

Administrative accounts

Administrators can create and assign access privileges to other administrators by creating Narrowcast Administrator accounts. Accounts are based on Windows accounts. You must create a Narrowcast Administrator account for each Windows account that an application designer, subscription administrator, or other system administrator will use to connect to the system via Narrowcast Administrator.

Accounts are assigned various roles. Each role has specific privileges on the Narrowcast system. By default, a new account is assigned all four roles. You can assign the following roles to accounts using the [Assign Administrative Privileges to Account Dialog Box](#) in Narrowcast Administrator:


System Administrator. This role has privileges to create, delete, and modify administration objects, including other accounts. The system administrator cannot modify application objects. Each account assigned the system administrator role needs "local administrator" Windows permissions on each distribution manager (DM), execution engine (EE), and MicroStrategy Logging Server (MLS) machine that is part of his Narrowcast Server system.

Service Designer. This role allows a user to create application objects only, and to modify and delete only those objects created and owned by this user. The service designer cannot modify administration objects. Each account assigned the service designer role needs "log on locally" Windows

permissions on his local machine and each distribution manager (DM) machine.

Application Administrator. This role is used as a super user for application objects. The application administrator can create, delete, and modify all application objects, regardless of who owns them. The application administrator cannot modify administration objects. Each account assigned the application administrator role needs "log on locally" Windows permissions on his local machine and each distribution manager (DM) machine.

Subscription Administrator. This role allows a user to add, delete, and edit information in the Subscription Book, and create and delete subscription sets. Each account assigned the subscription administrator role needs "log on locally" Windows permissions on this local machine and each distribution manager (DM) machine.

Windows permissions are set in the User Manager or the User Manager for  Domains (a Windows utility). See [Manage Administrator Accounts](#), for information on how to add login IDs.

Unverified administrative accounts

When you create an administrative account, Narrowcast Server must verify the existence of the specified user in a trusted Windows domain and gather a unique Windows ID for this user, as described in the following options:

- If you browse a Windows domain to select a user, Narrowcast Server can verify the existence of the user because the users listed when browsing are provided directly by Windows.
- If you manually type a Windows user name, Narrowcast Server attempts to verify that the user name entered exists in a Windows domain:
- If you type a user with no domain, Narrowcast Server searches all trusted domains.

- If you type both a domain and a user, Narrowcast Server searches the specified domain.

If Narrowcast Server cannot contact the specified domain or cannot verify the existence of a user within a domain, you are asked whether you want to create an unverified administrative account.

An unverified administrative account is an account that Narrowcast Server cannot verify as existing in a trusted Windows domain and for which no unique Windows ID has been found. This can result from situations including the following:

- The user is not in a trusted domain.
- The local computer is offline.
- The user is in a network that is not linked to the current network.
- The user does not yet exist.

When a Windows user attempts to register a system using a domain and user name matching an unverified administrative account in the system, the user is allowed to connect and is verified solely based on the user's domain and login. This can be useful, for example, in network environments where not all users are part of Windows trusted domains. An administrator can add unverified administrative accounts for users using specific machine names. In this case, the domain and user name specified are Machine\User.

Application objects

Application objects are objects that are used to create and define services, define recipients, and schedule delivery. These objects include:

- Narrowcast documents
- Publications
- Schedules
- Services

- Subscription sets
- Information objects
- Question objects
- Imported files

Application objects are created by the application designer and administered by the application administrator, which allows one application administrator to administer objects created by several application designers. See the Narrowcast Server Application Designer Guide for more information on application objects.

Portal objects

Portal objects are those objects that are used to control the behavior of the Subscription Portal. These objects include:

- Sites
- Channels
- Device types
- Device settings

These objects are stored in the Portal Repository.

Portal objects are created by the application designer and administered by the application administrator, both using the Portal Administration Wizard.

Subscription Portal web server

The Subscription Portal Web Server is composed of Microsoft Internet Information Server (IIS), the Subscription Portal active server pages, and other Subscription Portal components. These work together to provide a web interface to perform subscription administration tasks.

Information repositories

Narrowcast Server stores objects in three repositories: the Object Repository (OR), the Subscription Book Repository (SBR), and the Portal Repository (PR). Each is described in the following subsections.

For a given Narrowcast Server system, these repositories can be created in the same database or can be stored in different locations. For example, it may be desirable to have the Subscription Book Repository (SBR) be in the same location as an operational data store (ODS) because both the SBR and an ODS are transactional data repositories on which occasional large queries are run. So maintaining these repositories in the same location helps the following:

- Sharing administrative efforts, including backup/restore, security, and maintenance
- Providing the ability to join subscription data with ODS data for service execution
- Providing the ability to make changes to the ODS based upon subscription changes in the SBR

The Object Repository and Portal Repository are used to store and access Narrowcast Server objects. For database optimization purposes, it may be desirable to have database features such as table extents, database extensions, index creation, and failover configuration.

File storage architecture differs significantly between the three repositories. Security needs of the repositories may also differ, since the Subscription Book Repository contains user information such as address information.

Object Repository

The Object Repository is the set of tables in a database where administration and application objects are stored. The table space occupied by these tables is fairly small, on the order of 10-50 MB for a typical system. These tables do not contain recipient addresses or subscription data. The

Object Repository is accessed through the MicroStrategy Delivery Engine API. For information about configuring the Object Repository, see System configuration process in the Narrowcast Server Installation and Configuration Guide.

More than one Narrowcast Server system (see [About the Narrowcast Server system](#)) can be stored within the same database. Storing more than one Object Repository in the same database can be useful because you can use a single database to store your development, test, and production repositories, as well as backup and archive repositories.

Each Narrowcast Server system Object Repository is stored in a database as a set of tables that may contain an administrator-specified system prefix on the table names. If you specify a different prefix for each Narrowcast Server system, more than one Narrowcast Server system Object Repository can coexist in the same database. Thus, during system configuration, all existing Narrowcast Server systems in the database location you choose are displayed, listed by the system prefix. These systems can be registered, overwritten, or new systems can be created with new system prefixes.

Subscription Book Repository

The Subscription Book Repository (SBR) is a set of tables in a database that store information about recipients, including names, addresses, personalization settings, and subscription specifications. These tables also store message transmission information for transmission recording, and personalized Narrowcast documents for the Subscription Portal. The SBR is like a data warehouse containing lookup tables for the recipient data. When a service is run, information specifying the service recipients and their personalization is retrieved from the SBR.

Because the SBR can be relatively large and is heavily accessed, consider putting it on the most powerful database platform you have available. If you expect to use dynamic subscription or page-mode personalization, you should also consider putting the SBR in the same database as your data

warehouse. This facilitates queries and reports that join your data warehouse and subscriber data. This setup provides better performance than if the warehouse data is returned first and then used to look up subscription data in a separate SBR.

Once you configure the SBR in the System Configuration Wizard, all other tasks involving this database are handled by the subscription administrator. For information about configuring the Subscription Book Repository, see System configuration process in the Narrowcast Server Installation and Configuration Guide.

More than one SBR can be stored within the same database. Each SBR is stored in a set of tables that may contain an administrator-specified system prefix on the table names. If you specify a different prefix for each SBR, more than one SBR can coexist in the same database. Thus, during system configuration, all existing SBRs in the database are displayed, listed by the SBR prefix. These SBRs can be added, overwritten, or new SBRs can be created with new prefixes.

You may want more than one SBR in a database so that multiple SBRs can be developed for different purposes. For example, an SBR can be created as a development and testing environment and another can be developed as the production system.

Portal Repository

The Portal Repository is the set of tables in a database where all your portal objects are stored. This repository is relatively small and does not contain recipient addresses or subscription data. The Portal Repository is accessed through the MicroStrategy Subscription Portal API by the Subscription Portal and the Portal Administrator Wizard.

A Portal Repository is composed of a specific set of tables, located in a database and identified by a certain table prefix. These tables are created automatically when you create a new system using the System Configuration Wizard, and also when you create a new portal configuration

using the Portal Administration Wizard. For information about configuring the Portal Repository, see Subscription Portal Configuration in the Narrowcast Server Installation and Configuration Guide.

The tables in each Portal Repository can be given a unique table prefix, so that multiple Portal Repositories can exist in the same physical database instance. Each Portal Repository can store the definitions of one or more sites. Multiple Subscription Portal systems can also share the same set of Portal Repository tables.

Establishing Supporting Resources

This chapter describes preparation required before you create a production-quality Narrowcast Server system.


Servers required

Several supporting servers are required for a Narrowcast Server system. These are described below, along with recommendations for system configurations with the highest availability, performance, and security control.

Windows domain controllers

Narrowcast Server and Narrowcast Administrator rely on Windows domain controllers for access control. These controllers are used to authenticate Narrowcast Administrator users and clustered, interacting Narrowcast Server components.

For security reasons, you should maintain a separate Windows domain for your production Narrowcast Server system. Create a separate primary domain controller for your production system, to administer and control this separate domain.

It is recommended that you access your test and production environments from the same Narrowcast Administrator machine. This requires that you have a Windows account with access to both systems and therefore to both Windows domains. You can create an administration environment for your test  system and use a domain that "trusts" the production system domain. You can then log into machines in your test system using production system Windows accounts. This lets you administer the test and production environments from a single machine, while maintaining a secure production environment and domain.

The closer (in terms of switches or routers) each Narrowcast Server machine is to the domain controllers, the less time and network bandwidth is consumed performing Windows account authentication.

For systems with high availability requirements, it is essential to have separate primary and backup domain controllers available, so that if the primary domain controller fails, the backup is still available for authentication purposes.

Domain name system servers

Narrowcast Server uses a domain name system (DNS) service to identify the mail servers to transmit to when delivering e-mail. For example, to send messages to recipients in the microstrategy.com domain, Narrowcast Server requests the available mail servers at that domain from a DNS service. It then uses the server names that are returned to connect to the remote servers and deliver the e-mail messages. Without access to a DNS service, Narrowcast Server cannot send e-mail. The exception to this is when Narrowcast Server is configured to use only a smart host.

The closer each execution engine machine is to the DNS services, the less time and network bandwidth is consumed looking up remote server names.


For systems with high availability requirements, it is essential to have separate primary and backup DNS services available, so that if one service fails the other is still available for requests.

WINS servers

Narrowcast Server typically uses a Windows Internet Name Services (WINS) server to locate machines on your local area network. For example, to connect to an execution engine, the primary distribution manager requests the IP address for the machine with the name designated for that execution engine. Without access to a WINS server, Narrowcast Server components cannot communicate with each other. The exception to this is when Narrowcast Server components are defined based on IP addresses.

The closer each Narrowcast Server machine is to the WINS server, the less time and network bandwidth is consumed looking up IP addresses.

For systems with high availability requirements, it is essential to have separate primary and backup WINS servers available, so that if one service fails the other is still available for requests.

 Changing the name of a server in a system after the system has been configured causes other machines in the system to lose the ability to connect to and communicate with that server.

Relational database management systems

Narrowcast Server cannot function without a relational database for the Object Repository, Subscription Book Repository, and Portal Repository. The Subscription Portal must be able to access the data warehouse to write back subscriber preferences if dynamic subscriptions and personalized page execution are used. Supported database types and versions for these repositories are listed in the Narrowcast Server Installation and Configuration Guide and the MicroStrategy Readmes.

The Object Repository is like a low-volume online transaction processing (OLTP) database. Small queries are run on this database to retrieve object names and definitions, folder contents, and search results. Insert, update, and delete queries typically involve only a few records at a time. When an Object Repository is created using the System Configuration Wizard, it

generally consumes between 5 and 10 MB of table space, depending on the database platform used.

The Subscription Book Repository is like a high-volume OLTP database. Small queries are run on this database to insert, select, and update user and subscription information and record transmission information. Larger, more complex queries are occasionally executed by the Subscription Book Module to perform segmentation and retrieve subscription sets. The amount of data stored in the Subscription Book Repository depends on the number of subscribers, addresses, subscriptions, preferences, and Portal reports (which are HTML, text, and Excel documents that get stored in the Subscription Book Repository).

It is important to maintain a secure environment for your Object and Subscription Book Repositories. For steps to secure your Object Repository and Subscription Book Repository, see [Secure the Object Repository](#) and [Secure the Subscription Book Repository](#).

For systems with high availability requirements, use an RDBMS that supports high availability. High-availability RDBMS implementations support transactional integrity, but drop connections during a failure. Narrowcast Server was designed to work with this behavior by reconnecting to the Object Repository and Subscription Book Repository during a connection loss. As a result, Narrowcast Server can roll over seamlessly from a properly configured primary database server to a backup, without administrator intervention.

Smart hosts/mail transfer agents (optional)

The use of a smart host is not required. Narrowcast Server can deliver e-mail messages directly to each recipient's mail server. However, a smart host can be used in the following instances:

- A smart host can be used to increase mail delivery throughput by caching, controlling, and reusing connections to remote mail servers in an optimized way. Without this capability, a large Narrowcast Server

cluster might overload receiving mail servers such that they begin to refuse additional connections.

- A smart host can introduce a demilitarized zone (DMZ) between the execution engine machines and the Internet, between the firewalls. One firewall separates the DMZ from the Internet, while the other separates the DMZ from the internal corporate network. The execution engine machines sit on the internal corporate network, where they interact with the Subscription Book Repository database via ODBC connections. The smart hosts sit in the DMZ. The execution engines send e-mail messages to the smart hosts in the DMZ, which then relay those messages to the destination e-mail servers on the Internet. This arrangement effectively separates machines requiring database access from machines with Internet connections, helping to ensure the security of your system.

For systems with high availability requirements, use a backup smart host if you have a primary smart host. Otherwise, if the smart host machine fails, Narrowcast Server cannot deliver e-mail messages until the smart host is restored.

Internet proxy servers/WLBS servers (optional)

The use of a proxy server is not required. Narrowcast Server can provide web pages directly. However, a proxy server can be used for the following purposes:

- A proxy server or Workload Balancing Server (WLBS) can be used to increase Subscription Portal performance by enabling a clustered Subscription Portal Web server configuration. When this configuration is used, inbound HTTP requests are routed to the least busy web server, ensuring the best possible machine use and interface performance.
- A proxy server can be used to introduce a demilitarized zone (DMZ) between the Subscription Portal machines and the Internet, between the firewalls. The Subscription Portal machines sit on the internal corporate


network, from where they interact with the repository databases via ODBC connections. The proxy servers sit in the DMZ. This arrangement effectively separates machines requiring database access from machines with Internet connections, helping to ensure the security of your system.

For systems with high availability requirements, use separate primary and backup internet proxy servers, so that if one fails the other is still available for HTTP requests. You can also place the Subscription Portal Web server in the DMZ, but locate the SequeLink Server services on the internal corporate network.

MicroStrategy Intelligence Server

Narrowcast Server was designed to work with MicroStrategy Intelligence Server to retrieve useful information from operational data stores, data warehouses, and other corporate data stores. Like MicroStrategy Web, Narrowcast Server exchanges a large amount of data with Intelligence Server, particularly when it is executing a service with a large number of personalized reports or large report result data sets. Ideally, you can dedicate an Intelligence Server machine to your Narrowcast Server system, but this is not always possible.

For systems with high availability requirements, use separate primary and backup Intelligence Server machines, so that if one machine fails the other is still available for report requests.

- When configuring information sources, you can configure a backup
-  Intelligence Server machine for each information source by clicking Advanced Properties to access the Intelligence Server Properties dialog box.

Collocated services

With smaller production systems, the workload handled by machines such as the WINS server is relatively light. It is a good idea to collocate some of these services on the same machines. For example, the primary Windows

domain controller, DNS server, WINS server, and, in some cases, the distribution manager can be run together on a single machine with little if any reduction in performance. If the same colocation is done for backup servers, the total number of machines can be reduced.

Network bandwidth, topology, and firewalls

The Narrowcast Server Installation and Configuration Guide describes network requirements for a Narrowcast Server system. This section describes how to configure a Narrowcast Server network environment for security, robustness, and performance.

Estimating bandwidth requirements

Narrowcast Server can generate a significant load on available network and Internet data line bandwidth. This may overload available network resources and cause poor system performance. Ensure that your connection to the Internet (or to your internal network, depending on the application) has adequate bandwidth for your message delivery requirements.

On average, each e-mail message creates approximately 4 KB of network overhead. With embedded graph images, HTML markup text, and attached Excel workbooks, each personalized message can exceed 100 KB. A typical T1 line (~150 KB per second data transfer rate) can achieve a maximum theoretical throughput rate of 35 messages per second, and a typical rate closer to between 1 and 5 messages per second for a typical HTML e-mail message. A 100 Mbit ethernet connection (~10 MB per second data transfer rate) can theoretically support nearly 2500 e-mail messages per second (assuming no message content), and typically supports between 100 and 500 messages per second for a typical HTML e-mail message.

The Subscription Portal must receive HTTP requests and respond with HTML pages and cached reports and Report Services documents, including Excel workbooks and graphs. The network overhead for this exchange between the client web browser and the Subscription Portal server is similar to that for e-mail.

Network topology

You should dedicate at least one network switch to your production Narrowcast Server system. This switch should be directly connected (not connected through a router) to the following equipment, if possible:

- Each Narrowcast Server component (for example, the distribution manager)
- Primary Windows domain controller
- Primary domain name system (DNS) server
- Primary WINS server
- The relational database management servers containing the Object Repository, Subscription Book Repository, and Portal Repository
- Smart host/mail transfer agent hardware and software (optional)
- Internet proxy server/WLBS hardware and software (optional)

High availability

For a system with high-availability requirements, you must duplicate much of the network environment to avoid single points of failure. A second switch that has integrated failover recovery with the first switch should be configured and connected to the same equipment as above, plus the additional equipment listed below, so that each machine has a network connection to both switches:

- At least one additional distribution manager for failure recovery
- At least one more execution engine than is needed to exceed Narrowcast Server system delivery performance requirements
- Backup Windows domain controller
- Backup domain name server (DNS)
- Backup WINS server

- A high-availability relational database management server containing the Object Repository, Subscription Book Repository, and Portal Repository
- Web clustering hardware and software to divide the Subscription Portal subsystem across the two switches
- Backup smart host/mail transfer agent hardware and software (optional)
- E-mail clustering hardware and software if a smart host is used
- Clustered, redundant Internet proxy server/WLBS hardware and software (optional)

Firewalls

An efficient place for a firewall is in the network switch described above. This switch then serves as the go-between for the internal corporate network and the demilitarized zone (DMZ) described above.

A second firewall implemented between the DMZ and the Internet then ensures the overall security of the system. This second firewall must allow for SMTP e-mail transmissions on TCP Port 25 from either the execution engines or the smart hosts. It must also allow for HTTP requests on TCP Port 80 from Subscription Portal user browsers.

The firewall for the corporate network must allow for communication between the various components and servers outlined above. For steps to set the Narrowcast Server SMTP transmitter, see [MicroStrategy Narrowcast Server SMTP transmitter through network firewall](#).

Internet domain

Narrowcast Server was designed for use over the Internet. For Narrowcast Server to function properly over the Internet, you must register a valid Internet domain, and then register the appropriate services on that domain, specifically e-mail and Web services.

You also must ensure that the IP addresses provided for these services ultimately map to your execution engines and Subscription Portal Web servers, unless you are using an Internet proxy server or a smart host, in which case the IP addresses for those servers must be registered.

Additional resources

Consider the following additional resources when you plan your production Narrowcast Server system:

- **Corporate E-mail servers:** For systems used to send e-mail messages to corporate mail servers, consider the mail volume that Narrowcast Server will introduce into your corporate environment. Also, ensure that the corporate mail server is configured to allow the messages generated by Narrowcast Server (which can include large Excel spreadsheets) to be processed and delivered.
- **SMS Centers:** If you send SMS messages, you must contract with an SMS Center to transmit your messages over the wireless network. For more information on SMS, see , [Setting up Narrowcast Server for text \(SMS\) transmission](#).
- **Internet and wireless service providers:** If your system sends large volumes of personalized e-mail messages to Internet or wireless service providers for delivery to subscribers, you can contact these service providers in advance to ensure that your messages are recognized as business purpose and not spam. Otherwise, your messages might be rejected by service providers.
- **Windows accounts:** When you use Narrowcast Administrator, you need to use a Windows account that is part of the same domain (or a domain trusted by the domain) in which your Narrowcast Server machines are registered. If you access two systems at the same time, this Windows account must be able to access, and have an associated Narrowcast Administrator account, on both systems.

To prevent issues with password expiration, you can establish and use a

Narrowcast Server system account for all of the Narrowcast Server services that cannot run under the local system account. That way, you do not need to reconfigure these services every time the password changes.

Configuring Machines

This chapter explains how to configure the hardware and software that comprise your Narrowcast Server system. This chapter assumes that you have reviewed the requirements described in [Establishing Supporting Resources](#).

Hardware configuration

This topic describes the hardware configuration requirements for setting up Narrowcast Server.

Central processing unit (CPU)

The CPU configuration of your equipment includes two key variables: CPU count and CPU speed. The number of CPUs that you should allocate depends on the following:

- Your license type:
 - Standard Edition allows you to use only one machine in your Narrowcast Server system.
 - Enterprise Edition provides full product functionality, including the ability to cluster Narrowcast Server components across multiple systems.
- Your license number, which corresponds to the number of CPUs you are allowed to use.

For more information on license types and CPU licensing requirements, see [Installation Procedures](#) and [About Narrowcast Server licenses](#) in the [Narrowcast Server Installation and Configuration Guide](#).

In general, the more machines you use to distribute your processing power, the better performance you achieve per CPU. This is because additional machines provide greater disk and network performance. Faster CPUs correlate directly to faster throughput and responsiveness for the Delivery Engine and Subscription Portal subsystems.

Memory

The execution engines and Subscription Portal can consume large amounts of memory when processing large report results, generating Excel documents, processing large dynamic subscription and personalized page reports, or handling high concurrent user loads. This must be considered when configuring Narrowcast Server system hardware.

Physical memory is the amount of RAM on a Narrowcast Server machine. The amount of physical memory available impacts the performance of your Narrowcast Server system. More RAM allows the Subscription Portal to handle more concurrent users without paging to disk. It also allows the execution engines to handle larger data sets and subscription sets without page swapping.

To ensure stable system operation, it is recommended that you do the following:

- Configure each machine that will run one or more of these two high-consumption components with the maximum possible virtual memory.
- Control the memory consumption on the execution engines by limiting the number of subscriptions per segment within each service. This limits the total number of recipients for which an execution engine does work at any given time.

- Control the memory consumption on the Subscription Portal by limiting the number of simultaneous connections that your Web server accepts.

Hard disk storage

You should plan to have at least 256 MB, and preferably 1 GB, of free disk space after you complete the installation process. This space is used to store files such as temporary Excel workbooks, execution log files, and e-mail messages that have been saved to disk.

One important consideration for disk storage is fragmentation. While the execution log files generated by Narrowcast Server are designed not to cause extensive fragmentation (they overwrite themselves in a cyclical fashion), the Excel workbooks and e-mail message files can cause severe hard disk fragmentation and subsequent system instability. It is advisable to create separate hard disk partitions for the following:

- System and program files such as the Windows Server operating system and the Narrowcast Server program files
- Temporary files such as the Excel workbook files
- Accumulating files such as e-mail messages which have been saved to disk
- Log files such as those generated by Narrowcast Server

You can control the drives and folders into which each of these types of files is written as follows:

- **Narrowcast Server program files:** You can specify the drive and folder for Narrowcast Server program files during the installation process. The default is `C:\Program Files\MicroStrategy\Narrowcast Server\`.
- **Excel workbook files:** You can configure the drive and path for temporary Excel files by editing the Excel document formatter definition. The default location is `%Application Path%\Delivery Engine\Temp,`

where `%Application Path%` is the folder in which Narrowcast Server is installed. For example, `C:\Program Files\MicroStrategy\Narrowcast Server`.

- E-mail message files: You can specify where e-mail messages are saved to disk by editing the Save-to folder for the E-mail (SMTP) information transmitter. The default location is the SavedMail folder inside the Delivery Engine program files folder.
- Narrowcast Server log files: You can specify where log files are saved to disk by editing the log file path registry setting at:

```
HKEY_LOCAL_MACHINE\SOFTWARE\MicroStrategy\  
MicroStrategy Broadcast Server\7.0\  
Distributed Logging Service\LoggingConsumer\
```

The default location is the Delivery Engine program files folder.

For clustered configurations, it is important to have the same hard disk drive partitioning and lettering scheme. Otherwise, a folder or path for one of the file types might not be available on a particular machine.

Hard disk management to support log files

Narrowcast Server system information is stored in log files. The Narrowcast Server system administrator must administer every machine in the Narrowcast Server system to support the use of log files over time. Log files often result in large files that can consume hundreds of megabytes of hard disk space. These files can also become fragmented, which can slow hard disk performance.

To avoid log file problems, perform the following steps:

- 1 Create a separate disk partition and set all log files for all applications to use this location.

- 2 Ensure that this partition has plenty of unused hard disk space. It is recommended that the partition be sized such that no more than 50 percent of the available space is used at maximum after all log files have been generated.
- 3 Periodically defragment your hard drive, check the size of log files, and delete unused log files. This routine maintenance should be performed at least once every few weeks.

Network

To ensure adequate bandwidth, an ethernet network interface card with at least 100 Mbit throughput capability is recommended. For systems with high availability requirements, a second network interface card may be used to ensure connectivity to a second network switch and essential system resources.

Software configuration

This topic describes the software configuration requirements for setting up Narrowcast Server.

Operating system

Narrowcast Server uses Microsoft Windows as the operating system. For a list of Windows operating systems that are supported for Narrowcast, see System software requirements in the Narrowcast Server Installation and Configuration Guide. When configuring the Windows NT Server or Windows 2000 operating system, you must register the system as part of the Windows domain for which you have prepared a primary domain controller. You must also ensure that the Windows TEMP environment variable points to a partition with adequate free disk space.

Web server

Narrowcast Server uses Microsoft Internet Information Server (IIS) to publish information and bring business applications to the Web. For information about configuring Microsoft Internet Information Server (IIS) for security, see [Narrowcast Server Security](#).

ODBC drivers

Narrowcast Server uses ODBC to connect to and communicate with all database servers in the system. For information about installing and configuring ODBC drivers and data source names, see ODBC and DSNs in the Narrowcast Server Installation and Configuration Guide.

Languages

Narrowcast Server supports different character sets in various languages, when generating e-mail messages. For information about downloading and installing character set converters to support multi-language applications, see [Language Support](#).

Administration objects

Narrowcast Server contains the following objects and components that define the architecture of Narrowcast Server. The following table describes the objects that need to be configured for the system to operate smoothly:

Object	Description
Object Repository	Stores administration and application objects. For information about configuring the Object Repository, see System configuration process in the Narrowcast Server Installation and Configuration Guide.
Subscription Book Repository	Stores information about recipients, including names, addresses, personalization settings, and subscription specifications. For information about configuring the Subscription Book Repository, see

Object	Description
	System configuration process in the Narrowcast Server Installation and Configuration Guide.
Distribution managers	Controls system operations. For information about configuring Distribution Managers, see Manage Distribution Managers .
Execution engines	Controls service segment processing. For information about configuring execution engines, see Manage Execution Engines .
MicroStrategy Logging Server	Captures and stores log data such as statistical data, error messages, system events, and segmentation status. For information about configuring execution engines, see Configuring the MicroStrategy Logging Server .
MicroStrategy Information Sources	Gathers information from external sources to be added to service contents. For information about configuring information sources, see Configure Information Source Modules .
Document formatters	Transforms document definitions and personalized dynamic content into personalized, and formatted Narrowcast documents. For information about configuring the Excel document formatter, see Work with Document Formatters . You must ensure that the Excel working drive and path, point to a valid local disk drive. Preferably, this is a separate partition from the one storing the operating system and the program files.
Information transmitters	Packages documents into messages and sends these messages to recipients. For information on configuring information transmitters, see Configure Information Transmitters . If you configure the E-mail (SMTP) transmitter to Save to Disk, you must ensure that the Save To folder drive and path point to a valid local disk drive. Preferably, this is a separate partition from the one storing the operating system and the program files. You must also maintain this directory by deleting files that are no longer needed.
Devices	Specifies how Narrowcast documents should be transmitted to recipients. For information on configuring devices, see Configure Information Transmitters .

Object	Description
Locales	Supports diverse and multinational user population that controls the Subscription Portal display and service content that is delivered to subscribers. For information about creating locales, see Create Locales .
Accounts	Allows to manage Narrowcast Administrator accounts. For information on configuring accounts, see Manage Administrator Accounts .

Clustering

Clustering is a way of using machine resources to provide an efficient and robust processing environment for a Narrowcast Server system. A cluster consists of two or more machines, each machine running at least one Narrowcast Server system component.

When designing a cluster, consider the two subsystems of Narrowcast Server separately. It is sometimes desirable to physically separate the Delivery Engine subsystem from the Subscription Portal subsystem to ensure consistent performance of the Subscription Portal. The Delivery Engine subsystem components and Subscription Portal subsystem components described below can be installed on different machines to accommodate different load balancing, failover, and security requirements. For more information on configuring Delivery Engine and Subscription Portal components to meet security requirements, see [Narrowcast Server Security](#).

Before creating a cluster, perform the following tasks:

- Ensure that all machines in a cluster are registered in the same Windows domain, and that there is a network account in that domain that has administrative privileges on all the machines. Use this account to install and configure Narrowcast Server.

- Ensure that all of the machines in the system are part of the same subnet or connected to the same network switch. In high-availability applications, it might be necessary to separate the machines so that some are in one location and the rest are in a separate location.
- Set up ODBC. Every distribution manager machine should have the data source names (DSNs) for the Subscription Book Repository and the Object Repository. Every execution engine machine should have the DSN for the Subscription Book Repository.
- Install the desired components of Narrowcast Server on each machine.

If you change the status of a machine from idle to active or add an additional machine to the cluster at run time and all available CPUs are already in use, an error message is displayed. You must reduce the number of CPUs currently being used by other machines.

If you have upgraded your license and are adding a machine to the cluster, you must update the licensing information for your primary distribution manager machine. The primary distribution manager machine applies its license information to both to the local machine and to the machines in its cluster. Also update the licensing information for the backup distribution manager machines in the cluster in case the primary distribution manager machine fails.

Delivery Engine subsystem

The Delivery Engine is an active system. This means that after it is set up, the Delivery Engine continues to run services even if nothing interacts with it. Because of this, it is designed with clustering technology that differs significantly from typical passive clustering architectures.

The components that form the Delivery Engine subsystem include:

- *Narrowcast Server logging system*
- *Primary distribution manager (PDM)*
- *Backup distribution manager (BDM)*

- [*Execution engine \(EE\)*](#)

A machine being used in one Delivery Engine subsystem might need to be used in a different system. For more information, see the following:

- [*Changing a machine from one system to another*](#)
- [*Manually changing a machine from one system to another*](#)

Delivery Engine subsystems need to be configured for network connection failures. This involves both the primary and backup distribution managers. For more information, see [*Configuring a system for network connection failures*](#).

Narrowcast Server logging system

For information on configuring the Narrowcast Server logging system, see [*Configuring the MicroStrategy Logging Server*](#).


Primary distribution manager (PDM)

This component receives service execution triggers and distributes service data to the execution engines for processing. The primary distribution manager (PDM) also designates failover execution engines and tracks the state of the other components in the system. You can add a DM that can become the PDM using Narrowcast Administrator.

For systems with large numbers of execution engines or systems that will send large numbers of small services or segments, each distribution manager (DM) machine should have a high number of CPUs (two to four) and 1GB of RAM. If high availability is a requirement, two or more DM machines should be employed.


Each DM server should be registered on the same Windows domain as the rest of the machines in the system. Also, the DM service account must be a network account with administrative privileges on all machines in the

system. You can designate more than one DM, but only one machine serves as a PDM. The other DMs serve as backups to the PDM.

-  You must update the licensing information on the PDM if you upgrade your CPU license to add additional machines to the cluster. The licensing information on the PDM applies to the cluster.

Backup distribution manager (BDM)

This component serves as a backup to the PDM. If the PDM machine fails, one of the backup distribution manager (BDM) machines becomes the primary machine and takes over processing where the failed machine left off. The System Configuration Wizard allows you to add a DM, but you cannot designate whether it serves as a primary or a backup.

-  You must update the licensing information on the BDM if you upgrade your CPU license to add additional machines to the cluster. If the PDM fails and the BDM takes over, the licensing information on the BDM applies to the cluster.

Execution engine (EE)

The execution engine (EE) controls the execution and transmission of Narrowcast messages called services, which are divided into processing units called segments. The execution engine receives a segment definition from the distribution manager, then performs the following:

- The execution engine checks the service definition for a list of required information sources.
- The execution engine initializes a segment executor and sends it all the information sources that are needed to run the service.
- When a message for every recipient in a segment has been delivered, the segment executor notifies the execution engine that the segment is complete. The segment executor is unloaded.

- The execution engine notifies the distribution manager that the segment is complete. The segment is updated in the execution queue.

An execution record keeps track of the messages that have been successfully transmitted for each segment. This information is written to a file on the other execution engines in the cluster. If the segment has to be re-executed and fails



over onto another execution engine, the new execution engine will not send messages that have already been recorded as transmitted. It only sends messages that were not sent successfully during the original segment execution.

For systems with large numbers of subscriptions or complex services, each execution engine machine should have a higher number of CPUs (two or four) and 1GB of RAM. If high availability is a requirement, two or more execution engine machines should be employed.


In the following diagram, the dashed lines indicate ODBC connections. Every distribution manager in a cluster must have a data source name (DSN) for the Object Repository and the Subscription Book Repository. Narrowcast Administrator can be on any machine, provided that it has DSNs for both repositories.

Changing a machine from one system to another

If you have a Narrowcast Server system that uses one or more machines as a distribution manager, execution engine, or Logging Server, and you want to use one of these machines for a different system, you must remove system components (distribution manager, execution engine, or Login Server) from the machine before adding system components for another system. The other alternative is to destroy the original system and lose all of its contents (including all application objects, system configuration, and governing settings).

Any machine can only be used as a distribution manager, execution engine, or Logging Server for one system. Thus, once a machine is used by a system, it is no longer available for use in other systems. Unregistering a

system does not remove system components from the local machine or any other machine. Unregistering a system is equivalent to no longer viewing or connecting to this system, but does not impact any system components.

 If a system is unregistered with system components remaining on the local machine, you are warned so that you do not try to use this machine for a different system, as this will not be successful.

For steps to complete these tasks, see [Configuring a Narrowcast Server System](#).

Manually changing a machine from one system to another

If you encounter problems changing a machine from one system to another as described above, you can manually change a machine from one system to another.

Each machine can be used by only one Narrowcast Server system. Whenever a machine is used as a distribution manager (DM), execution engine (EE), or MicroStrategy Logging Server (MLS) for a Narrowcast Server system, the following registry keys are created on that machine:

```
HKEY_LOCAL_MACHINE\SOFTWARE\MicroStrategy\  
MicroStrategy Broadcast Server\7.0\  
Setup\SystemGUID  
  
HKEY_LOCAL_MACHINE\SOFTWARE\MicroStrategy\  
MicroStrategy Broadcast Server\7.0\  
Setup\SystemName  
  
HKEY_LOCAL_MACHINE\SOFTWARE\MicroStrategy\  
MicroStrategy Broadcast Server\7.0\Setup\UsedAs
```

These keys prevent the same machine from being used in a different Narrowcast Server system. When you remove a DM, EE, or MLS from a machine, the corresponding usage is removed from the `UsedAs` registry key and, if that value becomes empty, the `SystemGUID` and `SystemName` keys are removed as well.

Since a machine can only be used by one system, these keys prevent administrators from accidentally damaging the configuration of a system by using a machine for system components from more than one system. However, in the event of a network or machine failure when a system is destroyed, these keys might not be removed and may cause difficulty when switching a machine from one system to another.

In this case, you must manually remove several keys from the Windows registry, as described in the steps below.

to manually remove registry keys

Modifying registry values incorrectly can cause serious, system-wide problems that might require the re-installation of the operating system. Any edit of the registry is done at the user's own risk. Since these are user-initiated changes they are not covered by any MicroStrategy warranty. Users should back up their registry or update an Emergency Repair Disk prior to alterations.

From the Start menu, select Run. Type Regedit and click OK.

Browse for and delete the following registry keys:

```
HKEY_LOCAL_MACHINE\SOFTWARE\MicroStrategy\  
MicroStrategy Broadcast Server\7.0\  
Setup\SystemGUID
```

```
HKEY_LOCAL_MACHINE\SOFTWARE\MicroStrategy\  
MicroStrategy Broadcast Server\7.0\  
Setup\SystemName
```

```
HKEY_LOCAL_MACHINE\SOFTWARE\MicroStrategy\  
MicroStrategy Broadcast Server\7.0\  
Setup\UsedAs
```

```
HKEY_LOCAL_MACHINE\SOFTWARE\MicroStrategy\  
MicroStrategy Broadcast Server\7.0\  
DistributionManager\  
RepositoryConnectionString
```

Configuring a system for network connection failures

The distribution manager requires the following two registry keys to operate properly:

```
HKEY_LOCAL_MACHINE\SOFTWARE\MicroStrategy\  
MicroStrategy Broadcast Server\7.0\  
DistributionManager\ RepositoryConnectionString  
HKEY_LOCAL_MACHINE\SOFTWARE\MicroStrategy\  
MicroStrategy Broadcast Server\7.0\  
DistributionManager\ HostListForNetworkConnectionCheck
```

The first key provides the connection string to the Object Repository for the distribution manager. It is created automatically when a distribution manager is added to a Delivery Engine.

The second key is created by the installation and is given a default string value of `localhost`. The distribution manager uses this list of servers to determine whether it has network connection by pinging each machine in this list. The check passes if the distribution manager can ping more than half of the machines. Either names or IP addresses can be used, and a string such as `":2000"` can be appended to specify the timeout (in milliseconds) for a particular host. You can place as many hosts as you want in the list.

An example of a valid string is `"server1:3000;server2:2000;server3."` If the list is empty, the check fails. The check always succeeds if the default value `"localhost"` is used. For the Delivery Engine subsystem to handle network connection failures, replace `"localhost"` with a list of dependable hosts that can serve as network connection references.

Subscription Portal subsystem

The Subscription Portal is a passive system. This means that it does nothing unless a user or another system interacts with it. It can be easily clustered with a variety of third-party clustering technologies. Clustering

can improve availability and performance by distributing the Subscription Portal workload across multiple servers.

It is sometimes desirable to separate the components of a Subscription Portal subsystem for security, performance, and other reasons. The major components in the Subscription Portal are:

- *Subscription Portal Web Server*
- *SequeLink*

The components are implemented as Windows services. As a result, it is possible to operate certain combinations of these components on separate machines, and configure them to communicate with each other over the network. Each is described below

Subscription Portal Web Server

The Subscription Portal Web Server provides a website through which end users and administrators work with Narrowcast Server. It consists of a web server (Microsoft IIS) and a set of Active Server Pages installed with the Subscription Portal that interact with that server. When Subscription Portal is installed, it automatically configures IIS with virtual directories that point to these pages. Some of these pages provide the Portal Administrator Wizard, and others the Subscription Portal interface for end users.

SequeLink

SequeLink configures and manages data access across a number of data stores, operating systems, and deployment options. SequeLink provides a universal client for ODBC and JDBC, and a centralized console for configuring and managing data access from a single point of control. SequeLink creates two NT services: SLAgent 54, which is the Administrator, and SLSocket54, which is the Server.

Workload distribution in a cluster

One advantage of clustering a Delivery Engine subsystem is to distribute work across multiple machines to increase system performance. The execution engine is the primary work horse in a Delivery Engine, and the Delivery Engine is designed to distribute work across the machines available as execution engines. This capability allows system performance to scale with the number of machines available as execution engines. This section describes the mechanism used to distribute work across the available execution engines.

In a Delivery Engine, a segment represents one piece of an executing service. System workload is distributed by allocated segments. The capacity of each execution engine determines how many segments it can process simultaneously. While execution engines are busy, the remaining segments wait in a queue.

The system administrator determines the size of service segments and the capacity of each execution engine. Each service has a setting for the number of recipients per segment. The segment size for each service should be based on the complexity of each service. For example, a simple e-mail with no attachments and no personalization can be split into larger (and therefore, fewer) segments than a service with the same number of recipients but with attachments and sophisticated personalization.

The execution engine capacity is set based on the number of service execution segments that can be executed simultaneously, and on execution engine CPU power. This setting allows you to distribute work according to the capacities of different execution engines in your Narrowcast Server system. The distribution manager uses the capacity setting combined with an execution engine's current workload to determine how segments will be assigned among available execution engines.

When a service is executed, the Subscription Book Module divides the subscription set, which determines the entire subscription list of the service, by the service segment size to generate a list of segment ranges. A

service execution segment is created for each segment range. Next, the distribution manager assigns the segments to execution engines based on the current workload and capacity settings of the available execution engines. The execution engines create a segment executor for each assigned segment. Finally, each segment executor processes the service for its segment of recipients.


CPU affinity

The ability to bind one or more processes to one or more processors is called CPU affinity or processor affinity. The Narrowcast Server distribution manager(s) and execution engine(s) can take advantage of the CPU affinity when the machine has more than one processor.

CPU affinity provides the following benefits:

Improved cache performance: By keeping the data in only one processor's cache, cache performance is optimized, thereby preventing out-of-sync caches and cache invalidations.

Processor dedication: By dedicating a processor to one or more critical processes, the critical process receives the full attention of the processor.

 CPU affinity is possible only if the operating system supports the functionality.


to set up CPU affinity

From the Windows Start menu, point to Programs, then MicroStrategyTools, and then choose Service Manager. The MicroStrategy Service Manager dialog box opens.

In the Service drop-down list, select the MicroStrategy Distribution Manager process or the MicroStrategy Execution Engine process.

Click Options. The Service Options dialog box opens, displaying the Distribution Manager Options tab or the Execution Engine Options tab, depending on the process you selected above.

Select the relevant check boxes for each processor as desired.

-  If you do not specify the processor usage for the distribution manager or the execution engine, each process chooses the processors itself using the first, second, and so on processors to be used.

Click OK to close the Service Options dialog box and return to the Service Manager dialog box.

Click Restart to restart the distribution manager or the execution engine for the CPU affinity changes to take effect.

Failure recovery

One advantage of configuring a clustered Delivery Engine is that in the event of a hardware, software, or network failure, failure recovery is provided. Any Delivery Engine subsystem that is intended to provide for failure recovery should contain more than one distribution manager and more than one execution engine for failure recovery purposes.

The components used for failure recovery include the following:

- The distribution manager, which assigns backup machines for individual segments, monitors execution engines for failure, and is backed up by another distribution manager
- The execution engine, which performs backup duties for executing segments
- The segment executor, which records segment execution

Three kinds of system failures can occur, and the Delivery Engine handles each of them differently. They include the following, and are described below:

Segment failure

Execution engine failure

Distribution manager failure

Segment failure

The information source, information transmitter, or document formatter can return an error in a particular segment. When this occurs, the distribution manager is notified of the problem and executes normal failure recovery on another execution engine.

Execution engine failure

An execution engine failure is caused by problems such as a network crash or power outage on the execution engine. When the distribution manager detects a problem during its regular execution engine status check, it follows segment failure steps for each segment running on the failed execution engine.

Distribution manager failure

When a distribution manager (DM) initializes, it determines which other DMs in the Delivery Engine subsystem are active. If none are, it automatically assumes the role of primary DM. If another DM has already assumed this role, the new DM assumes the role of backup DM. If two distribution managers start up at the same time and it is not clear which started first, the primary DM is chosen by rank. Backup machines do not do any processing, although they receive data from the primary DM and confirm its active status.

If that status changes due to some problem such as a network crash or power outage on the primary DM, the remaining DMs determine the new primary machine. The new primary machine notifies all the execution engines of the change in status. When the failed machine comes online, it acts as a backup DM.

If the primary DM detects a problem with a backup machine through the backup's lack of a response, the primary DM stops recording status changes to the backup. When the failed machine returns to an online status, it once again acts as a backup DM.

Setting up Narrowcast Server for e-mail transmission

Simple mail transfer protocol (SMTP) is a protocol that enables transfer of e-mail messages between machines. Narrowcast Server uses two modes when transmitting e-mail messages: direct mode and smart host mode.

Direct mode

When Narrowcast Server is transmitting in direct mode, it attempts to connect directly to the recipient's e-mail server over the Internet. It locates this server using the following steps:

Retrieve domain mail server records. Narrowcast Server isolates the Internet domain from a recipient's e-mail address (for example, microstrategy.com) by taking the characters following the "@" symbol. It then makes a request to the DNS server configured for the available network interface cards, asking for the "MX" or mail server records for the domain.

Locate mail server. Narrowcast Server isolates the name of the mail server with the highest preference from the domain mail server records. It then determines the IP address for that mail server using a combination of DNS and WINS requests.

Open a TCP/IP connection. Narrowcast Server attempts to open a TCP/IP connection on the port specified in the E-mail (SMTP) information transmitter settings, to the remote mail server. If a connection cannot be established, Narrowcast Server tries to locate another of the e-mail servers returned in the domain mail server records.

Open a mail session. If a connection was successful, Narrowcast Server opens up an e-mail session using EHLO (E-SMTP) if possible. Otherwise, HELO (SMTP) is attempted. If both protocols are rejected, Narrowcast Server returns to step 2 and tries to locate another of the e-mail servers returned in the domain mail server records.

Send a message. Depending on the session type, Narrowcast Server uses the SMTP or E-SMTP protocol to deliver the e-mail message to the remote e-mail server.

Locate the smart host. If all e-mail servers listed in the domain mail server records are unreachable or unworkable, Narrowcast Server attempts to deliver the message using the smart host if it has been configured. It locates this mail server using a similar process to step 2, and proceeds with the rest of the steps above. If this process fails, the message is returned to the pending delivery queue.

Smart host mode

When Narrowcast Server is transmitting in smart host mode, it attempts to connect to the e-mail server configured in the device settings. It proceeds through steps 3-5 above in *Direct mode*. If the process fails, the message is returned to the pending delivery queue.

The use of a smart host can help alleviate connectivity problems caused by some firewalls. For example, if your Narrowcast Server system must transmit to recipients outside of the corporate firewall, you can configure it to transmit to a smart host inside the firewall that already has Internet access, and then let the smart host perform the transmission to the recipients.

Smart host configuration is part of the device configuration process. For more information about configuring devices, see *Transmission tab*.

Device settings

Device settings control how the content of a publication is packaged for delivery. For example, if an e-mail publication contains an HTML message body with a graph report, an Excel workbook, and a subject line, the E-mail (SMTP) transmitter must package the HTML message body, graph image file, and Excel workbook file as a single 7-bit US-ASCII string before it transmits the message.

Two encoding technologies are available for this packaging process: Multi-part MIME and UUencoding. Each is described below.

UUencoding

The UUencoded format enables Narrowcast Server to send messages as binary file attachments (such as Excel workbooks), but message contents are plain text, and HTML message bodies are sent as attachments. Some e-mail clients, such as most mobile devices, do not support attachments. See the MicroStrategy Readmes for information about specific device capabilities and limitations. For information about configuring devices, see [Device Editor](#).

MIME

The MIME message format enables Narrowcast Server to send messages with HTML message bodies, binary file attachments (such as Excel workbooks), and embedded images. It also allows a wide variety of character sets for message content, such as Latin-1 (ISO-8859-1), Korean (EUC-KR), and Japanese (ISO-2022-JP).

Not every e-mail client supports all of these capabilities, so several device settings control specific aspects of how message parts are encoded within a MIME message. See the MicroStrategy Readmes for information about specific device capabilities and limitations, and to , [Device Editor](#) for information about configuring devices.

Character set requirements

If services generate content that cannot be represented by US-ASCII, ensure that the Narrowcast documents with such content have the correct locale selections for document properties, and that the selected locales have the correct character set for the E-mail (SMTP) transmitter. Otherwise, when the E-mail transmitter attempts to convert the Narrowcast documents in the message publication from the Unicode character set used internally

by Narrowcast Server to the character set specified by the document locale, the conversion fails. When this happens, the message is not sent.

For information about locales and Narrowcast documents, see [Locales and internationalization](#).

Testing SMTP connectivity

It is recommended that you test SMTP connectivity before you attempt to start your system. You can test the ability of Narrowcast Server to connect to and deliver messages to remote e-mail servers, using the information below.

to test DNS lookup

From the Start menu, select Run. Type cmd and click OK.

Type the following command, which is case sensitive:

```
C:\>nslookup -type=MX domain name
```



If you are testing on Windows 2000, you may need to type ANY instead of MX to retrieve mail exchange domain records.

Look for the MX records (if any), and look at the preference value for each record. The lower the value, the higher the priority it takes. For example:

```
C:\>nslookup -type=MX microstrategy.com
```

```
DNS request timed out.
```

```
timeout was 2 seconds.
```

```
*** Can't find server name for address 10.10.224.2: Timed out
```

```
*** Default servers are not available
```

```
Server: UnKnown
```

```
Address: 10.10.224.2
```

```
microstrategy.com MX preference = 100, mail exchanger = mail.uu.net
```

```
microstrategy.com MX preference = 1, mail exchanger =
```

```
mailgate2.microstrategy.com
```

```
microstrategy.com MX preference = 50, mail exchanger =
```



```
mailgate.microstrategy.com
mail.uu.net internet address = 199.171.54.122
mail.uu.net internet address = 199.171.54.245
mail.uu.net internet address = 199.171.54.246
mail.uu.net internet address = 199.171.54.98
mail.uu.net internet address = 199.171.54.106
mailgate2.microstrategy.com internet address = 199.173.152.10
mailgate.microstrategy.com internet address = 199.173.152.28
```

C:\>

In this example, mailgate2.microstrategy.com is the preferred mail server for the domain microstrategy.com.

You might see something like the following:

```
C:\>nslookup -type=MX a.com
```

```
DNS request timed out.
timeout was 2 seconds.
*** Can't find server name for address 10.10.224.2: Timed out
*** Default servers are not available
Server: UnKnown
Address: 10.10.224.2
```

```
DNS request timed out.
timeout was 2 seconds.
*** No mail exchange (MX) records available for a.com
```

C:\>

This means that either the domain does not exist, a timeout was longer than expected, or there is a DNS configuration issue on that particular machine. Check for typing errors and try it again. If you do not get an answer, you need to verify the DNS configuration on that machine.

to test connection to mail server



When typing during the SMTP connection, what you type is not displayed while you type it.

If the DNS is working correctly or your information transmitter is configured to use only a smart host, you can test the connection to the mail server or the smart host.

Type the following at the command line:

```
C : \>telnet server port
```

where *server* is the desired mail server to connect to and *port* is the TCP Port used for SMTP delivery (the standard port is 25). For example:

```
C : \>telnet mailgate2.microstrategy.com 25
```

A telnet window opens. It either establishes the connection or returns an error message.

A successful connection starts with a "220" string, similar to the following:

```
220 mailgate2.strategy.com ESMTP Server (Microsoft  
Exchange Internet Mail Service 5.5.2650.21) ready
```

An error message means that you could not establish a connection to the specified server. This can be because the server is not available, or because you could not reach the server within the timeout period.

To disconnect, type QUIT and press ENTER.

to test delivery status notification

Once you establish communication to a remote server, you can test to see if this particular server supports the Delivery Status Notification (DSN) option.

After you connect to the server, type:

```
EHLO your domain
```

and press ENTER.

For example:

EHLO microstrategy.com

One of the following support possibilities now exist:

- The server supports EHLO and DSN.
- The server supports EHLO, but does not support DSN.
- The server does not support EHLO.

To determine support, look at the response to the EHLO command and look for the DSN response (it should resemble "250-DSN"). For example:

```
250-mailgate2.strategy.com Hello your machine name
250-XEXCH50
250-HELP
250-ETRN
250-DSN
250-SIZE 0
250-AUTH LOGIN
250 AUTH=LOGIN
```

Compare the response you are seeing to the options below:

- If you received the 250 response to the EHLO command but do not see a DSN line, the mail server you connected to does not support delivery status notification.
- If you received a 500 error, the mail server you connected to does not support the EHLO (E-SMTP) protocol. In this case, use the HELO (SMTP) protocol to connect to the mail server. Type:

HELO your domain

and press ENTER to continue. The response should resemble this:

```
220
```

```
*****
```

```
EHLO microstrategy.com
```

```
500 Command unrecognized: "XXXX microstrategy.com"
```

```
HELO microstrategy.com
```

```
250 Hello your machine name, pleased to meet you
```

You should see a line that begins with 250. If you see a 5XX or 4XX line, the SMTP protocol has failed or been rejected.

to send a test message

Once you have connected and determined whether or not you can use DSN or E-SMTP, you can send a test message. The steps below are followed by an example showing what to type for each step.

Note the following:

- Any text you type is not displayed on the screen.
- If you type something incorrectly or the command fails, you see a 5XX line and usually a short description of the problem. If there was a typing mistake, use this information to correct the problem. If there was a failure, it might indicate that Narrowcast Server cannot transmit to this e-mail server. Use that information to fix the problem when possible.
- A 4XX line is a temporary failure. Wait a few minutes, then try again.

- 1 Use the FROM command to specify who is sending the e-mail. The syntax for DSN-compliant systems is:

```
MAIL FROM: <sender e-mail address> RET=HDRS ENVID=Id
```

The syntax for non-DSN-compliant systems is:

```
MAIL FROM: <sender e-mail address>
```

where sender e-mail address is the sender address (always type the angle brackets around it), and Id is the DSN ID (type a single word as the Id).

- 2 Use the RCPT command to specify the recipient addresses. You can repeat this command as many times as the server allows. The limit for most servers is 100 recipients per message.

If this command fails, it means that the last recipient you typed fails to receive the message, but any other recipient that returned a 250 response receives message successfully. This command only fails if all the recipients failed.

The syntax for DSN-compliant systems is:

RCPT TO: <recipient_email_address> NOTIFY=dsn_Options

The syntax for non-DSN-compliant systems is:

RCPT TO:

where recipient_email_address is the sender address (always type the angular brackets around it) and dsn_Options is one of the following strings:

"SUCCESS"

"FAILURE"

"SUCCESS, FAILURE"

"NEVER"

- 3 Use the DATA command to send the message text. Type the following:

DATA

and press ENTER. The response should be a 354 line. Type any message text you want, and end by pressing ENTER, typing a period (.), and pressing ENTER again.

- 4 Wait for the ACK (acknowledgement) of the message. If it was successfully sent, you will receive a 250 line. Otherwise, use the information to determine the cause of failure.
- 5 Type quit and press **ENTER**. This closes the connection.

Example

In the following example, the text you type is in bold. The `ENTER` key is represented by `<Enter>`.

```
telnet mailgate2.microstrategy.com 25<Enter>
220 mailgate2.strategy.com ESMTP Server (Microsoft
Exchange Internet Mail Service 5.5.2650.21) ready
EHLO microstrategy.comp<Enter>
250-mailgate2.strategy.com Hello your machine name
250-XEXCH50
250-HELP
250-ETRN
250-DSN
250-SIZE 0
250-AUTH LOGIN
250 AUTH=LOGIN
MAIL FROM: RET=HDRS ENVID=My_id<Enter>
250 OK - mail from
RCPT TO: NOTIFY=SUCCESS<Enter>
250 OK - Recipient
DATA<Enter>
354 Send data. End with CRLF.CRLF
Send any message here<Enter>
.<Enter>
250 OK
QUIT<Enter>
221 closing connection
```

Setting up Narrowcast Server for file transmission

Narrowcast Server provides a File Information Transmission Module (File ITM) that can transmit files to multiple network locations, such as networked computers and remote servers.

The File information transmitter enables administrators and users to define and select locations for transmitting service files from Narrowcast Administrator and the Subscription Portal. You can define the file delivery locations for users as follows:

- If you have users who save files on the network, define the file locations that specify the target computers and other properties, such as whether files with the same name are overwritten.
- If you have users who transmit files directly to network locations, create a device that allows users to fully specify their desired file locations.

File information transmitters are automatically configured by Narrowcast Server.

A central administrator can control file transmissions, define all devices and service recipients, and transmit reports in batches to personalized locations on a scheduled basis.

Details about the various set up scenarios for file transmissions are described below.

Defining file delivery locations

File delivery locations can be defined by the administrator or by the user. The degree of definition and control can vary, depending on what is desired and the roles of the administrator and the different user groups.

You can also define a delivery location along with a set of delivery options, and save these as an address. For details, see [Defining file delivery location and settings: Addresses](#).

Administrator-defined file locations

When an administrator defines file delivery locations, users can either select those file locations from a list and provide a file name, or users can have a single location defined for them to deliver all messages to.

To provide a list of files locations that users can select from, you define one or more devices to represent defined network locations. Select these devices in the corresponding Subscription Portal delivery service and ensure that the Subscription Portal users have the required privileges. Subscription Portal users can select a file location but not specify any file transmission options. All users in the same project have access to the same file locations.

To provide a single file location for each user, define one or more devices to represent network locations, then apply one of these devices to each end user. The users select a device for file transmission and the service is sent to the specified file location with no additional input. This procedure can also be used to set up batch file transmission to a centralized network location.

User-provided file paths

Subscription Portal users can be allowed to specify or select delivery locations. You define one or more devices to represent network locations and define one or more devices that enable users to type full network paths. To do this, add the macro "UserAddress" in the device definition in place of the path. For information on macros, see [Dynamically generating file or folder names: Macros](#), below.

Users can subscribe to services using the Subscription Portal and send results to a file. You define one or more devices to represent network locations and make these devices available via the Subscription Portal. These devices can define delivery locations or can define devices that allow user addresses to define delivery locations.

Combining administrator-defined and user-provided paths

You might want to give some Subscription Portal users the option to select an existing file location or enter their own. Depending on the definition of the device that is chosen, users are provided with different options. If a fully-defined path is defined for users, no file path field is provided. If a user-defined file location is allowed, a field is available in which the user can enter a file path. If only one device is provided, no field is provided.

You enable the options available to each user by creating devices that provide the desired functionality, and then controlling which devices each user can access. You can also define a different set of devices available to Subscription Portal users.

Dynamically generating file or folder names: Macros

You can add file and folder name information that is dynamically generated at the time of delivery. For example, a user might want to add the date and time to a folder or to the saved file name, or an administrator might want to deliver files to many users in folders named after each user.

To do this, define macros in devices or addresses. Examples of macros include the date, time, user information such as user name, IDs that are unique for each delivery, and application information such as service or Narrowcast document name. A user's physical address can provide a relative path; to do this, the address information is used as a macro.

Controlling device default settings

You can control how files are saved. For example, you might want to ensure that all files saved to a certain location are saved as read-only files.

To do this, define default delivery settings at the device level, which are applied when the device is selected. This allows you to define different sets of defaults that can be applied to different delivery locations.

Enabling users to define file delivery options

You can allow users to define how files are saved. You can also control user access to delivery options. For example, some delivery locations can be defined to allow users to control whether files are read-only, while other delivery locations can require files to be saved as read-only by default. Some users can have the privilege to set delivery options while other users may not have the ability to change any delivery options.

To do this, when you define device settings you can determine which ones are exposed to users. You can also define user privileges that allow certain users to have the privilege to define delivery options.

Defining file delivery location and settings: Addresses

Devices allow you to reuse delivery locations and delivery settings across users. In some cases, users might want to define a delivery location and delivery settings that are reusable by them but not by other users. For example, a user might want to define a delivery location for his two Desktop machines and how to save these files, but not make these locations available to other users. This can be accomplished using addresses.

Addresses allow users or administrators to define delivery locations and accompanying delivery settings that can be reused across subscriptions for a single user but not across users. A user-defined delivery location always becomes the address for a subscription.

Note the following:

User-defined relative paths should only be provided when the device providing the corresponding absolute (base) path is selected.



User-entered paths can be stored either as addresses or as subscription settings. Storing them as addresses allows them to be reused across subscriptions and retrieved easily for viewing and selection.


Using addresses to store delivery locations affects the following:

- For administrator-defined delivery locations that users select in the Subscription Portal, no physical address exists or is needed.
- For user-defined file paths that users provide in the Subscription Portal, a physical address represents a fully-defined delivery location.
- For administrator-defined and selected delivery locations and for Subscription Portal users, a physical address can be used in either case.

Windows authentication and file transmission

The File Information Transmitter runs under the same Windows account as the MicroStrategy Execution Engine service. If the Execution Engine is running under a Windows domain account, the File Information Transmitter can deliver files to any network machines for which this account has the required permissions.

One way to ensure that Narrowcast Server can deliver files within your network is to ensure that the Execution Engine is running under a Windows domain account that has permissions on all machines where delivery is required. In this way no other authentication needs to be defined.

 If a mapped network drive is used to deliver files to networked computers in the Windows file system, the Windows account under which the mapped network drive is created must be the same as the administrative account for Narrowcast Server.

Setting up Narrowcast Server for printing

Narrowcast Server provides a Print Information Transmission Module (Print ITM) that can send multiple files to networked printer locations.

The Print information transmitter enables administrators and users to define, select, and schedule batch printing requests from Narrowcast Administrator and the Subscription Portal. You can define the printer location for users as follows:

- If you have users who print information on shared printers, define printer locations that specify the target printers and other options, such as the type of printer.
- If you have users who print information directly to a single specified printer, create a device that allows users to specify printer location.

Print information transmitters are automatically configured by Narrowcast Server.

An administrator can control file prints, define all devices and service recipients, and print reports in batches to personalized locations on a scheduled basis.

Details about the various set up scenarios for print transmissions are described below.

Delivery location definition

Printer delivery locations can be defined by the administrator or by the user. The degree of definition and control can vary, depending on what is desired and the roles of the administrator and the different user groups.

You can also define a delivery location along with a set of delivery options, and save these as an address. For details, see [Defining printer delivery location and settings: Addresses](#).

Administrator-defined printer locations

When an administrator defines printer delivery locations, users can either select those printer locations from a list, or users can have a single printer location defined for them to deliver all print messages to.

To provide a list of printer locations that users can select from, you define one or more devices to represent defined printer locations. Select these devices in the corresponding Subscription Portal delivery service.

Subscription Portal users can select a predefined printer but not specify any

print options. All users in the same project have access to the same printer locations.

To provide a single printer location for each user, define one or more devices to represent network printer locations, then apply one of these devices to each end user. The users select a device for print transmission and the service is sent to the specified printer location with no additional input. This procedure can also be used to set up batch print transmission to a centralized network location.

User-provided printer locations

Subscription Portal users can be allowed to specify or select printer locations for messages to be delivered to. You define one or more devices to represent printer locations and define one or more devices that enable users to type printer locations. To do this, select the option to enable users to define printer locations to override device-level defaults.

Users can subscribe to services using the Subscription Portal and send results to a printer. You define one or more devices to represent printer locations and make these devices available via the Subscription Portal. These devices can define print locations or can define devices that allow user addresses to define delivery locations.

Property settings for the printer defined by the user are overridden by those of the default printer set by the administrator. It is possible that settings for paper source, print quality, and paper size may not match the capacities of the user's printer, depending on its make and model. Testing is recommended if a single device is used for different types of printers.

Combining administrator-defined and user-provided paths

You might want to give some Subscription Portal users the option to select an existing print location or enter their own. Depending on the definition of the device that is chosen, users are provided with different options. If a fully-defined path is defined for users, no file path field is provided. If a

user-defined file location is allowed, a field is available in which the user can enter a file path. If only one device is available to users, no field is provided.

You enable the options available to each user by creating devices that provide the desired functionality, and then controlling which devices each user can access. You can also define a different set of devices available to Subscription Portal users.

Controlling device default settings

You can control how files are printed. For example, you might ensure that all print jobs are collated or printed from a certain printer tray.

To do this, define delivery settings at the device level, which are applied when the device is selected. This allows you to define different sets of defaults that can be applied to different printer locations.



Settings for PDF documents only take effect if Adobe Acrobat is installed on all execution engine machines.

Enabling users to define printer locations

You can allow users to define where files are printed.

If a user-specified printer does not support the printer properties of the device that is used to send the message, unexpected behavior can occur for the following printer properties:

- Print quality
- Paper source
- Paper size
- Collate

Printer behavior is dictated by the printer capabilities and the printer manufacturers' standards. For example, if the device is set to use Paper


Source: Tray 2, but the user-specified printer has only one tray, the printer might default to tray 1 or fail the job, depending on how it is configured.

To prevent problems, you can create multiple devices to accommodate the different types of printers used in the organization or have users test their print delivery services.

Defining printer delivery location and settings: Addresses

Devices allow you to reuse printer locations and delivery settings across users. In some cases, users might want to define a printer location that is reusable by them but not by other users. This can be accomplished using addresses.

Addresses allow users or administrators to define printer locations and accompanying delivery settings that can be reused across subscriptions for a single user but not across users. A user-defined delivery location always becomes the address for a subscription. User-defined printer locations, which are equivalent to the physical address, can then be displayed by the Subscription Portal in the same list that provides the list of available addresses.


 User-defined printer locations can be stored only as addresses. Storing them as addresses allows them to be reused across subscriptions and retrieved easily for viewing and selection.

Windows authentication and printing

The Print ITM runs under the same Windows account as the MicroStrategy Execution Engine service. If the Execution Engine is running under a Windows domain account, the Print ITM can back up files to any network machines for which this account has the required permissions.

One way to ensure that Narrowcast Server can save files to a backup location within your network is to ensure that the Execution Engine is running under a Windows domain account that has permissions on all

machines where backup is required. In this way no other authentication needs to be defined.

 If a mapped network drive is used to back up files to networked computers in the Windows file system, the Windows account under which the mapped network drive is created must be the same as the administrative account for Narrowcast Server.

Setting up Narrowcast Server for text (SMS) transmission

Short message service (SMS) is a text messaging service available on wireless telephones. Telephone numbers are used for addressing SMS messages to the recipients.

These messages can be sent from messaging systems such as Narrowcast Server to mobile telephones using an SMS center (SMSC) provided by wireless carriers and SMS messaging providers. The following diagram shows a typical SMS architecture including Narrowcast Server.

Connections to messaging providers are typically handled over standard protocols such as TCP/IP and SMS messaging protocols such as Short Message Peer to Peer (SMPP) protocol.

Narrowcast Server implements the SMPP protocol for transmitting SMS messages to the SMSC. To successfully send SMS messages, a connection to an SMSC is required. SMS messaging typically has fees associated with sending messages. Those fees vary by SMS messaging provider and by the volume of SMS messages.

For details, see the Narrowcast Server Application Designer Guide.

Configuring the MicroStrategy Logging Server

MicroStrategy Narrowcast Server includes a comprehensive logging system that provides the ability to capture and store a wide variety of system-related information. This system collects information such as:

- Statistical information on transmission success or failure at the recipient level,
- Administration and service execution related events and error messages, and
- Status updates for services, segments and transmissions.

An open architecture allows this information to be used for a wide variety of purposes such as logging to flat files, logging to databases, sending messages to the Windows event viewer, displaying in an error display, or integrating with third party applications.

The Narrowcast Server logging infrastructure includes five types of components:

- MicroStrategy Logging Clients (MLCs)
- MicroStrategy Logging Servers (MLSs)
- MicroStrategy Logging Modules (MLMs), such as the MicroStrategy Logging Consumer
- MicroStrategy Database Logger
- MicroStrategy Distributed Logger

Information logging begins with the MicroStrategy Logging Clients. MicroStrategy Logging Clients (MLCs) are created on every machine in a Narrowcast Server system. MLCs receive logging messages from the Narrowcast Server components, such as distribution managers and relay those messages to the MicroStrategy Logging Server (MLS). The MLS serves as a central point to collect these messages. The MLS is usually created on only one machine in the Narrowcast Server system (although it might be created on multiple machines for redundancy or implementations that require logging large amounts of information). Logging messages of all types including segment processing status, statistical information, and error notifications pass through the MLS. MicroStrategy Narrowcast Server also includes a buffer port that you can use for sending messages to the buffer.

These messages are viewed by Narrowcast Administrator. A MicroStrategy Logging Module (MLM) can then subscribe to receive information from the MLS and use this information for any purpose such as logging to flat files, logging to databases, sending messages to the Windows event viewer, displaying in an error display, or integrating with third party applications. The MicroStrategy Logging Module Service Provider Interface is an open component specification that enables custom MLMs to connect to and receive messages from the MicroStrategy Logging Server.

You can use MicroStrategy Distributed Logger and MicroStrategy Database Logger to display the time zone in UTC by modifying the registry keys. The MicroStrategy Database Logger controls the time zone for transmission recording tables in the repository. The MicroStrategy Distributed Logger controls the time zone for DELog files and System Message Viewer.

To learn more about the MicroStrategy Logging Module Service Provider Interface, refer to MicroStrategy Logging Module Directory in the online Narrowcast Server SDK Guide.

MicroStrategy Logging Client operation

The amount and type of log messages a specific MicroStrategy Logging Client (MLC) submits to the MicroStrategy Logging Server can be controlled through registry keys on individual machines in the Narrowcast Server system. This can be used to control the number of messages that are generated and the type of information that is provided to the MicroStrategy Logging Server. The registry keys to control MLC logging are located on each MLC machine under

```
My Computer\HKEY_LOCAL_MACHINE\SOFTWARE\  
MicroStrategy\ MicroStrategy Broadcast Server\  
7.0\Distributed Logging Service\  
MLS Client Settings\Logging Levels
```

By default, the MicroStrategy Logging Client has all flags turned on with exception of the LEVEL_TRACE_XXXX and LEVEL_DEBUG flags. Note that the trace and debug logging options generate a very large amount of

information and should only be used for debugging purposes with the help of MicroStrategy Technical Support. If the MicroStrategy Logging Clients log trace and debug information (LEVEL_TRACE, LEVEL_TRACE_XXXX, LEVEL_DEBUG or LEVEL_STAT_RECIPIENT), performance degradation and increased CPU utilization will typically result. If changes are made to any of the registry values for the logging system, the respective MicroStrategy logging services must be restarted by using the Services manager in the Control Panel. For more information on these logging levels, refer to *Logging levels* in this chapter.

Note that the levels at which the MicroStrategy Logging Client logs information are independent of the levels at which the MicroStrategy Logging Consumer subscribes to receive information. By default, the MicroStrategy Logging Consumer subscribes to all logging levels. Also note that a MicroStrategy Logging Client must be running on each primary distribution manager, backup distribution manager, execution engine, and the Narrowcast Administrator machine. The System Configuration Wizard and the tutorial configuration process automatically establish this requirement.

MicroStrategy Logging Server operation

The MicroStrategy Logging Server (MLS) collects the logged messages from MicroStrategy Logging Clients and distributes them to any available MicroStrategy Logging Modules. The MLS does this through a "publish and subscribe" architecture, in which multiple MLMs can ask for various different types (for example, errors, statistics, or status) and levels (for example, critical, high, medium, or low) of information. For example, MLMs could deliver data to the Windows event viewer, a logging database, a set of flat files, or a display interface.

In addition, note that one or more machines can be designated as a MicroStrategy Logging Server. The MicroStrategy Logging Server can be placed on a separate machine or on a machine with any other Narrowcast Server system component, such as an execution engine or distribution

manager. On systems with large clusters or heavy logging requirements, such as message-level logging, the MLS machines should have two or more processors and at least 128 MB of RAM. CPU and RAM consumption by the MLS is proportional to the number of MLMs connected to the MLS. If high availability is a requirement, two or more logging servers can be employed. The MLS machines must be specified when the Narrowcast Server system is configured.

MicroStrategy Logging Module operation

A MicroStrategy Logging Module (MLM) is a component that subscribes to the MicroStrategy Logging Server and instructs the MLS to notify the MLM of specific types of events. These events can include various levels of errors, recipient tracking information, segmentation information, and system diagnostic information. Logging modules can process these events in a variety of ways such as:

- Writing the information to a log file or database
- Sending the information to the Windows event viewer or an error display interface
- Integrating with an external application

MicroStrategy Narrowcast Server ships with a standard logging module named the MicroStrategy Logging Consumer. This standard MLM can output to a cyclic log file (`DE-ddmmyy.log`) or a debug tool such as `Monitor.exe` or `DebugViewer.exe`. Other MicroStrategy Logging Modules can be created to use this information for application-specific purposes.

By default, the MicroStrategy Logging Consumer subscribes to every type of message and sends all the received messages to the log files in the directory location where `MCLogCon.exe` is located. This location can be changed by creating a `Log File Path` string key (complete with spaces) in the registry under:

```
MyComputer\HKEY_LOCAL_MACHINE\SOFTWARE\  
MicroStrategy\MicroStrategy Broadcast Server\  
7.0\Distributed Logging Service\  
LoggingConsumer\Log File Path
```

Registry settings can also be used to control the locations to which the standard MicroStrategy Logging Consumer sends logged messages. Three registry keys at the following location can be used to determine whether the standard MicroStrategy Logging Consumer sends log messages to file, to event viewer, or to debug viewer.

```
MyComputer\HKEY_LOCAL_MACHINE\SOFTWARE\  
MicroStrategy\ MicroStrategy Broadcast Server\  
7.0\Distributed Logging Service\LoggingConsumer
```

The registry key `OUTPUT_TO_DEBUG` instructs the Consumer to send all received messages to the debug viewer on that machine. Set this key to 1 to enable or 0 to disable this functionality. The registry key `OUTPUT_TO_FILE` instructs the Consumer service to send all received messages to the cyclic log files on that machine. Set this key to 1 to enable or 0 to disable this functionality. The registry key `OUTPUT_TO_NT_EVENT_VIEWER` instructs the Consumer service to send all received `LEVEL_XXXX_ERRORS` (and only errors) to the Windows Event Log on that machine. Set this key to 1 to enable or 0 to disable this functionality. By default, only `OUTPUT_TO_FILE` is set to 1; the others are set to 0.

For distributed environments, it might be desirable to configure a MicroStrategy Logging Consumer that connects to a MicroStrategy Logging Server on another machine. Doing so enables recording of logging information remotely, for monitoring and archiving purposes. This can be done by setting the `Hostname of MLS` string at the following location key to the name of the remote machine on which MicroStrategy Logging Server is running:

```
MyComputer\HKEY_LOCAL_MACHINE\SOFTWARE\  
MicroStrategy\MicroStrategy Broadcast Server\  
7.0\Distributed Logging Service\LoggingConsumer
```

Once this is done, this remote machine must have both the MLS and the MicroStrategy Logging Consumer running, but only the Consumer is used.



Subsequent changes to the TCP/IP ports used for logging messages are not propagated to this remote machine.

Changing the log file naming format

The standard format for the log file name is `DELog yyyy-MM-ddHH_mm_ss.TXT`. With the help of MicroStrategy Logging Consumer, you can change the file naming format of the log files.

To change the file name prefix, date, and time, perform the following steps:

- 1 Browse to the location: `HKEY_LOCAL_MACHINE\Software\Microstrategy 8\Microstrategy Broadcast Server\7.0\Distributed Logging Service\Logging Consumer\File Name Options`.
- 2 Change the value of the `File Name Date-Time Format` registry key to the required format.
- 3 Change the value of the `File Name Prefix` registry key to the required format.
- 4 Click OK.

The Logging Consumer uses the time format as specified by the user on the Execution tab in System Settings (see [System Settings dialog box layout](#)). If you select GMT from the Time Zone for System Information drop-down list on the Execution tab in System Settings, the log file has the Universal Time Coordinates (UTC) by default. If a different time zone is to be used, you can modify the `UseUTC` registry key value to 0.

The System Message Viewer is also a logging module for the MicroStrategy Logging Server. Refer to [System Message Viewer Dialog Box](#) and [Viewing system messages](#) in for more information about using the System Message Viewer.

The MicroStrategy Logging Module interface is described in the online Narrowcast Server SDK Guide. This interface allows any external application to integrate with MicroStrategy Narrowcast Server and use the logging information generated by a Narrowcast Server system. This external application perform tasks including the following:

- Carry out custom filtering and event monitoring.
- Take action based on events.

All logging components create their own registry keys if they do not exist the first time they are run on a particular machine. The only keys that are not created are the keys within

```
My Computer\HKEY_LOCAL_MACHINE\SOFTWARE\  
MicroStrategy\ MicroStrategy Broadcast Server\  
7.0\Distributed Logging Service\  
MLS Client Settings\MLS Servers\Server 1
```

These keys inform the MicroStrategy Logging Client where and how to connect to the MicroStrategy Logging Server. The folder is typically called `Server 1` (as shown), and is created by the System Configuration Wizard and the tutorial configuration process. The values created in this folder will be `HostName`, `MaxRetryTimeOut`, and `ServerSupplierPort`. The defaults for these values are `localhost`, `32`, and port `20020`. If a different MLM connection is desired, these keys can be deleted and a new `Server 1` key can be created with the appropriate three keys.

MicroStrategy Database Logger

The MicroStrategy Database Logger controls the time zone for transmission recording tables in the repository. In MicroStrategy Narrowcast Server 8.1.1, all the timestamps match the time zone specified by the user on the Execution tab in System Settings (see [System Settings dialog box layout](#)). To use the Universal Time Coordinates (UTC) as the default value, you can modify the registry key values. If changes are made to any of the registry values for the logging system or the time zone settings on the Execution tab, the required MicroStrategy logging services must be restarted by using

the Services Manager from the Control Panel. For more information on these logging levels, refer to [Logging levels](#) in this chapter.


To change the registry key value, perform the following steps:

Browse to the location: HKEY_LOCAL_MACHINE\Software\Microstrategy 8\
Microstrategy Broadcast Server\7.0\
Distributed Logging Service\DB Logger.

Set the value of the UseUTC registry key to 1. Click OK.

Note the following:

If you set the value of the UseUTC registry key to 0, the user-specified time zone is used.

-  Modifying the registry values incorrectly can cause serious, system wide problems that might require the re-installation of the operating system. Any edit of the registry is done at the user's own risk. Since these are user-initiated changes they are not covered by any MicroStrategy warranty. Users should back up their registry or update an Emergency Repair Disk prior to alterations.

MicroStrategy Distributed Logger

The MicroStrategy Distributed Logger controls the time zone for DELog files and the System Message Viewer. In MicroStrategy Narrowcast Server 8.1.1, all the timestamps match the time zone specified by the user on the Execution tab in System Settings (see [System Settings dialog box layout](#)). You can modify the registry key values to use the Universal Time Coordinates (UTC) as the default value. You should restart the required MicroStrategy logging services by using the Services Manager from the Control Panel after modifying the registry values or the time zone settings on the Execution tab.


To change the registry key value, perform the following steps:

Browse to the location: HKEY_LOCAL_MACHINE\Software\Microstrategy 8\
Microstrategy Broadcast Server\7.0\
Distributed Logging Service\Distributed Logger.

Set the value of the UseUTC registry key to 1. Click OK.

Note the following:

If you set the value of the UseUTC registry key to 0, the user-specified time zone is used.

-  Modifying the registry values incorrectly can cause serious, systemwide problems that might require the re-installation of the operating system. Any edit of the registry is done at the user's own risk. Since these are user-initiated changes they are not covered by any MicroStrategy warranty. Users should back up their registry or update an Emergency Repair Disk prior to alterations.

Logging levels

The MicroStrategy Logging Client can log a wide variety of information indicating different levels of errors, statistical information at the service, segment or recipient level, or information from all administration components. In most implementations, only a small amount of the available information is required. The MicroStrategy Logging Client logging settings can be used to control how much information each machine in a MicroStrategy Narrowcast Server system logs. These settings must be set on each machine in the cluster since the registry settings on each machine only impact the MicroStrategy Narrowcast Server system components on that machine. The following logging levels can be set to 1 (on) or 0 (off) under

```
MyComputer\HKEY_LOCAL_MACHINE\SOFTWARE\  
MicroStrategy\MicroStrategy Broadcast Server\  
7.0\Distributed Logging Service\  
MLS Client Settings\Logging Levels
```

All Level_Info_xxxx levels are enabled by default.

Logging Information	Key Name	Information Description
Error Messages: System Wide Failure	Level_Critical_Error	Complete system failure. Indicates the inability of the Narrowcast Server system to function. The failure of a sole running distribution manager (no backup) or loss of connection to the repository could cause this error.
Error Messages: Service or Machine Failure	Level_Severe_Error	High-level system failure. These errors generally pertain to an entire service. Connection to the Subscription Book Module is lost, there are execution engine or distribution manager failures, or no DSN is found on a machine.
Error Messages: Recipient Group Failure	Level_Moderate_Error	Mid-level system error. These errors generally pertain to multiple recipients, such as at the segment level. There are information source manager, information transmission module, document formatter module failures.
Error Messages: Recipient Level Failure or Temporary Failure	Level_Minor_Error	Lowest-level system error. These errors generally pertain to a single recipient. This indicates that MicroStrategy Narrowcast Server is unable to send to a recipient or that an information object for a recipient has failed.
Information Messages: Service Execution Information	Level_Stat_Execution	Service-level tracking information.
Information Messages: Segment Execution Information	Level_Stat_Segment	Segment-level tracking information.
Other Debugging	Level_Stat_Recipient	Recipient-level tracking information.

Logging Information	Key Name	Information Description
Messages: Recipient Level		
Other Debugging Messages: Customer Specific Patch	Level_Debug	Very low-level diagnostic information used internally to track down issues or diagnose any potential problems. Some components generate vast amounts of information.
Component Level Information: Other Components	Level_Info	Information relating to the general operation of Delivery Engine. Any components that do not have their own specific Level_Info_xxxx level log at this level (for example, the SMTP service).
Component Level Information: Document Formatting Modules	Level_Info_DFM	General operational messages from the document formatting module.
Information Messages: System Information	Level_Info_DM	General operational messages from the distribution manager (for example, system startup/shutdown, high-level notification of service execution).
Component Level Information: Execution Engine	Level_Info_EE	General operational messages from the execution engine.
Component Level Information: Execution Recorder	Level_Info_ER	General operational messages from the execution recorder.
Component Level Information: Information Source Modules	Level_Info_ISM	General operational messages from the information source module.
Component Level Information:	Level_Info_ITM	General operational messages from the information transmission module.

Logging Information	Key Name	Information Description
Information Transmission Modules		
Component Level Information: Subscription Book Module	Level_Info_SBM	General operational messages from the Subscription Book Module.
Component Level Information: Segment Executor	Level_Info_SE	General operational messages from the segment executor.
Component Level Debugging: Other Components	Level_Trace	Low-level functional tracing information. Any components that do not have their own specific Level_Trace_xxxx ill log at this level.
Component Level Debugging: Document Formatting Modules	Level_Trace_DFM	Low-level tracing information for the document formatting module.
Component Level Debugging: Distribution Manager	Level_Trace_DM	Low-level tracing information for the distribution manager.
Component Level Debugging: Execution Engine	Level_Trace_EE	Low-level tracing information for the execution engine.
Component Level Debugging: Execution Recorder	Level_Trace_ER	Low-level tracing information for the execution recorder.
Component Level Debugging: Information Source Modules	Level_Trace_ISM	Low-level tracing information for the information source module.
Component Level Debugging: Information Transmission Modules	Level_Trace_ITM	Low-level tracing information for the information transmission module.

Logging Information	Key Name	Information Description
Component Level Debugging: Subscription Book Module	Level_Trace_SBM	Low-level tracing information for the Subscription Book Module.
Component Level Debugging: Scheduler	Level_Trace_SCH	Low-level tracing information for the scheduler. Both the distribution manager and the Narrowcast Administrator generate messages at this level. This details schedule construction, parameters passed to the scheduler from the repository as well as general execution flow details of the scheduler. It includes both local and Universal Time Coordinates (UTC) dates and times for most operations.
Component Level Debugging: Segment Executor	Level_Trace_SE	Low-level tracing information for the segment executor.
Other Debugging Messages: SQL Messages	Level_Trace_SQL	Low-level SQL tracing generated by the Narrowcast Server APIs.


Note the following:


The logging services do not log errors themselves as this could result in an infinite loop of attempts to log the inability to log messages. To see logging service error information, the logging services need to be run as applications.



Users can edit the startup options for these from the Control Panel Services manager or edit the startup options from the Run command using the following commands:

- for the Logging Server: `MCLogSvc.exe -b -d -S`
- for the Logging Client: `MCLogSvc.exe -b -d`

- for the Consumer: `MCLogCon.exe -d`
-  Both the MicroStrategy Logging Server and MicroStrategy Logging Clients run as Windows services that are automatically started under the local system account.

Modifying registry values incorrectly can cause serious, system-wide problems that might require the reinstallation of the operating system. Any edit  of the registry is done at your own risk. Since these are user-initiated changes they are not covered by any MicroStrategy warranty. You should back up your registry and/or update an emergency repair disk prior to making alterations.

Administering Systems

Recording transmission information

It is useful to be able to determine what services Narrowcast Server has delivered, when they were delivered, to whom they were delivered, and what was in the messages. For example, by knowing who received services, it is easy to see how broadly information is being distributed. By knowing whether or not messages were sent successfully, it is possible to determine whether addresses in the Subscription Book are invalid, and if so, how many. Similarly, it is easy to determine what portion of a user population received a service through one medium, such as e-mail versus some other medium, such as the Subscription Portal.

MicroStrategy Narrowcast Server provides the ability to record information about transmitted messages. For any given message, this information consists of:

- What message was sent
- Who received the message
- Whether or not the message was sent successfully
- When the message was sent

- Why the message was sent
- How the message was sent

This information is written into six tables located in the Subscription Book Repository. You can run SQL queries against these tables to retrieve this information, by joining them to the other tables in the Subscription Book Repository and the Object Repository.

Because the tables used for transmission recording store the ID values for objects, such as services, you should define your system so that the Object Repository and the Subscription Book Repository are in the same location if you intend to use this feature.

If the subscription ID specified in the Subscription Book Repository is greater than 2,147,483,647, the Transmission Recorder does not save any records and an error is displayed.

Transmission recording can be turned on through Narrowcast Administrator. For steps to turn on the transmission recording, see [Turn transmission recording on](#).

The state of transmission recording cannot be changed for a service that is already executing.

When transmission recording is off (the default setting), no data is written into the tables. However, when transmission recording is on, data is written into the tables in the Subscription Book Repository. The definitions of these tables and the information contained within them is provided as follows.

Note the following:

- All columns have the prefix "MR_" to prevent future name conflicts with database reserved words.
- The columns in bold form the primary key of these tables.

Table: <prefix>MSTRLOGSVC (Log Service)

Column	Type	Contains
SVCEXEC_ID	string(32)	Service execution ID, a 32-character string representing a globally-unique identifier in hexadecimal format (GUID-string). This uniquely identifies this execution of this service.
SVC_ID	string(32)	Service ID, a GUID-string that uniquely identifies this service within this system.
EXTEXEC_ID	string	External execution ID, a string that can be specified in the API call to run a service immediately, for the purpose of relating this execution to events in external systems.
SVCEXEC_TS	timestamp	Service execution timestamp, a date-time value representing the time at which service execution began, expressed in the time zone specified by the user.
SVCEXPR_TS	timestamp	Service expiration timestamp, a date-time value representing the time at which this service execution will expire as specified by the user.
SVCCMPL_TS	timestamp	Service completion timestamp, a date-time value representing the time at which this service execution completed or halted, expressed in the time zone specified by the user.
SVCEXEC_STAT	integer	Service execution status, a 4-byte integer indicating the status of the execution of the service.
SUBSET_ID	string(32)	Subscription Set ID, a GUID-string that uniquely identifies the subscription set being used for this service execution.
SCHEDSET_ID	string(32)	Schedule ID, a GUID-string that uniquely identifies the schedule that caused this service execution, when applicable.
SVCPRI	integer	Service priority, a 4-byte integer indicating the priority of the service.

Column	Type	Contains
SEG_COUNT	integer	Segment count, a 4-byte integer indicating the number of segments in this service execution.
SYS_ID	string(32)	System ID, a GUID-string that uniquely identifies the system executing the service.
DISTMGR_ID	string(32)	Distribution Manager ID, a GUID-string that uniquely identifies the machine within a system that is the Primary Distribution Manager handling this execution of the service.

To view the name of the service instead of or in addition to the GUID, you can join this table to the MSTROBJNAMES (Object Names) table in the Object Repository, using the following SQL statement:

```
select t1.MR_OBJECT_NAME AS SERVICE_NAME, t2.*
from <prefix>MSTROBJNAMES t1, <prefix>MSTRLOGSVC t2
where t1.MR_OBJECT_ID = t2.MR_SVC_ID
and MR_LOCALE_ID = 'FBBF7C1E37EC11D4887C00C04F48F8FD'
```



The Locale ID in the SQL statement above represents the System Locale ID, and has the same value in every system.

Similar joins can be performed to return the names of the schedule, subscription set, system, and distribution manager, if desired.

The MR_SVCEXEC_STAT column typically holds one of five values:

- 65536: Service execution initiated. Beginning segmentation.
- 131072: Service segmentation complete. Beginning segment execution.
- 199009: Service execution complete.
- 199010: Service execution cancelled.
- 199011: Service execution failed.

As a result, each service execution generally results in the insertion of three records into the Log Service table. By filtering on the value in this column in a SQL where clause, you can control which type of service execution activity you retrieve by your query.

Table:<prefix>MSTRLOGMSG (Log Message)

Column	Type	Contains
SUBS_ID	integer	Subscription ID, a 4-byte integer that uniquely identifies a subscription within a subscription set.
SVCEXEC_ID	string(32)	Service execution ID, a GUID-string that uniquely identifies this execution of this service.
REC_SEQ_GUID	string(32)	A unique value to distinguish between multiple failed attempts to transmit a message.
LOCALE_ID	string(32)	Locale ID, a GUID-string that identifies the locale preference of the recipient of this message.
PUB_ID	string(32)	Publication ID, a GUID-string that identifies which publication was sent to this recipient of the message.
TRANS_TS	timestamp	Transmission timestamp, a date-time value representing the time at which the message was transmitted (or failed), expressed in the time zone specified by the user.
USER_ID	string(32)	User ID, a GUID-string that identifies the user in the Subscription Book to which the message was sent.
ADDRESS_ID	string(32)	Address ID, a GUID-string that identifies the address in the Subscription Book to which the message was sent.
DEVICE_ID	string(32)	Device ID, a GUID-string that identifies the type of device to which the message was sent.
PHYSICAL_AD	string	Physical Address, a string representing the actual address of the recipient.
STATUS	integer	Status, a 4-byte integer indicating the success or failure of the transmission of the message.

To view the name of the recipient instead of or in addition to the GUID, you can join this table to the <prefix>MSTRUSERS (Users) table in the Subscription Book Repository, using the following SQL statement:

```
select t1.MR_USER_NAME AS USERNAME, t2.*
from <prefix>MSTRUSERS t1, <prefix>MSTRLOGMSG t2
where t1.MR_USER_ID = t2.MR_USER_ID
```

Similar queries can be run to return other information about the user, address (by joining to <prefix>MSTRADDRESSES.MR_ADDRESS_ID) or subscription (by joining to <prefix>MSTRSUBSCRIPTIONS.MR_SUB_ID). To retrieve the name of the locale, publication or device, join to the <prefix>MSTROBJNAMES table as above, using SQL similar to the following:

```
select t1.MR_OBJECT_NAME AS LOCALE_NAME, t2.*
from <prefix>MSTROBJNAMES t1, <prefix>MSTRLOGMSG t2
where t1.MR_OBJECT_ID = t2.MR_LOCALE_ID
and t1.MR_LOCALE_ID =
'FBBF7C1E37EC11D4887C00C04F48F8FD'
```



The Locale ID constant above represents the System Locale ID, and has the same value in every system.

The MR_STATUS column typically holds one of three values:

0: The message was successfully transmitted.

1: Message transmission failed.

2: (for SMTP transmission) The delivery window was blocked, so the message has been copied to an internal queue for deferred delivery. No more notification will be issued for this message.

Table:<prefix>MSTRLOGDOC

Column	Type	Contains
SUBS_ID	integer	Subscription ID, a 4-byte integer that uniquely identifies a subscription within a subscription set.
DOC_ID	string(32)	Document ID, a GUID-string that identifies a document that was sent to the recipient.
SVCEXEC_ID	string(32)	Service execution ID, a GUID-string that uniquely identifies this execution of this service.
REC_SEQ_GUID	string(32)	A unique value to distinguish between multiple failed attempts to transmit a message.
ACT_TYPE_ID	integer	Action Type ID, a 4-byte integer indicating what action took place with the document (failed, succeeded).
DOC_ACT_TS	timestamp	Document action timestamp, a date-time value representing the time at which the document was generated (or failed), expressed in the time zone specified by the user.
DOC_NAME	string	Document name, a string specifying the name of the document.

*All columns have the prefix "MR_" to prevent future name conflicts with database reserved words.

To view the name of the recipient instead of or in addition to the GUID, you can join this table to the <prefix>MSTRLOGMSG (Log Message) table, and then to the <prefix>MSTRUSERS (Users) table in the Subscription Book Repository, using the following SQL statement:

```
select t1.MR_USER_NAME AS USERNAME, t3.*
from <prefix>MSTRUSERS t1, <prefix>MSTRLOGMSG t2,
<prefix>MSTRLOGDOC t3
where t1.MR_USER_ID = t2.MR_USER_ID
and t2.MR_SUBS_ID = t3.MR_SUBS_ID
```

You can run similar queries to return other information about the user, address (by joining to <prefix>MSTRADDRESSES.MR_ADDRESS_ID) or subscription (by joining to <prefix>MSTRSUBSCRIPTIONS.MR_SUB_ID).

The MR_ACT_TYPE_ID column typically holds the following value:

1: The document was successfully rendered.

Additional values are reserved for future use.

Table: <prefix>MSTRLOGSEGMENT ([service execution : subscription : job] level tracking)

Column Name	Primary Key	Data type	Purpose
SEGMENT_ID	No	CHAR(32) not null	Segment execution ID, a GUID-string that uniquely identifies this segment of this service.
SVCEXEC_ID	No	CHAR(32) not null	Service execution ID, a GUID-string that uniquely identifies this execution of this service.

Table: <prefix>MSTRLOGQRAJOBS ([service execution : subscription : job] level tracking)

Column Name	Primary Key	Data type	Purpose
SUBS_ID	Yes	integer(4) not null	Subscription ID, a 4-byte integer that uniquely identifies a subscription within a subscription set.
SEGMENT_ID	Yes	CHAR(32) not null	Segment execution ID, a GUID-string that uniquely

Column Name	Primary Key	Data type	Purpose
			identifies this segment of this service.
JOB_GUID	Yes	CHAR(32) not null	Job GUID, a GUID-string that uniquely identifies a job.

Table:<prefix>MSTRLOGQRAJOBINFO ([job] level tracking)

Column Name	Primary Key	Data type	Purpose
JOB_GUID	Yes	CHAR(32) not null	Job GUID, a GUID-string that uniquely identifies a job.
JOB_ID	No	integer(4) not null	Job ID, a 4-byte integer that uniquely identifies a job in the I-server.
SESSION_ID	No	CHAR(32) not null	Session ID, a GUID-string that uniquely identifies a session in the I-server.
PROJECT_ID	No	CHAR(32) not null	Project ID, a GUID-string that uniquely identifies a project.
IO_ID	No	CHAR(32) not null	Information object ID, a GUID-string that uniquely identifies this information object in this service.
IS_ID	No	CHAR(32) not null	Information source ID, a GUID-string that uniquely identifies the

Column Name	Primary Key	Data type	Purpose
			information source.
SERVER_NAME	No	Varchar(255)	Server Name, a 255 character string that uniquely identifies the server name or IP address of the server.
EXECUTION_MODE	No	integer(4) not null	Execution mode, a 4-byte integer that uniquely identifies the execution mode of a service, which could be Personalized Page Execution (PPE) or Personalized Report Execution (PRE).
STATUS	No	integer(4) not null	Status, a 4-byte integer that uniquely identifies the job execution status.

To get a report of the users who received the message, the message that they received, and the time when they received the message, you can join the tables <prefix>MSTRLOGMSG, <prefix>MSTRSUBSCRIPTIONS, <prefix>MSTRUSERS, <prefix>MSTRLOGQRAJOBS, <prefix>MSTRLOGQRAJOBINFO, IS_REPORT_STATS, <prefix>DSSMDOBJINFO, and <prefix>MSTRLOGSEGMENT using the following SQL statement:

```
SELECT MR_USER_NAME as User, OBJECT_NAME as Report, MR_
TRANS_TS as TimeDelivered
from MSTRLOGMSG as A,
MSTRSUBSCRIPTIONS as B,
MSTRUSERS as C,
```

```
MSTRLOGQRAJOBS as D,  
MSTRLOGQRAJOBINFO as E,  
IS_REPORT_STATS as F,  
DSSMDOBJINFO as G,  
MSTRLOGSEGMENT as H  
where A.MR_SUBS_ID = B.MR_SUB_ID  
and B.MR_USER_ID = C.MR_USER_ID  
and A.MR_SUBS_ID = D.MR_SUBS_ID  
and D.MR_JOB_GUID = E.MR_JOB_GUID  
and E.MR_JOB_ID = F.JOBID  
and E.MR_SESSION_ID = F.SESSIONID  
and F.REPORTID = G.OBJECT_ID  
and A.MR_SVCEXEC_ID = H.MR_SVCEXEC_ID  
and H.MR_SEGMENT_ID = D.MR_SEGMENT_ID
```

Sending e-mail notification for file and print delivery

Whenever an e-mail service is executed, it is possible to know whether the e-mail has been delivered to the specified address, but for file and print delivery services, it is not possible to know when the file has been exported or when the print job is completed. The users of Narrowcast Server and Web now have an option of sending an e-mail notification after the file or print delivery is complete. This option can be set through the Subscription Properties Editor. The notification e-mail is sent after the file or print delivery is complete, and the status of the service and transmission is included in the notification message.

The e-mail notification includes the following content:

- Name of content to be delivered
- Delivery method-file or print
- Delivery address
- Delivery date and time

- Content delivered
- Content details
- Error messages in case of failure-If the printer is not available or if there is an error writing to the network location.

A sample layout of the notification e-mail for file delivery is shown as follows:

```
Dear %Notification User%,
The following file delivery %Delivery Status%.
Service Name: %Service Name%
Execution Date: %Date%
Execution Time: %Time%
Delivery address: %Address% %Backup Address%
Links to files: Shows links to files for file delivery
Content delivered: Names of Narrowcast Server
documents
Content details: Name of report/document in the service
%Error Messages%
```

A sample layout of the notification e-mail for print delivery is shown as follows:

```
Dear %Notification User%,
The following print delivery %Delivery Status%.
Service Name: %Service Name%
Execution Date: %Date%
Execution Time: %Time%
Delivery address: %Address% %Backup Address%
Links to files: Shows links to files for file delivery
```

Content delivered: Names of Narrowcast Server documents

Content details: Name of report/document in the service
 %Error Messages%

The conditions that result in the failure or success of the service are tabulated as follows.

Type	Scenario	Status
File	All content delivered to primary address.	Succeeded
File	Partial content delivered to primary address (partial file or part of the list of files) and backup location is not set.	Failed
File	No content delivered to address and backup location is not set.	Failed
File	Partial content delivered to primary address and remaining delivered to backup location.	Failed
File	All content delivered to backup location after delivery failure to primary location.	Failed
File	Partial content delivered to backup location (partial file or part of the list of files) after delivery failure to primary location.	Failed
File	No content delivered to backup location after delivery failure to primary location.	Failed
Print	All content delivered to primary address	Succeeded

Type	Scenario	Status
Print	Partial content delivered to address (partial printing or part of the documents list was printed) no backup location is set.	Failed
Print	No content delivered to address and backup location is not set.	Failed
Print	No content delivered to primary address and backup location is file.	Failed
Print	All content delivered to backup location after delivery failure to primary location.	Failed
Print	Partial content is delivered to primary address and remaining is delivered to backup address.	Failed
Print	Partial content delivered to backup location (partial printing or part of the documents list was printed) after delivery failure to primary location.	Failed
Print	No content delivered to backup location after delivery failure to primary location.	Failed

Specifying document creation options

In Narrowcast Server, the following options are available for document creation:

- Create new documents within Narrowcast Server (from Narrowcast Administrator, Service Wizard, or Publication Wizard)

- Link to existing MicroStrategy Developer documents (Report Services and HTML documents already created in Developer)

The first option allows application designers full control of what they create, which includes all Narrowcast Server documents: Excel, HTML, Plaintext, and imported documents. These documents can later be opened and edited, according to the properties available for each format.

The second option allows application designers to link to existing documents in MicroStrategy Developer, which are already fully designed and may include multiple reports as well as page headers and footers and other information. They are ready to be sent in a service with no additional design. These documents cannot be opened or edited from within Narrowcast Server; you can do this from Developer.

You can elect for application designers to only have one of the above options available, or to choose. You specify this for all application designers using the Narrowcast Server system.

Administering multiple systems


One of the powerful features of Narrowcast Administrator is its ability to connect to and administer more than one system at a time. This feature allows administrators with the appropriate account permissions to connect to two or more systems, view and manipulate their objects, monitor their execution queues, and control their states—all from within one interface. In addition, Narrowcast Administrator provides the ability to copy or migrate objects between two systems. The ability to administer multiple systems is useful for:

- Maintaining separate development, test and production environments, and migrating objects between these
- Archiving and restoring a distinct version of a system
- Controlling and monitoring multiple systems

When a system is created with the System Configuration Wizard, it can be set up for service execution, or it can be configured so that it does not have any distribution managers or execution engines, and therefore cannot execute services. This latter option is useful for storing versions of a system, as explained below.

Maintaining separate environments

Many Narrowcast Server installations use more than one environment for operations. At these installations, separate environments are maintained for development and production, and sometimes additional environments are created for testing and other purposes. The objects for a production system are first developed in the development environment. There, they are tested under controlled conditions to ensure correct behavior before they are copied to the production environment.


Copying the tables used by an Object Repository to create a duplicate, backup system is not recommended. This action can result in two systems that share  the same system components and Subscription Book Repository. Object management provides a safer way to back up a system and also gives you greater control over which objects are copied.

The System Configuration Wizard can be used to create these systems, or a system administrator can register an existing system to connect to it. Once Narrowcast Administrator is connected to two systems, it can be used to view the definitions of objects in either system. This is useful for determining whether an object in a production environment has the same definition as the same object in a development environment. It also provides a way to migrate objects from one environment to another.

Migrating objects between systems

In MicroStrategy Narrowcast Server 7.x and later, administrators can manage multiple systems from one console. This new feature allows administrators to move objects between development and production

repositories in a manner similar to the way MicroStrategy Administrator Object Manager works. The administrator can simply drag and drop objects from a folder in the development system to the corresponding folder in the production system. To copy objects across systems, it is very important that the systems involved have different system IDs.

Duplicating a system by creating a backup of an existing database, and creating a new system pointing to this backup is not recommended because even though you may change the name of the new system, the system IDs of these two systems are the same. Therefore, you cannot see both the systems  at the same time in the Narrowcast Administrator console. Also, the pointer to the Subscription Book Repository location is stored in the Object Repository, and when the Object Repository and Subscription Book Repository tables are duplicated, the new Object Repository tables would still point to the old Subscription Book Repository tables.

To set up the MicroStrategy Narrowcast Server - Object Manager it is necessary to have:

- A computer with MicroStrategy Narrowcast Server Administrator console.
- All of the Data Source Names (DSNs) used in both the production and development systems.
- Both the production and development systems registered using the appropriate DSN.

After both systems are registered, you must open a window for each system in the MicroStrategy Narrowcast Server Administrator console. The windows can be tiled horizontally or vertically. This setup works as the MicroStrategy Narrowcast Server - Object Manager.

Now, expand the required folders in the development system, and drag and drop the objects to move them from development to production.

This opens the Conflict Resolution dialog box. This dialog box shows all the dependant objects that exist with the same name in both systems. Accept only those objects that you specifically want to overwrite, and click

OK. The objects from the development system are successfully moved to the production system.




The subscription sets are copied without the actual addresses in them; so you have to add the addresses in the new system that you create.

Migrating objects with dependencies

The object management capabilities of Narrowcast Administrator were designed specifically to support the migration of objects between environments. The user interface makes this process as easy as copying a file from one folder to another in Windows Explorer. However, it is important to recognize that the objects in a system are not the same as files on a disk. For example, some objects depend upon other objects to complete their own definitions. Services depend upon schedules, publications, and subscription sets. Publications depend upon documents, locales, devices, and so on. Because of these dependencies, copying an object such as a service without also copying the objects upon which it depends would not produce a useful result in the destination or target system—the service would not be usable.

Note the following:

- All objects inside the Applications folder can be migrated from one system to another.
-  • Only the following objects inside the Administration folder can be migrated: device subfolders and devices, locales, information sources, document formatters, and information transmitters.
- The system object, the Applications folder, the Administration folder, and other administration objects cannot be migrated.

Narrowcast Administrator resolves the problem of object dependencies by automatically locating and migrating all of the objects used by an object being migrated. So when a service is migrated from one system to another,

any publications, subscription sets, and schedules used by that service are also migrated. And because each of these objects can also have dependencies, Narrowcast Administrator ensures that objects used by those objects are migrated as well, until every object ultimately required to modify or execute the service being migrated is also migrated.

Repeated object migration

The copying of dependent objects can result in the migration of tens or even hundreds of objects when services supporting a large number of devices and a complex set of content are migrated. It might be acceptable for new copies of all of these objects to be created in the target system the first time a service is migrated, but it would certainly not be acceptable for subsequent migrations of that service or other services. Otherwise, the number of objects in the target system would quickly grow to become unmanageable. More importantly, different copies of the same object, such as an e-mail client device, would be treated differently by the system, so users might find themselves needing to create several addresses that all use different copies of the same device to be able to subscribe to different services. This is obviously not desirable.

As a result, Narrowcast Administrator uses object IDs to uniquely identify each object within a system. When an object is copied from one system to another, it retains this object ID. Thus, Narrowcast Administrator can determine when an object that is being copied or migrated to a target system already exists in that target system. In this way object migration is very different from copying files between disks, because while a copy of a file is a copy, an object copied to a different system is better described as an instance of the same object, merely existing in a different system. The original object and its copy can both be modified and used independently, but whenever one of them is migrated to the other system, Narrowcast Administrator determines that the object already exists. This holds true whether an object is explicitly migrated by the user, or implicitly migrated due to a dependency.

Migration scenarios

Only one object with a given object ID can exist in a given system at any time. Therefore, Narrowcast Administrator gives you the choice of either replacing an object that already exists in the target system, or rejecting the migration and keeping the object that already exists within the target system. However, merely knowing that the object already exists is not particularly useful in determining which of these two options to take. For this reason, Narrowcast Administrator provides additional information in this situation to help you decide which option is the right one.

Five scenarios can occur when an object is migrated from one system to another. The most straightforward scenario is the one in which the object does not yet exist in the target system, in which case it is created. All of the other scenarios involve the prior existence of the object in the target system, and are distinguished by whether or not the object in either the source, target, or both has been modified since the last time that same object was migrated between the two systems.

Create—The object being replicated does not exist in the target system. Accepting this action creates the object in the target system using the definition of the object in the source system.

Refresh—The object being replicated exists in the target system, and has the same definition as the object in the source system. Neither object definition has been modified since the object was last migrated from one system to the other. Accepting this action does not cause a material change to the definition of the object in the target system.

Update—The object exists in the target system, and its definition has not been modified since the object was last migrated from one system to the other. However, the definition of the object in the source system has changed since the object was last migrated. Accepting this action updates the definition of the object in the target system to be the same as the newer definition of the object from the source system.

Overwrite—The object exists in the target system, and the objects in both the source and target systems have been modified since the object was last migrated. Accepting this action causes the definition of the object in the target system to be replaced with the definition of the object from the source system, which loses any changes that were made to the object in the target system since the object was last replicated.

Revert—The object exists in the target system, and its definition has been modified since the object was first replicated from one system to the other. The object in the source system has not been modified since the object was last migrated. Accepting this action causes the object in the target system to lose the changes that were made to it since the object was last replicated.

Some migration scenario examples are shown in the following figure, and are explained below.

Copy an object from test to production for the first time (creates object B in system B).

Upgrade an object in production with its improved definition from the test environment (updates the definition of object B in system B with the definition of object A' from system A).

Roll back an object in production to its original definition from the test environment (reverts the modified definition of object B' in system B to its original definition when it was copied from object A from system A).

Replace an object in production that was modified with a hot fix, to the definition of an improved object from the test environment (overwrites the modified definition of object B' in system B with the modified definition of object A' from system A).

Recopy an object from test to production, to ensure that both objects have the same definition (refreshes object B in system B with the definition of object A from system A, which is identical).

Using scenarios to prevent errors

The difference between an update and an overwrite can be used to ensure that improvements to objects made in a development environment are migrated to a production environment, but objects that intentionally differ in the production environment are not accidentally replaced with the corresponding objects from the development environment. For example, a development environment might have an e-mail transmitter configured to save all e-mail messages to disk rather than transmit them via SMTP. That same e-mail transmitter in the production environment might be configured to only transmit via SMTP, however. So while it might be useful to modify a device in the production system with an improved version of that device from the development system, the e-mail transmitter in the production system should not be overwritten. Using the ability of Narrowcast Administrator to distinguish between an update scenario (the improved device) and an overwrite scenario (the e-mail transmitter) helps prevent user error when deciding which object migrations should be accepted or rejected.

The revert scenario can be used to prevent the accidental loss of spot changes made in a production environment, such as "hot fixes," by rejecting any migration action of that type.

Migration and folder structures

A file on a disk is uniquely identified by its name and the directory or folder in which it exists. Because of this, two files with the same name can exist in two different folders. However, it is more desirable to identify objects by ID than by name and location when performing object migration. This can create a problem because the location in which dependent objects should be copied becomes ambiguous if dependent objects in the source and target systems are in different locations. Should updated dependent objects be moved to the target folder as in the source system, or should they be kept where they are? Either result can cause confusing and what might appear to be unpredictable behavior for the user performing object

migration. Furthermore, folders in a system serve a purpose for the Subscription Portal, just as folders on a disk serve a purpose when they are referenced by a virtual directory.

For these reasons, Narrowcast Administrator treats the folder in which an object exists the same as it does a dependent object. The folder is migrated just as any other dependent object would be. When a folder is contained within another folder, that parent folder is also treated like a dependent object, and so on up to the Applications and Administration folders in a system. The result is that when objects are migrated from one system to another, the complete folder structure containing those objects and their dependent objects is migrated as well. Because of this, object migration should not be thought of as a way to copy an object from a folder in one system to a folder in another, but rather as a way to copy an object from one system to another, for the purpose of ensuring the consistent behavior of that object between the two systems. For information on best practices associated with folder structures, see

Properties not preserved during migration

When an object is migrated from one system to another, the following object properties are not preserved (regardless of whether the action being performed is to create, refresh, update, revert, or overwrite the object in the target system):

Owner—The owner of the object in the target system is the same as the current user account, which might not be the same as the owner of the object in the source system. This ensures that the security of the target system is maintained, and that an object is not created there with an owner that does not exist as a recognized account. It also ensures that the individual performing the migration cannot circumvent the security of the target system.

Created—The created date/time stamp of the object in the target system is not the current date and time. Nor is it necessarily the same as the Created date from the source object. Instead, it is the same as the Last Modified

date/time stamp from the source object. This enables the product to distinguish between Refresh, Update, Revert and Overwrite situations during subsequent migrations.

Last Modified—The last modified date/time stamp of the object in the target system is not the current date and time. It is the same as the Last Modified date/time stamp from the source object. This enables the product to distinguish between Refresh, Update, Revert and Overwrite situations during subsequent migrations.

Modified by—The owner of the object in the target system is the same as the current user account.

For steps to copy and restore objects for backup, see [Copy and Restore Objects](#).


Creating and restoring versions

You now know that Narrowcast Administrator can be used to copy the definition of an entire system from one environment to another. This capability can be used to store "snapshots," or versions of a given system. The easiest way to make a complete copy of the definition of a system (with the exception of the cluster definition) is to create an empty system that has no cluster definition and then copy the contents of the Information Source Modules, Document Formatters, Information Transmitters, Devices, Locales, and Applications folders from the original system to this empty system. This copy system then holds a version of the original system.

When a system is created using the System Configuration Wizard, it is automatically populated with dozens of objects including devices, locales, transmitters, document formatters, folders, schedules, Excel files, and many other objects that make your tasks and the Service Designer's tasks easier. However, if any of these objects are deleted from a given system, they should also be deleted from each empty system used to store a version of that given system. Otherwise, the version-store system does not provide an

accurate representation of the original system due to the existence of these extra objects.

Restoring a version is also a simple process. Restoration can be done on an entire system or on individual objects, for example, reverting the definition of an object that was damaged during development back to its original, working definition.

 When restoring a specific version for an entire system, it is important to remember to clean out the existing objects in the system as the restoration process does not automatically delete objects that did not exist in the stored version.

Controlling and monitoring multiple systems

The Narrowcast Administrator interface provides the ability for several windows to be open at the same time, each displaying a different view of any one of the systems registered on the machine. This multi-window capability can be used to create a status console, including error display, service queues, scheduled service lists and other useful information by tiling several of these windows on a single screen.

System control is context sensitive. The system being controlled by the buttons on the toolbar or the menu options depends upon the application window that was most recently selected. This is important to keep in mind when trying to start up or shut down one of several systems.

To prevent accidental changes to a system when monitoring, account privileges can be used to control what capabilities the person controlling or monitoring the system has. For example, to prevent modification of application objects, remove the Service Designer and Application Administrator privileges for the account being used for monitoring.

Viewing system messages

Narrowcast Server provides a way to view system messages, including error messages, execution events, and others. You can save the entire list


of messages, configure the settings for logging that include time zone, date format and time format, configure the log file by file size and time, sort the logged messages by time, and log the different items in each message in a format that can be easily read and understood.

The System Message Viewer dialog box is the tool that monitors the system messages, including errors, statistics, and debugging information, generated by the Delivery Engine during service execution. It connects to the MicroStrategy Logging Server, and retrieves from there all messages that match any of the selected message types. These matching messages are then retained in memory in a message log. The content of the message log is displayed in the System Message Viewer. When the content of the message log exceeds the user-specified number of lines, the least-recent lines are overwritten by new messages.

This can be used in a variety of ways:

- As an error-display console for a Network Operations Center
- As a diagnostic tool for aiding in the development of new services
- As an observation tool for watching the flow of execution of a service across a clustered system

By controlling the types of messages that are shown, you can configure the System Message Viewer for each of these purposes. To use the System Message Viewer as an error-display console, configure the viewer to only show errors. For an observation tool, enable information-level logging. And for a diagnostic tool, enable debugging messages.

 It is not recommended to use component-level debugging on a production system unless necessary, as the additional logging reduces the performance of the system.

Setting the administrative notification

It is important for the Narrowcast Server administrator to know whether a service and all segments within it ran successfully. Failure at any stage

should be cause for alert, depending on the particular service and system. The administrator should be notified in case of failure of a system, a service, an Information Object, and so on. For example, it would be beneficial if the administrators would receive a series of e-mails regarding service summaries that give them information regarding the overall success or failure of a service, the names of recipients who received its content and those who did not, and the reasons for certain recipients not receiving the data, such as 'IO returned no data' or 'IO failed' along with the name or ID of the Information Object.

MicroStrategy Narrowcast Server provides the ability to set and send such notifications to system administrators. Administrators can configure these notifications and choose the delivery address.

Tuning the Delivery Engine

Tuning the Delivery Engine in your Narrowcast Server system is important to help you ensure that you get the best possible value from your investment. The various configuration and service settings are given default values that are designed to provide robust, stable system operation with a configuration that meets the minimum system requirements. It is very likely that your system has more memory, disk space, CPU processing power, and other resources that you want Narrowcast Server to use to the fullest potential. Tuning helps you achieve this potential with your system configuration.

The behavior and performance of the Delivery Engine vary widely based on the definitions of the services that are run. For this reason, the default configuration and service settings are typically not the optimal settings for your application. Tuning helps you optimize these settings so that they are better suited to your application.

Before you can begin to tune your Narrowcast Server system, you must understand the following concepts and terms.

System workload capacity: If you take the sum of the workload capacities of all running execution engines in a system, the resulting value is the system

workload capacity. This represents the maximum number of segments that the Delivery Engine can be actively processing at any moment in time.

Execution cycles: If you divide the number of subscriptions to a service by the segment size for that service and round up to the nearest integer, you get the number of segments for that service. If you then divide this number by the system workload capacity, you arrive at a ratio representing the hypothetical number of service segments that a segment executor on any given execution engine will need to process. This ratio is referred to as the number of execution cycles required to complete the service. In reality, the system does not behave in this manner, but it proves to be a useful metric nonetheless.

Part of the tuning process involves modifying some variables that are dependent upon other tuning variables or tasks. For this reason, the order in which you perform tuning steps is important. The tuning steps are:

Minimize report size

Reduce report count

Optimize system workload capacity

Control memory consumption

Optimize execution cycles

In addition, you can *Specify queue sizes for segmentation*

Minimize report size

If it is possible to reduce the size of the reports that you include in service content, such as by eliminating extraneous rows or columns, then this technique can be used to improve service throughput.

Reduce report count

The more reports Narrowcast Server needs to execute, the more work (in particular, XSL processing) the segment executors need to perform to complete the execution of a service segment. By reducing the number of reports in a service, you reduce the work that MicroStrategy Intelligence Server and the segment executors need to perform.

One way to dramatically reduce report count is to use personalized page execution mode. This can reduce by two orders of magnitude or more the number of reports that the system needs to run to generate personalized content.

For more information on personalized page execution, refer to Page Personalization and Dynamic Subscriptions in the Narrowcast Server Application Designer Guide.

Optimize system workload capacity

The workload capacity of each execution engine can be tuned to achieve the highest possible throughput from a system. As a rule of thumb, it is recommended that the maximum number of simultaneously executing segments (the workload capacity) on an execution engine never be configured below the number of processors in the machine. Otherwise, there is an under utilization of the memory and processor power. Instead, a value between 1.5 and 2 times larger should be chosen. This ensures that all available CPU power is being tapped while services are executing.

The optimal workload capacity for an execution engine is the value at which it achieves the highest segment completion throughput rate. Scientific testing can be used to narrow in on the best configuration for each execution engine.

Control memory consumption

As you increase system workload capacity, you also increase the amount of memory consumed by the execution engines during service execution. The fourth step in Delivery Engine tuning is to ensure that memory consumption remains below a safe upper bound.

The easiest way to control memory consumption is through segment size. As segment size increases, memory consumption increases as well. As a result, there is an upper boundary on the segment size that you can use for segments, given your workload capacity configuration and service definitions. This varies from one service to the next, and is dependent on the complexity of each service definition. For example, a service with many reports and documents consumes much more memory than a simple service with one report for the same number of subscriptions. The upper boundary for any given service is the "safety value" below which you can ensure that memory consumption on the machine never exceeds the available physical and virtual RAM.

You can measure the total virtual memory consumed on an execution engine machine during service execution by using Microsoft Windows Performance Monitor. By monitoring the total virtual bytes used for an execution engine during service execution, you gain insight into the memory consumption characteristics of each service. You can then use this information as a maximum allowable value for the segment size so that you never risk the overconsumption of memory.

Optimize execution cycles

Once you have ensured that your actions do not cause excessive memory consumption, you are ready to optimize the segment size for each service. The segment size for a service should be sufficiently small that the number of execution cycles is significantly larger than 1, and potentially closer to 10. If the subscription set for a service has 10,000 recipients, the segment size is 100 and the system workload capacity is 10, then the number of execution cycles can be calculated as follows:

```
(10,000 subscriptions) / 100 (subscriptions / segment) = 100segments  
100 segments / 10 (segments / execution cycle) = 10 execution cycles
```

Note that this calculation is dependent on the workload capacity of the system, and should therefore be performed after system workload capacity has been optimized. Also, you should not use this value if it exceeds the safety value identified during the memory consumption control step (in which case you should use the safety value).

For services running reports in personalized report execution mode, tuned segment sizes typically range from 10 to 50 subscriptions per segment. For personalized page execution mode, the band of optimization is very broad; often there is little difference in performance between segment sizes of 20 and 2000 subscriptions.

Specify queue sizes for segmentation

Narrowcast Server allows you to specify how the size of the pending segment queue determines whether the next service in the pending queue is segmented. Two settings control this behavior: At least and At most. Under normal operations, the primary distribution manager begins segmentation for the highest-priority service in the service queue when the following is true:

(The service is of higher priority than any services that have been segmented for which segments are still in the segment queue.

or

The number of segments in the segment queue is below the "At least" value.)

and

The number of segments in the segment queue is below the "At most" value.

This behavior offers the following benefits:

The system cannot be overloaded with segment data. The "at most" value ensures, above all else, that the system cannot be overloaded with segment data. This helps to maintain system stability in high-load or transient-load environments.

The available hardware is used to maximum benefit. The "at least" value ensures that the available segment executors on the operational execution engines are kept fully loaded. If the segment execution queue were allowed to go empty before the next service in the service queue were segmented, the segment executors would need to wait for the next service to be segmented each time a service was finished.

High-priority services do not need to wait for lower-priority services that are already running. If the segment queue were filled to the "at most" value with segments from low-priority services whenever such services were present in the service queue, it would not be possible for high-priority services to preempt lower-priority services as they would need to wait until the segment queue size was reduced below the "at most" level.

The two values are described below.

At least


If the number of segments in the segment queue awaiting execution drops below this number, the primary distribution manager gets the service in the service queue with the highest priority, even if that is the same or lower priority than the service for each segment currently in the segment queue. Increasing the "at least" value helps ensure that the execution engines are kept fully utilized in a high-throughput environment by ensuring that the queue is never emptied. Decreasing the "at least" value helps ensure that the primary distribution manager does not fill up the segment queue unnecessarily with segments waiting to execute. To determine a satisfactory "at least" value, perform the following calculation:

Calculate the workload capacity of your system by adding the workload capacities of the operational (that is, running) execution engines.

Determine or estimate the fastest time in which a single segment for any given service in your system is executed. You might consider using a two- or three-sigma outlier value rather than the absolute fastest time.

Determine or estimate the slowest time in which any given service in your system is segmented. You might consider using a two- or three-sigma outlier value rather than the absolute slowest time.

Divide the slowest segmentation time by the fastest segment execution time. Round the result up to the nearest integer, add one, and multiply this value by the system workload capacity. This value represents the optimal value for the "at least" parameter.

 This value should be made much smaller than the "at most" value.

An example follows. If it takes as long as 85 seconds to segment a service, the fastest segments execute in 10 seconds, and the workload capacity of a system is 30, we want to ensure that all 30 segment executors are fully loaded during the entire time that the next service is being segmented. This requires $85 \text{ seconds} / 10 \text{ seconds per segment} = 8.5$ segments per available segment executor to ensure that the workload duration for the segment executors is equal to the workload duration for segmentation. Rounding this value up to 9 ensures that a portion of the segment executors do not run out of segments to execute in the segment queue before segmentation is complete. Adding 1 takes into account the possibility that the segments currently executing when a new service arrives are nearly complete, and therefore consume negligible time. So the minimum optimal value for the "at least" parameter is $(9+1) * 30 = 300$ segments.

At most

If the number of segments in the segment queue awaiting execution exceeds this number, the primary distribution manager will not segment any more incoming services, even if those are higher priority than the services for every segment currently in the queue. Decreasing the "at most" value

helps conserve memory on the primary distribution manager machine. Increasing the "at most" value helps ensure that in a high-volume environment with a large number of segments in each service, the primary distribution manager does not wait unnecessarily to segment high-priority services. In general, this parameter should have a value that is much larger than the "maximum segments per execution" parameter, to ensure that the segment queue can hold the segments for several large services at the same time.



Before segmentation is performed on a service, the number of segments in that service is not known. Because of this, the governing setting "At most" for segment queue sizes to trigger segmentation can be exceeded by a number of segments calculated as:

$$(<maximum\ number\ of\ segments\ per\ service> * <maximum\ concurrent\ expansions> - 1)$$

Using an "at most" value that is too large causes unnecessary consumption of memory and reduced primary distribution manager performance as the primary distribution manager needs to maintain a larger segment queue. Therefore, this value should only be increased if necessary to ensure that a full queue does not cause high-priority services to wait. If all services are the same priority, this setting need not be set significantly larger than the "at least" value.

Maintaining Narrowcast Server systems

While Narrowcast Server is running, it modifies the system environment over time. This modification originates from the log files, transmission recording records and other operational outputs that Narrowcast Server generates when it runs services and administers subscriptions.

Maintaining a Narrowcast Server system requires that these records and files be periodically cleaned up and archived so that the system does not eventually run out of available disk or table space.

Log files

MicroStrategy Narrowcast Server generates log files in several locations. Most of these log files are only populated if errors occur during Subscription Portal use or service execution. As the system administrator, it is your responsibility to monitor these files and truncate them when they grow unnecessarily large.

Most of these locations depend upon your installation. Apply the following constants when determining one of these locations:

- `%Application Path%` is the folder into which Narrowcast Server was installed. One example is `"C:\Program Files\MicroStrategy\Narrowcast Server"`.
- `%Common Files Path%` is the folder into which the MicroStrategy common files were installed. This is typically `"C:\Program Files\Common Files\MicroStrategy"`.
- `%Windows Path%` is the folder into which the Microsoft Windows NT or Windows 2000 operating system was installed. This is typically `"C:\WINNT"` or `"C:\WINDOWS"`.

The list of log file locations is provided here. Note that this does not include log files created or populated during the installation and configuration process:

- `%Application Path%\Subscription Portal\asp\logs`: This location stores log files for errors that occur in the Subscription Portal .ASP pages.
- `%Common Files Path%\Log`: If errors occur in the ODBC connections that Narrowcast Server uses to interact with the Object Repository and Subscription Book Repository, the error information is logged here.
- `%Windows Path%\system32\LogFiles\W3SVC1`: By default, Microsoft Internet Information Server stores website log files in this location.
- `%Application Path%\Delivery Engine`: The MicroStrategy Logging Consumer stores log files here when it is configured to do so. Once they

exist, these log files do not grow over time. Instead, they are overwritten in a cyclical fashion.

Repository databases

The repository databases require occasional maintenance. This maintenance includes index regeneration and table space administration. In particular, the contents of the transmission recording tables in the Subscription Book Repository continue to grow for the life of a Narrowcast Server system, as long as transmission recording is enabled. Maintenance of the transmission recording tables requires periodic archiving and truncation. Maintenance of the remainder of the repository database tables primarily requires periodic index regeneration.

Copying Repositories

Narrowcast Server provides a simple option to make copies of its repositories, which eliminates the complexities related to manually copying repositories. You might make copies of the Narrowcast Server repositories for many reasons, including the following:

- Create a copy of the production environment to test the upgrade to a newer version of the MicroStrategy product.
- Copy the development environment to create a test or production environment.
- Copy a repository from one database to another.

The Copy Repository dialog box allows you to make copies of the Object repository and the Subscription Book repository. For steps to copy the repositories, see [Configuring a Narrowcast Server System](#).

Note the following:



It is recommended that administrators perform the copy operation when there is no or low system activity. After a system is copied and turned on, any Send

Now subscriptions running on a one minute schedule are executed. Because the Send Now subscription sets cannot be opened, the administrator cannot view the subscriptions it contains and cannot delete the subscriptions. In the copied system, the administrator should also disable the delivery on those services that are executed on a one minute schedule.



System copying should be done when users or administrators are not actively using the system. This helps minimize potential inconsistencies introduced by modifications made to the Object Repository and Subscription Book Repository while the copy is being made. It is a good practice to have the system shut down when copying.

Using Command Manager to automate key processes

MicroStrategy Command Manager is an application that lets you perform certain administration and application development tasks by using text commands that can be saved as scripts. Command Manager lets you add, delete, or update enterprise-level data associated with large numbers of users and user groups. Additionally, Command Manager allows you to manage various configuration settings within the MicroStrategy platform.


Command Manager support for MicroStrategy Intelligence Server

MicroStrategy Command Manager allows you to manage and run scripts that change many of the MicroStrategy system settings, objects, and user properties. Scripts can change multiple settings all at once without using the MicroStrategy Developer interface. You can create scripts to be run at times when it would not be convenient for you to make the changes. For more information on Command Manager support for MicroStrategy Intelligence Server, refer to the MicroStrategy System Administration Guide.

Command Manager support for Narrowcast Server

MicroStrategy Command Manager supports the Narrowcast Server system. Command Manager lets you perform manipulations on the Narrowcast

Server system, Narrowcast Subscription Book and Subscription Sets, and triggers Narrowcast Server services.

 Administrator privileges are not required to run a service using Command Manager. You only need Access and Launch DCOM permissions to run a service. For more information on assigning DCOM permissions, see [Starting the Delivery Engine](#).

Command Manager contains sample scripts for Narrowcast Server also, which you can customize according to your system requirements and save as script files for later use. Command Manager scripting is not only convenient for mass operations, but also for event driven execution of services, and as a good alternative to the use of pre-/post-SQL in subscription sets.

For step-by-step instructions about using Command Manager, see the Command Manager online help (press F1 while using Command Manager graphical interface).

Using Command Manager

You can use Command Manager in the following ways:

- Start the Command Manager graphical interface, which you use to view sample script outlines, create, modify, delete, or run scripts (explained below).

To access Command Manager, from the Windows Start menu, point to Programs, MicroStrategy Products, then choose Command Manager. From the File menu, select Connect or click the Connect icon on the toolbar.

To perform a connection to the Narrowcast Server metadata, you must specify the data source name, a user name, and a password. You must also specify the database location and a prefix, if any, where a Narrowcast Server system resides, to connect to the metadata and manipulate it. The Command Manager console stores the information of

the last five successful Narrowcast Server connections for future reference and quick access, so that you do not have to always remember the connectivity parameters to the Narrowcast Server Systems.



When connecting to an Oracle Object repository, the prefix for Oracle Databases should include the login, for example, NCSDBA.Testsys.

- Call the Command Manager executable including necessary parameters such as the script file to run, from the Windows scheduler, Windows command prompt, or other applications such as system management software. The following section explains the procedure to access the Command Manager using the Windows command prompt.

Using DOS commands to execute Command Manager scripts

You can use DOS commands to execute Command Manager scripts through which you can access Narrowcast Server. The syntax of the commands is given as follows:

```
cmdmgr -w ODBC_DSN -u Login [-p Password] [-d Database]
[-s System_Prefix] [-f Inputfile] [-o Outputfile]
```

where, parameters enclosed in brackets ("[" & "]") are optional. The parameters are:

- `-w ODBC_DSN`

Specifies the data source name which is used to connect to the application.

- `-u Login`

Identifies the user name to be associated with the data source name.

- `-p Password`

(Optional) Provides the password for the username. If omitted, the system assumes a NULL password.

- `-d Database`

Specifies the database to which you want to connect

- `-s System Prefix`

Specifies the prefix where a Narrowcast Server system resides

- `-f Inputfile`

(Optional) Identifies the name, and the full path if necessary, of the script file (.scp) to be executed.

- `-o Outputfile`

(Optional) Logs results, status messages, and error messages associated with the script. Logging can be accomplished through one of the following options:

- Use the parameter `-o` to specify the output file
- Use the log file specified in the options menu (available only when the option is activated)
- Use a temporary CMDMGR.log file for logging purposes
- If the first two options are not selected, the application uses the third option as default.

Statement syntax for Narrowcast Server

This section describes some sample scripts for Narrowcast Server.

Start a Narrowcast Server System

```
START SYSTEM;
```

Stop a Narrowcast Server System

```
STOP SYSTEM;
```

Create a Subscription Book User

This command creates a new user in the Subscription Book.

```
CREATE USER login_name [PASSWORD password HINT hint]
[LOCALE locale_type] [ACTIVE (TRUE | FALSE)] [EXPIRE
(NEVER | [ON] user_expiration_date)];
```

Where:

- login_name is the name of the new user, of type string, between double quotes (").
- password is the password for the new user, of type string, between double quotes (").
- hint is the hint to be used to display if the password is forgotten, of type string, between double quotes (").
- locale_type is the locale to be assigned to the user, of type string, between double quotes (").
- user_expiration_date is the date on which the new user expires, in the mm/dd/yyyy format.

Alter the properties of a user in the Subscription Book

```
ALTER USER login_name [LOGIN new_login_name] [PASSWORD
password HINT hint] [LOCALE locale_type] [ACTIVE (TRUE
| FALSE)] [EXPIRE (NEVER | [ON] user_expiration_date)];
```

Where:

- login_name is the name of the user to be modified, of type string, between double quotes (").
- new_login_name is the new login name of the user, of type string, between double quotes (").
- password is the password for the user, of type string, between double quotes (").

- `hint` is the hint to be used to display if the password is forgotten, of type string, between double quotes (").
- `locale_type` is the locale to be assigned to the user, of type string, between double quotes (").
- `user_expiration_date` is the date on which the new user expires, in the mm/dd/yyyy format.

Delete a user from the Subscription Book

```
DELETE USER login_name;
```

Where, `login_name` is the login of the user to be deleted, of type string, between double quotes (").

List the properties for a user within the Subscription Book

```
LIST [ALL] PROPERTIES FOR USER login_name;
```

Where, `login_name` is the login of the user for whom properties are listed, of type string, between double quotes (").

List Subscription Book Users

List all the users from the Subscription Book.

```
LIST [ALL] USERS;
```

Create an address to be added to a Subscription Book User

```
CREATE ADDRESS address_name FOR USER login_name  
PHYSICALADDRESS physical_address ADDRESSDISPLAY  
address_display DELIVERYDEVICE device_name IN [FOLDER]  
device_location_path [SETADDRESSDEFAULT (TRUE |  
FALSE)] [ACTIVE (TRUE | FALSE)] [EXPIRE (NEVER | ON  
expiration_date)] [DELIVERYWINDOW START start_time END
```

```
end_time] [TIMEZONE GMT timezone_id] [PIN pin];
```

Where:

- `address_name` is the identifier of the address to be added to the user, of type string, between double quotes (").
- `login_name` is the existing user for which the address is to be added, of type string, between double quotes (").
- `physical_address` is the physical address to be added to the user depending on the delivery method, of type string, between double quotes (").
- `address_display` is the display name associated to the physical address, of type string, between double quotes (").
- `device_name` is the name of the delivery device to be associated with the address, of type string, between double quotes (").
- `device_location_path` is the location path where the device resides, of type string, between double quotes (").
- `expiration_date` is the date when the address expires, in the format mm/dd/yyyy.
- `start_time` is the start time (24-hour format) of the delivery window, of type time (hh).
- `end_time` is the end time (24-hour format) of the deliver window, of type time (hh).
- `timezone_id` is the ID for the time zone to be specified, of type integer, according to the following list:
 - 1 = (GMT-12:00) Eniwetok, Kwajalein
 - 2 = (GMT-11:00) Midway Island, Samoa
 - 3 = (GMT-10:00) Hawaii
 - 4 = (GMT-09:00) Alaska

- 5 = (GMT-08:00) Pacific Time (US & Canada); Tijuana
- 6 = (GMT-07:00) Arizona
- 7 = (GMT-07:00) Mountain Time (US & Canada)
- 8 = (GMT-06:00) Central Time (US & Canada)
- 9 = (GMT-06:00) Mexico City, Tegucigalpa
- 10 = (GMT-06:00) Saskatchewan
- 11 = (GMT-05:00) Bogota, Lima, Quito
- 12 = (GMT-05:00) Eastern Time (US & Canada)
- 13 = (GMT-05:00) Indiana (East)
- 14 = (GMT-04:00) Atlantic Time (Canada)
- 15 = (GMT-04:00) Caracas, La Paz
- 16 = (GMT-03:30) Newfoundland
- 17 = (GMT-03:00) Brasilia
- 18 = (GMT-03:00) Buenos Aires, Georgetown
- 19 = (GMT-02:00) Mid-Atlantic
- 20 = (GMT-01:00) Azores, Cape Verde Is.
- 21 = (GMT) Casablanca, Monrovia
- 22 = (GMT) Greenwich Mean Time : Dublin, Edinburgh, Lisbon, London
- 23 = (GMT+01:00) Amsterdam, Copenhagen, Madrid, Paris, Vilnius
- 24 = (GMT+01:00) Belgrade, Sarajevo, Skopje, Sofija, Zagreb
- 25 = (GMT+01:00) Bratislava, Budapest, Ljubljana, Prague, Warsaw
- 26 = (GMT+01:00) Brussels, Berlin, Bern, Rome, Stockholm, Vienna
- 27 = (GMT+02:00) Athens, Istanbul, Minsk

- 28 = (GMT+02:00) Bucharest
- 29 = (GMT+02:00) Cairo
- 30 = (GMT+02:00) Harare, Pretoria
- 31 = (GMT+02:00) Helsinki, Riga, Tallinn
- 32 = (GMT+02:00) Israel
- 33 = (GMT+03:00) Baghdad, Kuwait, Riyadh
- 34 = (GMT+03:00) Moscow, St. Petersburg, Volgograd
- 35 = (GMT+03:00) Nairobi
- 36 = (GMT+03:30) Tehran
- 37 = (GMT+04:00) Abu Dhabi, Muscat
- 38 = (GMT+04:00) Baku, Tbilisi
- 39 = (GMT+04:30) Kabul
- 40 = (GMT+05:00) Ekaterinburg
- 41 = (GMT+05:00) Islamabad, Karachi, Tashkent
- 42 = (GMT+05:30) Bombay, Calcutta, Madras, New Delhi
- 43 = (GMT+06:00) Almaty, Dhaka
- 44 = (GMT+06:00) Colombo
- 45 = (GMT+07:00) Bangkok, Hanoi, Jakarta
- 46 = (GMT+08:00) Beijing, Chongqing, Hong Kong, Urumqi
- 47 = (GMT+08:00) Perth
- 48 = (GMT+08:00) Singapore
- 49 = (GMT+08:00) Taipei
- 50 = (GMT+09:00) Osaka, Sapporo, Tokyo

- 51 = (GMT+09:00) Seoul
 - 52 = (GMT+09:00) Yakutsk
 - 53 = (GMT+09:30) Adelaide
 - 54 = (GMT+09:30) Darwin
 - 55 = (GMT+10:00) Brisbane
 - 56 = (GMT+10:00) Canberra, Melbourne, Sydney
 - 57 = (GMT+10:00) Guam, Port Moresby
 - 58 = (GMT+10:00) Hobart
 - 59 = (GMT+10:00) Vladivostok
 - 60 = (GMT+11:00) Magadan, Solomon Is., New Caledonia
 - 61 = (GMT+12:00) Auckland, Wellington
 - 62 = (GMT+12:00) Fiji, Kamchatka, Marshall Is.
- pin is the pin to be assigned to the address, of type string, between double quotes (").

Alter an address from a Subscription Book User

```
ALTER ADDRESS address_name FOR USER login_name
[ADDRESS new_address_name] [PHYSICALADDRESS
physical_address] [ADDRESSDISPLAY address_display]
[DELIVERYDEVICE device_name IN [FOLDER]
device_location_path] [SETADDRESSDEFAULT (TRUE |
FALSE)] [ACTIVE (TRUE | FALSE)] [EXPIRE (NEVER | ON
expiration_date)] [DELIVERYWINDOW START start_time END
end_time] [TIMEZONE GMT timezone_id] [PIN pin];
```

Where:

- `address_name` is the identifier of the user's address to be modified, of type string, between double quotes (").
- `login_name` is the existing user for which the address is to be modified, of type string, between double quotes (").
- `new_address_name` is the new identifier of the user's address, of type string, between double quotes (").
- `physical_address` is the physical address to be added to the user depending on the delivery method, of type string, between double quotes (").
- `address_display` is the display name associated to the physical address, of type string, between double quotes (").
- `device_name` is the name of the delivery device to be associated with the address, of type string, between double quotes (").
- `device_location_path` is the location path where the device resides, of type string, between double quotes (").
- `expiration_date` is the date when the address expires, in the format mm/dd/yyyy.
- `start_time` is the start time (24-hour format) of the delivery window, of type time (hh).
- `end_time` is the end time (24-hour format) of the deliver window, of type time (hh).
- `timezone_id` is the id for the time zone to be specified, of type integer.
- `pin` is the pin to be assigned to the address, of type string, between double quotes (").

Delete an address from a Subscription Book User

```
DELETE ADDRESS address_name FROM USER login_name;
```

Where:

- `address_name` is the name of the address to be deleted from a user, of type string, between double quotes (").
- `login_name` is the user from which an address is to be deleted, of type string, between double quotes (").

List the properties for a Subscription Book User Address

```
LIST [ALL] PROPERTIES FOR ADDRESS address_name FOR  
USER login_name;
```

Where:

- `address_name` is the user's address for which the properties are to be listed, of type string, between double quotes (").
- `login_name` is the user that contains the address, of type string, between double quotes (").

List all the addresses from a Subscription Book User

```
LIST [ALL] ADDRESSES FOR USER login_name;
```

Where, `login_name` is the user for whom to list addresses, of type string, between double quotes (").

Trigger a Narrowcast Server Service

```
TRIGGER SERVICE service_name IN [FOLDER] location_path  
[SUBSCRIPTIONSET subscription_set1 [, subscription_set2 [...  
subscription_setn]]];
```

Where:

- `service_name` is the name of the service to be run immediately, of type string, between double quotes (").
- `location_path` is the folder path where the service is located, of type string, between double quotes (").

- `subscription_setn` is the name of the subscription set (or list of subscription set names) to be used with this service, of type string, between double quotes (").


Refreshing imported files

To distribute static content or template files to the user, you can import the static content or the templates files to the Narrowcast Server system and then build services to deliver the imported files to the user.

The imported files are stored in the Narrowcast Server repository and are not connected to their source location. As a result, if the content of the source file changes, the imported file stored in the Narrowcast Server repository is not updated. You have to manually select each imported file, browse to its source location and re-import the file. The Refresh Imported file feature simplifies this process by allowing you to update imported files. This feature has the following advantages:

You can select multiple imported files and perform a mass refresh. All the selected files are updated in the Narrowcast Server repository.

You can search for imported files in a folder or the entire system and then perform a mass refresh to import the updated files.

 Before you update the imported files, ensure that you have not changed the path and the file name of the imported files. If you have changed the path or the file name, you have to browse to the updated location or enter the new path to update the imported files.

When updating the selected files, the Refresh Imported File dialog box displays a progress bar that indicates whether the files are successfully updated or not. It also has the option to view the log file, which stores the following details:

date-timestamp when the import process began

result of the import process; whether the file was successfully updated or not and the date-timestamp when the process ended

A log file is generated each time you update the imported files. You can also access the log file from the following location:

```
...\MicroStrategy\Narrowcast Server\Delivery Engine
```

The naming convention for the log file is as follows:

```
FileImportSummary "date-time".log
```



If the log file is not created, an error message is displayed and the process of updating the files is not initiated.

For steps to import and refresh the files, see [Creating Publications and Content Section Documents](#) in the [Narrowcast Server Application Designer Guide](#).

SYSTEM ADMINISTRATOR INTERFACES

Add Narrowcast Server Administrative Accounts Dialog Box


The Add Narrowcast Server Administrative Accounts dialog box allows you to add new users to the Delivery Engine system. For steps to add and remove accounts, see [Manage Administrator Accounts](#).

Accessing the Add Narrowcast Server Administrative Accounts dialog box

Expand Administration. Right-click Accounts and select **New Account**. The Add Narrowcast Server Administrative Accounts dialog box opens.

Prerequisites

Before you can add an account, you must know the Windows NT login of the new user and know what roles the new account will need. For more information, see [MicroStrategy Narrowcast Server architecture](#).

 Any account that is granted the System Administrator role must have administrator permissions on every machine in the system. Otherwise, that account cannot correctly modify the system configuration.

Add Narrowcast Server Administrative Accounts dialog box layout

When you first access the Add Narrowcast Server Administrative Accounts dialog box, it loads the Windows NT users from the network. The status of the load is displayed below the NT users' list. You can cancel the load by clicking Stop.

The left side of the dialog box lists all the NT users in the selected Windows domain. You can select a different domain from the Windows domain drop-down list.

The right side of the dialog box lists the Narrowcast Server users, with their assigned roles. You can use the Add and Remove buttons to add NT users to the Narrowcast Server Administrative Accounts and to remove Narrowcast Server users.

Click Modify Privileges to access the Assign Administrative Privileges to Account dialog box. For more information, see [Assign Administrative Privileges to Account Dialog Box](#).

Administrative Notification Dialog Box

The Administrative Notification dialog box provides additional capabilities for sending notification messages regarding the Narrowcast Server system, service, and IO related events. Administrators can configure these notifications and choose the delivery addresses for the notifications. This feature allows unattended execution and monitoring of the Narrowcast Server system.

Use the Administrative Notification dialog box to configure alerting messages to the Narrowcast Server System administrator regarding the following:

- System wide failure and machine failure such as, machine or DM/EE startup and shutdown.
- Failure or success of a service with details on service execution summary that include recipient resolution, delivery, segment execution, retries and failover.
- Failure or success of a particular IO within a service.

For more information, see [Configuring a Narrowcast Server System](#).

Accessing the Administrative Notification dialog box

From the Tools menu, select Set Administrative Notification. The Administrative Notification dialog box opens.

Prerequisites

The Administrative Notification relies on the MicroStrategy Logging Server for proper operation. If the MicroStrategy Logging Server is not configured properly, or you have not connected to a system from this installation of Narrowcast Administrator, you cannot configure the Administrative Notification interface.

For more information, see the Narrowcast Server Installation and Configuration Guide.

Administrative Notification dialog box layout

In the Administrative Notification dialog box, you can configure the messages and specify the notification addresses for the messages. Notification types include the following:

- **System Wide Failure:** Indicates a system-wide inability to operate.
- **Service or Machine Failure:** Indicates the failure of a service or a machine but does not typically indicate failure of the system as a whole.
- **Recipient Group Failure:** Indicates the failure of a segment or the transmission to a specific group of recipients, but typically does not indicate a system, service, or machine failure.
- **Recipient Level Failure or Temporary Failure:** Indicates a temporary failure or a recipient-level permanent failure such as an invalid address.
- **Service Execution Information:** Provides service execution process-related information such as service execution start, loading of service definition, start of segmentation, service execution completion, and so on.
- **Segment Execution Information:** Provides segment execution process-related information such as segment assignment to an Execution Engine, recipient resolution, segment failover, segment completion, and so on.

- **System Information:** Provides general system-wide information such as system startup, system shutdown, distribution manager startup, execution engine failure, system component status, and so on.
- **Recipient Level:** Provides recipient level information.

Select the check box corresponding to a notification type to define the messages for that notification. The Governing and Filtering button is enabled only when you select a notification type.

- **Governing and Filtering:** Click to open the Administrative Notification Request dialog box. For details on defining the settings, see [Administrative Notification Request dialog box](#).
- **E-mail Address(es):** Specify the e-mail address to which the notification is to be sent. You can specify multiple e-mail addresses separated by a semicolon.
- **Edit Device:** Opens the Device Editor dialog box that allows you to specify the device transmission and formatting properties for the e-mail (SMTP) information transmitter. For more details on the Device Editor, see [Device Editor](#).

Administrative Notification Request dialog box

The Administrative Notification Request dialog box allows you to set the message level system information and filtering details for a notification type. Specify the following information:

- **E-mail Subject:** By default, this field displays the name of the system and the notification type that you have selected. You can also specify your own subject line in this field.
- **Governing:** Select this check box to set the governing details for each message type. You can specify the number of alerts that you want to receive within a specified time. The default value for each message type is set to receiving not more than 10 alerts within an hour.

You can choose the governing levels that are appropriate for your system. For example, for any message type, if you specify the number of alerts as 20 and number of hours as two, the first 20 messages in a two-hour window are sent to the administrator. If 20 messages are logged within the first 30 minutes, no further alerts are sent for the remaining two-hour window, but the messages will continue to log. These messages can be viewed in the DELog file in the location `C:\Program Files\MicroStrategy\Narrowcast Server\Delivery Engine`. The time slots are calculated based on a moving window from the delivery of the first message.

- **Filtering:** Select this check box to refine the message codes for which you want to receive notifications. You can choose to include a set of codes for which you want notification, or specify a set of codes for which you do not want any notification. Do one of the following:
 - Choose from the list of pre-defined codes provided in the dialog box.
 - Add your own codes by giving code name and description in the Code and the Description fields. Then, click Add Code to add code.

You can also specify a filtering criterion, which is applied to the list of codes provided in the dialog box, by using Filter list by field. It helps to locate the required codes. You can also choose to include or exclude a set of codes that you selected.

Assign Administrative Privileges to Account Dialog Box

The Assign Administrative Privileges to Account dialog box allows you to assign or remove privileges to Delivery Engine users or accounts. A privilege, or role, defines which objects the account can create and which

operations it can perform. The different MicroStrategy Narrowcast Server privileges are:

- System Administrator, who manages the entire system
- Application Administrator, who administers application objects only, even those owned by other users
- Service Designer, who administers application objects only and who cannot modify objects owned by other users
- Subscription Administrator, who can access only the subscription book

For more information on the dialog box, see [Manage Administrator Accounts](#).

Accessing the Assign Administrative Privileges to Account dialog box

Expand Administration, then expand Accounts, and double-click the account name to modify. The Assign Administrative Privileges to Accounts dialog box opens.

If you are creating a new account, you can access this dialog box by clicking Modify Privileges on the Add Narrowcast Server Administrative Account dialog box.

Prerequisites

Before you can assign privileges, you should:

- Understand the different roles
- Have created an account

For more information, see [MicroStrategy Narrowcast Server architecture](#).

Assign Administrative Privileges to Account dialog box layout

A new account is automatically granted the service designer privileges.

The left side of the dialog box contains a list of the privileges or roles that have been granted to the account. The right side of the dialog box lists the available privileges or roles. The Add and Remove buttons in the middle of the screen allow you to add the selected role to the user or remove the selected role from the user account.

Click OK to save your changes.

Configure Object Management Dialog Box

The Configure Object Management dialog box allows you to select options that will be applied when migrating Narrowcast Server objects between systems. To invoke an object management operation, drag and drop an object from one system to another. A likely scenario involves development, testing, and production systems. All object types can be migrated, except for the system object, distribution managers, and execution engines.

For more information, see [Configuring a Narrowcast Server System](#).

Accessing the Configure Object Management dialog box

From the Tools menu, select Configure Object Management. The Configure Object Management dialog box opens.

Prerequisites

You should understand the following:

- The types of object management operations that can be performed
- Which system is the source and which is the target
- Which object or objects you want to migrate
- How object dependencies work within an Object Repository


For more information, see [Administering multiple systems](#).

Configure Object Management dialog box layout

The Configure Object Management Options dialog box includes two decision tables in which you specify the rules you want to use for object management.

The first table has four columns. The first column lists the available types of operation. For each, make the appropriate selection from the remaining columns. Source object refers to the object being migrated. Source repository or system is the place the object is coming from. Target object refers to the object being created or updated. Target repository or system is the destination of the object.

For the Create type, Always is the only option since the source object will be new to the target system. By default, all new objects are migrated and modify the target system.

 Any time an object is written from the source repository into the target repository, the create and modification times of the object in the target repository are set equal to the modification time of the source object.

For other types of operations, you can choose one of the following options:

- Always modify the target: Changes are made automatically
- Never modify the target: The target system's version of the object will not be modified.
- Prompt during the migration: (selected by default) When you migrate an object that already exists in the target system, the *Conflict Resolution Dialog Box* opens so that you can decide whether to make the change or not.

If you select the Always or Never option, you are not prompted. The changes either happen automatically or not, with no notification.

The rules for determining the type of operation for an object are described below. In all cases except Create, comparing the creation and modification

times determines the state of an object. Everything is relative to moving an object from the source to the target repository.

- **Create:** The object being replicated does not exist in the target system. Accepting this action creates the object in the target system using the definition of the object in the source system
- **Refresh:** The object being replicated exists in the target system, and has the same definition as the object in the source system. Neither object definition has been modified since the object was last migrated from one system to the other. Accepting this action does not cause a material change to the definition of the object in the target system.
- **Update:** The object exists in the target system, and its definition has not been modified since the object was last migrated from one system to the other. However, the definition of the object in the source system has changed since the object was last migrated. Accepting this action updates the definition of the object in the target system to be the same as the newer definition of the object from the source system.
- **Overwrite:** The object exists in the target system, and the objects in both the source and target systems have been modified since the object was last migrated. Accepting this action causes the definition of the object in the target system to be replaced with the definition of the object from the source system, which loses any changes that were made to the object in the target system since the object was last replicated.
- **Revert:** The object exists in the target system, and its definition has been modified since the object was first replicated from one system to the other. The object in the source system has not been modified since the object was last migrated. Accepting this action causes the object in the target system to lose the changes that were made to it since the object was last replicated.

The second table on this dialog box provides additional choices for certain types of conflicts:

- Name in use: Another object (or folder) is already using the name in the target repository's folder where the object is being saved/updated.
- Folder mismatch: The source and target object's containing folder has changed.


Select whether these conflicts should be resolved automatically during object migration or whether you should be prompted during the migration to make a decision yourself.

Conflict Resolution Dialog Box

The Conflict Resolution dialog box allows you to resolve conflicts that occur when you copy one or more objects from one system repository to another.

Accessing the Conflict Resolution dialog box

The Conflict Resolution dialog box opens when you copy one or more objects from one system repository (the source repository) to another system repository (the target repository) and there is a conflict between one of the objects being copied and an object that already exists in the target repository for which the user has selected prompt in the Configure Object Management dialog box.

 This dialog box only opens when, in the Configure Object Management dialog box, you select the Prompt During Copy option for an object's Type of Operation or Conflict when copying it from the source to the target. For more information, see [Configure Object Management Dialog Box](#).

Prerequisites

You should understand the following:

- The types of object management operations that can be performed
- Which system is the source and which is the target
- How you plan to resolve any conflicts that arise

For more information, see [Administering multiple systems](#).

Conflict Resolution dialog box layout

The Conflict Resolution dialog box includes a table in which you indicate whether to accept the indicated change to the target system or to reject the indicated change and keep the object in the target system as it currently exists. Six columns appear in this table.

The first column, Action, lists the available types of operation, as described below.

- **Create:** The source object does not exist in the target repository. All objects that do not exist in the target repository are automatically created.

A new object can be created using the same name as an existing object. In this case, when a name conflict occurs, you are prompted to accept the change.



This means the new object is renamed and created, preserving all potential object dependencies.

- **Refresh:** The object being replicated exists in the target system, and has the same definition as the object in the source system. Neither object definition has been modified since the object was last migrated from one system to the other. Accepting this action does not cause a material change to the definition of the object in the target system.
- **Update:** The object exists in the target system, and its definition has not been modified since the object was last migrated from one system to the other. However, the definition of the object in the source system has changed since the object was last migrated. Accepting this action

updates the definition of the object in the target system to be the same as the newer definition of the object from the source system.

- **Overwrite:** The object exists in the target system, and the objects in both the source and target systems have been modified since the object was last migrated. Accepting this action causes the definition of the object in the target system to be replaced with the definition of the object from the source system, which loses any changes that were made to the object in the target system since the object was last replicated.
- **Revert:** The object exists in the target system, and its definition has been modified since the object was first replicated from one system to the other. The object in the source system has not been modified since the object was last migrated. Accepting this action causes the object in the target system to lose the changes that were made to it since the object was last replicated.

The second column, **Type**, lists the type of object affected by the conflict. The third column, **Name**, lists the name of the object affected by the conflict. In both cases, the objects indicated are in the target system.

The fourth column, **Change details**, provides the details on the potential change to the target system due to copying an object or objects. Examples of these changes include renaming an object because a different object already exists in the target system with the same name or moving an object from one folder to another because the location of the object in the source system has changed. When an object is renamed, the original name is retained and a number in brackets is added to the end. For example, if an object is named **Project 1**, it is renamed **Project 1 [1]**.

The fifth and sixth columns, **Accept** and **Reject**, allow you to choose either to accept or reject the change indicated in the fourth column. To select one action for all the objects, click the column header. For example, to accept all the changes indicated in the fourth column for all the objects listed, click the header **Accept**.

Click OK to resolve the conflict according to your selections or click Cancel to close the Conflict Resolution dialog box without copying any of the objects listed.

Device Editor

The Device Editor is a tabbed dialog box that allows you to create a new device for a specific information transmission module. You can specify device transmission and formatting properties. It also allows you to modify an existing device.

For more information about the steps to create new devices, see [Configure Information Transmitters](#).

Accessing the Device Editor

Expand Administration, then right-click the Devices. Select New, then Device. The Select Information Transmitter dialog box opens. Double-click the appropriate ITM type. The Device Editor opens.

Or, you can double-click an existing device in the Devices folder.

Prerequisites

Before you create a device, you must create an information transmission module and appropriate document formatting modules. For steps to create these modules, see [Work with Document Formatters](#) and [Configure Information Transmitters](#).

E-mail (SMTP) device

For a device associated with the E-mail (SMTP) information transmitter, the Device Editor displays the following tabs:

- [Transmission tab](#)

- *Plaintext tab*
- *Excel tab*
- *HTML tab*
- *PDF tab*

File device

For a device associated with the File information transmitter, the Device Editor displays the following tabs:

- *Transmission tab*
- *Plaintext tab*
- *Excel tab*
- *HTML tab*
- *PDF tab*

Print device

For a device associated with the Print information transmitter, the Device Editor displays the following tabs:

- *Transmission tab*
- *Plaintext tab*
- *HTML tab*
- *PDF tab*

SMS (SMPP) device

For a device associated with the SMS (SMPP) information transmitter, the Device Editor displays the following tabs:

- *Transmission tab*

- *Plaintext tab*

Web (Portal) device

For a device associated with the Web (Portal) information transmitter, the Device Editor displays the following tabs:

- *Transmission tab*
- *Plaintext tab*
- *Excel tab*
- *HTML tab*
- *PDF tab*

Wireless (SMTP)

- *Transmission tab*
- *Plaintext tab*
- *Excel tab*
- *HTML tab*
- *PDF tab*

Device Editor layout

Before you access the Device Editor, you must select an information transmitter to use.

After you select the information transmitter, the Device Editor opens with the Transmission tab displayed. The other tabs in the editor vary depending upon what document formatters the selected information transmitter supports. For example, the E-mail (SMTP) module that is used for the e-mail (SMTP) information transmitter supports plain text, Excel, and HTML

document formats. The SMS Transmitter supports only plain text document formats, and therefore so does the SMS (SMPP) information transmitter.

Select Information Transmitter dialog box

This dialog box lists the information transmitters available to the Narrowcast Server system. Double-click the information transmitter to use. The Device Editor opens with the Transmission tab displayed.

Transmission tab

The Transmission tab appears for all devices, regardless of the information transmitter it is used for. Its contents are provided by the information transmission module.

E-mail (SMTP) Transmission tab

The E-mail (SMTP) module used for the E-mail (SMTP) information transmitter includes the following tabs:

- *Message Format*
- *MIME Options* if MIME transmission is chosen
- *Delivery Options*

Message Format

You can choose between UUEncoded and MIME.

UUEncoded accepts only one plain text body in US-ASCII, no HTML body, and any number of attachments. Every field in the message (recipient display names, subject, and so on) should also be in US-ASCII. The attachments are encoded using the UNIX-to-UNIX method, which is supported by most e-mail clients and other third-party software. This message format is suggested for any e-mail client or gateway that does not support MIME.

Multipart MIME allows many message bodies and multiple character sets. Character sets other than US-ASCII can be used. Multi-part, related, and alternative message bodies and text headers are also allowed.

MIME Options

This tab is available only if MIME transmission is selected on the Message Format tab.

You can select whether to use quoted-printable or base64 encoding for each of the following publication sections:

- Plaintext and HTML Body
- Text Attachment
- Binary Attachment


You can also select 7 bit ASCII encoding for Plaintext and HTML Body publication section.

Base64 encoding is a process by which every three bytes of data are changed into four six-bit values. These values are then mapped to a 64-entry lookup table in which the selected data represents ASCII codes that are generally printable. Base64 uses the following alphabet: [A-Z][a-z][0-9]'+'.'/'. This results in all of the binary data being encoded into printable characters that can be transmitted over the Internet without fear of bit loss. Base64 encoding is strongly recommended for any binary, image, or multi-byte character set data.

Quoted-printable encoding preserves most printable characters and only encodes non-printable or special characters. You can read the encoded text, unlike base64 encoding, but it does not preserve space. Use quoted-printable only for text files and HTML or plain text message bodies, not for binary data.


Some devices do not support the use of character sets other than US-ASCII for certain portions of multi-part MIME e-mails. These portions include the

subject line, the names of attached files, and the address display names. Select Use US-ASCII for Subject, Attachment Names, and Display Names (Sender, Reply-To, and Address) to ensure that such devices can process e-mails correctly.

If the Use US-ASCII for Subject, Attachment Names, and Display Names (Sender, Reply-To, and Address) check box is selected, the application  designer must ensure that the names of any objects being sent as attachments to this device are no more than eight characters in length and must use only standard ASCII characters. The subject must also contain only ASCII characters. If any of these conditions are not met, the message is not sent.

If the Use US-ASCII for Subject, Attachment Names, and Display Names (Sender, Reply-To, and Address) check box is not selected, select the Do not put quotes around non US-ASCII Display Names check box if the e-mail client displays an extra set of double quotes around the display names. This is to avoid encoding a set of quotes along with the display names, which is superfluous when the e-mail client adds an extra set of quotes around the decoded string. This check box should only be selected for Microsoft Outlook 98 and Microsoft Outlook 2000.

You can select the Embed Flash Content check box to support Flash content in the body of the e-mail. However, this check box can remain cleared if you want to deliver the Flash content as an attachment (.mht).

 The Embed Flash Content check box is cleared by default.

To support this Flash content, the following conditions must be satisfied:

- You should have Flash Player 9 installed on your computer. Older versions of Flash are not supported. If you do not have Flash Player 9, you can download it from <http://www.adobe.com/products/flashplayer>

- The e-mail clients must have ActiveX enabled for delivery of Flash content in the body of an e-mail. ActiveX is not necessary when delivering Flash files as attachments to e-mails.

You can also select whether to Embed HTML Attachments into the message body. If HTML attachments are not embedded, they are sent as unrelated attachments.

If you opt to embed HTML attachments, you can also choose to Embed All Attachments.



Embed All Attachments should be chosen for Microsoft Outlook 98 and Microsoft Outlook 2000 e-mail clients.

Select the Remove Content-Location MIME header check box to prevent broken links to attachments in e-mails forwarded using Microsoft Outlook Web Access. This check box is available only for Narrowcast Server version 8.0.1 and later.

Delivery Options

To use a smart host, enter the Smart Host Address and Port Number. The smart host is a machine that receives all outgoing e-mail messages and is responsible for delivering them to the final destination. This feature is useful if you have a powerful e-mail server to use for all outgoing messages, since the communication between Narrowcast Server and the smart host is faster than that between Narrowcast Server and the mail host of each recipient. Select the option to Use Smart Host Always to use only the smart host to deliver the message. Otherwise, the message is sent directly, and the smart host is used only if the direct connection fails.

File Transmission tab

The File module used for the File information transmitter includes the following tabs:

- *General properties*

- *Advanced properties*

General properties

The General Properties tab allows you specify the file location, either a full path, partial path, or macros, using the following objects:

- File Location allows you to enter a full or partial path for delivery of files.

The File information transmitter allows write access to anywhere on the Narrowcast Server local drive. To prevent this, make sure that all File information transmitter devices are using relative paths (for example, \\server\share\%%PhysicalAddress%%) instead of absolute paths (for example, %%PhysicalAddress%%). If using absolute paths, it is recommended that the Create required folders and Overwrite files with same name options are disabled and the Append timestamp to file name option is enabled in the device's Advanced Properties.

- Insert Macro allows you to see a list of variables that can be used to personalize each transmission. Click and choose from the following:
 - %%UserName%%
 - %%PhysicalAddress%%
 - %%Date%%
 - %%Time%%
- File Properties specifies the attribute of the file for transmission. Check one of the following options:
 - Read only
 - Archive
 - Compress

Advanced properties

The Advanced Properties tab offers options for system and backup file location.

You can select the following advanced file system settings:

- Create required folders creates folders if the specified file path is not present. This is selected by default.
- Overwrite files with the same name determines whether the information transmitter overwrites existing files with the same name. This is selected by default. You must also clear the Append timestamp to file name check box, otherwise a new file is created each time the service is executed.
- Append timestamp to file name adds the date and time of the file creation to the end of the file name. This is selected by default.
- Append to file (text documents only) determines whether the information transmitter appends the contents of the new file to the existing file each time the service is executed. For example, if you have a service that contains a text document and it has delivery to a file with the Append to file check box selected, a text file is created when the service is executed for the first time. After that, whenever the service is executed, the contents of the new document are appended to the existing file. You can select the Append to file check box only if you clear the Overwrite files with the same name check box. You must also clear the Append timestamp to file name check box, otherwise a new file is created each time the service is executed.
- Number of retries allows you to specify how many times file transmission will be attempted if a temporary failure occurs.
- Time between retries allows you to specify how much time is allowed between a failed delivery attempt and a retry.
- Delivery timeout allows you to specify how much time is allowed before the transmission times out.

The device level settings can override the general settings defined at the transmitter level. For example, if the transmitter requires you to equip files with the read-only property, but a device has the Overwrite files with the same name check box selected, the files will be overwritten, despite the transmitter settings.

You can also specify the following information with respect to a backup file location:

- Save messages to backup file location if delivery fails allows you to provide a location for a backup file if delivery to the original file location fails.
- Backup File Location allows you to enter the path and file name for delivering files if delivery to the original file location fails. Note that the path and file name cannot exceed 150 characters.

If you clear the Overwrite files with the same name, Append timestamp to file name, and Append to file check boxes but you select the Save messages to backup file location if delivery fails check box, and specify a location for the backup files, the files are stored in the backup file location when the service is executed.

Print Transmission tab

The Print module used for the Print information transmitter includes the following tabs:


- *General Properties*
- *Advanced Properties*

General Properties

The General Properties tab allows you to specify standard printer settings for printer location and printer properties.

In the Printer Location section, you can specify the default printer location by selecting it or entering it in the box. You can add a new printer to the list of available printers and then select it by clicking Add Printer. You can also allow for user addresses that contain printer locations to override your printer specification by selecting the check box.

In the Printer Properties section, you can specify the properties for the default print device, including the number of copies, scale, print quality, paper source, paper size, and whether printed copies are collated. To use the standard printer defaults, click Load printer defaults.

When a user enters a new printer address, usually on the Web or through the Subscription Portal, the property settings of the new printer are overridden by those of the default printer set by the administrator. It is possible that settings  for paper source, print quality, and paper size may or may not match the capacities of the user's printer, depending on its make and model. You can create different print devices for each of the printer models. However, testing is highly recommended if a single device is used for different types of printers.

You can specify the orientation of HTML documents by selecting the appropriate option:

- Portrait prints vertically on the page.
- Landscape prints horizontally on the page.

For PDF documents, you can specify the following options:

- PostScript Level indicates the version of PostScript to use on this printer, Level 1, 2, or 3.
- Shrink to fit specifies that the content being printed should be resized, if needed, to fit on the paper used by this printer.
- Reverse pages instructs the printer to print from back to front instead of front to back (the default is front to back).
- Print range indicates which pages to print, if multiple pages are in the print request.

- Odd or even pages identifies whether you want to print all pages (even and odd) or just odd or just even pages.



The PDF properties mentioned take effect only if Adobe Acrobat 6.0 Professional is installed on all execution engine machines.

Advanced Properties

The Advanced Properties tab offers options for backup delivery, governing, and application priority.

You can elect to print or save documents to a backup location if the primary printer fails. Select the check box, then choose from the following options:

- Print files to the following backup printer allows you to specify a backup printer location.
- Save files to the following backup file location allows you to specify a backup file location.

You can specify the following governing settings:

- Number of retries indicates how many times the printer attempts to print if the print request fails.
- Time between retries (seconds) indicates the number of seconds between each retry attempt.
- Delivery time out (minutes) indicates the number of minutes before the delivery times out.
- File Location specifies a location where documents are saved temporarily during execution. By default, the application's runtime path is used.

You can specify which application has priority if another application or interactive user is using Adobe while Narrowcast Server is trying to print PDF documents. Choose from the following:

- Other applications and interactive users (PDF documents are saved to the backup file location, if specified above): This allows other applications or users to continue working while the Narrowcast Server document is saved to a backup file location. If no backup file location is defined, an error is logged.
- Narrowcast Server (this ends other Adobe applications automatically): This allows the Narrowcast Server PDF document to print, while ending all other Adobe processes.

SMS (SMPP) Transmission tab

The SMS (SMPP) Transmitter used for the SMS (SMPP) information transmitter includes the maximum message size transmitter configuration option.

Maximum message size

The maximum message size for SMS devices is an integer value between 1 and 160 characters. If a message sent exceeds the maximum message size, the message is truncated to the maximum message size.

Web (Portal) Transmission tab

No transmission settings are required for the Web (Portal) ITM.

Wireless (SMTP) Transmission tab

The Wireless (SMTP) Transmission tab uses the same module and therefore has the same features as the E-mail (SMTP) Transmission tab.

Plaintext tab

The Plaintext tab allows you to select whether the selected device supports plain text content. Select the check box to support plain text document format for the device.

Formatting Module: Select a document formatter from the available plain text document formatters.

This tab includes the following tabs:

- **Grid Formatting:** Allows you to choose whether to pad grid cells, how to pad them, whether to separate columns, and the characters to use as separators.
- **Cell Padding:** Allows you to select the characters with which to pad cells. This is a process by which the lengths of the strings in a column are made equal in length through the use of tab-aligning characters and white-space characters.
- **String Substitution:** Allows you to enter text to be converted to other characters.

Excel tab

The Excel tab allows you to select whether this device supports Excel content. If you choose to support Excel documents, you can select a document formatter from the drop-down list of available Excel document formatters. No properties need to be configured for this type of document formatter.

HTML tab

The HTML tab allows you to select whether this device supports HTML content. If you choose to support HTML document, you can select a document formatter from the drop-down list of available HTML document formatters. You also have the option to support images.

PDF tab

The PDF tab allows you to select whether this device supports the transmission of PDF documents. Only the PDF document formatter is

available. You can select the check box to use this document formatter. No properties need to be configured for this document formatter.

Distribution Manager Configuration Dialog Box

The Distribution Manager Configuration dialog box allows you to create a new distribution manager (DM). You can also change an existing DM state (running or stopped).

For more information on Distribution Manager, see [Manage Distribution Managers](#).

Accessing the Distribution Manager Configuration dialog box

Expand Administration, then right-click Distribution Managers. Select New, then Distribution Manager. The New Distribution Manager Configuration dialog box opens.

Or, double-click an existing DM to access the Distribution Manager Configuration dialog box, which is the same as the other interface except you cannot change the selected machine.

Prerequisites

You should:

- Know the name of the machine you wish to use as a distribution manager
- Understand the concept of a distribution manager
- Understand how primary and backup distribution managers work together, if you have the Enterprise Edition of MicroStrategy Narrowcast Server

For more information, see the following chapters:

[MicroStrategy Narrowcast Server architecture](#)

Configuring Machines

Distribution Manager Configuration dialog box layout

The Distribution Manager Configuration dialog box contains a browse button that allows you to select a machine to use as the distribution manager (DM) when you create a new DM. If you are changing the status of an existing DM, this browse button is grayed out, but the name of the machine is still readable.

You can view the Rank of the DM, but you cannot change it.

One of the two status buttons, Run or Stop, is selected. Change the status by clicking the other button.

When you have made your changes, click OK to save them or Cancel to exit without saving your changes.

Document Formatter - Excel Dialog Box

The Document Formatter - Excel dialog box is a single point of contact for document formatters based on the Excel document formatting module (DFM). It defines the formatting properties of an Excel document formatter. These settings are applied to a document during service execution.

For more information, see [Work with Document Formatters](#).

Accessing the Document Formatter - Excel dialog box

Expand Administration, then expand Document Formatters. Double-click Excel. The Document Formatter - Excel dialog box opens.

Prerequisite

You should know the drive and path that you want to use to store temporary files, which are created and deleted by the Excel document formatter during service execution.

Document Formatter - Excel dialog box layout

While different DFMs can be used, only the Excel DFM has properties that must be set.

The Document Formatter - Excel dialog box has two areas: General Properties and Error Handling.

The General Properties area contains the Working Directory. This location is used for the temporary creation of files, so it should reside on a drive or partition that is separate from the operating system and program files. The default location is `%Application Path%\Delivery Engine\Temp`, where `%Application Path%` is the folder in which Narrowcast Server is installed. For example, `C:\Program Files\MicroStrategy\Narrowcast Server`. Click the browse button to point to the required folder. A message appears below the Working Directory box giving you information about your directory selection, such as whether it is valid.

The General Properties category also has a check box to indicate that Microsoft Excel clients should recalculate all formula values when Excel workbooks generated by Narrowcast Server are opened.

The Error Handling area allows you to set how the DFM deals with errors:

- Fail the document: If an error occurs the Excel document is not sent.
- Truncate the Document Element (if it is a grid): As much of the document element as possible is sent. This setting is applied only if the document element is a grid.
- Replace with the following string: If possible, the text you enter replaces the flawed document element.

Select one of the following, which applies if the number of cell formats in the document exceeds the maximum possible number of cell formats in Excel:

- Fail the document: If the maximum is exceeded the document is not sent.
- Ignore the additional cell formats: If the maximum is exceeded the extra cell formats are ignored and the document is sent anyway.

Edit Available User Properties Dialog Box

The Edit Available User Properties dialog box allows you to add and remove user properties and related property options to be used in service content.

Accessing the Edit Available User Properties dialog box

From the Tools menu, select Edit Available User Properties. The Edit Available User Properties dialog box opens.

Prerequisites

Before you edit user properties, you should understand how user properties are used in information objects.

For more information, see [MicroStrategy Narrowcast Server architecture](#).

Edit Available User Properties dialog box layout

The available user properties are listed in the User Properties section on the left. You can add and remove properties by clicking the Add and Remove buttons below this section.

The available user property options are listed in the User Property Options (optional) section on the right. You can add and remove options by clicking the Add and Remove buttons below this section.

To specify options for a particular property, select the property from the list on the left. The available options are displayed on the right. You can also add options, if required. For example, the Title property contains Mr., Mrs., and Ms. as options. You may wish to add Dr. as another option.

Click OK when you finish editing the user properties.

Execution Engine Configuration Dialog Box

The Execution Engine Configuration dialog box allows you to create a new execution engine (EE). It also allows you to:

- Idle an execution engine
- Run an execution engine
- Specify the number of segments that can run on an execution engine simultaneously
- Stop an execution engine

For more information, see [Manage Execution Engines](#).

Accessing the Execution Engine Configuration dialog box

Expand Administration, then right-click Execution Engines. Select New, then Execution Engine. The Execution Engine Configuration dialog box opens.

Or, double-click an existing EE to access the Execution Engine Configuration dialog box, which is the same as the other interface except you cannot change the selected machine.

Prerequisites

You should:

- Know the name of the machine you wish to use as an execution engine

- Understand the concept of an execution engine

Understand how primary and backup execution engines work together, if you have the Enterprise Edition of MicroStrategy Narrowcast Server

Execution Engine Configuration dialog box layout

The Execution Engine Configuration dialog box contains a browse button that allows you to select a machine to use as the execution engine, when you create a new one. If you are changing the status of an existing execution engine, this browse button is grayed out, but the name of the machine is still readable.

You can change the Maximum number of simultaneously executing segments.


One of the three status buttons, Run, Idle, or Stop, is selected. Change the status by clicking the appropriate button.

When you have made your changes, click OK to save your changes.

Information Source Wizard

The Information Source Wizard lets you define and modify an information source using a MicroStrategy Information Source Module (ISM). An information source lets you configure the connection to a specific project on the selected MicroStrategy Intelligence Server. You can use the Information Source Wizard to define the configuration settings and to select the project from which you want to retrieve reports.

For steps to create an information source, see [Configure Information Source Modules](#).

You can create your own, customized information sources that can be used with services. For steps to write a COM component, implement the appropriate  interfaces with their definitions and parameters, and register a customized information source with Narrowcast Server, see the online MicroStrategy Developer Library (MSDL).

Accessing the Information Source wizard

Expand Administration, and then expand Information Source Modules. Right-click a MicroStrategy Information Source Module. Select New, then Information Source. The New Information Source dialog box opens. Enter the name of the information source and click Define to define the information source. The Information Source Wizard opens.

To modify an existing information source that uses the MicroStrategy Information Source Module, double-click the existing information source.

Prerequisites

Before you create an information source, you should understand how information sources work with information source modules, understand the concepts of security prompts and authentication objects, and register a corresponding information source module.

For information on security, see Information source Security in the Narrowcast Server Application Designer Guide.

Information Source Wizard layout

The Information Source Wizard contains the following pages:

Information Source dialog box

Welcome

Intelligence Server

MicroStrategy Intelligence Server Properties dialog box

Project dialog box

Advanced Properties dialog box

Default Language

Default Authentication

Security and Dynamic Subscription Support

Default Security

Prompt Resolution dialog box

User and Subscription Properties

Address Properties

Personalization

Summary

Save Information Source dialog box

Click Next to go to the next page of the wizard. Click Back to return to the previous page. Click Cancel at any time to exit the wizard without saving any changes.

Information Source dialog box

This dialog box allows you to enter a Name and a Description for the new information source.

The refresh options lets you to refresh an information source when a service is run or a new instance of the information source module is created, instead of reusing an existing instance. This feature is used to tune performance and ensure reliability. For example, even if a custom information source module leaks memory, this feature ensures that the total system memory consumption does not exceed the physical limits. Choose from the following options:

- Never Refresh the information source
- **Refresh Immediately**

- Refresh after every, and then set the number of information objects (jobs) to run before refreshing the information source.

Click Define to continue creating the information source.


After you have defined the information source, you are returned to the Information Source dialog box. Click OK to save the new information source. The Save Information Source dialog box opens.

Welcome

This page provides a brief overview of the process to create an information source.

Intelligence Server

This page prompts you for the Intelligence Server Machine Name and Port number of the computer running MicroStrategy Intelligence Server. You have to also specify the administrative Login ID and Password of the MicroStrategy Intelligence Server that you select. This account is used by all users when working with this information source. The users can browse data and create objects on the MicroStrategy Intelligence Server appropriate to the Service Designer and Subscription Administrator roles.

 The users who administer the Narrowcast system need to have the privileges of a Narrowcast System Administrator group to log on to the MicroStrategy Intelligence Server. The Narrowcast System Administrator group is a part of the System Monitors group. This group is defined in MicroStrategy Developer.

Click Advanced Properties to access the MicroStrategy Intelligence Server Properties dialog box.

MicroStrategy Intelligence Server Properties dialog box

The MicroStrategy Intelligence Server Properties dialog box opens when you click Advanced Properties on the Intelligence Server page. This dialog

box consists of the following tabs:

- *Execution and Governing*
- *Primary Server*
- *Backup Server*

Execution and Governing

You can specify the following information:

- **Request timeout (seconds):** Allows you to control the duration for which the Delivery Engine waits for a response from the Intelligence Server. If report generation against the data warehouse is slow, you can adjust this value according to the expected report generation time. Ensure that the request timeout limit is greater than the expected run time for the report/document (service) submitted through Narrowcast Server. This setting couples with the Maximum number of reconnection attempts setting to limit false failure identifications.
- **Maximum number of reconnection attempts:** Specifies the number of times that the Delivery Engine attempts to connect to the Intelligence Server.
- **Maximum number of executing information objects:** Allows you to govern the workload that each Delivery Engine places on the Intelligence Server. This ensures that the Intelligence Server is not overloaded for the system resources available to it.
- **Generate PDF in Narrowcast Server machine:** Allows you to shift the processing load and the resource load associated with the PDF generation from the Intelligence Server to the Narrowcast Server machine or vice versa. Shifting the load from the Intelligence Server to Narrowcast Server machine is useful when you have an Execution Engine with either less load or more capacity than the Intelligence Server, or when you have multiple high capacity Execution Engine

machines which are all using the same Intelligence Server. Similarly, if you have an Execution Engine machine with less capacity than the Intelligence Server you can shift the processing load and resource load associated with the generation of the PDF from the Narrowcast Server machine to the Intelligence Server.

Select this check box to generate PDF files in the Narrowcast Server machine.

- **Maximum memory consumption for PDF file generation (kilobytes):** Allows you to specify a memory limit for PDF generation if the PDF generation takes place on the Narrowcast Server machine. If the PDF generation takes place on the Intelligence Server, the memory governing settings for PDF generation that are specified on the Intelligence Server are considered.

If the PDF generation requires more memory than that is available for the operation to succeed, partial PDF results are returned. The PDF generation engine can return partial results due to insufficient memory regardless of whether PDF generation takes place in the Intelligence Server or the Narrowcast Server machine. If partial PDF results are returned, the setting defined in the Error handling tab within the Advanced Properties dialog box of the Developer Document Selector, determines whether the partial PDF is transmitted or not.

- **Generate Excel in Narrowcast Server machine:** Allows you to shift the processing load and the resource load that is associated with the generation of the Excel file from the Intelligence Server to the Narrowcast Server machine or vice versa. Shifting the load from Intelligence Server to the Narrowcast Server machine is useful when you have an Execution Engine with either less load or more capacity than the Intelligence Server, or when you have multiple high capacity Execution Engine machines which are all using the same Intelligence Server. Similarly, if you have an Execution Engine machine with less capacity than the Intelligence Server you can shift the processing load

and resource load associated with the generation of the Excel file from the Narrowcast Server machine to the Intelligence Server.

Select this check box to generate the Excel files in the Narrowcast Server machine.

- **Maximum memory consumption for Excel file generation (kilobytes):** Allows you to specify a memory limit for Excel file generation if the Excel file generation takes place on the Narrowcast Server machine. If the Excel file generation takes place on the Intelligence Server, the memory governing settings for Excel file generation that are specified on the Intelligence Server are considered.

If the Excel file generation requires more memory than is available for the operation to succeed, partial results are returned. The Excel file generation engine can return partial results due to insufficient memory regardless of whether the Excel file generation takes place in the Intelligence Server or the Narrowcast Server machine. If partial results are returned, the setting defined in the Error handling tab within the Advanced Properties dialog box of the Developer Document Selector determines whether the partial Excel file is transmitted or not.

Primary Server

The Primary Server tab allows you to view the clustering information and set the Load Balance Factor for the Primary Intelligence Server. You can specify the following information:

- **Machine name and Port number:** Displays the Machine name and Port number of the Primary Intelligence Server. You cannot make any changes to these server details.
- **Use Intelligence Server cluster, if available:** Select the check box to display the Primary Cluster table for specifying the clustering details of the Primary Intelligence Server. This setting is also applicable to the

Backup Server to allow the Backup Cluster table to be displayed in the Backup SErver tab.

- Refresh: Click Refresh to view the information displayed in the Primary Cluster table. The Refresh button refreshes the list of nodes. The default value of the load balancing factor for all new nodes is set to 1, and the value of the port number is received from the cluster.

You cannot make any changes to the Server name and the Port number. You can only specify the Load Balance Factor for each server as follows:

- Default value = 1
- Minimum value = -1
- Maximum value = 999999

Click Show Projects to view a list of the projects loaded on each server. When clicked, the name of this button changes to Hide Projects. Click Hide Projects to hide all the projects.

Backup Server

The Backup Intelligence Server tab allows you to select an optional secondary server to use during failover. If the Primary Intelligence Server becomes unavailable or unusable, the MicroStrategy Information Source attempts to switch to the Backup Intelligence Server. You can specify the following information:

- Backup Intelligence Server: Select the Backup Intelligence Server check box. Browse a Machine name, and type the Port number for the Backup Intelligence Server. The Backup Cluster table for specifying the clustering details for the Backup Server is displayed. The table contains the Server name, Port number, and Load Balance Factor of the backup Intelligence Servers.
- Refresh: Click Refresh to refresh the list of nodes displayed in the Backup Cluster table. The default value of the load balancing factor for

all the new nodes is set to 1, and the value of the port number is received from the cluster.

You cannot make any changes to the Server name and the Port number. You can only specify the Load Balance Factor for each server as follows:

- Default value = 1
- Minimum value = -1
- Maximum value = 999999

Click Show Projects to view a list of the projects loaded on each server. When clicked, the name of this button changes to Hide Projects. Click Hide Projects to hide all the projects.

Project dialog box

From the drop-down list of available Projects on the selected server, choose the project to use as your information source.

Click Advanced Properties to open the Advanced Properties dialog box.

Advanced Properties dialog box

On the Project page, click Advanced Properties. The Advanced Properties dialog box opens. This dialog box consists of the General tab.

General

The Authentication Method for Web Subscriptions check box lets you apply user-level authentication for reports and documents. This is used by subscriptions made through MicroStrategy Web when Microsoft Windows security is used.

When reports and documents are delivered through MicroStrategy Web, the method by which Web users are authenticated depends on whether MicroStrategy Web is using Microsoft Windows security. If Windows

security is not used, users are authenticated using user-level authentication for both reports and documents. If Windows security is used in MicroStrategy Web, by default users are authenticated using information source-level authentication for both reports and documents. The check box provided in this dialog box enables user-level authentication for reports and documents even when Windows security is used in MicroStrategy Web.



For information on Bulk Exporting, see the MicroStrategy Advanced Reporting Guide.

Default Language

This page lets you select a default Language to use by locales for this information source. A drop-down list of languages is provided. This language is used at run time if the information source used by a particular document does not have a language selected in the Locale Editor for that document's locale. It is also used to execute segmentation and subscription information objects.

Default Authentication

This page lets you specify a default MicroStrategy Login ID and Password to use as an authentication object for this information source. The authentication object provides the information source with the identity of an end user and determines the access privileges that end user has for the information source. It might limit access to objects such as reports, data, or both. The default authentication object is used to run reports for any subscriber that does not have his own authentication.

If you specify a user-level authentication object, it is used at design time. It is also used, if specified, at run time for personalized report execution. However, the default authentication object is used at run time for personalized page execution. The default authentication allows the Narrowcast Server to connect to the Intelligence Server and retrieve personalized content for many subscriptions at once by executing a single

report. Thus, the Narrowcast Server does not need to execute a duplicate report for each subscriber with the same personalization, which saves time and system resources.

Although both the administrative account and the default authentication object contain a user login and password for the same MicroStrategy Intelligence Server, they serve different purposes and do not have the same account for production implementations. The administrative account has administrative privileges, and is used by Narrowcast Server to find and create objects. The default authentication object defines the identity (access privileges such as access to reports and data) for users who are not specifically given their own authentication. Thus, this account is often a restrictive account to limit the access of generic users.

Security and Dynamic Subscription Support

This page lets you select whether to use a security object and whether this information source must support dynamic subscriptions.

A MicroStrategy security object is an answer to a specific prompt object. This answer constrains the data that an end user can see and receive, by answering the same prompt object when it appears on a report. If you choose to use a security object, you must Select an attribute-element prompt object. This prompt object is used when the Subscription Administrator defines security objects for end users. Click Next to access the Default Security page.

If the information source should support dynamic subscriptions, select the This information source supports dynamic subscription check box. Click Next to access the User and Subscription Properties page.

If security objects are not used for this information source, click Finish to complete the information source definition and return to the Information Source dialog box.



The chosen prompt object must be part of an information object report for security objects to be applied to that report. Also, a question object that makes use of the chosen prompt object must be applied to each such information object.

Default Security

The Default Security page is available only if you chose to use a security object on the Security and Dynamic Subscription Support page.

This page allows you to define the default security object by answering the security prompt set up in the previous page. Click Define Security Object to open the Prompt Resolution dialog box.

After you select the default security object, you are returned to the Default Security page. Click Finish to complete the information source definition and return to the Information Source dialog box.

Prompt Resolution dialog box

This dialog box opens when you click Define Security Object on the Default Security page.

This dialog box is a browser allowing you to select an attribute element. This attribute element answers the security prompt you set up, and is used as the default if a security object is not selected by the user or Subscription Administrator.

Click Finish to return to the Default Security page.

User and Subscription Properties

The User and Subscription Properties page allows you to select how information for user properties should be retrieved by the information source. You can configure the following properties:


- Subscription ID

- Address ID
- User ID
- Locale ID

For each property, you can select various sources for data. The set of available sources for data are the following (one or more of these is available for each property, depending on the applicability):

- Browse for Attribute Forms
- Apply a Constant
- Retrieve from Subscription Book

Each source has a check box associated with it. Select the appropriate check box to select the source, then add data to it, if possible.

 You are not provided with all of these sources for all the properties listed. For example, the Subscription ID property has only one source available, Browse for Attribute Forms.

Adding data to selected sources

For each source, the procedure to add data is different.

Best practices

Determine the attribute form (ID, Last Name, First Name, Email, Display Address, Abbreviation, Long Description, Device, and so on) to be added to the subscription properties. Selecting the appropriate attribute form ensures that the subscriptions are delivered only to the target subscribers. For example, you may want to deliver a subscription to users with corporate email addresses or to those using mobile devices.

Browse for Attribute Forms

- 1 Select the check box associated with Browse for Attribute Forms by clicking it.
- 2 A MicroStrategy attribute browser window opens on the left-hand side. This window allows you to browse the MicroStrategy Developer interface for attributes.
- 3 Select the attribute that you wish to add to the source and double-click it to drill down to its attribute forms.
- 4 Select any attribute form that you want to use, and the Add button (located in the center of the window) is enabled. Click Add to add the selected attribute form to the selected property source.
- 5 Repeat the procedure to add other attribute forms.


Apply a Constant


- 1 Select the check box associated with Apply a Constant by clicking it.
- 2 Depending on the type of property selected, a different window opens on the left side. This window allows you to either enter a constant value or choose from a list of options available. Perform the desired action, which enables the Add button. Click Add to add your selection to the source.

Retrieve from Subscription Book

- 1 Select the check box associated with Retrieve from Subscription Book by clicking it.
- 2 No data needs to be added to this source. When selected, this disables any window on the left-hand side.

To use the Retrieve From Subscription Book source for any property, the

-  Subscription ID used for this information source must match the subscription

 IDs in the Subscription Book. For more information, see the Narrowcast Server Application Designer Guide.

Address Properties


The Address Properties page allows you to select how information for address properties should be retrieved by the information source. You can configure the following properties:

- Address Display
- Physical Address
- Device
- Transmission Properties
- PIN
- Time Zone
- Delivery Window

For each property, you can select various sources for data. The set of available sources for data are the following (one or more of these sources are available for each property depending on the applicability):

- Browse for Attribute Forms
- Apply a Constant
- Retrieve from Subscription Book

Each source has a check box associated with it. Select the appropriate check box to select the source, then add data to it, if possible.

 You are not provided with all of these sources for all of the properties listed on this page.

Adding data to selected sources

For each source, the procedure to add data is different. For information on best practices to be followed while selecting an attribute form, see [Best practices](#)

Browse for Attribute Forms

- 1 Select the check box associated with Browse for Attribute Forms by clicking it.
- 2 A MicroStrategy attribute browser window opens on the left-hand side. This window allows you to browse the MicroStrategy Developer for attributes.
- 3 Select the attribute that you wish to add to the source and double-click it to drill down to its attribute forms.
- 4 Select any attribute form that you want to use, and the Add button (located in the center of the window) is enabled. Click Add to add the selected attribute form to the selected property source.
- 5 Repeat the procedure to add other attribute forms.

Apply a Constant

- 1 Select the check box associated with Apply a Constant by clicking it.
- 2 Depending on the type of property selected, a different window opens on the left side. This window allows you to either enter a constant value or choose from a list of options available. Perform the desired action, which enables the Add button. Click Add to add your selection to the source.

Retrieve from Subscription Book

- 1 Select the check box associated with Retrieve from Subscription Book by clicking it.

- 2 No data needs to be added to this source. When selected, this disables any window on the left-hand side.

Personalization

The Personalization page allows you to select how information for personalization properties should be retrieved by the information source. You can configure the following properties:

- Security


This node applies to both security and authentication. You should choose attribute forms for both type of personalization in the same node.

- Preference

For each property, you can select various sources for data. The set of available sources for data are the following (one or more of these sources are available for each property depending on the applicability):

- Browse for Attribute Forms
- Apply a Constant
- Retrieve from Subscription Book

Each source has a check box associated with it. Select the appropriate check box to select the source, then add data to it, if possible.

 You are not provided with all of these sources for all of the properties listed on this page.

Adding data to selected sources

For each source, the procedure to add data is different. For information on best practices to be followed while selecting an attribute form, see [Best practices](#) .

Browse for Attribute Forms

- 1 Select the check box associated with Browse for Attribute Forms by clicking it.
- 2 A MicroStrategy attribute browser window opens on the left-hand side. This window allows you to browse the MicroStrategy Developer for attributes.
- 3 Select the attribute that you wish to add to the source and double-click it to drill down to its attribute forms.
- 4 Select any attribute form that you want to use, and the Add button (located in the center of the window) is enabled. Click Add to add the selected attribute form to the selected property source.
- 5 Repeat the procedure to add other attribute forms.

Apply a Constant

- 1 Select the check box associated with Apply a Constant by clicking it.
- 2 Depending on the type of property selected, a different window opens on the left side. This window allows you to either enter a constant value or choose from a list of options available. Perform the desired action, which enables the Add button. Click Add to add your selection to the source.

Retrieve from Subscription Book

- 1 Select the check box associated with Retrieve from Subscription Book by clicking it.
- 2 No data needs to be added to this source. When selected, this disables any window on the left-hand side.

Summary

This page displays a summary of information about the information source that you are defining. Click Finish to complete the definition and save the new information source.

Save Information Source dialog box

This dialog box allows you to save the new information source. You can change the Object Name, or change the directory to save it in by navigating through the folders in the Look in field. Click Save to save the new object.

Information Transmission Module Dialog Set

The Information Transmission Module dialog set is a single point of contact for an information transmission module (ITM). It defines the static characteristics of the ITM, such as device properties, locale properties, and subscription properties. The ITM dialog set also lets you specify a set of rules for publications that are sent through the ITM. For example, you can set a rule to restrict the type of documents that are sent through the ITM.

For steps to create an Information Transmitter, see [Configure Information Transmitters](#).



You do not see an interface named Information Transmission Module dialog set; it is a term for a series of dialog boxes that allow you to perform an action.

Accessing the Information Transmission Module dialog set

Expand Administration. Right-click Information Transmitters, select New, and then select Information Transmitter. The Register Information Transmitter dialog box opens.

Prerequisite

Before using the Information Transmission Module dialog set, you should understand what an ITM does and how ITMs, information transmitters, and devices work together. For more information about ITMs, see [Information transmission modules \(ITMs\) and information transmitters \(ITs\)](#).

Information Transmission Module dialog set layout

The Information Transmission Module dialog set contains the following dialog boxes:

- [Register Information Transmitter dialog box](#)
- [E-mail \(SMTP\)](#)
- [Wireless \(SMTP\)](#)
- [SMS \(SMPP\)](#)
- [Web \(Portal\)](#)

Click Cancel at any time to exit the dialog set without saving any changes.

Register Information Transmitter dialog box

This dialog box lists the information transmission modules available to the Narrowcast Server system. Select the Module to add to the system from the drop-down list and click OK. The Save As dialog box opens.



File and Print information transmitters are automatically configured by Narrowcast Server.

E-mail (SMTP)

The Information Transmitter dialog box for the E-mail (SMTP) information transmitter displays one tab, the [Sender](#) tab. To access additional tabs, select the Show Advanced Properties check box. The additional tabs are:

- [Reply-To](#)
- [Message Output](#)

- *Delivery Status Notification*
- *Recipient Field*

Sender

The Display Name is the name of the sender that is displayed with an e-mail address. The E-mail Address is the e-mail address of the sender in the `jdoe@[domain]` format. For example, if the domain is typed as `microstrategy.com`, the e-mail address appears as `jdoe@microstrategy.com` in the e-mail messages generated and sent by Narrowcast Server.

Reply-To

The Display Name is the name of the sender that is displayed with the reply e-mail address. The E-mail Address is the e-mail address used as the reply-to address, in the `jdoe@microstrategy.com` format. These fields are optional.

Message Output

The Message Output tab contains the following options to send the Narrowcast Server message:

- **Send to Recipient via SMTP:** Sends the e-mail message to the recipients through the sender's SMTP server.
- **Save to File:** Saves the e-mail message to a file without sending the message.
- **Do Both (Send to Recipient and Save to File):** Sends the Narrowcast Server e-mail message to the recipients and also saves the message to a file.



You should choose the Save to File or Do Both option only for testing purposes. You must manually delete any files created after using this option.

- **Save to folder:** If you choose either the Save to File or Do Both option, the e-mail message files generated by Narrowcast Server are saved in the specified folder location.

You should specify a folder that is valid on each execution engine in your system.

Delivery Status Notification

Delivery Status Notification (DSN) is a Simple Mail Transfer Protocol (SMTP) service extension. Using the SMTP protocol, you can track whether the e-mail is delivered to the recipient or not. The DSN setting of the recipient mail servers should be enabled to support this notification feature.

The options to receive notice of the delivery status are as follows:

- **Do Not Request any Notification:** Does not send a delivery notification.
- **Request a Notification on Failure Only:** Sends a notification to the specified E-mail Address if the e-mail message is not delivered to the recipient.
- **Request a Notification on Failure and Success:** Sends a notification to the specified E-mail Address, indicating whether a message was successfully delivered or not.
- **E-mail Address:** If you choose either the Request a Notification on Failure Only or Request a Notification on Failure and Success option, you must enter the e-mail address to send the notification.

Note the following:

If the receiving SMTP server completely rejects the message, an e-mail delivery notification is not generated. Instead, the execution engine is immediately notified.



- Only some receiving SMTP servers support delivery notification. Other SMTP servers do not send delivery notification messages, regardless of the Delivery Status Notification setting.

Recipient Field

The Recipient Field tab contains the following options to display the location of the recipient addresses in e-mail messages:

- **Recipient addresses should appear in the 'To' field**
- **Recipient addresses should appear in the 'CC' field**
- **Recipient addresses should not appear in the 'To' or 'CC' fields (use BCC delivery)**

Wireless (SMTP)

The Information Transmitter dialog box for the Wireless (SMTP) information transmitter displays one tab, the *Sender* tab. To access additional tabs, select the Show Advanced Properties check box. The additional tabs are:

- *Reply-To*
- *Message Output*
- *Delivery Status Notification*
- *Recipient Field*

Sender

The Display Name is the name of the sender that is displayed with an e-mail address. The E-mail Address is the e-mail address of the sender in the `jdoe@[domain]` format. For example, if the domain is typed as `microstrategy.com`, the e-mail address appears as `jdoe@microstrategy.com` in the e-mail messages generated and sent by Narrowcast Server.

Reply-To

The Display Name is the name that is displayed with the reply e-mail address. The E-mail Address is the e-mail address used as the reply-to address, in the `jdoe@microstrategy.com` format. These fields are optional.

Message Output

The Message Output tab contains the following options to send the Narrowcast Server message:

- **Send to Recipient via SMTP:** Sends the e-mail message to the recipients through the sender's SMTP server.
- **Save to File:** Saves the e-mail message to a file without sending the message.
- **Do Both (Send to Recipient and Save to File):** Sends the Narrowcast Server e-mail message to the recipients and also saves the message to a file.



You should choose the Save to File or Do Both option only for testing purposes. You must manually delete any files created after using this option.

- **Save to folder:** If you choose either the Save to File or Do Both option, the e-mail message files generated by the Narrowcast Server are saved in the specified folder location.

You should specify a folder that is valid on each execution engine in your system.

Delivery Status Notification


Delivery Status Notification (DSN) is a Simple Mail Transfer Protocol (SMTP) service extension. Using the SMTP protocol, you can track whether the e-mail is delivered to the recipient or not. The DSN setting of the recipient mail servers should be enabled to support this notification feature.

The options to receive notice of the delivery status are as follows:

- **Do Not Request any Notification:** Does not send a delivery notification.
- **Request a Notification on Failure Only:** Sends a notification to the specified E-mail Address if the e-mail message is not delivered to the recipient.
- **Request a Notification on Failure and Success:** Sends a notification to the specified E-mail Address, indicating whether a message was successfully delivered or not.
- **E-mail Address:** If you choose either the Request a Notification on Failure Only or Request a Notification on Failure and Success option, you must enter the e-mail address to send the notification.

Note the following:

If the receiving SMTP server completely rejects the message, an e-mail delivery notification is not generated. Instead, the execution engine is

 immediately notified.

Only some receiving SMTP servers support delivery notification. Other SMTP servers do not send delivery notification messages, regardless of the Delivery Status Notification setting.

Recipient Field

The Recipient Field tab contains the following options to display the location of the recipient addresses in e-mail messages:

- **Recipient addresses should appear in the 'To' field**
- **Recipient addresses should appear in the 'CC' field**
- **Recipient addresses should not appear in the 'To' or 'CC' fields (use BCC delivery)**

SMS (SMPP)

The Information Transmitter dialog box for the SMS (SMPP) information transmitter displays fields for Short Message Service Center (SMSC) Connection and Default Return Address. A Test SMSC Connection button is also included in the dialog box to validate your connection settings from the SMSC.

SMSC Connection

SMSC Connection includes the SMSC IP Address, SMSC Port, Login Name/ID, Password, and System Type fields. Specify the information needed for connecting to an SMSC in these fields. Only the Password and System Type fields can be left empty. The System Type box is optional when connecting to an SMSC as it depends on the SMSC account details. The SMS (SMPP) information transmitter is not functional at run time without a SMS account. You can contact a SMS Service Provider to obtain the SMS account.

Default Return Address

Default Return Address contains the Return Address, TON, and NPI fields. The Return Address field is for the return address (or source address) that is used when sending SMS messages to an SMSC. The TON (Type of Number) and NPI (Numbering Plan Indicator) fields define the TON and NPI values for the return address and also for all destination addresses to which the SMS information transmitter sends SMS messages.

Multiple SMS (SMPP) information transmitters must be made to facilitate sending SMS messages to destination addresses with different TON and NPI values. You can also modify the information in the Default Return Address fields (Return Address, TON, and NPI) at run time through the use of a control document in the service's publication.

You must set the TON and NPI values properly for each destination address. Otherwise, the message will not be sent successfully. The SMSC

does not send any notification if these values are incorrect when the message is sent to it.

Test SMSC Connection

This button allows you to establish a connection and then disconnect from the SMSC using the parameters specified in SMSC Connection and Default Return Address.

Web (Portal)

The Information Transmitter dialog box for the Web (Portal) information transmitter contains the following options:

- [Set Connection to Current SBR](#)
- [Edit XSL](#)

Set Connection to Current SBR

This button allows you to use the current Subscription Book Repository as the document cache repository. This button is enabled if you do not have a connection or if your connection points to someplace other than the current Subscription Book Repository. Otherwise, the button is disabled.

Edit XSL

This button allows you to edit the XSL that is used to convert attachments to links at the end of the document body. This text is shown in the box below the button.

Locale Editor

The Locale Editor allows you to specify options that control how data is displayed for users, and how data is gathered, rendered, and transmitted to recipients. Due to the modular architecture of the Delivery Engine, each document formatter, information source, and information transmitter must be set up for the locale. Multiple locales can be used in the same Narrowcast Server system.

For steps to create a locale, see [Create Locales](#). To understand why different locales must be set up, see [Locales and internationalization](#).

Accessing the Locale Editor

Expand Administration. Right-click Locales, select New, and then select Locale. The Locale Editor opens. Or, double-click an existing locale.

Locale Editor layout

The Locale Editor lists the information sources, document formatters, and information transmitters available in the Narrowcast Server system on the left. It displays the Name, Type, and configuration Status of each component. Select a component to view its properties on the right.

The properties change depending on which component is selected. For example, the SMTP information transmitter allows you to select the character set to use, while information sources built in the MicroStrategy Information Source Module allow you to set the language. You can edit the properties and save the changes. Note that not all components have configuration options.

The menu bar displays standard Windows options, such as, File, View, and Help. The toolbar provides options to open another locale, and save the current locale and exit the editor.

Open Device File for Import Dialog Box

The Open Device File for Import dialog box allows you to import devices from an external file. This enables you to update the standard set of devices provided with Narrowcast Server.

For steps to import devices from a device library, see [Configure Information Transmitters](#).

Accessing the Open Device File for Import dialog box

Open the Administration folder, then right-click the Devices folder. Select Import Devices. The Open Device File for Import dialog box opens.

Prerequisite

You should understand the concept of a device and know which devices to import. For more information, see [MicroStrategy Narrowcast Server architecture](#).

Open Device File for Import dialog box layout

The Open Device File for Import dialog box lists all the device files that are available to import.

Select the required file and click OK. You are prompted with a set of objects, depending on your object management settings. You can make the appropriate choices from the set of objects and click OK.

The information transmitters are also imported for these devices if they are not available. As a result, if you have existing information transmitters, you should configure object management to not update, overwrite, or revert existing information transmitters during import. However, you need to configure object management to create, refresh, or update any existing devices and folders. This ensure that any settings in the existing information transmitters are preserved when all new devices, device folders, and the most recent device settings are imported.

For more information on object management, see [Administering multiple systems](#).

For information on object management and conflict resolution interfaces, see [Configure Object Management Dialog Box](#) and [Conflict Resolution Dialog Box](#).

Register Information Source Module Dialog Box

The Register Information Source Module dialog box allows you to add a new information source module (ISM) to the Narrowcast Server system. For steps to register an ISM, see [Configure Information Source Modules](#).

Accessing the Register Information Source Module dialog box

Open the Administration folder, then right-click the Information Source Modules folder. Select New, then Information Source Module. The Register Information Source Module dialog box opens.

Prerequisite

You should understand how information source modules work with other Delivery Engine modules. For more information about information source modules, see [Information source modules and information sources](#).

Register Information Source Module dialog box layout

This dialog box lists the information source modules available to the Narrowcast Server system.

- Select an information source from the Module drop-down list and click OK. The Save As dialog box opens. This dialog box allows you to save the new information source. You can change the Object Name or change the directory to save it in by navigating through the folders in the Look in field.
- Click Save to save the new object.

Register Document Formatter Dialog Box

The Register Document Formatter dialog box allows you to add a new document formatter to the Narrowcast Server system. For steps to create a new document formatter, see [Work with Document Formatters](#).

Accessing the Register Document Formatter dialog box

Open the Administration folder, then right-click the Document Formatters folder. Select New, then Document Formatter. The Register Document Formatter dialog box opens.

Prerequisite

You should understand how document formatters work with other Narrowcast Server components. For more information about document formatters, see [Document formatting modules and document formatters](#).

Register Document Formatter dialog box layout

This dialog box lists the document formatting modules available to the Narrowcast Server system.

- Select a document formatter from the Module drop-down list and click OK. The Save As dialog box opens. This dialog box allows you to save the new document formatter. You can change the Object Name or change the directory to save it in by navigating through the folders in the Look in field.
- Click Save to save the new object.

Register Subscription Book Module Dialog Box

The Register Subscription Book Module dialog box adds a new Subscription Book Module (SBM) to the Narrowcast Server system. For steps to add a new SBM, see [Register a new Subscription Book Module](#).

Accessing the Register Subscription Book Module dialog box

Expand Administration, then right-click the Subscription Book Module folder. Select New, then Subscription Book Module. The Register Subscription Book Module dialog box opens.

Prerequisites

You should understand the role of the SBM in the Narrowcast Server system. For more information about SBM, see [Subscription Book](#).

Register Subscription Book Module dialog box layout

This dialog box lists the subscription book modules available to the Narrowcast Server system.

- Select the Module from the drop-down list and click OK. The Save As dialog box opens. This dialog box allows you to save the new document formatter. You can change the Object Name, or change the directory to save it in by navigating through the folders in the Look in field.
- Click Save to save the new object. Your subscription book is displayed in the Subscription Book Module folder.

Repository Copy Dialog Box

The Repository Copy dialog box allows you to copy repositories from the source directory to the target directory. You can use the options available in the Repository Copy dialog box to copy only the Object Repository or the Subscription Book Repository or both.

For more information, see [Copying Repositories](#). For steps to copy repositories, see [Configuring a Narrowcast Server System](#).

Accessing the Repository Copy dialog box

In Narrowcast Administrator, from the Tools menu, select Copy Repository. The Repository Copy dialog box opens.

Repository Copy dialog box layout

The Repository Copy dialog box includes the following:

- **Copy Object Repository:** Allows you to copy the Object Repository from the source directory. If you select this option, the following check boxes are available:
- **Copy Subscription Book Repository used by the source:** Allows you to copy the Subscription Book Repository used by the source.
- **Link the target Subscription Book Repository to the target Object Repository:** Maintains a link between the target Subscription Book Repository and the target Object Repository.
- **Copy Subscription Book Repository:** Allows you to copy only the Subscription Book Repository (users and addresses only) without maintaining a link with the original Object Repository.

Object Repository page

In the Repository Copy - Object Repository page, specify the following information for the source and target directories of the Object Repository:

- Data Source Name
- Database Type
- Login
- Password
- Database
- Prefix
- System Name

You can leave the information in the Prefix blank if there is no prefix assigned to the Object Repository.

Subscription Book Repository page

In the Repository Copy - Subscription Book Repository page, specify the following information for the source and target directories of the Subscription Book Repository:

- Data Source Name
- Database Type
- Login
- Password
- Database
- Prefix

You can leave the information in the Prefix blank if there is no prefix assigned to the Subscription Book Repository.

This dialog box also provides the following copy options which allow users and addresses to be copied by default:

- User preferences
- Authentication and security
- Subscriptions

Summary page

The Repository Copy - Summary page allows you to review the information that you have specified for the Object Repository and the Subscription Book Repository. It also displays the path of the log file that is created during the copying process.

After you review the information in the Summary page, click Finish to proceed with copying the repositories. A folder showing the objects being copied is displayed.

The next screen displays the high level steps you must complete to have the copied system working, and provides a link to the Help page.

The information regarding objects copied from source to target and the time taken for the copying process is logged can be viewed in the log file.

System Message Viewer Dialog Box

The System Message Viewer dialog box is a display window for observing and analyzing error messages, execution events, and other system messages generated by MicroStrategy Narrowcast Server. The System Message Viewer allows you to:

- Edit and save the logging information, and control what type of information is shown
- View error messages generated during service executions, along with the time stamp expressed in UTC or as specified by the user on the Execution tab in System Settings
- Save the entire list of messages in the monitor
- Search for a particular error string in the logging information
- View log, trace and debug messages generated during service executions
- Set logging levels for system messages and logging format for each message
- Specify how many lines of message text are stored in memory
- Clear the message display

- Copy recent messages to the clipboard, so that they can be pasted into another application

For steps to set the logging format for system messages, see [Select the logging format for system messages](#).

Accessing the System Message Viewer dialog box

In Narrowcast Administrator, from the Tools menu, select View System Messages. The System Message Viewer dialog box opens.

Prerequisites

The System Message Viewer depends on the MicroStrategy Logging Server for proper operation. If the MicroStrategy Logging Server is not configured properly, or you have not connected to a system from this installation of Narrowcast Administrator, you cannot view messages in the System Message Viewer.

For more information, see the Narrowcast Server Installation and Configuration Guide.

System Message Viewer dialog box layout

The System Message Viewer dialog box includes a menu bar, toolbar, and an area for displaying messages.

- The File menu includes the Save Log option that allows you to save all the messages in the system monitor. Selecting the Save Log option opens the Save As dialog box that contains the standard Windows file options. You can save the messages in a text file, and specify a file name and location.
- The Edit menu includes the following options:
 - Copy: Copies the selected text to the clipboard.
 - Clear display: Clears the display area of the System Message Viewer.

- Find: Allows you to search for a string in the message. You can also perform a repeat search of the string, make the search case-sensitive, and search in the upward or downward direction.
- The Options menu includes the following options:
- Set Message Types: Opens the Select Message Types dialog box, in which you can specify the types and levels of system messages you want to view. Click Advanced to view the complete set of message types.
- Set Governing Settings: Opens the Log governing dialog box, in which you can specify the maximum number of messages to store in memory for display, the maximum number and size of log files, and the maximum number of days for retaining the log files.
- Logging Format: Opens the Log Formats dialog box that allows you to set the date and time formats of the log messages.
- Filter Editor: Opens the Log filtering dialog box that allows you to view messages based on the filtering criteria of the time and services that you select.

The toolbar includes the following buttons:

- Copy
- Clear display
- Set Message Types
- Set Governing Settings
- AutoScroll Toggle
- Filter Editor
- Help

Select Message Types dialog box

In the Select Message Types dialog box, you can specify the types and levels of system messages you want to view, by setting the desired logging levels. Selecting the box for a given message type causes new messages of that type to be shown in the System Message Viewer display. Message types include the following:

Error Messages

- **System Wide Failure:** Indicates a system-wide inability to operate.
- **Service or Machine Failure:** Indicates the failure of a service or a machine, but does not typically indicate a system failure.
- **Recipient Group Failure:** Indicates the failure of a segment or the transmission to a specific group of recipients, but does not typically indicate a system, service, or machine failure.
- **Recipient Level Failure or Temporary Failure:** Indicates a temporary failure or a recipient-level permanent failure such as an invalid address.

Information Messages


- **Service Execution Information:** Provides service execution process-related information such as service execution start, loading of service definition, start of segmentation, service execution completion, and so on.
- **Segment Execution Information:** Provides segment execution process-related information such as segment assignment to an Execution Engine, recipient resolution, segment failover, segment completion, and so on.
- **System Information:** Provides general system-wide information such as system startup, system shutdown, distribution manager startup, execution engine failure, system component status, and so on.

- **Component Level Information:** Provides component-level information such as component creation and termination and process steps at a functional level. This information is available for the following modules:
 - Information Source Modules
 - Information Transmission Modules
 - Document Formatting Modules
 - Subscription Book Module
 - Segment Executor
 - Execution Engine
 - Execution Recorder
 - Other Components
- **Component Level Debugging:** Provides low-level component information such as the entry and exit of specific functions, and operations within functions. This information is available for the following modules:
 - Information Source Modules
 - Information Transmission Modules
 - Document Formatting Modules
 - Subscription Book Module
 - Segment Executor
 - Execution Engine
 - Execution Recorder
 - Distribution Manager
 - Scheduler
 - Other Components

Other Debugging Messages

- **Recipient Level:** Provides recipient-level debugging information such as publication selection, information object execution, document formatting, transmission completion, and so on.
- **SQL Messages:** Provides SQL messages for debugging database problems.
- **Customer Specific Patch:** This level is reserved for use by customer-specific certified patches and is only used to help troubleshoot problems in these releases.

For messages to be displayed in this dialog box, the log levels must be specified on all client machines. Only messages logged by the clients are displayed in this dialog box.

 Changing these settings does not cause the previously generated messages that were not visible to become visible.


Log governing dialog box

The Log governing dialog box allows you to configure the settings that control the management of log files and the number of messages displayed in the Message Viewer.

- **Start a new log file every day:** Creates a new log file everyday irrespective of whether the size limit is reached or not.
- **Maximum number of messages in System Message Viewer:** Allows you to specify the maximum number of messages that the System Message Viewer stores in memory. The default value of this setting is 5000. You can specify a minimum value of 100 and a maximum value of 32000. If the number of messages that are stored in the System Message Viewer reaches the specified maximum limit, the oldest messages are removed from the Viewer's memory.
- **Maximum size of log files (in KB):** Allows you to specify the maximum size of log files that can be stored in the computer's hard disk. The

default value of this setting is 200 KB. The file size should be a minimum of 100 KB and can extend up to 999999 KB. A new file is created when the log file size reaches the specified maximum limit.

- **Maximum number of days for retaining log files:** Allows you to specify the maximum number of days for which the log files are retained in the computer's hard disk. The default value of this setting is 7 days. The minimum value that you can specify is 1 day, and the maximum value that you can specify is 99 days. When the number of days for retaining the log files exceeds the maximum number of days specified, the logs for the oldest day are removed. For example, if the value of this setting is 7 days, then on the eighth day, the files that were logged on the first day are removed.
- **Maximum number of log files:** Allows you to specify the maximum number of log files that can be stored in the computer's hard disk. The default value of this setting is 10. You can specify a minimum value of 1 and a maximum value of 9999. When the number of log files exceeds the maximum number specified, the oldest log file is removed.
- **Location of log files:** allows you to browse and select the location to store the log files.

 The Maximum number of days for retaining log files and Maximum number of log files options are mutually exclusive.

Log formats dialog box

In the Log formats dialog box, you can specify the time zone, time formatting and date formatting for the messages.

- **Date format string:** Allows you to enter the date format and try the example of the date format for the message string.
- **Time format string:** Allows you to enter the time format and try the example of the time format for the message string.

- **Create tab delimited logging:** Sets the logging display format of the logs. Selecting this check box causes different log items on each line to be tab delimited and are easily understood by log viewers. If this check box is not selected, the default logging format is retained.

Log filtering dialog box

In the Log filtering dialog box, you can view the messages added to the monitor after opening the system monitor, based on the time and service filtering criteria.

The Time Filter allows you enter the date and time in the format that you specified in the Log Formats dialog box. Selecting the Display only messages selected from check box displays messages that fall between two specified dates and time.

The Services Filter allows you to select a service name from the list of services. You can select all the services by selecting the Select All Services check box.

System Settings Dialog Box

The System Settings dialog box allows you to control global distribution manager settings, segmentation, and transmission recording.

Use this dialog box to set execution limits to govern memory and CPU consumption. You can also change the display locale and specify document creation properties.

For steps to apply governing settings, see [Apply system governing settings](#).

Accessing the System Settings dialog box

In Narrowcast Administrator, from the System menu, select the system you want to change, then select Set Governing Settings. The System Settings

dialog box opens.

Prerequisite

You should understand the concept about startup settings, execution settings, locales, and transmission recording. For more information, see [MicroStrategy Narrowcast Server architecture](#) and [Administering Systems](#).

System Settings dialog box layout

The System Settings dialog box contains the following tabs:

Distribution Manager tab

Execution tab

Console tab

Recording tab

Document Creation tab

Distribution Manager tab

On the Distribution Manager tab, you can change the following startup settings:

- **Status communication port number:** The TCP port used to communicate with other Delivery Engine machines on the network.
- **Number of startup negotiation attempts:** The number of times the distribution manager (DM) tries to locate other DMs to establish the primary DM during startup.
- **Timeout for negotiation ping:** The amount of time that the DM waits for a reply from other DMs before assuming that other DMs are not active.

Execution tab

On the Execution tab, you can change the following service execution parameters:


- **Maximum segments per execution:** Limits the maximum number of segments that the distribution manager allows a service to have.
- **Maximum failover count:** Controls the maximum number of times that the distribution manager causes a segment to be re-executed on a new execution engine.
- **Maximum concurrent executing services:** Limits the maximum number of services that can reside in the execution queue at the same time. This setting can be used to ensure that the system is not overloaded by execution requests.
- **Maximum concurrent expansions:** Limits the largest number of services that the primary distribution manager tries to segment simultaneously at any one time. Segmentation is performed by the Subscription Book Module (SBM). As this segment number increases, the number of SBM processes running on the distribution manager increases as well. A larger number of services causes more memory to be consumed, and uses more of the available CPU power in a multi-CPU environment.
- **Segment queue sizes to trigger segmentation:** Enables you to control the number of services that are segmented so that the memory consumption on the distribution manager is kept as low as possible. The queue also ensures that segment execution for a service is not unnecessarily delayed while waiting for the segmentation to occur. You can set the following values for the segment queue:
 - **At least:** The At least value puts a lower bound on the size of the segment execution queue. When the number of segments in this queue drops below this value, the highest priority service that has not yet been segmented is segmented, and its segments are inserted into the segment execution queue, even though it might be lower priority than

every other executing service. Tuning the At least value ensures that your system is never waiting for a service to segment when it has a full pipeline.

- **At most:** The At most value puts an upper bound on the size of the segment execution queue. Even if a higher priority service enters the service execution queue, it is not segmented until the size of the segment queue drops below the At most value. Tuning the At most value ensures that your system never consumes more memory than is available to the distribution manager.
- **Time Zone for System Information:** Enables you to select a time zone from the drop-down list.


Console tab

Select the language for displaying the object names and description in Narrowcast Administrator from the Select the Display Locale drop-down list.

-  If an object does not have a name in the chosen locale, its name in the system locale is shown.

Recording tab

On the Recording tab, you can specify whether transmission recording is active or not.

-  Changes to this setting only take effect for service executions that began after the change was made. Services already executing while transmission recording was off do not start recording when this feature is turned on.

Document Creation tab

On the Document Creation tab, you can select from the following options:

- **Always create new Narrowcast Server documents:** When a new document is created in Narrowcast Server and more than one format is

available (HTML, Text, Excel, Imported), you select the format, then the appropriate Narrowcast Server document editor opens. If only one format is available, the appropriate document editor opens.

- Always link to documents created in MicroStrategy Developer: When a new document is created in Narrowcast Server to link to an existing document in MicroStrategy Developer and more than one MicroStrategy information source is available, you select the information source, then the Developer Document Selector dialog box opens. If only one information source is available, the Developer Document Selector dialog box opens.
- Always prompt: When a new document is created in Narrowcast Server, do one of the following:
 - Choose to create a new Narrowcast Server document and select the document format.
 - Choose to link to an existing MicroStrategy Web or Report Services document and select the information source. This is selected by default.

SYSTEM ADMINISTRATOR How Do I...?

Manage Administrator Accounts


This chapter describes procedures to manage Narrowcast Administrator accounts. For more information on Narrowcast Administrator accounts, see [Administrative accounts](#).

Add a login ID to the local administrators group for Windows NT Workstation

The steps in this procedure are performed using Microsoft's Administrative Tools. Microsoft's Administrative Tools are a third party software, so the steps may be different than described in the procedure. For more information on using Microsoft's Administrative Tools, see the latest Microsoft documentation.

Steps

- 1 From the Start menu, select Programs, Administrative Tools, User Manager for Domains. The User Manager dialog box opens.
- 2 In the Groups section, double-click Administrators. The Local Group Properties dialog box opens.
- 3 Click Add. The Add Users and Groups dialog box opens.
- 4 In the List Names From box, choose the domain for the login ID you wish to add.
- 5 In the Names box, select one or more login IDs you wish to add and click Add. The selected login IDs should appear in the Add Names list of the dialog box.
- 6 Click OK. You are returned to the Local Group Properties dialog box.
- 7 Click OK. You are returned to the User Manager dialog box.
- 8 On the User menu, choose Exit.

 For more information on managing local groups with the User Manager dialog box, press F1 once the dialog box opens. The Microsoft's User Manager Help opens.

Add a login ID to the local administrators group for Windows 2000


The steps in this procedure are performed using Microsoft's Administrative Tools. Microsoft's Administrative Tools are a third party software, so the steps may be different than described in the procedure. For more information on using Microsoft's Administrative Tools, see the latest Microsoft documentation.

Steps

- 1 From the Start menu, select Programs, Administrative Tools, Computer Management. The Computer Management dialog box opens.
- 2 Open the Local Users and Groups folder and select the Groups folder.
- 3 Double-click Administrators. The Administrators Properties dialog box opens.
- 4 Select the administrator group to which you are adding a login ID and click Add.
- 5 In the Look in list, select the domain.
- 6 In the Name list, select a login ID and click Add. The login ID appears in the bottom pane.
- 7 Click OK. You are returned to the Administrators Properties dialog box.
- 8 Click OK. You are returned to the Computer Management dialog box.
- 9 Close the Computer Management dialog box.

 Note the following:


If you do not initially see Administrative Tools, from the Start menu choose Settings, Control Panel, double-click Administrative Tools. Double-click

 Computer Management.

For more information on managing local groups, press F1 once the Computer Management dialog box opens.

Add an account

Steps

- 1 Expand the Administration folder and right-click the Accounts folder. Select New Account. The Add Narrowcast Server Administrative Accounts dialog box opens.
 - 2 Select one of the following options to add a new account.
 - If you know the user name to be added, select the Enter Windows User Name option, and then type the Domain\User Name in the Windows Users box.
 - To search a user, select the Browse Windows Domain option, then select the domain for the new account from the Windows domain drop-down list, and then select the name of new user from the NT Users list.
-  If Narrowcast Server cannot connect to the specified Windows domain or cannot verify the existence of the specified user in a trusted domain, you are asked if you want to create an unverified administrative account.
- 3 Click Add to move the user to the Narrowcast Server Administrative Accounts list.
 - 4 To assign or change the privileges of the user, click Modify Privileges. For instructions on changing the user role, see [Assign privileges to an account](#).


- 5 Click OK to save the new account. The new user account appears in the Accounts folder.

Assign privileges to an account

Steps


- 1 To assign privileges to an account, perform one of the following:
 - If this is a new account, from the Add Narrowcast Server Administrative Accounts dialog box, click Modify Privileges. The Assign Administrative Privileges to Account dialog box opens.
 - If this is an existing account, expand the Administration folder and then expand the Accounts folder. Double-click the account to update. The Assign Administrative Privileges to Account dialog box opens.
- 2 Select a role from the Available Privileges list, and then click Add. The role you selected appears in the Granted Privileges list on the left.
- 3 Click OK to save the settings and close the dialog box.

Note the following:

-  Any account that is granted the System Administrator role must have administrator permissions on every computer in the system. Otherwise, that account cannot correctly modify the system configuration.

If you change the role of a user while he is logged on to the system, the changes do not take effect until he logs out and logs on again.

Remove an account

-  When an account is deleted, all the objects it owns no longer belong to an account. Only users with administrative access can manipulate the objects that belonged to the account. For a service designer account, only an application administrator can manage the objects. For a system administrator

or subscription administrator, another user with the same role can control the objects.

Steps

- 1 Expand the Administration folder, then expand the Accounts folder. Right-click the account to be deleted and select Delete. The Confirm Object Delete dialog box opens.
- 2 Click Yes to delete the account.

Remove privileges from an account

Steps

- 1 To remove privileges to an account, perform one of the following:
 - If this is a new account, from the Add Narrowcast Server Administrative Accounts dialog box, click Modify Privileges. The Assign Administrative Privileges to Account dialog box opens.
 - If this is an existing account, expand the Administration folder and then expand the Accounts folder. Double-click the account to update. The Assign Administrative Privileges to Account dialog box opens.
- 2 Select the role in the Granted Privileges list, and then click Remove. The selected role is removed from the Granted Privileges list and appears in the Available Privileges list.
- 3 Click OK to save the settings and close the dialog box.

Copy and Restore Objects

This chapter describes procedures to copy objects for backup and restore objects from a backup system using Narrowcast Server. For information on migrating and restoring systems, see [Administering multiple systems](#).

Copy objects to another system for backup/restore purposes

Steps

- 1 Create a new Narrowcast Server system in a database suitable for archiving your system.
- 2 Open both systems in Narrowcast Administrator and move the desired objects to the new backup system.
- 3 Unregister the backup system from Narrowcast Administrator to avoid accidentally modifying any of the objects in it.

Restore all objects from a backup system

Steps

- 1 Open both systems in Narrowcast Administrator.
- 2 Drag all application objects to move the contents of the Applications folder from the backup system to the desired target system.
- 3 Drag all system objects to move the contents of the Information Source Modules, Document Formatters, Information Transmitters, Devices, and Locales folders from the backup system to the target system.
- 4 Disconnect the backup system from Narrowcast Administrator to avoid accidentally modifying any of the objects in it.

Restore a single object from a backup system

Steps

- 1 Open both systems in Narrowcast Administrator.
- 2 Move the required object from the backup system to the target system. If the object already exists in the target system, the Conflict Resolution dialog box opens. Select the Accept option for the object and then click

OK. For more information on the Conflict Resolution dialog box, see [Conflict Resolution Dialog Box](#).

- 3 Disconnect the backup system from Narrowcast Administrator to avoid accidentally modifying any of the objects in it.

Revert the objects in one environment to the older object definitions from another environment

Steps

- 1 Open both systems in Narrowcast Administrator.
- 2 Configure object management settings so that newer objects in the target system will revert to the older object definitions in the source system.
- 3 Drag all application objects to move the contents of the Applications folder from the source system to the target system.
- 4 Drag all system objects to move the contents of the Information Source Modules, Document Formatters, Information Transmitters, Devices, and Locales folders from the source system to the target system.
- 5 Disconnect the source system from Narrowcast Administrator to avoid accidentally modifying any of the objects in it.

Update the objects in one environment with the new object definitions from another environment

Steps

- 1 Open both systems in Narrowcast Administrator.
- 2 Configure object management settings so that older objects in the target system are updated with newer object definitions from the source system.
- 3 Move all objects from the source system to the target system.

- 4 Disconnect the source system from Narrowcast Administrator to avoid accidentally modifying any of the objects in it.

Manage Distribution Managers

This chapter describes procedures to add, delete, and manage a distribution manager. The distribution manager is a software component that controls system operations. For more information on distribution managers and their functions, see [Distribution managers](#).

Add a distribution manager

You must have administrative privileges on a computer to add it as a distribution manager.

Steps

- 1 Right-click the Distribution Managers folder in the Folder List panel. Choose New, then select Distribution Manager.
- 2 Type the name of the computer or click Browse. A Browse for Computer dialog box opens. Locate the computer and click OK.
- 3 Click OK to add the new distribution manager.

Delete a distribution manager

You must stop the Distribution Manager before deleting it. For instructions, see [Stop a distribution manager](#).

Steps

- 1 Right-click the distribution manager to be deleted and then select Delete.
- 2 In the Confirm Object Delete dialog box, click Yes.

Run a distribution manager

Steps

- 1 Double-click the distribution manager to run. The Distribution Manager dialog box opens.
- 2 Select Run and then click OK.

Stop a distribution manager

Steps

- 1 Double-click the distribution manager to stop. The Distribution Manager dialog box opens.
- 2 Select Stop and then click OK.

Work with Document Formatters

This chapter describes procedures to work with document formatters. A document formatter is an administration object that stores configuration and other information for using a document formatting module. For a detailed explanation on document formatters and their types, see [Document formatting modules and document formatters](#).

Delete a document formatter

Steps

- 1 Right-click the document formatter to be removed and select Delete from the menu that appears.
- 2 Select Yes to confirm deletion.

 If a document formatter is used by a device, it cannot be removed.

Register a document formatter

Steps

- 1 Right-click the Document Formatters folder, then select New, then Document Formatter from the menu that appears. The Register Document Formatter dialog box opens.
- 2 From the Module list box, select a document formatter. Click OK. The Save As dialog box opens.
- 3 Enter a Name for the new document formatter and click Save.
- 4 You must set the properties before you can use a new Excel DFM. The other document formatters do not have properties that can be manipulated. For instructions on configuring an Excel document formatter, see the [Set the properties of an Excel document formatter](#) topic.

Set the properties of an Excel document formatter

Steps


- 1 Double-click the Excel document formatter. The Document Formatter - Excel dialog box opens.
- 2 Click Browse and locate the folder in which you would like execution engines to store temporary files when creating Excel documents. Click OK and the path is entered into the Working directory box.
- 3 Select one of the following Error Handling options:
 - Fail the document, which means that if an error occurs, the Excel document will not be sent.
 - Truncate the Document Element, which means that as much of the document element as possible will be sent. This setting is applied only if the document element is a grid.

- Replace with the following string, which means that, if possible, the text you enter will replace the flawed document.
- 4 Select one of the following, which applies if the number of cell formats in the document exceeds the maximum possible number of cell formats in Excel:
 - Fail the document, which means that if the maximum is exceeded the document is not sent.
 - Ignore the additional cell formats, which means that if the maximum is exceeded the extra cell formats are ignored and the document is sent anyway.
 - 5 Click OK to save the changes.

Manage Execution Engines

This chapter describes procedures to add and manage execution engines. An execution engine is a software component that controls service segments processing. For a detailed explanation on execution engines and the functions of a segment executor, see [Execution engines](#).

Add an execution engine

 You must have administrative privileges on a machine to add it as an execution engine.

Steps

- 1 Right-click the Execution Engines folder in the Folder List panel. Choose New, then select Execution Engine.
- 2 Enter the name of the machine or click Browse. A Browse for Computer dialog box opens. Find the machine and click OK.
- 3 Change the Maximum number of simultaneously executing segments, if desired.

- 4 Click OK to add the new execution engine.

Delete an execution engine

You must stop the execution engine before deleting it. For instructions to stop the execution engine, see [Stop an execution engine](#).

Steps

- 1 Expand the Administration folder, and then expand the Execution Engines folder. Right-click the execution engine to be deleted and then select Delete.
- 2 Select Yes to confirm the deletion.

Idle an execution engine

Steps

- 1 Expand the Administration folder, and then expand the Execution Engines folder. Double-click the required execution engine. The Execution Engine dialog box opens.
- 2 Select Idle and then click OK.

Run an execution engine

Steps

- 1 Expand the Administration folder, and then expand the Execution Engines folder. Double-click the required execution engine. The Execution Engine dialog box opens.
- 2 Select Run and then click OK.

Stop an execution engine


Steps

- 1 Expand the Administration folder, and then expand the Execution Engines folder. Double-click the required execution engine. The Execution Engine dialog box opens.
- 2 Select Stop and then click OK.

Configure Information Transmitters

This chapter describes procedures to manage and configure information transmitters such as File, Print, Email (SMTP), SMS, and Web devices. For more information on information transmitters, see [Information transmission modules \(ITMs\) and information transmitters \(ITs\)](#).

Allow users to specify file paths where their files should be saved

 You must register a File Information Transmission Module before you can create a File IT device. For information on registering your device, see [Register an information transmitter](#).


Steps

- 1 Expand the Administration folder, then right-click the Devices folder.
 - To create a new File IT device, click New and then Device. For more information on creating a File IT device, see [Create a File IT device](#).
 - To open an existing File IT device, double-click the device from the Devices folder.
- 2 On the General properties tab, in the File location box, type a file location or browse to select a file location. You can also click Insert

Macro and select Physical Address to insert a macro for the file path. This macro enables users to enter full network paths themselves.

- 3 Click OK to save the device. The Save Device dialog box opens.
- 4 For a new device, choose the folder in which to save the object. Type a name for the device and click Save. Or leave the existing name and folder settings as they are.


Allow users to specify printer locations where their services should be printed

 You must register a Print Information Transmission Module before you can create this device. For information on registering your device, see [Register an information transmitter](#).

Steps

- 1 Expand the Administration folder, then right-click the Devices folder.
 - To create a new Print IT device, click New and then Device. For more information on creating a Print IT device, see [Create a Print IT device](#).
 - To open an existing Print IT device, double-click the device from the Devices folder.
- 2 On the General Properties tab, in the Printer Location section, select a printer location from the list or type a new printer location. Click Add Printer to add a new printer to the list of available printers.
- 3 Select the Allow print locations defined in user addresses to override the above print location check box.
- 4 Click OK to save the device. Narrowcast Server validates the printer location automatically. The Save Device dialog box opens.
- 5 For a new device, choose the folder in which to save the object. Enter a name for the device and click Save. Or leave the existing name and folder settings as they are.

Create a File IT device

 You must register a File Information Transmission Module before you can create this device. For information on registering your device, see [Register an information transmitter](#).


Steps

- 1 Expand the Administration folder, then right-click the Devices folder.
- 2 Select New and then Device. The Select Information Transmitter dialog box opens.
- 3 Double-click File. The Device Editor opens with the Transmission tab displayed. This tab allows you to specify the parameters your device uses when sending information.
- 4 On the General properties tab, specify the file location for this device:
 - File Location allows you to enter a full or partial path for delivery of files.
 - Insert Macro allows you to see a list of variables that can be used to personalize each transmission. Select the appropriate macro.
- 5 On the Advanced properties tab in the Advanced File System Options section, specify the following options:
 - Create required folders creates folders if the specified file path is not present. This is selected by default.
 - Overwrite files with same name determines whether the information transmitter overwrites existing files with the same name. This is selected by default.
 - Append timestamp to file name adds the date and time of the file creation to the end of the file name. This is selected by default.

- Append to file (text documents only) determines whether the information transmitter appends the contents of the new file to the existing file each time the service is executed. For example, if you have a service that contains a text document and it has delivery to file with the Append to file check box selected, a text file is created when the service is executed for the first time. After that, whenever the service is executed, the contents of the new document are appended to the existing file. You can select the Append to file check box only if you clear the Overwrite files with same name check box. You must also clear the Append timestamp to file name check box, otherwise a new file is created each time the service is executed.
 - Number of retries allows you to specify how many times file transmission will be attempted if a temporary failure occurs.
 - Time between retries (milliseconds) allows you to specify how much time is allowed between a failed delivery attempt and a retry.
 - Delivery timeout(milliseconds) allows you to specify how much time is allowed before the transmission times out.
- 6 On the Advanced properties tab in the Backup File Location section, specify the following options:
 - **Save messages to backup file location if delivery fails** enables you to provide a location for a backup file if delivery to the original file location fails.
 - Backup File Location allows you to enter the path and file name for delivering files if delivery to the original file location fails.
 - 7 Complete the properties for Plaintext by following the instructions in the [Set up plain text properties for a device](#) procedure.
 - 8 Complete the properties for Excel by following the instructions in the [Set up Excel properties for a device](#) procedure.


- 9 Complete the properties for HTML by following the instructions in the [Set up HTML properties for a device](#) procedure.
- 10 Complete the properties for PDF by following the instructions in the [Set up PDF properties for a device](#) procedure.
- 11 Complete the properties for all the tabs and click OK to create the new device. The Save Device dialog box opens.
- 12 Choose the folder in which to save the object. Type a name for the new device and click Save.

Create an E-mail (SMTP) or Wireless (SMTP) IT device

 You must register an SMTP information transmission module and at least one document formatter before you can create this device. For information on registering your device, see [Register an information transmitter](#).


Steps

- 1 Expand the Administration folder, then right-click the Devices folder.
- 2 Select New and then Device. The Select Information Transmitter dialog box opens.
- 3 Double-click SMTP. The Device Editor opens with the Transmission tab displayed. This tab allows you to specify the parameters your device uses when sending information.
- 4 On the Message Format tab, select whether to use UUEncoded or MIME.
- 5 The MIME Options tab is displayed only if MIME is selected on the Message Format tab. Complete the following information:
 - Plaintext and HTML Body Encoding: Select whether to use base64, 7 bit ASCII, or quoted-printable.
 - Text Attachment Encoding: Select whether to use base64 or quoted-printable.

- Binary Attachment Encoding: Select whether to use base64 or quoted-printable.
 - Use US ASCII for Subject and Attachment Names: Select whether this device supports only US ASCII for the subject and attachment names.
 - Do not put quotes around non US-ASCII display names: This option should only be enabled for Microsoft Outlook 98 and Microsoft Outlook 2000 e-mail clients.
 - Embed HTML Attachment: Select whether to embed HTML attachments into the message body or send them as unrelated attachments.
 - Embed All Attachments: This option is available only if Embed HTML Attachment is chosen. Select whether to embed all attachments, if at least one attachment is embedded.
-  Embed All Attachments should be chosen for Microsoft Outlook 98 and Microsoft Outlook 2000 e-mail clients.
- Remove Content-Location Mime Header: Select this check box to prevent broken links to attachments in e-mails forwarded using Microsoft Outlook Web Access. This check box is available only for MicroStrategy Narrowcast Server version 8.0.1 and later.
- 6 On the Delivery Options tab, enter a Smart Host Address, a Port Number for the Smart Host, and whether to use Smart Host Always.
 - 7 Complete the properties for Plaintext by following the instructions in the [Set up plain text properties for a device](#) procedure.
 - 8 Complete the properties for Excel by following the instructions in the [Set up Excel properties for a device](#) procedure.
 - 9 Complete the properties for HTML by following the instructions in the [Set up HTML properties for a device](#) procedure.

- 10 Complete the properties for PDF by following the instructions in the Set up PDF properties for a device procedure.
- 11 Complete the properties for all the tabs and click OK to create the new device. The Save Device dialog box opens.
- 12 Choose the folder in which to save the object. Type a name for the new device and click Save.


Create an SMS (SMPP) IT device

 You must register an SMS information transmitter before you create this device. For information on registering your device, see [Register an information transmitter](#).

Steps

- 1 Expand the Administration folder, then right-click the Devices folder.
- 2 Select New and then Device. The Select Information Transmitter dialog box opens.
- 3 Double-click SMS Transmitter (SMPP). The Device Editor opens with the Transmission tab displayed. This tab allows you to specify the parameters your device uses when sending information.
- 4 Type the number of characters to specify the Maximum Message Size. Messages exceeding the maximum message size are truncated.
- 5 Complete the properties for Plaintext by following the instructions in the [Set up plain text properties for a device](#) topic.
- 6 Complete the properties for all the tabs and click OK to create the new device. The Save Device dialog box opens.
- 7 Choose the folder in which to save the object. Type a name for the new device and click Save.

Create a Print IT device

 You must register a Print Information Transmission Module before you can create this device. For information on registering your device, see [Register an information transmitter](#).

Steps

- 1 Expand the Administration folder, then right-click the Devices folder.
- 2 Select New and then Device. The Select Information Transmitter dialog box opens.
- 3 Double-click Print. The Device Editor opens with the Transmission tab displayed. This tab allows you to specify the parameters your device uses when sending information.
- 4 On the General Properties tab, specify standard printer settings for printer location and printer properties:
 - In the Printer Location section, enter or select the printer location from the existing list. You can also click Add Printer to add a new printer to the list of available printers. Then select the Allow print locations defined in user addresses to override the above print location check box.
 - In the Printer Properties section, specify default printer properties including the number of copies, scale, print quality, paper source, paper size, and whether printed copies are collated. To use the standard printer defaults, click Load printer defaults.
 - In the HTML Documents section, select the appropriate option to specify the orientation of HTML documents.
 - In the PDF Documents section, specify the following options as appropriate:

- PostScript Level indicates the version of PostScript to use on this printer, Level 1, 2, or 3.
- Shrink to fit specifies that the content being printed should be resized, if needed, to fit on the paper used by this printer.
- Reverse pages instructs the printer to print from back to front instead of front to back (default).
- Print range indicates which pages to print, if multiple pages are in the print request.
- Odd or even pages identifies whether you want to print all pages (even AND odd) or just odd or just even pages.

5 On the Advanced Properties tab, specify the following options:


- Specify whether to print or save documents to a backup location if the primary printer fails. Select the check box, then choose from the following options:
 - Print files to the following backup printer allows you to specify a backup printer location.
 - Save files to the following backup file location allows you to specify a backup file location.
 - Specify the following governing settings:
 - Number of retries indicates how many times the printer attempts to print if the print request fails.
 - Time between retries (seconds) indicates the number of seconds between each retry attempt.
 - Delivery time out (minutes) indicates the number of minutes before the delivery times out.

- File Location specifies a location where documents are saved temporarily during execution. By default, the run-time path of the application is used.

Specify the Application Priority options:

- Other application and interactive users (PDF documents are saved to the backup file location, if specified above) allows Narrowcast Server to save the PDF document to a backup file location while the other applications continue working. If no backup file location is defined, an error is logged.
 - Narrowcast Server (this ends other Adobe applications automatically) allows Narrowcast Server to end other Adobe applications and print the PDF document.
- 6 Complete the properties for Plaintext by following the instructions in the [Set up plain text properties for a device](#) procedure.
 - 7 Complete the properties for HTML by following the instructions in the [Set up HTML properties for a device](#) procedure.
 - 8 Complete the properties for PDF by following the instructions in the [Set up PDF properties for a device](#) procedure.
 - 9 Complete the properties for all the tabs and click OK to create the new device. The Save Device dialog box opens.
 - 10 Choose the folder in which to save the object. Type a name for the new device and click Save.

Create a Web (Portal) IT device

- You must register a Portal information transmitter before you create this  device. For information on registering your device, see [Register an information transmitter](#).

Steps

- 1 Expand the Administration folder, then right-click the Devices folder.
- 2 Select New and then Device. The Select Information Transmitter dialog box opens.
- 3 Double-click Portal ITM. The Device Editor opens with the Transmission tab displayed. No transmission settings are required for a Portal ITM device.
- 4 Complete the properties for Plaintext by following the instructions in the [Set up plain text properties for a device](#) procedure.
- 5 Complete the properties for Excel by following the instructions in the [Set up Excel properties for a device](#) procedure.
- 6 Complete the properties for HTML by following the instructions in the [Set up HTML properties for a device](#) procedure.
- 7 Complete the properties for all the tabs and click OK to create the new device. The Save Device dialog box opens.
- 8 Choose the folder in which to save the object. Type a name for the new device and click Save.

Delete a device

Steps

- 1 Right-click the device to be deleted and then click Delete.
- 2 In the Confirm Object Delete dialog box, click Yes.




If the selected device is being used by a publication or an address, it cannot be deleted. Click OK for a list of objects that depend on this device.

Delete an information transmitter

This process deletes the information transmitter for a given information transmission module (ITM). The ITM remains in the event you want to create the transmitter again.

Steps

- 1 Right-click the device to be deleted and then click Delete.
- 2 In the Confirm Object Delete dialog box, click Yes.

If the Delete option is not available on the menu, the selected information  transmitter cannot be removed, because a device or publication is defined for it.

Import devices from a device library

Steps

- 1 Expand the Administration folder.
- 2 Right-click the Devices folder and click Import Devices. The Open Device File for Import dialog box opens.
- 3 Select the required device file distinguished with the .dvc extension and click OK.
- 4 Depending on the object management settings, you are prompted with a set of objects. Accept or reject the change details for the objects and click OK to import the devices.

Register an information transmitter

Steps

- 1 Right-click the Information Transmitter folder. Click New and then Information Transmitter. The Register Information Transmitter dialog box

opens.

- 2 From the Module drop-down list, select an information transmission module (ITM). Click OK. The Save As dialog box opens.
- 3 Type a Name for the new information transmitter and click Save.
- 4 You must set the properties before you can use the new information transmitter. For instructions, see the following topics:

[Set the properties of an E-mail \(SMTP\) information transmitter](#)

[Set the properties of an SMS \(SMPP\) information transmitter](#)

[Set the properties of a Web \(Portal\) information transmitter](#)

Print documents on printers within my network


Steps


- 1 Register a Print Information Transmission Module. For more information on registering your device, see *[Register an information transmitter](#)*.
- 2 Expand the Administration folder, then right-click the Devices folder.
 - To create a new Print IT device, select New and then Device. For more information on creating a Print IT device, see [Create a Print IT device](#).
 - To open an existing device, double-click a Print IT device from the Devices folder.
- 3 On the General Properties tab, in the Printer Location section, enter or select the printer location from the existing list to specify the default printer location. You can also click Add printer to add a new printer to the list of available printers.
- 4 Click OK to save the device. Narrowcast Server validates the printer location automatically. The Save Device dialog box opens.

- 5 For a new device, choose the folder in which to save the object. Type a name for the device and click Save. Or leave the existing name and folder settings as they are.

Set the properties of an E-mail (SMTP) information transmitter

Steps


- 1 Double-click the E-mail (SMTP) information transmitter to be modified. The Information Transmitter dialog box opens.
 - 2 On the Sender tab, enter the name of the sender in the Display Name box. Enter the E-mail Address of the sender in the format `jdoe@microstrategy.com`
 - 3 To access more tabs, select Show Advanced Properties.
 - 4 On the Reply-To tab, enter the Display Name that is shown on the reply to line of an e-mail. Type the corresponding E-mail Address in the format `jdoe@microstrategy.com`
 - 5 On the Message Output tab, the following options allow you to send the message:
 - Send to Recipient via SMTP
 - Save to File
 - Do Both, which sends the narrowcast message to the recipients and also sends it to a file.
-  You should only choose Save to File or Do Both for testing purposes. You must manually delete any files created by this feature.
- Save to Folder, saves the email message files generated by Narrowcast Server to the folder you specify here, if you choose either Save to File or Do Both.

 You must specify a folder that is valid on each execution engine in your system.


- 6 On the Delivery Status Notification tab, you have the following options on how to receive notice of the delivery status:
 - Do Not Request any Notification. No delivery notification will be sent.
 - Request a Notification on Failure Only. A notification is sent to the E-mail Address entered below only if the narrowcast message cannot be sent.
 - Request a Notification on Failure and Success. A notification is sent to the E-mail Address entered below, indicating whether a message was successfully delivered.

Note the following:

If notification is requested, you must enter the E-mail Address to which to send the notification.

 Only some receiving SMTP servers support delivery notification. Others never send delivery notification messages, regardless of the Delivery Status Notification setting.

- 7 On the Recipient Field tab, you have the following options for defining the default recipient field:
 - Recipient addresses should appear in the 'To' field. Unless overwritten by the subscription-level properties, the recipients using a device from this transmitter will be shown in the 'To' field.
 - Recipient addresses should appear in the 'CC' field. Unless overwritten by the subscription-level properties, the recipients using a device from this transmitter will be shown in the 'CC' field.
 - Recipient address should not appear in the 'To' or 'CC' fields (use BCC Delivery). Unless overwritten by the subscription-level properties, the recipients using a device from this transmitter will not be shown in the 'To' or 'CC' field.

-  These settings can be overwritten at the subscription level by editing the subscription properties.


8 Click OK.

Save documents to machines within my network

Steps

- 1 Register a File Information Transmission Module. See [Register an information transmitter](#).
- 2 Open the Administration folder, then right-click the Devices folder.
- 3 Double-click to open an existing File device or create a new File device. See [Create a File IT device](#).
- 4 On the General properties tab, specify the file location for this device. Enter a full path to ensure that the desired network machine is used.
- 5 Click OK to save the device. The Save Device dialog box opens.
- 6 For a new device, choose the directory in which to save the object. Enter a name for the device and click Save. Or leave the existing name and directory settings as they are.

Set the properties of an SMS (SMPP) information transmitter

-  You must establish an account with an SMS Service Provider prior to configuring a functioning SMS (SMPP) information transmitter.

Steps

- 1 Double-click the SMS (SMPP) information transmitter to be modified. The Information Transmitter dialog box opens.
- 2 In the Short Message Service Center Connection section, enter the SMSC account connectivity information in the appropriate boxes

corresponding to the SMSC IP Address, SMSC Port, Login Name/ID, Password, System Type, and Protocol Version.

- 3 In the Default Return Address section, enter the corresponding Return Address, Numbering Plan Indicator (NPI), and Type Of Number (TON) values.



The NPI and TON values are used for the destination address NPI and TON values as well.

- 4 Click Test SMSC Connection to validate your SMS ITM settings. You should receive a success message confirming that you were able to connect to and disconnect from the specified SMSC, or an appropriate error message.
- 5 Click OK.

Set the properties of a Web (Portal) information transmitter

Steps

- 1 Double-click the Web (Portal) information transmitter to be modified. The Information Transmitter dialog box opens.
- 2 Click Set Connection to Current SBR to use the current Subscription Book Repository as the document cache repository.
- 3 Click Edit XSL to edit the XSL in the text box that will be used to convert attachments to links at the end of the document body.
- 4 Click OK.

Set up Excel properties for a device

Steps


- 1 Click the Excel tab of the Device Editor.

- 2 Select whether to Use this Document Formatter for the device. If you choose to use it, then select the Formatting Module from the drop-down list.

Set up HTML properties for a device

Steps

- 1 Click the HTML tab of the Device Editor.
- 2 Select whether to Use this Document Formatter for the device. If you choose to use it, then select the Formatting Module from the drop-down list.
- 3 Select whether to Support Images.

 If images are not supported and an HTML document includes images as information object results, the HTML document formatting module will generate run-time errors. These errors are managed by the document error-handling rules.

Set up PDF properties for a device

Steps

- 1 Click the PDF tab of the Device Editor.
- 2 Select whether to Use this Document Formatter for the device. If you choose to use it, then select the Formatting Module from the drop-down list.

Set up plain text properties for a device

Steps

- 1 Click the Plaintext tab of the Device Editor.


- 2 Select whether to Use this Document Formatter for the device. If you choose to use it, select the Formatting Module from the list.
- 3 On the Grid Formatting tab, select one of the following options:
 - Do Not Pad Grid Cells
 - Pad for Fixed-Width Font
 - Pad for Proportional Font
- 4 If you want to use a character such as a tab between columns, type that character in the Separate Columns with box.
- 5 The String Substitution tab allows you to substitute the characters you enter in the From column with those you enter in the To column.
- 6 To create a string substitution, complete the following steps:
 - a. Click the Perform String Substitution tab.
 - b. Click Add.
 - c. Click in the From column and type the characters to be replaced.
 - d. Click in the To column and type the characters with which to replace them.
- 7 If Pad for Proportional Font is selected on the Grid Formatting tab, the Proportional Font tab is available. Character widths defined in this tab determine how padding is calculated in grid cells. For each width value, only one padding character can be chosen.
 - a. Find the Character to set the width of.
 - b. Set the Width of the character, in pixels.
 - c. Select the Double-byte Character Width. The table defines the widths of characters with codes in the range between 0 and 255; this setting defines the widths of characters with codes above that range.

- 8 If Pad for Fixed-Width Font or Pad for Proportional Font is selected on the Grid Formatting tab, the Cell Padding tab is available.
 - a. Select a padding Character or characters from the drop-down list.
 - b. The remaining columns of the grid are filled in automatically.

Configure Information Source Modules


This chapter describes procedures to manage and configure information source modules (ISM) and information sources. For more information, see [Information source modules and information sources](#).


Create a MicroStrategy Information Source

 You must register an information source module before you can create an information source. For more information, see [Register an information source module](#).

Steps

- 1 Expand the Administration folder, then expand the Information Source Modules folder. Right-click a MicroStrategy information source module. Select New, then Information Source. The Information Source dialog box opens.
- 2 Type a Name and a Description for the new information source.
- 3 Select a refresh option from the following:
 - Never Refresh: Reuses the existing information source instance.
 - Refresh Immediately: Reloads the information source module immediately.
 - Refresh after every: Reloads the information source module after executing the number of jobs specified.

-  If you set the number of jobs to zero in the Refresh after every option, the information source is used by only one segment before it is reloaded.
- 4 Click Define to access the Information Source Wizard. The Welcome page opens.
- 5 Review the steps to create an information source, then click Next. The Intelligence Server page opens.
- 6 Enter the Intelligence Server Machine Name or click the browse button to locate the computer. The name of the computer you specify must be running the MicroStrategy Intelligence Server.

 If your system is clustered, and if the Intelligence Server computer and the Narrowcast Server computer that contains the ISM are in different domains, you may encounter connectivity issues. For details to resolve this issue, see the [Troubleshooting](#) chapter.

- 7 Enter the Port number of the Intelligence Server computer.
- 8 Enter your Login ID and Password. This information is validated when the you click Next, and an error message is displayed if Narrowcast Server is unable to connect to the Intelligence Server.
- 9 To set the Intelligence Server clustering details, complete the following steps:
 - a. Click Advanced Properties. The MicroStrategy Intelligence Server Properties dialog box opens.
 - b. On the Execution and Governing tab, set the following:
 - Adjust the Request Timeout (seconds), if necessary.
 - Adjust the Maximum number of reconnection attempts, if necessary.
 - Adjust the Maximum number of executing information objects, if necessary.

- Select the Generate PDF in Narrowcast Server machine check box to generate PDF files in the Narrowcast Server computer.
 - Specify the Maximum memory consumption for PDF file generation (kilobytes).
 - Select the Generate Excel in Narrowcast Server machine check box to generate Excel files in the Narrowcast Server computer.
 - Specify the Maximum memory consumption for Excel file generation (kilobytes).
- c. On the Primary Server tab, review the Machine name and Port number of the Primary Intelligence Server and set the Load Balance Factor for the Primary Intelligence Server.
 - d. On the Backup Server tab, select an optional secondary server to use during failover and set the Load Balance Factor for the Backup Intelligence Server.
 - e. Click OK to return to the Intelligence Server page.

10 Click Next. The Project page opens.

11 From the Project drop-down list of available projects on the selected server, select the Project to use as your information source.

12 Click Advanced Properties. The Advanced dialog box opens.

On the General tab, set the following:

- a. To apply user-level authentication for reports for Web subscriptions, select the check box.
- b. Click OK to return to the Project page.

13 Click Next. The Default Language page opens.

14 From the drop-down lists, select the default Language to use when running reports with this information source. Click Next. The Default Authentication page opens.

- 15 Enter the Login ID and Password to be used as the default authentication object, which is used to check user access privileges and run reports for this information source. Click Next. The Security and Dynamic Subscription Support page opens.
- 16 To use an optional security object, complete the following steps:
 - a. Select the check box under Security.
 - b. Click Select to open the Security Object Browser dialog box and select the appropriate security prompt.
 - c. Click OK to return to the Security and Dynamic Subscription Support page.
- 17 To configure this information source to support dynamic subscriptions, select the check box under Dynamic Subscription. Click Next.
- 18 If security was selected in step **16**, the Default Security page opens.
- 19 Click Define Default Security. The Prompt Resolution dialog box opens.
- 20 Select the attribute element to use as the default security object and click Finish. You are returned to the Security and Dynamic Subscription Support page.
- 21 If you selected dynamic subscription support in step **17**, steps **22-25** apply. For more information on using the pages covered in these steps, see *Information Source Wizard layout*. Otherwise, go to step **26**.
- 22 Click Next. The User and Subscription Properties page opens.
- 23 Make the appropriate selections for retrieving user properties and click Next. The Address Properties page opens. For information on best practice to be followed while selecting an attribute form, see *Best practice for selecting an attribute form*.
- 24 Make the appropriate selections for retrieving address properties and click Next. The Personalization page opens.

- 25 Make the appropriate selections for retrieving personalization properties and click Next.
- 26 On the Summary page, review the information to ensure that no changes are needed. You can click Back to return to previous pages if necessary.
- 27 Click Finish. You are returned to the Information Source dialog box.
- 28 Click OK. The Save dialog box opens with the object name entered previously. You can change the name. Click OK.

Delete an information source

Steps

- 1 Right-click the information source to be deleted and then select Delete.
- 2 In the Confirm Object Delete dialog box, click Yes.



If the selected information source is being used by an object, it cannot be deleted.

Delete an information source module

Steps

- 1 Right-click the information source module to be deleted and then select Delete.
- 2 In the Confirm Object Delete dialog box, click Yes.



If an information source has been defined for the selected information source module, it cannot be deleted.

Register an information source module

Steps

- 1 Right-click the Information Source Modules folder. Select New, then Information Source Module. The Register Information Source Module dialog box opens.
- 2 Select an information source module (ISM) from the Module list box.
- 3 Click OK. The Save As dialog box opens.
- 4 Enter a Name for the new ISM.
- 5 Click OK to save the new ISM.

Create Locales

A locale enables a Narrowcast Server system to support a diverse, multinational user population. Narrowcast Server includes eleven locales representing different languages and formats, plus the system locale. You can modify these locales and create new ones as needed using Narrowcast Administrator. For a detailed explanation on how these locales impact the behavior of a Narrowcast system, see [Locales and internationalization](#).

Create a locale

Steps

- 1 Expand the Administration folder, then right-click the Locales folder. Select New then Locale. The Locale Editor opens.
- 2 Click a property to view its details.
- 3 Not all objects have properties that must be configured. Set the properties for each that does.

- 4 For the E-mail (SMTP) information transmitter, select the Character Set from the drop-down list.
- 5 For the Web (Portal) information transmitter, select the Locale from the drop-down list.
- 6 Set the required properties and click Save and Close. The Save Locale dialog box opens.
- 7 Type a Name for the new locale and click Save.

Note that for Microsoft Excel documents to display numerals correctly, you need to do the following:

- Double-click the locale name under the Administration folder. The Locale Editor opens.
- In the Locale Editor, set the information source to this locale under Locale Properties for the Selected Component.
- Make sure that the Regional Options on the user's account that runs the Execution Engine (EE) service also has the same locale selected.
- Make sure that the client computer that receives and views the Excel document has the same locale setting as well.

Delete a locale

Steps

- 1 Right-click the locale to be deleted and then select Delete.
- 2 In the Confirm Object Delete dialog box, click Yes.

Configuring a Narrowcast Server System

This chapter describes procedures to manage and configure a Narrowcast Server system. MicroStrategy Narrowcast Server is an information delivery platform designed for proactive transmission of information in the form of

personalized messages. For a detailed explanation of the Narrowcast Server system, see [MicroStrategy Narrowcast Server architecture](#).

Apply system governing settings

Steps

- 1 From the System menu, select your system, then select Set Governing Settings. The System Settings dialog box opens.
- 2 On the Distribution Manager tab, you can change the following startup settings:
 - Status communication port number, which is the TCP port used to communicate with other Delivery Engine computers on the network
 - Number of startup negotiation attempts, which is the number of times during the startup sequence that the distribution manager (DM) tries to locate other DMs to establish the primary DM
 - Timeout for negotiation ping, which is the amount of time that the DM waits for a reply from other DMs before failing the message
- 3 On the Execution tab, you can change these service execution parameters:
 - Maximum segments per execution, which limits the number of segments that the distribution manager allows a service to have
 - Maximum failover count, which controls the number of times that the distribution manager causes a segment to be re-executed on a new execution engine
 - Maximum concurrent executing services, which limits the number of services that can reside in the execution queue at the same time; used to ensure that the system is not overloaded by execution requests

- Maximum concurrent expansions, which is the largest number of services for which the distribution manager performs segmentation at any one time
 - Segment queue sizes to trigger segmentation, which controls when services are segmented based upon the current size of the segment queue; can be used to ensure that the system is not overloaded by execution requests
 - Time Zone for System Information, which enables you to select a time zone from the drop-down list
- 4 On the Console tab, select the locale to use for display.
 - 5 On the Recording tab, specify whether or not transmission recording is active.
 - 6 On the Document Creation tab, specify whether to create new Narrowcast Server documents, link to existing MicroStrategy Desktop documents, or prompt for either (selected by default).
 - 7 Click OK to save the new settings.

Clear the System Message Viewer

Steps


- 1 From the Tools menu, select View System Messages. The System Message Viewer dialog box opens.
- 2 From the Edit menu, select Clear Display. The messages are cleared from the display.

Connect to a system

Steps

- 1 From the System menu, select Configure New System. The System Configuration Wizard opens.

- 2 Configure the new system according to the instructions in the MicroStrategy Narrowcast Server Installation and Configuration Guide.

 You might connect to a system to provide a backup system or to develop applications offline. In this case, you do not need to configure any computers to be used in the system.

Copy system messages to the clipboard

Steps

- 1 From the Tools menu, select View System Messages. The System Message Viewer dialog box opens.
- 2 In the display area, use the scroll bar to locate the messages you want to copy.
- 3 Click and drag the mouse from one end of the text to the other to highlight the text you want to copy.
- 4 From the Edit menu, select Copy to copy the selected text to the clipboard. The text is ready to be pasted into other applications such as Notepad.

Copy object repository

You can choose to copy only the Object Repository or the Subscription Book Repository, or both. The following steps describe the procedure to copy only the object repository.

Steps

- 1 From the Tools menu, select Copy Repository. The Repository Copy dialog box opens.
- 2 Select Copy Object Repository.

- 3 Clear the Copy Subscription Book Repository used by the source and Link the target Subscription Book Repository to the target Object Repository check boxes.
- 4 Click Next. The Repository Copy-Object Repository dialog box opens.
- 5 Fill in the information for the source and target repositories and click Next. The Repository Copy-Summary dialog box opens. This dialog box displays details of the source and target folders for the Object Repository. It also displays information regarding the log file and its location.
- 6 Click Finish to start copying the Object Repository.

Copy subscription book repository

You can choose to copy only the Object Repository or the Subscription Book Repository, or both. The following steps describe the procedure to copy only the subscription book repository.

Steps

- 1 From the Tools menu, choose Copy Repository. The Copy Repository dialog box opens.
- 2 Select Copy Subscription Book Repository and click Next. The Repository Copy-Subscription Book Repository dialog box opens.
- 3 Fill in the information for the source and target repositories.
- 4 Select the check boxes in the Copy Options section if you want to copy the users, addresses, and subscriptions to the target repository.
- 5 Click Next. The Repository Copy-Summary dialog box opens. This dialog box displays the summary of the information you have specified so far. It also displays information regarding the log file and its location.
- 6 Click Finish to start copying Subscription Book Repository.

Copy object repository and subscription book repository

You can choose to copy only the Object Repository or the Subscription Book Repository, or both. The following steps describe the procedure to copy the object repository and subscription book repository.

Steps

- 1 From the Tools menu, choose Copy Repository. The Repository Copy dialog box opens.
- 2 Select Copy Object Repository. The Copy Subscription Book Repository used by the source and Link the target Subscription Book Repository to the target Object Repository check boxes are enabled and selected by default.
- 3 Click Next. The Repository Copy-Object Repository dialog box opens.
- 4 Fill in the information for the source and target repositories and click Next. The Repository Copy-Subscription Book Repository dialog box opens.
- 5 Fill in the information for the target repository.
- 6 Select the check boxes in the Copy Options section if you want to copy the users, addresses, and subscriptions to the target repository.
- 7 Click Next. The Repository Copy-Summary dialog box opens. This dialog box displays details of the source and target folders for Object Repository and Subscription Book Repository. It also displays information regarding the log file and its location.
- 8 Click Finish to start copying the Object Repository and Subscription Book Repository.

Destroy a system

You must destroy a system when you no longer need the application objects stored in the system, or the system configuration itself. Destroying a

system allows you to free the computers used by a system so that they can be used by other systems. This functionality destroys the system's Object Repository, which contains all system information (such as configuration, governing settings, and all applications), and removes system components from all computers being used by the system.

- 1 From the System menu, select your system.
- 2 Select Destroy System.
- 3 Click Yes to confirm.

Find a string in the system message

Steps

- 1 From the Tools menu, select View System Messages. The System Message Viewer dialog box opens.
- 2 From the Edit menu, select Find. The Find dialog box opens.
- 3 Enter the string that you want to find in the Find what text box, and click Find Next to search for the string.
- 4 Click Find All to locate all references of the string in the System Message Viewer.
- 5 Select the Match case check box to perform a case-sensitive search.
- 6 Select the Up or Down options to search for the string in the upward or downward direction in the System Message Viewer.
- 7 Click Cancel to close the Find dialog box, and return to the System Message Viewer.


Filter the system messages

Steps

- 1 From the Tools menu, select View System Messages. The System Message Viewer dialog box opens.
- 2 From the Options menu, select Filter Editor. The Log filtering dialog box opens.
- 3 To view the messages that fall between two given dates and time, select the Display only messages selected from check box, and enter the date and time in the specified format.
- 4 To view the messages of selected services, select the service from the Service Filter section.
- 5 To view the messages of all the services in the list, select the Select All Services check box.
- 6 Click OK to close the Log filtering dialog box and return to the System Message Viewer.

Migrate an object from one system (repository) to another

- 1 Open Narrowcast Administrator and register the two systems.
- 2 With both systems open in the Narrowcast Administrator, go to the source system.
- 3 Click and drag the object you want to migrate to the target system. Selecting the target folder is not important since the folder location of the source system is recreated.
- 4 If the Conflict Resolution dialog box opens, make the required selections and click OK.

-  When an object is moved from one system to another, the folder location of the source system is recreated. In addition, all dependent objects used by the object are copied. For example, if a service is copied, any documents, schedules, or subscription sets used by the service are also copied.


Modify the MicroStrategy Logging Server configuration

- 1 From the System menu, select the system you wish to modify and then select Edit System Configuration.
- 2 Click Clustering at the top of the window to go to the Clustering section. The Overview section opens. Read the options carefully.
- 3 Click Next. Depending on the available options and what you wish to do, choose one of the following:
 - To configure the MicroStrategy Logging Server for an unclustered system, choose Select and configure a single machine for Narrowcast Server.
 - To configure the MicroStrategy Logging Server for a clustered system, choose Select and configure multiple machines for a clustered Narrowcast Server system.
- 4 From the Review Advanced Settings page, click Modify to edit the MicroStrategy Logging Server configuration.


Modify transmission properties regarding address display

Steps

- 1 In the Static Subscription Set Editor, select a subscription from the Subscriptions in the subscription set table, then select Edit from the Edit menu. The Subscription Properties editor opens.
- 2 Click the Transmission tab.

- 3 In the Transmission Properties section, select the appropriate properties.
 - 4 For the e-mail transmitter, select To:, CC:, or BCC:.
-  There are no subscription-level properties for the SMS (SMPP) ITM or the Web (Portal) ITM.
- 5 Click OK to save your changes and return to the Static Subscription Set Editor.

Register a new Subscription Book Module

-  Changing the Subscription Book Module on an existing system causes all existing subscription sets to be invalid and all defined end users and addresses to be inaccessible.

Steps

- 1 Expand the Administration folder.
- 2 Right-click the Subscription Book Module folder, select New, then Subscription Book Module. The Subscription Book Module dialog box opens.
- 3 Select a module from the top-down list and click OK. The Save As dialog box opens.
- 4 In the Object Name box, enter a new name for your subscription book and click Save. Your subscription book appears in the Subscription Book Module folder.

Remove all system components from a computer

Use this procedure when you want to switch a computer from one system to another system without destroying the first system.

- 1 In the Narrowcast Administrator, stop the system if it is running.

- 2 From the System menu, select your system, then select Edit System Configuration.
- 3 Click Clustering in the section header. The Overview page opens. Read the instructions carefully and then click Next.
- 4 Select Remove all machines from the Narrowcast Server System and then click Next.
- 5 From the Summary page, verify the removal of the system components and close the System Configuration Wizard.

Resolve conflicts related to object management

The Conflict Resolution dialog box only opens when you copy one or more objects from one system repository (the source) to another system repository (the target), and there is a conflict. Conflicts can occur when an object in the target repository has the same name as the object being copied from the source repository, or when the object in the target repository is newer than the object being copied from the source repository. For more information, see the following topics:

[*Administering multiple systems*](#)

[*Conflict Resolution dialog box layout*](#)

[*Conflict Resolution Dialog Box*](#)

- 1 In the Conflict Resolution dialog box, make the required selection for each conflict listed. For each conflict, note the information in each column:
 - Column 1, Action, lists the available types of operation: Create, Refresh, Update, Overwrite, and Revert.
 - Column 2, Type, lists the type of object affected by the conflict (in the target system).
 - Column 3, Name, lists the name of the object affected by the conflict (in the target system).

- Column 4, Change Details, provides the details on the potential change to the target system due to copying an object or objects.
 - Columns 5 and 6, Accept and Reject, allow you to choose either to accept or reject the change indicated in Column 4.
- 2 Click in either the Accept or Reject column for each conflict, or click the column header to select the same action for all the conflicts.
 - 3 Click OK to resolve the conflict and complete the object migration.

Save the system messages


Steps

- 1 From the Tools menu, select View System Messages. The System Message Viewer dialog box opens.
- 2 From the File menu, select Save Log. The Save As dialog box opens in which you can specify the file name, and the location in which you want to save the log file as a text file.

Secure the Object Repository

Narrowcast Server supports multiple database logins to Object Repositories. With this feature, you can grant some users select, insert, update, and delete permissions to your repository tables so that they can read, modify, and delete objects while you prevent those users from accidentally dropping your repository tables. The System Configuration Wizard can be used to secure your object repository in this manner.


- 1 Create your Object Repository with the System Configuration Wizard, using an administrative database login.
- 2 Have all Narrowcast Administrator users (including yourself) use a different database login and password to register the system.

-  Because Narrowcast Administrator users do not connect to the database as the owner of the Object Repository tables, they cannot drop these tables.

Secure the Subscription Book Repository

Narrowcast Server supports multiple database logins to Subscription Book Repositories. With this feature, you can grant some users select, insert, update, and delete permissions to your repository tables so that they can read, modify, and delete objects while you prevent those users from accidentally dropping your repository tables. The System Configuration Wizard can be used to secure your Subscription Book Repository in this manner.

- 1 While creating a new system with the System Configuration Wizard, create your Object Repository using an administrative database login.
- 2 When you complete creating your system, expand the Administration folder and then double-click Subscription Book Module. The System Configuration Wizard opens.
- 3 Reconnect to the Subscription Book Repository that you created using a different database login and password.

-  Because Narrowcast Administrator users do not connect to the database as the owner of the Subscription Book Repository tables, they cannot drop these tables.

Select the logging format for system messages


Steps

- 1 From the Tools menu, select View System Messages. The System Message Viewer dialog box opens.
- 2 From the Options menu, select Logging Format. The Log Formats dialog box opens.

- 3 Enter an appropriate date format and time format.
- 4 Select the Create tab delimited log check box if you want different items on each line to be tab delimited.
- 5 Click OK to save your changes and return to the System Message Viewer.

Send e-mail notification for file and print delivery

Steps

- 1 In the Static Subscription Set Editor, select a subscription in the Subscription Set box, then from the Edit menu, select Edit.
- 2 Click the Notification tab.
 This tab is available only if you select File or Print as the delivery method in the Service Wizard, and the User Properties Editor.
- 3 Select the E-mail option to send a notification through e-mail after the service is delivered.
- 4 Click OK to save your changes and return to the Static Subscription Set Editor.

Set the administrative notification

- 1 From the Tools menu, select Set Administrative Notification. The Administrative Notification dialog box opens.
- 2 Select the check box corresponding to the message type for which you want to define the notification settings. The Governing and Filtering button is enabled.
- 3 Click Governing and Filtering to open the Administrative Notification Request dialog box.
 - Select the Governing check box and specify the governing details.

- Select the Filtering check box and specify the filtering information.
 - To include a set of codes for which you want notification
 - Select Include only from the drop-down list.
 - Select a code from the list box on the left and click >> to move it to the list box on the right.
 - To specify a set of codes for which you do not want any notification
 - Select Exclude from the drop-down list.
 - Select a code from the list box on the left and click >> to move it to the list box on the right.
 - To add a new code, enter the code and description in the text boxes and click Add Code.
 - To filter only the required codes from the available list of codes, specify the filtering criteria in the text field and click Filter list by.
 - Click OK to close the Administrative Notification Request dialog box and save your settings.
- 4 Specify the e-mail address to which the notification is to be sent in the Email Address[es] text box.
 - 5 Click Edit Device, if you want to specify the device transmission and formatting properties for the E-mail (SMTP) information transmitter.
 - 6 Click OK to save the administrative notification settings and close the Administrative Notification dialog box.

Set governing for system messages

Steps

- 1 From the Tools menu, select View System Messages. The System Message Viewer dialog box opens.

- 2 From the Options menu in the System Message Viewer, select Set Governing Settings. The Log governing dialog box opens.
- 3 Select the Start a new log file every day check box to create a new log file everyday irrespective of whether size limit is reached or not.
- 4 Specify the maximum number of messages that you want the System Message Viewer to retain in memory. The default value for this settings is 5000.
- 5 Specify the maximum size of log files that can be stored in the memory. The default value of this setting is 5000 KB. A new file is created when the limit that you have specified is reached.
- 6 Specify the maximum number of days for which the log files are retained in the memory. The default value of this setting is 7 days.
- 7 Specify the maximum number of log files that can be stored in the memory. The default value of this setting is 10.
- 8 Click the browse button to specify a location of log files.
- 9 Click OK to save your changes and return to the System Message Viewer.




The more lines you store, the more memory the System Message Viewer consumes on your computer.

Set message types for system messages

Steps

- 1 From the Tools menu, select View System Messages. The System Message Viewer dialog box opens.
- 2 From the Options menu in the System Message Viewer, select Set Message Types. The Select Message Types dialog box opens.

- 3 Select the appropriate check boxes to select the message types you want to view.
- 4 Click Advanced and select the appropriate check boxes to view information, trace and debug messages.
- 5 Click Close to save your changes and return to the System Message Viewer.

 During service execution, many trace and debug messages can be produced for each recipient. You should not enable these on a production system.

Specify document creation options

Steps

- 1 From the System menu, select the system, then select Set Governing Settings. The System Settings dialog box opens.
- 2 Select the Document Creation tab.
- 3 Select one of the following options:
 - Always create new Narrowcast Server documents. This only allows system users to create new documents within Narrowcast Server.
 - Always link to documents created in MicroStrategy Desktop. This only allows users to link to existing Desktop documents.
 - Always prompt. This enables users to choose between creating a new Narrowcast Server document or linking to an existing Web or Desktop document.
- 4 Click OK to save your setting and close the dialog box.

Specify the rules for object management

- 1 From the Tools menu, select Configure Object Management. The Configure Object Management dialog box opens.
- 2 Make the required selection for each type of operation, other than Create, in the first table.
- 3 Make the required selections to resolve name and folder conflicts in the second table.
- 4 Click Save & Close to set the rules and return to the Narrowcast Administrator.

To select a specific action for all types of operations, click the column header.



For example, to be prompted for each type of operation during object migration, click Prompt During Copy. The option is selected for each type of operation.

Start and Stop the Narrowcast Server system

Start the Narrowcast Server system

From the System menu, select your system name, then select Start System.

Stop the Narrowcast Server system

Narrowcast Server system may need to be stopped for one of the following reasons:

- Updating registry
- Resolving a database deadlock that occurs during service segmentation
- Performing scheduled maintenance
- Switching systems

Steps

From the System menu, select your system name, then select Stop System.

Turn transmission recording on or off

Turn transmission recording on

- 1 From the System menu, select the system and then select Set Governing Settings. The System Settings dialog box opens.
- 2 Click the Recording tab and click Start.
- 3 Click OK to enable transmission recording for all subsequent service executions.

Turn transmission recording off

- 1 From the System menu, select the system and then select Set Governing Settings. The System Settings dialog box opens.
- 2 Click the Recording tab and click Stop.
- 3 Click OK to disable transmission recording for all subsequent service executions.

View system messages

Steps

- 1 From the Tools menu, select View System Messages. The System Message Viewer dialog box opens. As new messages are generated, they appear in the display area of this dialog box.

SYSTEM ADMINISTRATOR APPENDIXES

Appendixes section includes the following:

- *Appendix , Executable Files*
- *Language Support*
- *Narrowcast Server Error Codes*
- *Narrowcast Server Security*
- *Narrowcast Server Windows Services*
- *Service Execution Flow in Narrowcast Server*
- *Troubleshooting*

Executable Files

The following executable files are installed with MicroStrategy Narrowcast Server:

- DCOMPPerm.exe: System component
- MCAsyThr.exe: System component
- MCAdnoti.exe: Executable for Administrative Notification
- MCDE.exe: Executable for the Execution Engine service
- MCDM.exe: Executable for the Distribution Manager service
- MCDNSChecker.exe: System component
- MCFLITM.exe: Executable for File Information Transmission Module
- MCPDFWRP.exe: system component
- MCPntRT.exe: Executable for Print Information Transmission Module
- MCISM.exe: Run-time (service execution) executable for the MicroStrategy information source module
- MCISsys.exe: Run-time (service execution) executable for the System information source module
- MCISsub.exe: Run-time (service execution) executable for the Subscription Information information source module
- MCISusrD.exe: Run-time (service execution) executable for the User Information information source module
- MCLogCon.exe: Executable for the MicroStrategy Logging Consumer service
- MCLogSvc.exe: Executable for both MicroStrategy Logging Server and MicroStrategy Logging Client services

- MCMemUsg.exe: Executable for the MicroStrategy System Monitor service
- MCSBMRT.exe: Run-time (service execution) executable for the Subscription Book Module
- MCSE.exe: Executable for the segment executor, part of the execution engine
- MCSMTPSv.exe: Executable for the MicroStrategy SMTP Service
- MCSPCnfg.exe: System component
- MCTracer.exe: System component
- MCUgrad.exe: Upgrade application for Broadcaster 6.x systems
- MCXMLExp.exe: Object Repository export utility
- MCXMLImp.exe: Object Repository import utility
- MSTRNCAD.exe: Narrowcast Administrator application
- ServiceLoader.exe: system component
- UserExportTool.exe: Utility for exporting MicroStrategy Intelligence Server users to a flat file in CSV format

Language Support

Narrowcast Server allows you to use different character sets when generating e-mail messages, but to use a specific character set, the machine where the execution engine is running must support that specific language.

When trying to send an SMTP service that uses a locale that is not supported by the execution engine machine, the service fails, and the error description is similar to the following:

```
MSTREncodableString::ConvertWideCharToMultibyte_ToCharset - Error 87. The code page XX is not present in your system.
```

where the code page number is the Microsoft Windows code page.

If you see this error when running a service, install the language support for the language you want to use. The easiest way to add support for a language is to open Microsoft Internet Explorer, and open a Web page that uses the same language that you want.

The browser displays the Internet Explorer Install on Demand dialog box. Click Download to download and install it. Once the language support is installed, try to run the service again.

When Narrowcast Server generates an e-mail message, if a document or message field contains an invalid character for the character set it is trying to use, the service fails. The error description is similar to the following:

```
MSTREncodableString::ConvertWideCharToMultibyte_ToCharset - The text "<text>" can not be converted to Windows code page xx"
```

where `<text>` is the original text (in Unicode), and `code page xx` is the code page Narrowcast Server is trying to use to encode the text.

To fix this error, make sure the code page is the one you really want to use for that particular text, and that there are no invalid characters for that character set in the text.

The character sets that support any character are Unicode, UTF-7 and UTF-8. Make sure your device supports these character sets before using them.

Code page numbers and their descriptions are listed below.

Code Page Number	Description
874	Thai
932	Japanese (Kanji & JIS)
936	Chinese simplified
949	Korean
950	Chinese Traditional
1250	Central European
1252	Western & US-ASCII
1253	Greek
1254	Turkish
1255	Hebrew
1256	Arabic
1257	Baltic
1251	Cyrillic
65000	UTF-7
65001	UTF-8

Narrowcast Server Error Codes

This appendix lists MicroStrategy Narrowcast Server error codes and messages, which are written to the Delivery Engine log files. The list of error codes is for the core Narrowcast Server components, such as, Distribution Manager, Execution Engine, Segment Executor, Information Source Module and Information Transmission Module. It lists all message levels, except for messages logged at the Trace or Debug levels.

Distribution Manager

The following table lists the error messages logged by the Distribution Manager. It contains the message code, the message text, the error description, and the message level.

Message Error Code	Message Text	Issue Description	Message Level
0x00000960	Service ID [ID] Execution ID [ID] Segment ID [.....] New service execution created.	The Distribution Manager has started the execution of a Service.	Stat - Execution
0x00000961	Service ID [ID] Execution ID [ID] Segment ID [.....] Service execution finished successfully.	The Distribution Manager has successfully completed the execution of a Service.	Stat - Execution
0x00000962	Service ID [ID] Execution ID [ID] Segment ID [.....] Service execution canceled.	The execution of a Service has been canceled. This action is	Stat - Execution

Message Error Code	Message Text	Issue Description	Message Level
		usually performed from the Narrowcast Server Admin Console.	
0x00000963	Service ID [ID] Execution ID [ID] Segment ID [.....] Service execution finished with error.	Problem executing service. Most likely unable to do segmentation.	Moderate Error
0x00000965	Service ID [ID] Execution ID [sServiceExecutionId] Segment ID [.....] Service definition loaded - [Priority: Value], [Recipients per Segment: Value], [Start time: Timestamp], [Expiration time: Timestamp].	The definition of the Service has been loaded from the Object Repository.	Stat - Execution
0x00000966	Service ID [ID] Execution ID [ID] Segment ID [.....] Service execution has been paused. Assigned segments have been paused as well.	The execution of a Service has been paused. This action is usually performed from the Narrowcast Server Admin Console.	Stat - Execution
0x00000967	Service ID [ID] Execution ID [ID] Segment ID [.....] Service execution has been paused. Assigned segments continue to execute.	The execution of a Service has been paused. This action is usually performed from the Narrowcast	Stat - Execution

Message Error Code	Message Text	Issue Description	Message Level
		Server Admin Console.	
0x00000968	Service ID [ID] Execution ID [ID] Segment ID [.....] Service execution has been resumed.	The execution of a Service has been resumed. This action is usually performed from the Narrowcast Server Admin Console.	Stat - Execution
0x000009C4	Service ID [ID] Execution ID [ID] Segment ID [.....] Calling SBM to divide service execution into segments.	The Subscription Book Module will create blocks of recipients based on the segment size property of the Service.	Stat - Execution
0x000009C5	Service ID [ID] Execution ID [ID] Segment ID [.....] Service execution has been divided into id segment(s).	The segmentation step has been completed by the Subscription Book Module.	Stat - Execution
0x00000A28	Service ID [ID] Execution ID [ID] Segment ID [ID] Segment assignment update - executed on EE [Machine name], backed-up by EE [Machine name], failover count [Value] out of [MaxFailoverCountValue], segment timeout at [Timestamp].	A segment has been assigned to the specified Execution Engine with the stated parameters.	Stat - Segment

Message Error Code	Message Text	Issue Description	Message Level
0x00000A29	Service ID [ID] Execution ID [ID] Segment ID [ID] Segment finished successfully.	The Distribution Manager has been notified by the Execution Engine about the successful completion of a segment.	Stat - Segment
0x00000A2A	Service ID [ID] Execution ID [ID] Segment ID [ID] The segment has failed because the service has timed out or because it has been failed-over for the maximum allowed number of times.	A segment has failed because the service has timed out or because it's been failed-over for the maximum allowed times.	Moderate Error
0x00000A2B	Service ID [ID] Execution ID [ID] Segment ID [ID] Segment canceled.	The Distribution Manager has received the command to cancel a Service.	Stat - Segment
0x00000A2C	Service ID [ID] Execution ID [ID] Segment ID [ID] Segment paused.	The Distribution Manager has received the command to pause a Service.	Stat - Segment
0x00000A2D	Service ID [ID] Execution ID [ID] Segment ID [ID] Segment resumed.	The Distribution Manager has received the command to resume a Service.	Stat - Segment

Message Error Code	Message Text	Issue Description	Message Level
0x00000A2E	Problem starting up the DM [Error : Value].	Problem starting up the Distribution Manager.	Critical Error
0x00000A33	EE "Machine name" was just created.	The Distribution Manager has started a new Execution Engine process on the specified machine.	Info (DM)
0x00000A34	EE "Machine name" reported CountValue executing segments and CountValue backup segments.	Segment load information returned by each Execution Engine to the inquiring Distribution Manager.	Info (DM)
0x00000A35	Disconnected from EE "Machine name".	This message is logged when the Distribution Manager is ending communication with an Execution Engine.	Info (DM)
0x00000A36	Successfully connected to EE "Machine name".	This message is logged when the Distribution Manager	Info (DM)

Message Error Code	Message Text	Issue Description	Message Level
		establishes communication with an Execution Engine.	
0x00000A37	Disconnected from EE "Machine name".	The Distribution Manager is no longer connected to the specified Execution Engine.	Info (DM)
0x00000A38	DEPing contacted EE "Machine name" successfully.	This message is logged periodically as the Distribution Manager checks the availability of the Execution Engines in the cluster.	Info (DM)
0x00000A39	Successfully registered the failover recorder with Primary DM "Machine name".	This message indicates that the backup mechanism for a Distribution Manager has been established.	Info (DM)
0x00000A3A	Received shutdown request from Primary DM "Machine name".	This message indicates that the backup mechanism for a Distribution	Info (DM)

Message Error Code	Message Text	Issue Description	Message Level
		Manager has been shutdown.	
0x00000A3B	Received failover recorder registration request from Backup DM "MachineName".	This message is logged when the Backup Distribution Manager is establishing the backup mechanism with the Primary Distribution Manager.	Info (DM)
0x00000A3C	Received failover recorder unregistration request from Backup DM "MachineName".	This message is logged when the Backup Distribution Manager is ending the backup mechanism with the Primary Distribution Manager.	Info (DM)
0x00000A3D	CountValue active Schedule objects have been loaded from the repository.	Logged by the Distribution Manager when initializing its schedule queue.	Info (DM)
0x00000A3E	CountValue active Service objects have been loaded from the repository.	Logged by the Distribution Manager when initializing its	Info (DM)

Message Error Code	Message Text	Issue Description	Message Level
		Service information.	
0x00000A3F	DM process has shutdown.	Logged as the last statement before the Distribution Manager shuts down.	Info (DM)
0x00000A40	This DM is going to takeover as the new Primary DM. Starting the takeover procedure.	Logged when a Backup Distribution Manager detects that the Primary Distribution Manager is no longer available.	Info (DM)
0x00000A41	This DM is running as a Primary DM.	Logged by the first Distribution Manager from the cluster to finish its startup protocol.	Info (DM)
0x00000A42	The projected Primary DM failed to start, re-electing the Primary DM.	Logged by a secondary Distribution Manager when the Distribution Manager that appeared destined to complete its initialization first fails to do so in a	Info (DM)

Message Error Code	Message Text	Issue Description	Message Level
		timely fashion.	
0x00000A43	This DM is running as a Backup DM.	Logged by any secondary Distribution Manager.	Info (DM)
0x00000A45	The clock on the Backup DM machine is being synchronized with the Primary DM's clock.	This is required for schedule firing and service timeout purposes in case the Backup Distribution Manager needs to take over.	Info (DM)
0x00000A46	Schedule firing ignored because the Scheduler is set to not running.	Logged if the Scheduler component is ever turned off within the Distribution Manager. This can only be achieved programmatically as the Narrowcast Server Admin Console does not provide this functionality.	Info (DM)
0x00000A47	NT Service shutdown request received.	The NT Service hosting the	Info (DM)

Message Error Code	Message Text	Issue Description	Message Level
		Distribution Manager process has been told to shutdown by the NT Service Control Manager.	
0x00000A48	DM shutdown request received.	The Distribution Manager acknowledges the shutdown request.	Info (DM)
0x00000A49	System shutdown request received.	The Distribution Manager acknowledges the request to shutdown the entire cluster.	Info (DM)
0x00000A4A	Unregistered the failover recorder with Primary DM Machine name.	The backup mechanism for the Primary Distribution Manager has stopped.	Info (DM)
0x00000A4B	Service ID [ID] Execution ID [ID] Segment ID [ID] ("Primary EE Machine name"->"Backup EE Machine name") EEs did not report this segment assignment information. The DM's segment info about Primary EE and Backup EE will be used for failover.	The Execution Engines did not report this segment assignment information. The Distribution Manager's	Minor Error

Message Error Code	Message Text	Issue Description	Message Level
		segment info about Primary Execution Engine and Backup Execution Engine will be used for fail over.	
0x00000A4C	Service ID [ID] Execution ID [ID] Segment ID [ID] The DM's Primary EE and Backup EE information for this segment is not consistent with the information reported by the EEs. The version for Primary EE and Backup EE reported by the EEs will be used for failover. ("Primary EE Machine name"->"Backup EE Machine name") logged by Primary DM, ("Primary EE Machine name"->"Backup EE Machine name") reported by EEs.	The Distribution Manager's Primary Execution Engine and Backup Execution Engine information for this segment is not consistent with the information reported by the Execution Engines. The version for Primary Execution Engine and Backup Execution Engine reported by the EEs will be used for	Minor Error

Message Error Code	Message Text	Issue Description	Message Level
		failover.	
0x00000A4D	NT Service received an invalid or unknown request.	The NT Service received an invalid request. Usual requests are startup or shutdown.	Minor Error
0x00000A4E	Unable to obtain status of EE Machine name when checking the EEs prior to DM Failover. EE will be skipped.	Unable to obtain the status of an Execution Engine when doing an assessment of the Execution Engines prior to the Distribution Manager Failover. The Execution Engine will be skipped.	Moderate Error
0x00000A4F	Unable to load EE object from the object repository [ID: ID].	Unable to load Execution Engine object from the Object Repository.	Severe Error
0x00000A50	Unable to load DM object from the object repository [ID: ID].	Unable to load Distribution Manger object from the Object Repository.	Critical Error
0x00000A51	Unable to load Schedule object from	Unable to load	Severe

Message Error Code	Message Text	Issue Description	Message Level
	the object repository [ID: ID].	Schedule object from the Object Repository.	Error
0x00000A52	Unable to load Service object from the object repository [ID: ID].	Unable to load Service object from the Object Repository.	Severe Error
0x00000A53	More than one System objects were found in the repository when loading the system settings. DM initialization failed.	More than one Broadcast System objects were found in the Object Repository when loading the system settings.	Critical Error
0x00000A54	Error synchronizing the clock of the backup DM with that of the primary DM, most likely due to the lack of "Change the system time" NT privilege.	Unable to set system time, most likely due to the lack of "Change the system time" NT privilege.	Moderate Error
0x00000A55	Received an extra acknowledgement when asking the Execution Recorder to track a service.	Received an extra acknowledgement when asking the Execution Recorder to track a service.	Minor Error
0x00000A56	The Execution Recorder received a duplicate request to track a Service execution.	The Execution Recorder received a	Moderate Error

Message Error Code	Message Text	Issue Description	Message Level
		duplicate request to track a Service execution.	
0x00000A57	Failed to change the NT Service to be Automatic startup.	Failed to change the NT Service to be Automatic startup.	Severe Error
0x00000A58	Failed to change the NT Service to be Manual startup.	Failed to change the NT Service to be Manual startup.	Moderate Error
0x00000A59	Failed to get the IP address of the local machine. DM initialization failed.	Failed to get the IP address of the local machine - the IP address list is empty.	Critical Error
0x00000A5B	Service ID [ID] Execution ID [ID] Segment ID [.....] More than one SBM objects were found in the object repository when initializing the service. Service initialization will fail.	More than one SBM objects were found in the Object Repository when initializing the service.	Severe Error
0x00000A5D	Failed to get the IP address of the local machine due to error returned by WSASStartup [Error: Value]. DM initialization failed.	Failed to get the IP address of the local machine due to an error returned by the call WSASStartup.	Critical Error
0x00000A5E	Failed to get the IP address of the	Failed to get the	Critical Error

Message Error Code	Message Text	Issue Description	Message Level
	local machine due to error returned by ::gethostbyname [Error: Value]. DM initialization failed.	IP address of the local machine due to an error returned when trying to look up the host name (gethostbyname).	
0x00000A5F	Failed to get the IP address of the local machine due to error returned by ::gethostname [Error: Value]. DM initialization failed.	Failed to get the IP address of the local machine due to an error obtained when trying to get the host name (gethostname).	Critical Error
0x00000A60	Backup DM "Machine name" is trying to register again with primary DM.	A Backup Distribution Manager is trying to register again with the Primary Distribution Manager. This should not be a problem.	Info (DM)
0x00000A61	Service ID [ID] Execution ID [ID] Segment ID [.....] Unable to open Subscription Book [Property String: PropertyString].	Unable to open the Subscription Book. The Service execution will fail.	Severe Error
0x00000A62	Service ID [ID] Execution ID [ID] Segment ID [ID] Invalid Segment ID	Invalid segment	Minor Error

Message Error Code	Message Text	Issue Description	Message Level
	when canceling a segment FILE (LINE).	ID was passed to one of the following methods: Pause, Continue, Cancel, DoFailover, StopBackup.	
0x00000A63	Service ID [ID] Execution ID [ID] Segment ID ["ID"] EE "Backup EE Machine name" was supposed to be backing up this segment (according to the information logged by Primary DM), but this EE does not belong to the EE list just loaded from the object repository.	The information loaded from the Object Repository does not contain an Execution Engine present in the memory structures of the Distribution Manager.	Moderate Error
0x00000A64	Service ID [ID] Execution ID [ID] Segment ID [ID] EE "Primary EE Machine name" was supposed to be executing this segment (according to the information logged by Primary DM), but this EE does not belong to the EE list just loaded from the object repository.	The information loaded from the Object Repository does not contain an Execution Engine present in the memory structures of the Distribution Manager.	Moderate Error
0x00000A65	Service ID [ID] Execution ID [ID] Segment ID [.....] Unable to load the SBM definition from the object	Unable to load the SBM definition from	Severe Error

Message Error Code	Message Text	Issue Description	Message Level
	repository [ID "SBMID"].	the Object Repository.	
0x00000A66	Unable to connect to object repository (Connection String "Connection String Value").	Unable to connect to the Object Repository.	Critical Error
0x00000A67	Service ID [ID] Execution ID [ID] Segment ID [ID] Conflicting segment assignment information returned by EEs. ("Primary EE Machine name"->"Backup EE Machine name") or ("Primary EE Machine name"->"Backup EE Machine name")?	Segment ID appears to be assigned to two Execution Engines.	Moderate Error
0x00000A68	Service ID [ID] Execution ID [ID] Segment ID [ID] Segment ID appears to be assigned to two EEs. ("Primary EE Machine name"->"Backup EE Machine name") or ("Primary EE Machine name"->"Backup EE Machine name")?	Segment ID appears to be assigned to two Execution Engines.	Moderate Error
0x00000A69	Service ID [ID] Execution ID [.....] Segment ID [.....]. The service execution request has been rejected because the concurrent service executions governor has been reached.	The concurrent Service executions governor has been exceeded.	Moderate Error
0x00000A6A	This DM has lost its connection to the network. Reconnection will be attempted after Value seconds.	The Network connection has been lost.	Severe Error
0x00000A6B	Service ID [ID] Execution ID [ID] Segment ID [.....] Service	The Segmentation	Moderate Error

Message Error Code	Message Text	Issue Description	Message Level
	execution canceled because the number of segments (Value) exceeds the maximum allowed: Max Segment Value.	process resulted in more segments than allowed by the Service.	
0x00000A6C	Unable to load the System object containing the DM configuration settings from the repository [ID: ID].	Unable to load the Distribution Manager's configuration settings.	Critical Error
0x00000A6D	Service ID [ID] Execution ID [ID] Segment ID [.....] Unable to load the service definition from the object repository.	Unable to load the Service definition from the Object Repository.	Moderate Error
0x00000A6E	Service ID [ID] Execution ID [ID] Segment ID [.....] Unable to load a Subscription Set definition for the Service from the object repository [Subscription Set ID: ID].	Unable to load a Subscription Set Definition for the Service from the Object Repository.	Severe Error
0x00000A6F	Service ID [ID] Execution ID [ID] Segment ID [.....] Unable to load one of the Information Source definitions used by the Service from the object repository [Information Source ID: ID].	Unable to load one of the IS definitions for the Service from the Object Repository.	Severe Error
0x00000A70	Service ID [ID] Execution ID [ID] Segment ID [.....] Unable to load one of the ISM definitions used by the Service from the object repository [ISM ID: ID].	Unable to load one of the ISM definitions used by the Service from the Object	Severe Error

Message Error Code	Message Text	Issue Description	Message Level
		Repository.	
0x00000A72	Service ID [ID] Execution ID [ID] Segment ID [.....] Unable to load one of the ITM definitions used by the Service from the object repository [ITM ID: ID].	Unable to load one of the ITM definitions used by the Service from the Object Repository.	Severe Error
0x00000A73	Service ID [ID] Execution ID [ID] Segment ID [.....] Unable to load one of the Device definitions used by the Service from the object repository [Device ID: ID].	Unable to load one of the Device definitions used by the Service from the Object Repository.	Severe Error
0x00000A74	Service ID [ID] Execution ID [ID] Segment ID [.....] Unable to load one of the Locale definitions used by the Service from the object repository [Locale ID: ID].	Unable to load one of the Locale definitions used by the Service from the Object Repository.	Severe Error
0x00000A75	Service ID [ID] Execution ID [ID] Segment ID [.....] Unable to load one of the DFM definitions used by the Service from the object repository [DFM ID: ID].	Unable to load one of the DFM definitions used by the Service from the Object Repository.	Severe Error
0x00000A77	Failed to get the local machine name during DM initialization.	Unable to determine the local machine name for this Distribution Manager.	Critical Error

Message Error Code	Message Text	Issue Description	Message Level
0x00000A78	Failed to load all EE objects from the object repository.	Unable to load all the Execution Engine information from the Object Repository.	Severe Error
0x00000A79	Failed to load all DM objects from the object repository.	Unable to load all the Distribution Manager information from the Object Repository.	Severe Error
0x00000A7A	No DM object is defined in the object repository.	There isn't a Distribution Manager defined in the repository.	Critical Error
0x00000A7B	The local machine is not defined as a DM in the object repository.	The local machine is not defined as a Distribution Manager in the Object Repository.	Severe Error
0x00000A7C	Failed to find the System object in the object repository.	Unable to find System Object in the Object Repository.	Critical Error
0x00000A7D	No System object is defined in the object repository.	There isn't a System Object in the Object Repository.	Critical Error

Message Error Code	Message Text	Issue Description	Message Level
0x00000A7F	Unable to create thread used by Failover Recorder.	Unable to create thread used by Failover Recorder.	Severe Error
0x00000A80	Shutdown signal to ping thread in FailoverRecorder failed.	Shutdown signal to ping thread in FailoverRecorder failed.	Minor Error
0x00000A81	Time conversion call VariantTimeToSystemTime failed in Ping method.	Time conversion in Ping method failed.	Severe Error
0x00000A82	The DM has lost its network connection and it will be recycled automatically.	The Network connection has been lost and the Distribution Manager will be recycled automatically.	Severe Error
0x00000A83	Shutdown signal to assignment thread in Master DE Controller failed.	Shutdown signal to assignment thread in Master DE Controller failed.	Minor Error
0x00000A84	Shutdown signal to ping thread in Master DE Controller failed.	Shutdown signal to ping thread in Master DE Controller failed.	Minor Error
0x00000A85	Unable to create assignment thread in Master DE Controller.	Unable to create assignment thread in Master DE Controller.	Critical Error

Message Error Code	Message Text	Issue Description	Message Level
0x00000A86	Unable to create Ping thread in Master DE Controller.	Unable to create Ping thread in Master DE Controller.	Critical Error
0x00000A87	The Pinging mechanism has determined that there are no usable EEs (available, not idled, with segment capacity > 0).	All available Execution Engines have been lost. Detected during DoPings.	Critical Error
0x00000A88	The Startup or Failover initialization process has determined that there are no usable EEs (available, not idled, with segment capacity > 0).	All available Execution Engines have been lost. Detected during Startup or Failover.	Critical Error
0x00000A89	Failed to create SegmentAvailable Event in Master DE Controller.	Failed to create SegmentAvailable Event in Master DE Controller.	Critical Error
0x00000A8A	Failed to create DE Available Event in Master DE Controller.	Failed to create DE Available Event in Master DE Controller.	Critical Error
0x00000A8B	Failed to generate a GUID for the Service Execution or for one of the Segments.	The method within the Distribution Manager which generated the unique identifiers	Severe Error

Message Error Code	Message Text	Issue Description	Message Level
		has failed. This is likely a symptom of a larger problem at the machine level.	
0x00000A8C	Failed to generate a GUID for the Service Execution or for one of the Segments. StringFromGUID2 failed.	The method within the Distribution Manager, which generated the unique identifiers has failed. This likely a symptom of a larger problem at the machine level.	Severe Error
0x00000A8D	Scheduler failed to load schedule definitions from the object repository.	The Scheduler failed to load the schedule definitions from the Object Repository.	Critical Error
0x00000A8E	Scheduler failed to load service definitions from the object repository.	The Scheduler failed to load the service definitions from the Object Repository.	Critical Error
0x00000A8F	Shutdown signal to time keeper thread in SE Map failed.	Shutdown signal to time keeper thread in SE Map	Minor Error

Message Error Code	Message Text	Issue Description	Message Level
		failed.	
0x00000A90	Unable to create time monitoring thread in SE Map.	Unable to create time monitoring thread in SE Map.	Severe Error
0x00000A91	Unable to initialize NT Service Control Manager, when trying to shutdown DM.	Unable to initialize NT Service Control Manager.	Severe Error
0x00000A92	Couldn't obtain a handle for the DM NT service "Service Name" from the NT Service Control Manager during shutdown procedure.	Unable to obtain the handle to the Distribution Manager's NT Service.	Severe Error
0x00000A93	Unable to reset the Configuration Server.	Unable to Reset the Configuration Server within the Service Manager message loop.	Critical Error
0x00000A94	Unable to start the Configuration Server during the attempt to take over as primary DM as part of the failover process.	Unable to start the Configuration Server during an attempt to take over as Primary Distribution Manager as part of the failover process.	Critical Error
0x00000A95	Unable to register the NT Service Handler function with the NT Service Control Manager.	Unable to register the NT	Critical Error

Message Error Code	Message Text	Issue Description	Message Level
		Service Handler function with the NT Service Control Manager.	
0x00000A96	Service ID [ID] Execution ID [ID] Segment ID [.....] Unable to cleanup the segment information in the SBR.	Unable to cleanup the segment information in the SBM at the end of the Service Execution, or while shutting down the system.	Moderate Error
0x00000A97	Service ID [ID] Execution ID [ID] Segment ID [.....] Unable to close the Subscription Book.	Unable to close the Subscription Book. Might happen when the Service finishes or right after segmentation.	Minor Error
0x00000A98	Service ID [ID] Execution ID [ID] Segment ID [.....] Segmentation failed [Subscription Set ID: ID].	Unable to perform segmentation.	Moderate Error
0x00000A99	Service ID [ID] Execution ID [ID] Segment ID [.....] The SBM returned 0 segments when asked to segment the subscription set. Marking service execution as successful.	This is logged when the service fires, but there were no subscriptions for the associated subscription set.	Stat - Execution

Message Error Code	Message Text	Issue Description	Message Level
0x00000A9A	Service ID [ID] Execution ID [ID] Segment ID [.....] Unable to create thread to perform segmentation.	Unable to create thread to perform segmentation.	Moderate Error
0x00000A9B	Service ID [ID] Execution ID [ID] Segment ID [.....] The service definition is invalid - a document element does not contain any information objects.	A Document definition is corrupt.	Moderate Error
0x00000A9C	Service ID [ID] Execution ID [ID] Segment ID [.....] Unable to load the SBM definition from the object repository.	Unable to load the SBM definition from the Object repository.	Severe Error
0x00000A9D	Time conversion call SystemTimeToVariantTime failed.	A time conversion failed. If this happens this could affect when a service times out.	Severe Error
0x00000AA0	Backup DM "Machine name" has failed. Its failover recorder has been unregistered.	Logged when a communication with the Backup Distribution Manager fails.	Severe Error
0x00000AA1	Unable to connect to EE "Machine name" while initializing or taking over. Failed to create EE COM Object (::CoCreateInstanceEx failed).	Unable to connect to an Execution Engine while initializing or during failover.	Severe Error

Message Error Code	Message Text	Issue Description	Message Level
		Failed to create Execution Engine COM Object.	
0x00000AA2	Unable to connect to EE "Machine name" while initializing or taking over. Failed to register Callback (DENotifyMe.CreateInstance failed).	Unable to connect to an Execution Engine while initializing or during failover. Failed to register Callback.	Severe Error
0x00000AA3	DEPing call failed to Ping EE "Machine name" [return value: Value].	Failed to Ping an Execution Engine.	Severe Error
0x00000AA4	Service ID [ID] Execution ID [ID] Segment ID [ID] Call to instruct backup EE machine to take over segment failed on EE "Machine name".	The call to instruct the Backup Execution Engine machine to take over a segment execution has failed.	Moderate Error
0x00000AA5	Service ID [ID] Execution ID [ID] Segment ID [ID] Failed to assign a new backup EE machine to EE "Machine name".	Failed to assign a new Backup Execution Engine machine to the given Execution Engine.	Moderate Error
0x00000AA6	Failed to set the callback from the EE	Failed to set the	Severe

Message Error Code	Message Text	Issue Description	Message Level
	to the DM for EE Machine name.	callback from the Execution Engine to the Distribution Manager.	Error
0x00000AA7	Service ID [ID] Execution ID [ID] Segment ID [ID] The command to tell the backup EE to backup the segment failed on EE Machine name.	The command to tell the Backup Execution Engine to backup the segment failed.	Moderate Error
0x00000AA8	Service ID [ID] Execution ID [ID] Segment ID [ID] The command to assign the segment to an EE failed on EE Machine name.	The command to assign the segment to an Execution Engine failed.	Moderate Error
0x00000AA9	Service ID [ID] Execution ID [ID] Segment ID [ID] The command to cancel a segment currently executing on EE Machine name failed.	The command to cancel a segment currently executing in an Execution Engine failed.	Moderate Error
0x00000AAA	Unable to connect to EE Machine name while initializing or during failover take over. Failed to obtain Class ID for EE COM Component (::CLSIDFromProgID failed).	Unable to connect to an Execution Engine while initializing or taking over. Failed to obtain Class ID for Execution Engine COM Component.	Severe Error

Message Error Code	Message Text	Issue Description	Message Level
0x0000AAB	Service ID [ID] Execution ID [ID] Segment ID [ID] The command to resume the execution of a segment currently executing failed on EE Machine name.	The command to resume the execution of a segment currently executing in an Execution Engine failed.	Moderate Error
0x0000AAC	Service ID [ID] Execution ID [ID] Segment ID [ID] The command to pause the execution of a segment currently executing failed on EE "Machine name".	The command to pause the execution of a segment currently executing in an Execution Engine failed.	Moderate Error
0x0000AAD	Service ID [ID] Execution ID [ID] Segment ID [ID] The command to stop the backup of a segment failed on EE "Machine name".	The command to stop the backup of a segment failed. This command is given when the service execution completes regardless of its result.	Moderate Error
0x0000AAE	Primary Distribution Manager "Machine name" has failed, starting DM failover procedure.	The Primary Distribution Manager has gone down. The Backup Distribution Manager will	Critical Error

Message Error Code	Message Text	Issue Description	Message Level
		take over.	
0x0000AAF	Failed to connect to Primary DM "Machine name" (::CoCreateInstanceEx failed).	The Backup Distribution Manager was unable to establish a connection with the Primary Distribution Manager.	Severe Error
0x0000AB0	Failed to register the failover recorder with Primary DM "Machine name". Consequently, the Backup DM will be unable to backup the Primary DM.	The Backup Distribution Manager was unable to register as backup with the Primary Distribution Manager.	Severe Error
0x0000AC6	Unable to create Ping Server in the Configuration Server. DM initialization failed.	Unable to create Ping Server in the Configuration Server.	Critical Error
0x0000AC7	Unable to connect to repository because there was a problem creating an instance of a Repository API object.	Unable to connect to the Object Repository because there was a problem creating an instance of a Repository API object.	Critical Error

Message Error Code	Message Text	Issue Description	Message Level
0x00000AC8	Unable to create the Ping Client Object in the Configuration Server. DM initialization failed.	Unable to create the Ping Client Object in the Configuration Server.	Critical Error
0x00000AC9	Unable to create FailOver Recorder in the Configuration Server. DM initialization failed.	Unable to create Failover Recorder in the Configuration Server.	Critical Error
0x00000ACA	Failed to initialize the FailOver Recorder in the Configuration Server. DM initialization failed.	Failed to initialize the Failover Recorder in the Configuration Server.	Critical Error
0x00000ACB	The backup DM failed to initialize the Ping Server used to monitor the primary DM [return value: Value].	The Backup Distribution Manager failed to initialize the Ping Server used to monitor the Primary Distribution Manager.	Severe Error
0x00000ACC	Unable to create FailOver Server in Master Execution controller. DM initialization failed.	Unable to create Failover Server in Master Execution controller.	Critical Error
0x00000ACD	Unable to create Information Source Pool in Master Execution controller.	Unable to create ISpool in Master	Critical Error

Message Error Code	Message Text	Issue Description	Message Level
	DM initialization failed.	Execution controller.	
0x00000ACE	COM Initialization failed in NT Service Module. DM initialization failed.	COM Initialization failed in NT Service Module.	Critical Error
0x00000ACF	NT Service Module was unable to set security attributes on DM Process. DM initialization failed.	The NT Service Module was unable to set security attributes on the Distribution Manager Process.	Critical Error
0x00000AD0	Failed to load information from Narrowcast Server's public type library. DM initialization failed.	Unable to read MicroStrategy's type library.	Critical Error
0x00000AD1	Unable to properly initialize DM as COM Server during NT Service initialization (CServiceModule::Run()). DM initialization failed.	Unable to complete the Distribution Manager initialization when running as an NT Service.	Critical Error
0x00000AD2	Call to start the Configuration Server during the DM NT Service initialization. DM initialization failed.	Call to start the Configuration Server from the NT Service Module failed.	Critical Error
0x00000AD3	Service ID [ID] Execution ID [ID] Segment ID [.....] Unable to log to	Unable to log to the Failover	Moderate Error

Message Error Code	Message Text	Issue Description	Message Level
	the failover recorder that the service fired.	Recorder that service fired.	
0x00000AD4	Service ID [ID] Execution ID [ID] Segment ID [.....] Unable to log to the failover recorder that the service was expanded into segments.	Unable to log to the Failover Recorder that service was expanded into segments.	Moderate Error
0x00000AD5	Service ID [ID] Execution ID [ID] Segment ID [ID] Unable to log to failover recorder that a segment was assigned.	Unable to log to the Failover Recorder that a service segment was assigned.	Moderate Error
0x00000AD6	Service ID [ID] Execution ID [ID] Segment ID [.....] Unable to log to the failover recorder that the service was paused.	Unable to log to the Failover Recorder that service was paused.	Moderate Error
0x00000AD7	Service ID [ID] Execution ID [ID] Segment ID [.....] The SBM object was not found in the object repository. Service initialization will fail.	No SBM Object was found in the Object Repository.	Severe Error
0x00000AD8	Service ID [ID] Execution ID [ID] Segment ID [.....] Unable to get the class ID required to instantiate the SBM Object.	Unable to get class ID to instantiate the SBM Object required for the service execution.	Severe Error
0x00000AD9	Service ID [ID] Execution ID [ID]	Unable to	Severe Error

Message Error Code	Message Text	Issue Description	Message Level
	Segment ID [.....] Unable to instantiate the SBM Object.	instantiate the SBM Object required for the service execution.	
0x00000ADA	Service ID [ID] Execution ID [ID] Segment ID [.....] The service execution has exceeded the maximum time that it is allowed to run.	The Service has exceeded the maximum time it is allowed to run.	Moderate Error
0x00000ADB	Service ID [ID] Execution ID [.....] Segment ID [.....]Received request to run service.	The Distribution Manager is acknowledging the command to run a service. The command came most likely from the Narrowcast Server Admin Console or an API call.	Stat - Execution
0x00000ADC	Master Execution Controller is being stopped with bStopCluster flag set to: Value.	One of the main components in the Distribution Manager is being stopped.	Info (DM)
0x00000ADD	Service ID [ID] Execution ID [ID] Segment ID [ID] Failing-over to EE "Machine name" for execution (backed-up by "Machine name").	The Distribution Manager is recording that a segment is being failed over to the Backup	Stat - Segment

Message Error Code	Message Text	Issue Description	Message Level
		Execution Engine. This could be caused by a segment timeout or due to a segment assignment failure.	
0x00000ADE	Service ID [ID] Execution ID [ID] Segment ID [ID] Calling EE "Machine name" to reset the backup to "Machine name".	A new Backup Execution Engine has been assigned to the first Execution Engine in this message, and this information is being communicated to the Execution Engine.	Stat - Segment
0x00000ADF	Service ID [ID] Execution ID [ID] Segment ID [ID] Assigning to EE "Machine name" for execution (backed-up by "Machine name").	A segment has been assigned to the specified Execution Engine. The Execution Engine is backed up by another Execution Engine.	Stat - Segment
0x00000AE0	Service ID [ID] Execution ID [ID] Segment ID [ID] Assigning to EE "Machine name" for execution (not	A segment has been assigned to the specified	Stat - Segment

Message Error Code	Message Text	Issue Description	Message Level
	backed-up).	Execution Engine. The Execution Engine is NOT backed up by another Execution Engine.	
0x00000AE1	Service ID [ID] Execution ID [ID] Segment ID [ID] Failing-over to EE "Machine name" for execution (not backed-up).	A segment has failed to execute and is now being reassigned to the specified machine, which is NOT backed up by another Execution Engine.	Stat - Segment
0x00000AE2	Service ID [ID] Execution ID [ID] Segment ID [ID] Calling EE "Machine name" to reset the backup to not backed-up.	An Execution Engine is being notified about the fact that it is no longer backed up by another Execution Engine.	Stat - Segment
0x00000AE3	Service ID [ID] Execution ID [ID] Segment ID [ID] Assigning to EE "Machine name" for backup.	A segment is being assigned to the specified machine for backup purposes.	Stat - Segment

Message Error Code	Message Text	Issue Description	Message Level
0x00000AE4	Service ID [ID] Execution ID [ID] Segment ID [ID] EE "Machine name" is not available to call ResetBackupMachine, this segment is no longer backed-up.	Unable to assign a backup machine for the execution of the specified segment.	Stat - Segment
0x00000AE6	Service ID [ID] Execution ID [ID] Segment ID [ID] Segment has timed-out.	The specified segment did not complete its execution in the time allowed by the properties of the Service that it belongs to.	Stat - Segment
0x00000AE7	Service ID [ID] Execution ID [ID] Segment ID [ID] Starting segment failover.	The Distribution Manager is starting the process of reassigning the segment for re execution.	Stat - Segment
0x00000AE8	Service ID [.....] Execution ID [.....] Segment ID [sSegmentID] Invalid Segment ID reported from EE "Machine name" during segment completion callback. The DM is already done with this segment.	An Execution Engine reported back to the Distribution Manager that a given segment was completed. However, at that point the Distribution Manager had already	Minor Error

Message Error Code	Message Text	Issue Description	Message Level
		abandoned that segment execution, most likely due to segment timeout or cancellation.	
0x00000AE9	Service ID [ID] Execution ID [ID] Segment ID [ID] EE "Machine name" rejected the CancelSegmentExecution call, probably it's already done with this segment.	The Distribution Manager tried to cancel a segment on the specified Execution Engine, which no longer has it among its executing segments.	Minor Error
0x00000AEA	Service ID [ID] Execution ID [ID] Segment ID [ID] EE "Machine name" rejected the ContinueSegmentExecution call.	The Distribution Manager tried to resume the execution of a segment on the specified Execution Engine, which no longer has it among its executing segments.	Moderate Error
0x00000AEB	Service ID [ID] Execution ID [ID] Segment ID [ID] EE "Machine name" doesn't have enough information to take over this segment.	The specified Execution Engine has been asked to re-execute a	Moderate Error

Message Error Code	Message Text	Issue Description	Message Level
		segment which it was backing up, but it is unable to obtain all the required information to do so.	
0x0000AEC	Service ID [ID] Execution ID [ID] Segment ID [ID] EE "Machine name" rejected the PauseSegmentExecution call, probably it's already done with this segment.	The Distribution Manager tried to pause the execution of a segment on the specified Execution Engine, which no longer has it among its executing segments.	Moderate Error
0x0000AED	Service ID [ID] Execution ID [ID] Segment ID [ID] EE "Machine name" rejected the ResetBackupMachine call, probably it's already done with this segment.	The Distribution Manager tried to change the Execution Engine backing up the specified segment, but the Execution Engine no longer has it among its executing segments.	Moderate Error
0x0000AF0	CFailoverServer::ShutdownRecorder () - telling all backup DMs to	The primary Distribution	Info (DM)

Message Error Code	Message Text	Issue Description	Message Level
	shutdown.	Manager is notifying the Backup Distribution Managers to shutdown.	
0x00000AF3	Service ID [ID] Execution ID [ID] Segment ID [ID] The segment has been put back into the pending segment queue.	The Distribution Manager was unable to assign a segment for execution, and therefore the segment has been put back into the pending segment queue.	Stat - Segment
0x00000AF4	Service ID [ID] Execution ID [ID] Segment ID [ID].The failover operation for this segment was aborted because the backup EE has already gone offline.	The Segment Failover operation was aborted because the Backup Execution Engine for this segment has already gone offline.	Moderate Error
0x00000AF5	Service ID [ID] Execution ID [ID] Segment ID [ID].This segment has been failed-over for the maximum number of allowed times.	This segment has been failed over for the maximum number of times allowed.	Moderate Error

Message Error Code	Message Text	Issue Description	Message Level
0x00000AF6	Unable to locate SBM object definition in object repository. This is required because the Transmission Recording tables are in the Subscription book repository. DM initialization failed.	Unable to locate the SBM definition in the Object Repository. This is required because the Transmission Recording tables are in the SBR.	Critical Error
0x00000AF7	More than one Subscription Book Module objects are defined in object repository. DM initialization failed.	The Distribution Manager was unable to determine which Subscription Book to use.	Critical Error
0x00000AF8	The Configuration Server failed to initialize the Transmission Recorder. [Error: Error]. DM initialization failed.	The Configuration Server failed to initialize the Transmission Recorder.	Critical Error
0x00000AF9	Service ID [ID] Execution ID [ID] Segment ID [ID] EE "Machine name" returned extra information when Cancel was called: [Source: Source] [Number: Number] [Description: "Description"].	The specified Execution Engine returned some error information as a result of processing the call to cancel a segment.	Stat - Segment
0x00000AFA	Service ID [ID] Execution ID [ID] Segment ID [ID] Segment will not be	The Segment will not be failed	Moderate Error

Message Error Code	Message Text	Issue Description	Message Level
	failed-over because the service has timed out.	over because the service has timed out.	
0x0000AFB	Unable to initialize Admin Notification Object. CreateInstance call failed for AdminNotification.CAdminNotifyFactory [return value: Value].	The Distribution Manager was unable to create the component responsible for the Administrative Notification functionality. This is likely due to a COM error caused by improper file registration.	Moderate Error
0x0000AFC	Failed to update administrative notification settings. Administrative notification will continue to operate with its previous values [Error: Value].	The Distribution Manager received a call from the Narrowcast Server Console with new Administrative Notification settings, but the call failed and the settings were not updated.	Moderate Error
0x0000AFD	Admin notification failed to start. DM will continue to execute [Error: Value].	The Administrative Notification	Moderate Error

Message Error Code	Message Text	Issue Description	Message Level
		component failed to complete its startup process. The feature will be disabled.	
0x0000AFE	Failed to initialize administrative notification object. DM will continue to execute [Error: Value].	The Administrative Notification component failed to complete its initialization process. The feature will be disabled.	Moderate Error
0x0000AFF	Service ID [ID] Execution ID [ID] Segment ID [ID] EE "Machine name" returned success with information, but no extra information is available.	The Distribution Manager tried to cancel a segment, but the call to the Execution Engine did not succeed. Further error information was not available.	Stat - Segment
Stat - SegmentInfo (SE)0x0000B00	Unable to set the CPU process affinity for component DM. The license information could not be obtained. DM initialization failed.	The Distribution Manager was unable to obtain its license information.	Critical Error
0x0000B02	The system will not complete the	Adding an	Moderate Error

Message Error Code	Message Text	Issue Description	Message Level
	<p>initialization of the EE on computer MachineName. Adding this computer to the MicroStrategy Narrowcast Server cluster will make the cluster use X CPUs, but the license only allows the cluster to use Y CPUs. The EE will be set to idle. To correct this situation, you can remove computers from the cluster or you can decrease the number of CPUs used by one or several computers. To enable this cluster to use more CPUs, please contact MicroStrategy to upgrade your license.</p>	<p>additional Execution Engine to the cluster would violate the CPU license.</p>	
0x00000B05	<p>Failed to set schedule status to not-demanded. Schedule will execute again at its predefined periodicity [ID: ID].</p>	<p>The Distribution Manager was unable to set the status of a schedule in the Object Repository to 'not demanded'. This is used for schedules associated with Web deliveries. It is an optimization which allows the schedule to not fire when there are no subscribers to the service.</p>	Minor Error

Message Error Code	Message Text	Issue Description	Message Level
0x00000B10	FATAL ERROR: A MSTRException occurred in the DM. DM will shutdown [Error: Error].	Safety net to catch any unhandled application exceptions. The Distribution Manager will shutdown.	Critical Error
0x00000B11	FATAL ERROR: An unknown exception occurred in the DM. DM will shutdown.	Generic catch all exception handler. The Distribution Manager will shutdown.	Critical Error
0x00000B12	Service ID [ID] Execution ID [ID] SegmentID [SegmentID] Invalid segment ID when calling DoSegmentFailover FILE (LINE).	An Invalid Segment ID was passed to the specified method.	Moderate Error
0x00000B13	Service ID [ID] Execution ID [ID] Segment ID [SegmentID] Invalid segment ID when calling PauseSegment.	An Invalid Segment ID was passed to the specified method.	Minor Error
0x00000B14	Service ID [ID] Execution ID [ID] SegmentId [SegmentID] Invalid segment ID when calling StopSegmentBackup FILE (LINE).	An Invalid Segment ID was passed to the specified method.	Minor Error
0x00000B15	Service ID [ID] Execution ID [ID] Segment ID [SegmentID] Invalid segment ID when calling	An Invalid Segment ID was passed to the	Minor Error

Message Error Code	Message Text	Issue Description	Message Level
	ContinueSegment.	specified method.	
0x00000B16	Unable to load Subscription Book Module object containing SBM definition [ID: ID]. This is required to connect to the Database where the SBR and Transmission Recording tables reside.	Unable to load the SBM definition. This is required to connect to SBR where Transmission Recording tables reside.	Critical Error
0x00000B17	Service ID [ID] Execution ID [ID] Segment ID [ID] This segment has been failed-over/re-assigned for the maximum number of allowed times. Segment aborted.	The Segment has been failed over and reassigned for the maximum number of times allowed. The segment execution is being aborted.	Moderate Error
0x00000B18	Service ID [ID] Execution ID [ID] Segment ID [ID] The backup EE for this segment has already gone offline as well. Failover aborted.	The Distribution Manager was in the process of reassigning a segment for execution on another Execution Engine, but the new Execution Engine is no longer available.	Moderate Error

Message Error Code	Message Text	Issue Description	Message Level
0x00000B19	Service ID [ID] Execution ID [ID] Segment ID [ID].The newly assigned backup EE for this segment just went offline as well. Failover aborted.	The Execution Engine that was supposed to re-execute the specified segment is no longer available. The segment will not be re-executed.	Moderate Error
0x00000B1A	Failed to spawn thread to load schedules. ::_beginthreadex failed :	Failed to spawn thread to load schedules.	Critical Error
0x00000B1B	Service ID [ID] Execution ID [ID] Segment ID [.....] Unable to log to the failover recorder that the service was loaded.	Unable to log to Failover Recorder that service was loaded.	Moderate Error
0x00000B1C	Failed to find the Subscription Book Module object in the object repository.	The Distribution Manager failed to initialize because it did not find information about the Subscription Book in the Object Repository.	Critical Error
0x00000B1D	Service ID [ID] Execution ID [ID] Segment ID [.....] Failed to create Service Loader object.	The component that loads a Service from the	Moderate Error

Message Error Code	Message Text	Issue Description	Message Level
		Object Repository could not be created. The Service execution will fail.	
0x00000B1E	Service ID [ID] Execution ID [ID] Segment ID [.....] Failed to initialize Service Loader object.	The component that loads a Service from the Object Repository could not be initialized. The Service execution will fail.	Moderate Error
0x00000B20	Unable to obtain host IP Address.	The Distribution Manager was unable to determine the IP address of the machine where it is running. This will likely render this Distribution Manager unusable.	Critical Error
0x00000B21	Unable to load Schedule object from the object repository [ID: ID].	The specified Schedule object could not be loaded. The Services associated with that Schedule	Severe Error

Message Error Code	Message Text	Issue Description	Message Level
		will not run.	
0x00000B22	Failed to create administrative notification object. DM will continue to execute [Error: Value].	The component responsible for the Administrative Notification feature could not be created. The feature will be disabled.	Moderate Error
0x00000B23	Service ID [ID] Execution ID [ID] Segment ID [.....] Unable to load the Locale objects from the repository.	Unable to determine what Locales are supported by the specified Service.	Severe Error
0x00000B24	Service ID [ID] Execution ID [ID] Segment ID [.....] Segmentation has been canceled because the Pre-SQL statement returned an empty result [Subscription Set ID: ID].	The PreSQL associated with a Subscription Set returned no data, and based on the PreSQL rules, it was determined to stop the Service execution. This is desired behavior.	Stat - Execution
Stat - Segment0x00000C01	Network status info: StatusInfo.	The Distribution Manager has logged its network status information.	Info (DM)

Message Error Code	Message Text	Issue Description	Message Level
0x00000C02	Exception caught while checking network connection [Error: Error].	An unknown exception was caught during the network status check.	Severe Error
0x00000C06	Network status info: StatusInfo.	The Distribution Manager has logged its network status information.	Info (DM)
0x00000C07	Exception caught while checking network connection [Error: Error].	An unknown exception was caught during the network status check.	Severe Error
0x00000C08	Network status info: StatusInfo.	The Distribution Manager has logged its network status information.	Info (DM)
0x00000C09	Exception caught while checking network connection [Error: Error].	An unknown exception was caught during the network status check.	Severe Error
0x00000C0C	Service ID [ID] Execution ID [ID] Segment ID [ID] Failed to resolve recipients due to temporary database error. Will retry later.	The Distribution Manager was unable to determine the subscribers for a Subscription Set.	Severe Error

Message Error Code	Message Text	Issue Description	Message Level
0x00000C30	Process Info: NTProcessContextInformation.	The Distribution Manager has logged its NT process information.	Info (DM)
0x00000C41	Service ID [ID] Execution ID [ID] Segment ID [.....]. Resume service execution paused due to temporary SBR error.	A Service was resumed but the Subscription Book is unavailable, preventing the completion of the resume operation.	Moderate Error
0x00000C47	Service ID [ID] Execution ID [ID] Segment ID [.....]. Failed to load service definition due to temporary database error, will retry later.	The Distribution Manager failed to load a Service from the Object Repository due to DB unavailability.	Moderate Error
0x00000C49	Service ID [ID] Execution ID [ID] Segment ID [.....]. Failed to divide service execution into segments due to temporary database error, will retry later.	The Segmentation process has failed due to DB unavailability.	Moderate Error
0x00000C54	DM set to stopped state in NT Service Control Manager.	The Distribution Manager has recorded the change of NT Service status to stopped.	Info (DM)

Message Error Code	Message Text	Issue Description	Message Level
0x00000C57	Transmission Recording is turned off.	The Distribution Manager is recording the status of this feature.	Info (DM)

Segment Executor

The following table lists the error messages logged by the Segment Executor. It contains the message code, the message text, the error description, and the message level.

Message Error Code	Message Text	Issue Description	Message Level
0x00001104	Service ID [ID] Execution ID [ID] Segment ID [ID] Error transmitting to recipient [AddressID] - Error Number:Error Description.	There was a problem transmitting to the specified recipient.	Minor Error
0x00001105	Service ID [ID] Execution ID [ID] Segment ID [ID] There was a problem creating the ITM or DFM modules [Error Number:Error Description].	There was a problem creating the ITM or DFM modules. Without these components, the Segment Executor can not format or deliver messages.	Severe Error
Severe ErrorSevere ErrorModerate ErrorStat - Segment0x000 01106	Service ID [ID] Execution ID [ID] Segment ID [ID] There was a problem closing the Execution Recorder when trying to shut down the Segment Executor [Error Number:Error	There was a problem closing the component used to backup the execution of a segment. The shutdown process will continue.	Minor Error

Message Error Code	Message Text	Issue Description	Message Level
	Description]. Shutdown will continue.		
0x00001107	Service ID [ID] Execution ID [ID] Segment ID [ID] There was a problem closing the SBM while receiving recipients [Error Number:Error Description].	There was a problem closing the SBM component after retrieving the recipient information for this segment. The segment execution will continue.	Minor Error
0x00001108	Service ID [ID] Execution ID [ID] Segment ID [ID] - Device DeviceID with Locale LocaleID is supported by multiple publications. The first publication found will be used for this device/locale combination.	Warning message stating that a particular device and locale combination is supported by multiple publications. The segment execution will continue.	Minor Error
0x0000110C	Service ID [ID] Execution ID [ID] Segment ID [ID] Could not cancel Transmission Module ID [ID] while shutting down the FMManager because error [Error Number:Error Description].	There was a problem canceling a transmission or terminating a Transmitter while shutting down the Segment Executor.	Minor Error
0x0000110E	Service ID [ID] Execution ID [ID] Segment ID [ID] Could not close Document Formatter ID [ID] because Error Number:Error Description.	There was a problem terminating a Document Formatter while shutting down the Segment Executor.	Minor Error
0x0000110F	Service ID [ID] Execution ID [ID] Segment ID [ID] Document Formatter ID [ID] Document	An error occurred while formatting a Document. If the Document is required for this	Minor Error

Message Error Code	Message Text	Issue Description	Message Level
	Name [DocumentName] FormatDocument failed because error [Error Number: Error Description].	Publication, then the message will not be transmitted. This would affect all recipients sharing the same personalization/device/locale values.	
0x00001111	Service ID [ID] Execution ID [ID] Segment ID [ID] Information Source ID [ID] Index [Index] called ReturnSegmentInformationObjectResult on the Segment Executor. This is an invalid call and it will be ignored.	Error caused by an Information Source calling an unsupported method on the Segment Executor. This call should only be made back to the SBM.	Moderate Error
0x00001112	Service ID [ID] Execution ID [ID] Segment ID [ID] Address [AddressID] will not receive its messages because it does not have a Personalization set for each Information Source.	The specified recipient will not be processed because his/her number of personalizations does not match the number of Information Sources from which the content needs to be gathered.	Minor Error
0x00001116	Service ID [ID] Execution ID [ID] Segment ID [ID] Segment Executor could not log recipient array to Execution Recorder [Error Number:Error Description]. SE will terminate.	The Segment Executor could not log the recipient information to the backup infrastructure.	Moderate Error
0x00001117	Service ID [ID] Execution ID [ID] Segment ID [ID] Segment Executor could not log recipient finished to Execution Recorder [Error Number:Error	The Segment Executor could not log the result of a transmission to the backup infrastructure.	Moderate Error

Message Error Code	Message Text	Issue Description	Message Level
	Description].		
0x0000111A	Service ID [ID] Execution ID [ID] Segment ID [ID] Reporting segment execution failure right before shutting down the SE. The SE will continue to shutdown [Error Number:Error Description].	A segment failure has been detected as the Segment Executor prepares to shutdown. The Segment Executor will continue to shutdown.	Moderate Error
0x0000111B	Service ID [ID] Execution ID [ID] Segment ID [ID] Unknown error occurred while trying to flush the transmission recorder [Error: Error Number Desc: Error Description].	An unexpected error happened while writing the statistics information to the Transmission Recording database.	Moderate Error
0x00001120	Service ID [ID] Execution ID [ID] Segment ID [ID] IMSTRInformationTransmitter Notify_TransmitCallback - Duplicated callback received for address index AddressID. This could be caused by an ITM error.	A transmission callback for a recipient that has already been processed. This will be ignored.	Minor Error
0x00001122	Service ID [ID] Execution ID [ID] Segment ID [ID] Invalid information callback received for address index Value. This could be caused by an ITM error.	A transmission callback for a recipient that does not exist anymore was received. It means most likely that we already received a previous callback for that recipient and was removed from the array of pending transmissions. This will be ignored.	Minor Error

Message Error Code	Message Text	Issue Description	Message Level
0x00001124	Service ID [ID] Execution ID [ID] Segment ID [ID] Success transmitting to recipient [AddressID] - with the following information : Description.	Reporting the successful completion of a transmission for the specified recipient.	Info (SE)
0x00001126	Service ID [ID] Execution ID [ID] Segment ID [ID] Could not close Transmission Module ID [ID] because Error Number:Error Description.	The Segment Executor was unable to close the specified Transmitter. This would be logged at the end of the segment execution when the Segment Executor is cleaning up.	Minor Error
0x00001203	Service ID [ID] Execution ID [ID] Segment ID [ID] - Userset X has been sent.	Users sharing the same personalization and preferences are grouped into UserSets. The transmission has been completed for the specified UserSet.	Info (SE)
0x00001204	Service ID [ID] Execution ID [ID] Segment ID [ID] - All Usersets sent.	Users sharing the same personalization and preferences are grouped into UserSets. The transmission has been completed for all the UserSets in the segment.	Info (SE)
0x00001205	Service ID [ID] Execution ID [ID] Segment ID [ID] Recipient [.AddressID] uses a device and locale that is not supported by this service. This recipient will not get any content.	The recipient will not receive a message because it uses a device and a locale that are not supported by any of the Publications in the Service.	Moderate Error
0x00001206	Service ID [ID] Execution ID	The recipient will not receive a	Moder

Message Error Code	Message Text	Issue Description	Message Level
	[ID] Segment ID [ID] - Publication [ID] supports device [ID] which is used by recipient [AddressID]. However, the Publication and the Device support conflicting document types. Transmission to this recipient will not be possible.	message because there's a conflict between the document types supported by the Service and the device used by the recipient's Address.	Moderate Error
0x00001207	Service ID [ID] Execution ID [ID] Segment ID [ID] Submitting Value IOs for IS Index Value.	Recording the number of Information Objects that will be executed through the specified Information Source.	Info (SE)
0x00001208	Service ID [ID] Execution ID [ID] Segment ID [ID] Information Object j was not executed because no personalizations were found for a particular Information Source Index Value.	The specified Information Object was not executed because no personalizations were found for the Information Source that the Information Object belongs to.	Minor Error
0x00001209	Service ID [ID] Execution ID [ID] Segment ID [ID] Ready to process userset Index Value.	Users sharing the same personalization and preferences are grouped into UserSets. The data for the specified UserSet has been retrieved and is ready to be formatted and transmitted.	Info (SE)
0x0000120B	Service ID [ID] Execution ID [ID] Segment ID [ID] - Publication [ID] supports device [ID] which is used by recipient [AddressID]. However the	The recipient will not receive a message because it uses a device that does not support the same Information Transmission Module as the Publication in the Service.	Moderate Error

Message Error Code	Message Text	Issue Description	Message Level
	Publication and the Device do not support the same Transmission Module. Transmission to this recipient will not be possible.		
0x0000120C	Service ID [ID] Execution ID [ID] Segment ID [ID] Error formatting Document [DocumentName]. FormatDocumentElement failed for Element Index Value [Error Number:Error Description].	Error occurred while formatting a portion of the Document. Document element's error handling rules will be applied to determine if we insert a replacement string or fail the document. If we fail the document, then the whole message might fail if the document is required by the Publication thus affecting all recipients sharing the same personalization and preferences.	Minor Error
0x0000120D	Service ID [ID] Execution ID [ID] Segment ID [ID] Document [DocumentName] Personalized Element [Index Value] is being canceled due to partial results [Error Number:Error Description].	An error occurred while trying to replace a document element (no personalizations) with an error string. The Document will be canceled.	Minor Error
0x0000120E	Service ID [ID] Execution ID [ID] Segment ID [ID] Document [DocumentName] Document Element Index Value will be replaced because Error Description.	A document element will be replaced with an error string because it failed to execute.	Info (SE)

Message Error Code	Message Text	Issue Description	Message Level
0x0000120F	Service ID [ID] Execution ID [ID] Segment ID [ID] Document [DocumentName] will be removed because Document Element Index Value Error Description.	A document element will be removed from the Document because it failed to execute.	Info (SE)
0x00001210	Service ID [ID] Execution ID [ID] Segment ID [ID] BuildUserArrays returned success with info: Error Description Message Code: Error Number.	The Segment Executor encountered an error while preprocessing the recipient information for the segment.	Info (SE)
0x00001218	Service ID [ID] Execution ID [ID] Segment ID [ID] Error reported when trying to reset back up machine. Error will be ignored and SE will continue its execution [Error Number:Error Description].	An error was encountered when the Segment Executor was trying to switch the segment backup machine. The segment may no longer be backed up.	Moderate Error
0x00001220	Service ID [ID] Execution ID [ID] Segment ID [ID] Information Object Index Value was not executed during resubmit jobs because no personalizations were found for Information Source Index Value.	The specified Information Object was not executed because no personalizations were found for the Information Source that the Information Object belongs to.	Minor Error
0x00001221	Service ID [ID] Execution ID [ID] Segment ID [ID] Document [DocumentName] Document Element Index Value returned	Informational message indicating that partial results are acceptable for this Document Element. This is according to the error handling	Info (SE)

Message Error Code	Message Text	Issue Description	Message Level
	partial data, but will not be removed. Document property indicates that partial results are acceptable.	rules configured for the Document Elements.	
0x00001222	Service ID [ID] Execution ID [ID] Segment ID [ID] Delivery Notification Subscription could not be created for recipient Index Value.	The specified recipient had requested a delivery notification following the delivery of this message, however there was a problem generating the notification and the notification will not be sent.	Minor Error
0x00001223	Service ID [ID] Execution ID [ID] Segment ID [ID] Document [DocumentName] will be removed because Document Element Index Value & Error Description.	The specified Document will be removed from the Publication. This is a result of the error handling rules for the Document/Publication.	Info (SE)
0x00001311	Service ID [ID] Execution ID [ID] Segment ID [ID] Error formatting Document [DocumentName]. FormatDocumentElement failed for Element Index Value [Error Number:Error Description].	There was a problem formatting a Document Element for the specified Document.	Minor Error
0x00001312	Service ID [ID] Execution ID [ID] Segment ID [ID] Document [FileName] FormatInsertionString failed for Element Index Value Error Number : Error Description.	There was a problem generating the error message that was supposed to replace a failed Document Element for the specified Document.	Minor Error

Message Error Code	Message Text	Issue Description	Message Level
0x00001314	Service ID [ID] Execution ID [ID] Segment ID [ID] Information Source ID [ID] Index [Index Value] called ReturnSubscriptionInformationObjectResult on the Segment Executor. This is an invalid call and it will be ignored.	Error caused by an Information Source calling a method that is not supported by the Segment Executor. This call should only be made back to the SBM.	Moderate Error
0x00001315	Service ID [ID] Execution ID [ID] Segment ID [ID] An unknown error occurred while receiving the Information Source Reference from the ISPool. The SE cannot proceed further and it will terminate [Error: Error Number Desc: Error Description].	An unknown error occurred while receiving the reference to an Information Source. If this happens the segment execution will fail as no content can be retrieved from this Information Source.	Moderate Error
0x00001316	Service ID [ID] Execution ID [ID] Segment ID [ID] Unexpected error while receiving results from Information Source [Index Value] IO [Index Value] [Error: Error Number Desc:Error Description] SE execution cannot continue.	An unknown error occurred while receiving Jobs from the specified Information Source.	Moderate Error
0x00001317	Service ID [ID] Execution ID [ID] Segment ID [ID] Unexpected Error in UserSetSent: [Error: Error Number Desc: Error Description]. SE will terminate.	An unknown error occurred in the function that concludes the processing of a given UserSet.	Moderate Error

Message Error Code	Message Text	Issue Description	Message Level
0x00001318	Service ID [ID] Execution ID [ID] Segment ID [ID] Unexpected Error in BeginTerminating: [Error: Error Number Desc: Error Description]. SE will continue terminating.	Unknown error occurred while beginning the shutdown process of the Segment Executor.	Moderate Error
0x00001319	Service ID [ID] Execution ID [ID] Segment ID [ID] Unexpected Error in FinishTerminating: [Error: Error Number Desc: Error Description]. SE will continue terminating.	Unknown error occurred while ending the shutdown process of the Segment Executor.	Moderate Error
0x0000131A	Service ID [ID] Execution ID [ID] Segment ID [ID] Unexpected Error in SignalResetBackupMachine: [Error: Error Number Desc: Error Description].	An unknown error was reported when trying to set the flag to reset the back up machine for this segment execution. The Segment Executor will continue its execution.	Moderate Error
0x0000131B	Service ID [ID] Execution ID [ID] Segment ID [ID] Failed to split Publications.	The Service for Web Deliveries contained elective documents. The Segment Executor failed to create the required Publications per elective Document Type.	Moderate Error
0x0000131C	Service ID [ID] Execution ID [ID] Segment ID [ID] Document [DocumentName] FormatInsertionString failed for Element Index Value - Error Number:Error Description.	An error occurred while trying to replace a failed document element with an error string according to the Document Element error handling rules. The Document will be	Info (SE)

Message Error Code	Message Text	Issue Description	Message Level
		anceled.	
0x0000131D	Service ID [ID] Execution ID [ID] Segment ID [ID] Document [DocumentName] Element Index Value is being canceled due to partial results. Error Number:Error Description.	A Document Element failed and it is being treated as failure based on the Document Element error handling rules.	Info (SE)
0x0000131E	Service ID [ID] Execution ID [ID] Segment ID [ID] Formatted a document of unknown type.	The Segment Executor encountered a Document of an unknown type. This may happen in an environment in which custom Document Formatters have been developed.	Info (SE)
0x0000131F	Service ID [ID] Execution ID [ID] Segment ID [ID] Unexpected error while receiving recipient array.	The Segment Executor encountered an unexpected error when receiving the recipient information from the SBM.	Moderate Error
Moderate ErrorSevere Error0x00001320	Service ID [ID] Execution ID [ID] Segment ID [ID] There was a problem trying to cancel service on the Information Source object while shutting down the FMManager [Error Number:Error Description].	There was a problem trying to notify the Information Source that the segment is being canceled and the Segment Executor is shutting down.	Minor Error
0x00001321	Service ID [ID] Execution ID [ID] Segment ID [ID] There was a problem trying to unload service on the Information Source object while shutting	There was a problem trying to notify the Information Source that the segment has finished and the Segment Executor is shutting down.	Minor Error

Message Error Code	Message Text	Issue Description	Message Level
	down the FMManager [Error Number:Error Description].		
0x00001400	Service ID [ID] Execution ID [ID] Segment ID [ID] Resolved NumRecipients recipients in Value milliseconds for segment properties [Value].	Message informing the total amount of time that was taken to obtain the recipient information.	Stat - Segment
0x00001401	Service ID [ID] Execution ID [ID] Segment ID [ID] Segment will result in Value Jobs (personalization/IO combinations) to be executed.	Message informing the total number of Jobs (personalization/IO combinations) that will be executed.	Stat - Segment
0x00001402	Service ID [ID] Execution ID [ID] Segment ID [ID] Segment execution will result in Value formatted documents.	Message informing the total number of Documents that will be formatted.	Stat - Segment
0x00001403	Service ID [ID] Execution ID [ID] Segment ID [ID] Information Source ID [ID] will run Information Object [ID] and Locale string [LocaleString] with Count Value personalizations.	Information message logged before executing Information Object informing how many times an Information Object will be executed.	Stat - Segment
0x00001404	Service ID [ID] Execution ID [ID] Segment ID [ID] Information Source ID [Index Value] received results for Information Object [Index Value] and Locale ID [ID] with status Value.	Message informing that Job results were successfully received from the Information Source for the given Information Object.	Stat - Recipient

Message Error Code	Message Text	Issue Description	Message Level
0x00001405	Service ID [ID] Execution ID [ID] Segment ID [ID] Document Formatter ID [ID] Document Name [DocumentName] formatted in Value milliseconds.	Message informing the total amount of time that was taken to format a Document.	Stat - Recipient
0x00001406	Service ID [ID] Execution ID [ID] Segment ID [ID] Address ID [ID] was transmitted.	Message informing that the ITM sent a message to the given address.	Stat - Recipient
0x00001407	Service ID [ID] Execution ID [ID] Segment ID [ID] Address ID [AddressID] Subscription ID [ID] was finished with status Value.	Message informing that Segment Executor is done sending information to the given address.	Stat - Recipient
0x00001408	Service ID [ID] Execution ID [ID] Segment ID [ID] Document [DocumentName] has been canceled.	Message logged when a Document has been canceled.	Stat - Recipient
0x00001409	Service ID [ID] Execution ID [ID] Segment ID [ID] Information Source ID [Index Value] received No Data Returned for Information Object [Index Value].	Message informing that Job results from the Information Source were received with no data for the given Information Object.	Stat - Recipient
0x0000140A	Service ID [ID] Execution ID [ID] Segment ID [ID] Document Formatter ID [FormatterName] Document Name [DocumentName] was not formatted because the delivery was canceled.	Message informing that the Document was not formatted because the segment execution has been canceled.	Stat - Recipient

Message Error Code	Message Text	Issue Description	Message Level
0x0000140B	Service ID [ID] Execution ID [ID] Segment ID [ID] will transmit to Count Value Recipients.	Message informing the total number of Recipients that will receive a particular message.	Stat - Recipient
0x0000140C	Service ID [ID] Execution ID [ID] Segment ID [ID] Information Source ID [Index Value] received results for Information Object [Index Value] with error message: Error Description.	Message informing that Job results from the Information Source were received with errors for the given Information Object.	Stat - Recipient
Stat - SegmentStat - Recipient0x0000140D	Service ID [ID] Execution ID [ID] Segment ID [ID] Compression process beginning: Compressed Filename: Value, Compression level: Value, Number of documents to Zip: Count Value, Compressed Section name: Value, Publication ID [ID].	Information about the zipping operation that is about to happen.	Info (SE)
0x0000140E	Service ID [ID] Execution ID [ID] Segment ID [ID] Compression process finished: Compressed Section name: Value, Publication ID [ID].	Message informing that a zipping operation has completed.	Info (SE)
0x0000140F	Service ID [ID] Execution ID [ID] Segment ID [ID] Compression process failed. Canceling delivery for intended recipient(s). Publication ID [ID] Section name: Value. Error Message from Compression:	An error occurred during the zipping process. The message will be canceled for the recipients in this personalization/device/locale/compression group.	Minor Error

Message Error Code	Message Text	Issue Description	Message Level
	Error Description Origin: Value.		
Moderate Error0x00001410	Service ID [ID] Execution ID [ID] Segment ID [ID] Compression turned on, but there were no documents in the section to compress. Section name: Value, Publication ID [ID].	Message indicating that a zipping operation was requested for this service, but the Publication Section, which is supposed to be compressed is empty.	Info (SE)
0x00001411	Service ID [ID] Execution ID [ID] Segment ID [ID] found a file to include in the Compressed file: Filename: Value, Content-type: Value, Compressed Section name:Value, Publication ID [ID].	Message indicating that a file will be added to the zip file.	Info (SE)
Info (SE)Minor Error0x0000148E	Service ID [ID] Execution ID [ID] Segment ID [ID] Unexpected error in SEArrays.ReceiveResults [Error: Error Number Desc:Error Description].	An unknown error occurred while receiving Jobs from Information Source. Some Information Object results may be lost.	Moderate Error
0x0000149A	Service ID [ID] Execution ID [ID] Segment ID [ID] Unexpected error in SEHeart.Tick, state = Value [Error: Error Number Desc: Error Description].	An unexpected error happened in the main loop of the Segment Executor code.	Moderate Error
0x0000149C	Service ID [ID] Execution ID [ID] Segment ID [ID] Unexpected error in	An unexpected error happened in the formatting and transmitting loop of the	Moderate Error

Message Error Code	Message Text	Issue Description	Message Level
	FManager.Tick. State: Value, Shutting down value: Value [Error: Error Number Desc:Error Description].	Segment Executor.	
0x0000149D	Service ID [ID] Execution ID [ID] Segment ID [ID] Unexpected Error in TransmitCallback: [Error: Error Number Desc: Error Description].	An unknown error occurred while a Transmitter was notifying the Segment Executor about the result of a transmission.	Moderate Error
0x0000149E	Service ID [ID] Execution ID [ID] Segment ID [ID] Unexpected Error in AppendFM: [Error: Error Number Desc: Error Description].	An unexpected error happened in the specified function.	Moderate Error
0x000014A0	Service ID [ID] Execution ID [ID] Segment ID [ID] Unexpected Error in IMSTRInformationSourceNotify_InformationSourceFailed: [Error: Error Number Desc: Error Description].	An unknown error occurred during a callback from the Information Source to the Segment Executor indicating failure.	Moderate Error
0x000014A1	Service ID [ID] Execution ID [ID] Segment ID [ID] Unexpected Error in IMSTRInformationSourceNotify_ReturnInformationObjectResult: [Error: Error Number Desc: Error Description].	An unknown error occurred while receiving results from the Information Source.	Moderate Error

Message Error Code	Message Text	Issue Description	Message Level
0x000014A2	Service ID [ID] Execution ID [ID] Segment ID [ID] Unexpected Error in IMSTRInformationSourcePoolNotify_ReturnInformationSourceReference: [Error: Error Number Desc: Error Description].	An unknown error occurred while receiving an Information Source reference from the IS Pool.	Moderate Error
0x000014A3	Service ID [ID] Execution ID [ID] Segment ID [ID] Unexpected Error in IMSTRSubscriptionBookNotify_SubscriptionSetResults: [Error: Error Number Desc: Error Description].	An unknown error occurred while receiving the results for a Subscription Set from the Subscription Book Module.	Moderate Error
0x000014A4	Service ID [ID] Execution ID [ID] Segment ID [ID] Unexpected Error in IServiceExecutor_ContinueService:[Error: Error Number Desc: Error Description].	An unknown error occurred while the Segment Executor was trying to process the request to resume a segment execution.	Moderate Error
0x000014A5	Service ID [ID] Execution ID [ID] Segment ID [ID] Unexpected Error in IServiceExecutor_CancelService: [Error: Error Number Desc: Error Description].	An unknown error occurred while the Segment Executor was trying to process the request to cancel a segment execution.	Moderate Error
0x000014A6	Service ID [ID] Execution ID [ID] Segment ID [ID]	An unknown error occurred while the Segment Executor was trying to process the	Moderate Error

Message Error Code	Message Text	Issue Description	Message Level
	Unexpected Error in IServiceExecutor_PauseService: [Error: Error Number Desc: Error Description].	request to pause a segment execution.	
0x000014A7	Service ID [ID] Execution ID [ID] Segment ID [ID] Unexpected Error in FMInitialized: [Error: Error Number Desc: Error Description].	An unknown error occurred while the Segment Executor was verifying whether the Format Manager was properly initialized.	Moderate Error
0x000014A8	Service ID [ID] Execution ID [ID] Segment ID [ID] Unexpected Error in FMFinished [Error: Error Number Desc: Error Description].	An unknown error occurred while the Segment Executor was verifying whether the Format Manager was properly shutdown.	Moderate Error
0x000014A9	Service ID [ID] Execution ID [ID] Segment ID [ID] Unexpected Error in UserSetSent: [Error: Error Number Desc: Error Description].	An unknown error occurred while the Segment Executor was concluding the processing of a UserSet.	Moderate Error
0x000014AA	Service ID [ID] Execution ID [ID] Segment ID [ID] Unexpected Error in IServiceExecutor_ResetBackupMachine: [Error: Error Number Desc: Error Description].	An unknown error occurred while the Segment Executor was trying to reset its backup machine.	Moderate Error
0x000014BE	Service ID [ID] Execution ID	An unknown error occurred	Moderate Error

Message Error Code	Message Text	Issue Description	Message Level
	[ID] Segment ID [ID] Unexpected Error in IMSTRInformationTransmitter Notify2_InformationCallback: [Error: Error Number Desc: Error Description].	during a callback from the Transmitter Module to the Segment Executor.	ate Error
0x000014BF	Service ID [ID] Execution ID [ID] Segment ID [ID] Unexpected Error in IMSTRInformationSourcePoolN otify_InformationSourceFailed: [Error: Error Number Desc: Error Description].	An unknown error occurred while the IS Pool was notifying the Segment Executor about an Information Source failure.	Moder ate Error
0x000014D1	Service ID [ID] Execution ID [ID] Segment ID [ID] Unexpected Error in IMSTRInformationTransmitter Notify2_TransmitCallback: [Error: Error Number Desc: Error Description].	An unknown error occurred during a callback from the Transmitter Module to the Segment Executor.	Moder ate Error
0x000014D2	Service ID [ID] Execution ID [ID] Segment ID [ID] Unexpected Error in Handle_ TransmitCallback: [Error: Error Number Desc: Error Description].	An unknown error occurred during a callback from the Transmitter Module to the Segment Executor.	Moder ate Error
0x00050700	An unexpected error happened. Recycling SE process App.EXENAME.	An unexpected error occurred, which will cause the Segment Executor to be recycled immediately.	Moder ate Error

Execution Engine

The following table lists the error messages logged by the Execution Engine. It contains the message code, the message text, the error description, and the message level.

Message Error Code	Message Text	Issue Description	Message Level
0x00000D01	Service ID [ID] Execution ID [ID] Segment ID [ID] There was a problem initializing the Service Executor. The segment will not be executed [Error: Value].	There was a problem when trying to initialize the Service Executor. The segment will not be executed.	Moderate Error
0x00000D04	Service ID [ID] Execution ID [ID] Segment ID [ID] Unable to get callback reference to pass to the Segment Executor while loading it. The segment will not be executed.	Unable to provide the Segment Executor with a mechanism to communicate back to the Execution Engine. The segment will not be executed.	Moderate Error
0x00000D05	Service ID [ID] Execution ID [ID] Segment ID [ID] Unable to load Service Executor because the COM component is not properly registered. The segment execution will not continue.	Unable to load the Service Executor because the COM component is not properly registered. The segment execution will not continue.	Moderate Error
0x00000D06	Service ID [ID] Execution ID	Unable to create	Moderate

Message Error Code	Message Text	Issue Description	Message Level
	[ID] Segment ID [ID] Unable to create Execution Recorder because the COM component is not properly registered. Segment back up will not take place.	an Execution Recorder component because the COM component is not properly registered. The backup feature will be disabled for this segment.	Error
0x00000D07	Service ID [ID] Execution ID [ID] Segment ID [ID] Unable to load Service Executor because Information Source Pool COM object is not properly registered. Segment execution will not continue.	Unable to load the Service Executor because the Information Source Pool COM object is not properly registered. The segment execution will not continue.	Moderate Error
0x00000D08	Service ID [ID] Execution ID [ID] Segment ID [ID] The Segment Executor could not be created because of an instantiation error. Segment execution will not continue.	The Service Executor could not be created because of an instantiation error. The segment execution will not continue.	Moderate Error
0x00000D09	Service ID [ID] Execution ID [ID] Segment ID [ID] Unable to create Execution Recorder	Unable to create Execution Recorder because	Moderate Error

Message Error Code	Message Text	Issue Description	Message Level
	because of an instantiation error. Segment back up will not take place.	of an instantiation error. The backup feature will be disabled for this segment.	
0x00000D0C	There was a problem instantiating an Information Source Pool object. EE will continue executing, but may not function properly.	There was a problem instantiating an Information Source Pool object. Segment executions are likely to fail.	Severe Error
0x00000D0D	Service ID [ID] Execution ID [ID] Segment ID [ID] Cannot stop segment backup because this EE was not recording that particular segment.	Unable to stop segment backup because this Execution Engine was not recording that particular segment.	Minor Error
0x00000D0E	Service ID [ID] Execution ID [ID] Segment ID [ID] Unable to Reset Backup machine for segment because this EE is not executing that particular segment.	Unable to reset the Backup Execution Engine machine for the specified segment because this Execution Engine isn't executing that particular segment.	Minor Error
0x00000D0F	Service ID [ID] Execution ID [ID] Segment ID [ID] Unable to start segment execution	Unable to start segment	Moderate Error

Message Error Code	Message Text	Issue Description	Message Level
	because this EE is currently executing a segment with the same ID.	execution because this Execution Engine is currently executing a segment with the same ID	
0x00000D11	An error occurred when signaling the pinging thread to stop. The EE will continue shutting down.	An error occurred when signaling the pinging thread to stop. The Execution Engine will continue shutting down.	Minor Error
0x00000D12	Unable to start Segment Executor ping thread. EE will continue executing, but may not function properly.	Unable to start the Segment Executor ping thread. The Execution Engine will continue executing.	Moderate Error
0x00000D13	Service ID [ID] Execution ID [ID] Segment ID [ID] Unable to perform segment failover because the Execution recorder could not recover the segment's execution [Error:Description].	Unable to do segment failover because the Execution Recorder could not recover the segment's execution information.	Moderate Error
0x00000D14	Service ID [ID] Execution ID [ID] Segment ID [ID] Unable to finish segment execution	Unable to process the completion of	Moderate Error

Message Error Code	Message Text	Issue Description	Message Level
	because this EE is not executing that particular segment.	a segment's execution because this Execution Engine does not have a record of that particular segment.	
0x00000D15	Service ID [ID] Execution ID [ID] Segment ID [ID] Unable to call back DM in order to notify that the segment execution has finished.	Unable to call back the Distribution Manager in order to notify that the service execution has finished.	Severe Error
0x00000D16	Service ID [ID] Execution ID [ID] Segment ID [ID] EE could not open Execution Recorder for backup. Segment back up will not take place [Error:Description].	Execution Engine could not open the Execution Recorder for backup. The backup feature will be disabled for this segment.	Moderate Error
0x00000D17	EE NT Service failed during COM initialization [Error: Value].	The initialization of the Execution Engine's NT Service failed. The Execution Engine will not be able to operate.	Severe Error
0x00000D18	There was a problem while trying to load the Narrowcast Server Type Library	There was a problem while	Severe Error

Message Error Code	Message Text	Issue Description	Message Level
	(BCTypLib.DLL) [Error: Value]. EE will terminate.	trying to load the file BCTypLib.DLL. The Execution Engine will stop.	
0x00000D20	Service ID [ID] Execution ID [ID] Segment ID [ID] An error was reported while loading the Service Executor. Segment execution will be canceled [Error:Description].	An error was reported while loading the Service Executor. The segment execution will be canceled.	Moderate Error
0x00000D21	Service ID [ID] Execution ID [ID] Segment ID [ID] There was a timeout while waiting for callback from the SE.	There was a timeout while waiting for callback from Segment Executor process.	Moderate Error
0x00000D22	Service ID [ID] Execution ID [ID] Segment ID [ID] There was a timeout while waiting for the segment cancel to take effect.	There was a timeout while waiting for call to cancel a segment to take effect.	Minor Error
0x00000D23	Segment Executor with process ID did not respond to command "ContinueService" and was terminated.	The Segment Executor process did not respond to the "ContinueService" command and was terminated.	Severe Error
0x00000D24	Segment Executor with process ID did not respond to	The Segment Executor process	Severe Error

Message Error Code	Message Text	Issue Description	Message Level
	command "PauseService" and was terminated.	did not respond to the "PauseService" command and was terminated.	
Severe ErrorStat - Execution0x00000D25	Segment Executor with process ID did not respond to command "CancelService" and was terminated.	The Segment Executor process did not respond to the "CancelService" command and was terminated.	Moderate Error
Moderate ErrorSevere Error0x00000D26	There was a problem reading the DCOM calls timeout setting from the registry. Using default timeout (Value seconds). [Error: Error].	There was a problem reading DCOM calls timeout setting from the registry.	Minor Error
0x00000D27	Unable to set the CPU process affinity for component EE. The license information could not be obtained. The CPUs used by this EE will not be counted towards the maximum allowed by the license.	Unable to set the CPU process affinity for this Execution Engine. The license information could not be obtained. The CPUs used by this Execution Engine will not be counted towards the maximum allowed by the license.	Moderate Error

Message Error Code	Message Text	Issue Description	Message Level
0x00000D28	Service ID [ID] Execution ID [ID] Segment ID [ID] Received segment execution request with Segment ID of a segment that is in the process of being canceled.	The Distribution Manager has assigned a service to this Execution Engine which was previously assigned and has already been canceled.	Moderate Error Moderate Error
0x00000D29	An unknown exception occurred in the EE. EE will shutdown.	Generic catch all exception handler. The Execution Engine will shutdown.	Severe Error
0x00000D32	Process Info: NTProcessContextInformation.	The Execution Engine is logging its NT process information.	Info (EE)
0x00000D35	Service ID [ID] Execution ID [ID] Segment ID [ID] Network status info: StatusInfo.	The Execution Engine is logging its network status information.	Info (EE)
0x00000D36	Service ID [ID] Execution ID [ID] Segment ID [ID] An application exception was caught while checking for network connection during a segment completion callback [Error: Error]. EE is presumed off the network and failover process is expected to be triggered once the DM detects the situation.	Safety net to catch any unhandled application exceptions while checking for network connection in case we could not callback to the	Severe Error

Message Error Code	Message Text	Issue Description	Message Level
		Distribution Manager when the segment execution completes.	
0x00000D37	There was a problem getting an Information Source Pool reference because the COM component is not properly registered. EE will continue executing, but may not function properly.	There was a problem getting an Information Source Pool reference because the COM component is not properly registered. The Execution Engine will continue executing, but may not function properly.	Severe Error
0x00000D38	Service ID [ID] Execution ID [ID] Segment ID [ID] There was a problem getting an Information Source Pool reference while failing a segment execution. The COM component is not properly registered. The ISPool will not be notified.	There was a problem getting an Information Source Pool reference because COM component is not properly registered. The process of failing the segment will continue.	Moderate Error
0x00000D39	There was a problem getting an Information Source Pool reference because the COM	There was a problem getting an Information	Minor Error

Message Error Code	Message Text	Issue Description	Message Level
	component is not properly registered. EE will continue shutting down.	Source Pool reference because the COM component is not properly registered. The Execution Engine will continue shutting down.	
0x00000D3A	There was a problem getting an Information Source Pool reference because of an instantiation error. EE will continue shutting down.	There was a problem getting an Information Source Pool reference because of an instantiation error. The Execution Engine will continue shutting down.	Minor Error
0x00000D3B	Service ID [ID] Execution ID [ID] Segment ID [ID] There was a problem instantiating an Information Source Pool object. Segment execution will fail. Error: Value.	Unable to load Service Executor because there was an error creating Information Source Pool. Segment execution will not continue.	Moderate Error
0x00000D3C	Service ID [ID] Execution ID [ID] Segment ID [ID] The Information Source Pool could not be created because of	The Information Source Pool could not be created. This happened	Moderate Error

Message Error Code	Message Text	Issue Description	Message Level
	error Number while failing a segment execution. The ISPool will not be notified.	while failing a segment execution. The ISPool will not be notified.	
0x00000D3D	Service ID [ID] Execution ID [ID] Segment ID [ID] Can not perform segment failover because this EE was not recording the segment's execution.	Unable to perform the segment failover because this Execution Engine was not recording the segment's execution.	Moderate Error
0x00000D3E	Service ID [ID] Execution ID [ID] Segment ID [ID] Unable to cancel segment execution because this EE is not executing that particular segment.	Unable to cancel the segment execution because this Execution Engine is not executing that particular segment.	Minor Error
0x00000D3F	Service ID [ID] Execution ID [ID] Segment ID [ID] Unable to continue segment execution because this EE is not executing that particular segment.	Unable to continue segment execution because this Execution Engine is not executing that particular segment.	Minor Error
0x00000D40	Service ID [ID] Execution ID [ID] Segment ID [ID] Unable to pause segment execution because this EE is not	Unable to pause the segment execution	Minor Error

Message Error Code	Message Text	Issue Description	Message Level
	executing that particular segment.	because this Execution Engine is not executing that particular segment.	
0x00000E5A	Service ID [.....] Execution ID [.....] Segment ID [ID] Unable to locate the Service ID for this segment.	The Service ID information is not available for this segment. Messages logged from this point forward will not contain a Service ID.	Minor Error
0x00000E5B	Service ID [.....] Execution ID [.....] Segment ID [ID] Unable to locate the Service Execution ID for this segment.	The Service Execution ID information is not available for this segment. Messages logged from this point forward will not contain a Service Execution ID.	Minor Error

Information Source Module

The following table lists the error messages logged by the Information Source Module. It contains the message code, the message text, the error description, and the message level.

Message Error Code	Message Text	Issue Description	Message Level
0x2377	Subscription ID [ID] exceeds maximum allowed number for Transmission Recording (2,147,483,64). The Transmission Recorder will not save records for this Subscription ID.	The subscription ID specified in the Subscription Book Repository is greater than 2,147,483,647.	Moderate Error

Information Transmission Module

The following table lists the error messages logged by the Information Transmission Module. It contains the message code, the message text, the error description, and the message level.

Message Error Code	Message Text	Issue Description	Message Level
0x2377	Subscription ID [ID] exceeds maximum allowed number for Transmission Recording (2,147,483,64). The Transmission Recorder will not save records for this Subscription ID.	The subscription ID specified in the Subscription Book Repository is greater than 2,147,483,647.	Moderate Error

Narrowcast Server Security

MicroStrategy Narrowcast Server affords specific levels of security in its architecture. This appendix describes:

- *MicroStrategy Narrowcast Server SMTP transmitter through network firewall*
- *Supported security measures*
- *Distributed Component Object Model*
- *Remote Method Invocations*
- *Sample configuration options*

MicroStrategy Narrowcast Server SMTP transmitter through network firewall

In some cases, corporate networks make use of firewalls to protect the internal LAN resources from external unauthorized access. MicroStrategy Narrowcast Server is unable to transmit SMTP Internet messages if the server Internet access is restricted by a firewall. In this case, all the SMTP messages need to be sent through an SMTP e-mail server with relay capabilities configured as a smart host. For additional information, refer to Delivery Options in the *Transmission tab* section.

To deliver a message using the smart host mode, perform the following steps:

- 1 In the Device Editor, click the Delivery Options tab.
- 2 Specify the IP address of the SMTP server. The SMTP server should have access to the Internet and it should be configured to relay messages originated in the MicroStrategy Narrowcast Server machine.

- 3 Specify the port number where the SMTP server receives incoming e-mail.
- 4 Select the Use Smart Host Always check box.
- 5 Repeat steps 1 to 4 above for all the devices used by the subscribers.

Supported security measures

Security with Microsoft IIS

MicroStrategy Narrowcast Server uses Microsoft Internet Information Server (IIS) to publish information and bring business applications to the Web. IIS is a required component when the Subscription Portal is installed.

Two procedures can be performed to restrict access to the admin folder to valid Windows users:

- When the virtual directories are created the virtual directories are set to have both anonymous access and Windows authentication enabled.
- The admin folder under the virtual directory only has Windows authentication enabled, while anonymous access is disabled.

These procedures are performed automatically as part of the installation and again as part of the virtual directory creation in the Portal Administrator. For additional information on anonymous access or Windows authentication, refer to the documentation provided with Microsoft IIS.

Account privileges

Narrowcast Server requires Windows Administrator Account privileges on the machine on which Narrowcast Server is installed. At the time of installation you are prompted to provide an account for Narrowcast Server to run.



Narrowcast Server does not run if the account you provide does not have full Administrator privileges.

For more information on account privileges, refer to Windows domain requirements in the Narrowcast Server Installation and Configuration Guide.

Cryptography

Narrowcast Server uses the Blowfish algorithm to encrypt the following data:

- Repository data source name (DSN) passwords that are stored in the registry
- Repository data source name (DSN) passwords that are stored in the properties file
- Personal identification numbers (PINs) stored in the Subscription Book Repository
- User passwords in the Subscription Book Repository
- Passwords for the MicroStrategy Information Source Module that are stored in the repositories

Subscription Portal subsystem

Narrowcast Server Subscription Portal operates through a Web browser. Therefore it requires different security measures. Subscription Portal supports the following security measures and configurations:

- Secure Sockets Layer (SSL)
- Firewalls
- Internet Protocol Security (IPSec)

These measures have been tested to work with the Subscription Portal.

Distributed Component Object Model

A MicroStrategy Narrowcast Server distribution manager uses Distributed Component Object Model (DCOM) to communicate with distribution managers and execution engines on other machines. The Windows Service account used by the distribution manager should have both the DCOM launch and access permissions on all the machines. During the installation of Narrowcast Server, DCOM launch and access permissions are automatically granted to the local Administrators group, which should contain the Windows Service account used by the distribution manager.

Multiple ports are needed for DCOM. Port 135 is needed for the initial negotiation. Once the initial port is set, the communication ports can range between 1024 and 65535. These ports, with the exception of the initial port, can be configured. Configuration details can be found at http://msdn.microsoft.com/library/background/html/msdn_dcomfirewall.htm.

Remote Method Invocations

MicroStrategy Narrowcast Server uses Remote Method Invocations (RMI) to communicate between the Subscription Portal subsystem and the Subscription Server subcomponent. The RMI registry runs when the Subscription Portal accesses the Subscription Server using RMI communicating with a dynamically configured port.

There is not a set of designated, configured ports for the RMI, so setting a firewall between the Subscription Portal API and the Subscription Server is not advisable. However, the initial port the RMI registry is running from is configurable.

Additional information on RMI can be found at <http://java.sun.com/products/jdk/1.1/docs/guide/rmi/spec/rmi-arch.doc.html#4799>.

Sample configuration options

MicroStrategy Narrowcast Server is available in two separate editions, Standard and Enterprise. Each edition is dependent on the serial key purchased from MicroStrategy, as each edition supports different configuration options. The following examples detail some of the different scenarios of security in a Narrowcast Server Subscription Portal subsystem environment, but do not provide a comprehensive list of the options available.

Three configurations are described:

- *Configuration A: All components on one server*
- *Configuration B: Typical Installation*
- *Configuration C: Enterprise Edition using Windows load balancing*

Configuration A: All components on one server

In this configuration all Subscription Portal subsystem components are housed on one server. The repositories are stored on a separate database server. A firewall can be placed between the Internet and the Subscription Portal subsystem.

Configuration B: Typical Installation

Server 1: Subscription Portal subsystem

Server 2: SequeLink and repositories

This configuration contains all Subscription Portal subsystem components on one machine. SequeLink and the repositories are contained on their own servers. Firewalls are placed between the Internet and IIS Web server as well as the Web server and SequeLink server.

Configuration C: Enterprise Edition using Windows load balancing

Server 1: Subscription Portal subsystem

Server 2: Subscription Portal subsystem

Server 3: Subscription Portal subsystem

Server n: SequeLink and repositories

In the Windows load balancing environment, multiple Web browsers filter through a Windows load balancing server and are distributed to the IIS servers that can best handle the incoming workload. To complete a scenario such as this, multiple servers (numbering n) are set up with the Subscription Portal subsystem to balance the incoming workload. The firewall is placed between the Internet connection and the IIS server.

Narrowcast Server Windows Services

Narrowcast Server provides several components that run as Microsoft Windows services on Narrowcast Server systems. A Windows service can be defined as a program, routine, or process that performs a specific system function to support other programs, particularly at low (close to the hardware) level.

These Narrowcast Server Windows services are described in summary. References to more information are provided.

- **MicroStrategy Distribution Manager:** Triggers and manages service execution by distributing service workload to available execution engines. Needs to run under a Windows network account with administrative privileges on all machines that are part of the Narrowcast Server system. For more information, see [Distribution managers](#).
- **MicroStrategy Execution Engine:** Performs the work of gathering service content, formatting it, and delivering it to devices. Needs to run under a Windows network account with administrative privileges on all machines that are part of the Narrowcast Server system. For more information, see [Execution engines](#).
- **MicroStrategy Logging Client:** Receives logging messages from Narrowcast Server components and relays them to the MicroStrategy Logging Server. Logging messages include segment status information, statistics information, and error event notification. For more information, see [MicroStrategy Logging Server and Clients](#).
- **MicroStrategy Logging Consumer:** Receives messages from MicroStrategy Logging Server and logs them to a variety of destinations such as the Windows Event Log, a set of text files, or the System Message Viewer dialog box. For more information, see [MicroStrategy Logging Server and Clients](#).

- **MicroStrategy Logging Server:** Collects logging messages from MicroStrategy Logging Clients and distributes them to MicroStrategy Logging Consumers. For more information, see [MicroStrategy Logging Server and Clients](#).
- **MicroStrategy NC PDF Formatter:** Enables Narrowcast Server to produce PDF output. Only used for the PDF generation of reports from Web Subscription. For more information, see [Narrowcast Server provides several components that run as Microsoft Windows services on Narrowcast Server systems. A Windows service can be defined as a program, routine, or process that performs a specific system function to support other programs, particularly at low \(close to the hardware\) level..](#)
- **MicroStrategy SMTP Service:** Enables Narrowcast Server to generate e-mail messages and transmit them via SMTP. For more information, see [Setting up Narrowcast Server for e-mail transmission](#).

All services require the "Log on as a service" privilege. Microsoft Windows automatically grants this privilege to an account when that account is used to run a service. As long as this privilege is not revoked manually, no changes are needed.

Service Execution Flow in Narrowcast Server

The following sections describe the flow of service executions in MicroStrategy Narrowcast Server. Each section is one step in the process. The step is explained and failure points are identified where appropriate.

Service triggered and inserted into queue


Summary: A service is triggered by an Application Program Interface (API) call or a schedule and inserted into the service execution queue.

Details:

A service execution can be triggered two ways:

- In Narrowcast Administrator, select Run Immediately on the toolbar.
- The scheduler has a list of occurrences for every service (with its subscription sets) that is associated with a schedule. The scheduler requests the execution for each of those occurrences, according to the system time in the distribution manager machine. For example, if:
 - "Service 1" is associated with the "Every 30 minutes" schedule and the two subscription sets "SubSetA" and "SubSetB"
 - "Service 2" with "Every 10 minutes" is to be sent to one subscription set "SubSetC" then the scheduler triggers executions at these times:

```
00:10 Service 2-SubSetC
00:20 Service 2-SubSetC
00:30 Service 1-SubSetA, Service 1-SubSetB, Service2-SubSetC
00:40 Service 2-SubSetC
... etc.
```

A custom application can execute a service at any time by calling the API  function `IMSTRDeliveryEngine_ExecuteService`. For more information, see the online Narrowcast Server SDK Guide.

Highest priority service selected, recipients per segment determined

Summary: The service with the highest priority in the execution queue is selected. The distribution manager looks at the service definition to determine the maximum number of recipients per segment.

Details:

The entire service definition is loaded recursively from the repository by the Primary Distribution Manager (PDM). If it is an ad hoc service definition, it instead might be passed in.

A service definition includes the following:

- service properties—service-unique identifier, priority, execution timeout, segment size, and segment expiration
- subscription set definition—interpretable only by the Subscription Book Module
- content definition—list of publications, with their documents, supported devices, and locales
- components definition—initialization properties for the Subscription Book Module, information sources, formatters, and transmitters

Failure Points

- If the distribution manager cannot load the service definition because the Object Repository is unavailable due to a network problem or if the database server is offline, the service is retried continuously.
- After the service is loaded, if the service has already exceeded the expiration time, it is not executed.
- If the service definition fails to be loaded because the service does not exist in the repository, the service is failed. One situation where this can

occur is if the distribution manager and the Narrowcast Administrator are pointing to different repositories.

Subscription Set IDs and segment size passed to Subscription Book Module

Summary: The distribution manager passes the subscription set IDs and segment size to the Subscription Book Module.

Segments created and information passed to distribution manager

Summary: The Subscription Book Module (SBM) divides the subscription set into segments and passes the segment boundaries and the number of recipients back to the distribution manager. The segments are then inserted into the segment execution queue.

Details:

To distribute the load as equally as possible among execution engines, the Primary Distribution Manager (PDM) divides the subscription set into equal segments. First it creates an instance of the Subscription Book Module. The PDM then asks it to segment the subscription set into segments, the segment size depending on the service destination.


For example, consider a service with a segment size of 3 that is to be executed using Subscription Set 1, which contains 11 users. The communication between the PDM and the SBM would look like this:

- The PDM asks SBM to segment (Subscription Set 1, segment size=3).
- After running MicroStrategy reports, the SBM returns a list of segments to the PDM:

```
seg1= (recipients 1 to 3)
seg2= (recipients 4 to 6)
seg3= (recipients 7 to 9)
seg4= (recipients 10 to 11)
```

The PDM does not know how to interpret the segments returned by the SBM; it only knows that there are four of them and that the SBM will deal with them later, during each segment execution.

In some instances, such as with dynamic subscription sets, the SBM requires running a report to segment the service. In this case, the SBM requests an instance of the information source that will run the report. The SBM uses the instance to run the segmentation report (segment information object) and then returns the segments to the PDM, the same as in the previous example.

The execution engine and distribution manager manage information sources through the Information Source Pool. The ISPool is created when the PDM or  execution engine (EE) are created. It is responsible for managing information source instances and providing them to the components that need them, such as the SBM or the segment executor.

Failure Point

The subscription set segmentation can fail because the SBM cannot connect to the Subscription Book Repository database, such as when the network has problems, the database is offline, and so on. Segmentation is retried until the Subscription Book Repository becomes available again or until the service expiration time is exceeded.

A common situation, which is not considered an error, is when the SBM returns zero recipients. In this case the service execution terminates successfully.

Segment assigned to execution engine and information provided

Summary: If an execution engine is available, the segment with the highest priority is assigned to that execution engine and its backup is determined. The segment definition is sent to the execution engine and then the

execution engine checks the service definition for a list of required information sources.

Details:

Once the Primary Distribution Manager (PDM) knows how many segments need to be executed for a given service execution, it gives each segment a unique ID and inserts them in the queue of segments to be executed. This queue holds all the pending segments, for all the service executions, because there could be segments from different services waiting to be executed. The PDM starts assigning segments from the queue to available execution engines.

Segment executor initialized and information sources identified

Summary: The execution engine initializes the segment executor. The segment executor determines what information sources to use.

Details:

The segment executor requests the instances of the information sources it needs to complete the service execution.

Failure Point

If an information source fails to be initialized, the segment is failed over. A possible cause could be that the information source is unavailable because the Intelligence Server is not running. The segment is placed back into the distribution manager's segment queue to be reassigned. The number of times an individual segment is failed over is determined by the failover count of the system governing settings.

Segment definition sent to Subscription Book Module to retrieve recipients

Summary: The segment executor sends the segment definition to the Subscription Book Module to get all the recipients for that segment.

Details:

The segment executor creates an instance of the SBM and passes the segment definition to it. The SBM returns a list of recipients. Some of the relevant fields that are returned for each recipient are:

- Device ID
- Locale ID
- Authentication-Security-Personalization for each question object
- Physical Address
- Time Zone

Failure Point

If resolving recipients fails, the segment is failed over. This can occur if the Subscription Book Repository (SBR) is unavailable because of network problems, an offline SBR database, or incorrect ODBC settings. The segment is replaced into the segment queue to be reassigned. If the SBR is unavailable, the failover count for the segment is not incremented when the segment is reassigned.

A situation that is not considered an error is when zero recipients are returned for a segment. This might happen when a service uses dynamic subscription sets. The segment execution finishes successfully.

Recipient list sent to segment executor and analyzed

Summary: The recipient list is sent to the segment executor (SE) and the SE analyzes that list to determine what results are needed.

Details:

To support internationalization, which is achieved through the use of locales, the segment executor matches the service content with the recipient's locale. Each recipient receives only one publication, according to the following rules:

- If a publication supports the exact device-locale combination that the recipient has, the recipient receives this publication. If not, determine if the next rule applies.
- If a publication supports the recipient's device and the System Locale, the recipient receives this publication. If not, the recipient does not receive any content.
- Ideally, the same device-locale combination should be supported by only one publication. However, if two or more publications match the device and locale for that recipient, the first of those publications found in the service definition is used.

The publications in the definition are sorted in the same order as they are shown in the Service Editor.

Once the segment executor determines which publications need to be sent to whom, it works only on the ones that have at least one recipient.

For each publication, the following steps occur:

Step 1. Initialize transmitter

Step 2. Initialize formatters


Step 3: Perform personalization bucketing

Step 4: Segment executor sends information object request to information source module

Each step is described below.

Step 1. Initialize transmitter

The transmitter used by this publication is initialized.

 Remember that one publication supports only one transmitter.

Failure Point

If a transmitter fails to initialize itself, the segment is failed over. The segment is placed back into the segment queue to be reassigned. An example of SMTP Transmitter failure is if the Domain Name Server (DNS) registry setting is not located.

Step 2. Initialize formatters

Formatters used by this publication are initialized. The static content is passed to the formatters so they are only waiting to receive dynamic content, if any exists.

Failure Point

If one of the formatters fails to be initialized, the segment is failed over. The segment is placed back into the segment queue to be reassigned.

Step 3: Perform personalization bucketing

This step attempts to reduce the number of jobs submitted to the information sources for dynamic content.

The segment executor analyzes the list of recipients and determines if several recipients share the same authentication-security-personalization objects combination for each question object used in a publication. The recipients with common characteristics are grouped in buckets or "Usersets" since they will receive the same content.

The segment executor analyzes the list of recipients and determines if several recipients share the same authentication-security-personalization objects combination for each question object used in a publication. The recipients with common characteristics are grouped in buckets or "Usersets" since they will receive the same content.

To understand how the bucketing is improved, consider the following scenario:

User	Information Source	Information Object	Information Object preference (prompt answer)
David	Y	1	A
David	Y	2	no prompt on report
James	Y	1	B
James	Y	2	no prompt on report

In this case, the following four jobs are created:

- Job 1 for Information Object 1 for personalization A
- Job 2 for Information Object 2
- Job 3 for Information Object 1 for personalization B
- Job 4 for Information Object 2

In MicroStrategy Narrowcast Server 8.0.2 and earlier, for some cases the bucketing algorithm did not result in the least number of jobs possible. This is possible with MicroStrategy Narrowcast Server 8.0.3.

To obtain the optimal bucketing behavior, in MicroStrategy Narrowcast Server 8.0.3, you can combine the jobs by changing the default value of the `UseImprovedMstr7Bucketing` registry key.

With the registry key value as 0, we get four buckets.

When you change the value of the registry key to 1, job 2 and job 4 are joined to create the following three buckets:

- Bucket 1: Information Object 1 - personalization A
- Bucket 2: Information Object 1 - personalization B
- Bucket 3: Information Object 2 - no personalization

Now to understand how the number of jobs is reduced, consider the following scenario:

User	Information Source	Information Object	Information Object preference (prompt answer)
David	Y	1	A
David	Y	2	no prompt on report
James	Y	1	A
James	Y	2	no prompt on report

To reduce the number of jobs, in MicroStrategy Narrowcast Server 8.0.3, you can combine the jobs by changing the default value of the `UseImprovedMstr7Bucketing` registry key to 0.

With this we have only two jobs as follows:


- Job 1: Information Object 1 - personalization A
- Job 2: Information Object 2 - no personalization

Modifying registry values incorrectly may cause serious, system-wide problems that may require the re-installation of Microsoft Windows. Any edit of the registry is done at the user's own risk. Since these are user-initiated changes, they are not covered by any MicroStrategy warranty. If using Microsoft Windows, the user should backup the registry and/or update an Emergency Repair Disk (ERD) prior to alterations.

To change the registry key value, perform the following steps:

- 1 Browse to the location: `HKEY_LOCAL_MACHINE\Software\microstrategy\Microstrategy broadcast server\7.0\execution engine.`

2 Change the value of the `UseImprovedMstr7Bucketing` registry key to 1.

Once personalization bucketing is done the recipient's locale is no longer used. Instead, the document locale is passed to the information sources,  formatters, and transmitters. The document locale is considered the run-time locale and is defined in the document editor by selecting File, then Properties.

For example, if a recipient's locale is Spanish and the publication that supports this locale contains documents with the locale set to Japanese,

The information source requests the report results from the Intelligence Server with Japanese date and currency formats.

The transmitter uses the encoding method for Japanese (shift-JIS).

If the system is intended to support multi-language settings, the services must be carefully designed to take full advantage of the locale feature and to avoid sending conflicting content to the end user.

Step 4: Segment executor sends information object request to information source module

This step includes seven substeps, 4A through 4G. They are described below.

4A. The segment executor submits jobs to the information source module.

Each information source receives the request to each of the information objects used in the publication. The request contains a list of all the unique personalizations (user sets). The information source calls back with the job results as they are completed.

Failure Point

If the information source encounters a critical error during the job execution, it notifies the Segment Executor. The segment is failed and

placed back into the segment queue to be reassigned. An example is when the MicroStrategy Information Source detects that the Intelligence Server is not responding to the requests.


4B. The result sets are returned to the segment executor and queued.

4C. The segment executor sends the result sets to the document formatting module where the document templates and elements are formatted.

After all the document elements that need to be placed in a document are formatted, the segment executor asks the formatter to format the document. The complexity of this operation depends on the kind of formatter. For example, the Hyper Text Markup Language (HTML) formatter has to paste the document elements into the HTML source. In contrast, the Excel formatter has to first parse the document elements to extract table structures and then insert those table structures into the specified Excel binary file.

Once the information object results are ready, the segment executor begins to submit them to the formatters. A set of information objects that belong to the same document element is passed to the formatter at once.

Since each document element can have an assigned stylesheet, a formatter is expected to apply the stylesheet, process the output if necessary, and then return the intermediate formatting result to the segment executor. If a certain document element consists only of non-personalized information, the segment executor can cache formatted document element results.

 Some error handling decisions are made depending on the settings defined for each information object and each document within a publication. Refer to , [Troubleshooting](#).

4D. The document formatting module sends the formatted documents back to the segment executor.

4E. When all of the personalized documents for a subscriber are complete, the segment executor sends the formatted documents to the appropriate

information transmission module for message delivery. The segment executor sends notification to the execution recorder that the message was sent, and also to the transmission recording log tables.

4F. The segment executor notifies the execution engine when all of the messages in the segment were sent and it is done processing the segment. The segment executor is unloaded.

4G. The execution engine notifies the distribution manager that the segment is complete. The segment is updated in the execution queue. When all segments for a service are complete, the Subscription Book Module is disconnected.

Troubleshooting

This appendix identifies troubleshooting tools useful in resolving issues and lists problem symptoms, potential causes, and corrective actions.

Modifying registry values incorrectly can cause serious, system-wide problems that might require the reinstallation of Microsoft Windows. Any edit of the registry is done at your own risk. Since these are user-initiated changes, they are not covered by any MicroStrategy warranty. If using Microsoft Windows, you should back up the registry and/or update an Emergency Repair Disk (ERD) prior to alterations.

Troubleshooting tools

System Message Viewer

You can access this from Narrowcast Administrator by selecting View System Messages from the Tools menu. In general, you can use the System Message Viewer to view error information and statistical messages that are generated by MicroStrategy Narrowcast Server. You can control the amount of information generated by MicroStrategy Narrowcast Server by modifying the registry settings located in:

```
HKEY_LOCAL_MACHINE\Software\MicroStrategy\  
MicroStrategy Broadcast Server\7.0\  
Distributed Logging Service\  
MLS Client Settings\Logging Levels.
```

For more information about the registry settings, refer to [Configuring the MicroStrategy Logging Server](#) in .

Portal Administrator error log

For the Subscription Portal, you can go to the Portal Administrator and modify the URL to be `http://host_name/virtual_directory/admin/showerrors.asp` to see a description of the error that was raised in the ASP code.

Log files

Use the logging files generated by the product, which are stored in the same location as the product files. These files have names that begin with `DELog` followed by a date, and the suffix `.txt`.

Monitor

Monitor is an application that lets you monitor debug output on your local MicroStrategy Narrowcast Server system. It can display Win32 debug output; therefore, you do not need to open the Narrowcast Server logs to capture the output of the system.

System creation

Modifying registry values incorrectly can cause serious, system-wide problems that might require the reinstallation of Microsoft Windows. Any edit of the registry is done at your own risk. Since these are user-initiated changes, they are not covered by any MicroStrategy warranty. If using Microsoft Windows, you should back up the registry and/or update an Emergency Repair Disk (ERD) prior to alterations.

Symptom

You cannot browse to find or type in name of the distribution manager.

Cause: The machine is not accessible on the domain or is unavailable.

Actions:

- 1 Add the machine to the domain or verify network connectivity and check login and startup permissions.
- 2 Turn on `Level_Info_DM` and `Level_Trace_DM` in the registry and obtain those logs plus the debug viewer log.

Symptom

Object Repository and/or Subscription Book tables were not created.

Cause 1: Not enough permissions.

Action: Verify that the same user can drop/create tables on the database.

Cause 2: The database is full.

Action: Verify that there is enough space in the database by creating a table. You can use `Tstodbc2.exe` from the `Util` folder.

Symptom

Object Repository and/or Subscription Book Repository tables were not created in DB2.

Cause: The default code set of DB2 does not support VARGRAPHIC data type.

Action: Create a new DB2 database with the UTF-8 code set.

Symptom

A Registry settings on the target machine indicate that the machine is currently being used by Delivery Engine system '-' as 'MicroStrategy Logging server', ... message appears when trying to add a distribution manager or execution engine machine.

Cause: The machine to be added as a distribution manager, execution engine, or MicroStrategy Logging Server is already being used by another system.

Action: Remove the machine from the distribution manager, execution engine, or MicroStrategy Logging Server list of the other system.

Symptom

An `UnexpectedError: Unable to perform the operation because you have insufficient privileges` message appears when trying to add a distribution manager or execution engine machine.

Cause: The user is not an administrator on the machine to be added as a distribution manager or execution engine.

Action: Add the user to the administrator group of the target machine.

Symptom


A `JVM creation failed (Not enough memory)` message appears when the **Create a Subscription Portal** site check box is selected while configuring the Subscription Portal.

Cause: While configuring a Subscription Portal, Narrowcast Server reserves a certain amount of consecutive memory from the memory heap. The portal configuration fails because the size of this heap is too large and Narrowcast Server does not use the `JVM HeapMaxSize` value from the registry.

Actions:

Delete the `Xmx64M` value from the `HKEY_LOCAL_MACHINE\SOFTWARE\MicroStrategy\JNI Bridge\Configuration\JVM Options\WebOptions` registry key, if you had added the value while configuring the Subscription Portal in Narrowcast Server 9.0.

2. Configure the `HKEY_LOCAL_MACHINE\SOFTWARE\MicroStrategy\MicroStrategy Broadcast Server\7.0\SubscriptionPortal` registry key and set it to a value that is less than 192MB.

 The `SubscriptionPortal` registry key is added in Narrowcast Server 9.0.1 to control the memory used by the Subscription Portal. The `SubscriptionPortal` key is created only when you create a Subscription Portal.

Starting the Delivery Engine

Symptom

A `System is not running` message appears when trying to start the system.

Cause 1: The distribution manager services account is not an administrator on the distribution manager machine.

Action: Add the distribution manager service account to the Administrators group on the target (distribution manager) machine.

Cause 2: Administrators do not have DCOM permissions on the distribution manager machine.

Action: Add the administrators group to DCOM:

- 1 Click Start and select Run.
- 2 Type `dcomcnfg` and click OK.
- 3 In the Distributed COM Configuration Properties dialog box, select the Default Security tab.
- 4 Under Default Access Permissions, click Edit Default.
- 5 In the Registry Value Permissions dialog box, click Add.

- 6 In the Add Users and Groups dialog box, to add a group, highlight the group name and click Add. To add individual users, highlight the group name and click Members. Highlight the user names to add and click Add.
- 7 The names appear in the Add Names field. Click OK.
- 8 In the Registry Value Permissions dialog box, the names appear. Click OK.
- 9 Under Default Launch Permissions, click Edit Default.
- 10 In the Distributed COM Configuration Properties dialog box, click Apply, then click OK.



These services must be set up on the machines where the distribution manager and execution engine will be running.

Symptom

A `Can't create distribution manager` message appears when trying to start the distribution manager.

Cause 1: The distribution manager services account is not an administrator on the distribution manager machine.

Action: Add the distribution manager service account to the administrator group on the target (distribution manager) machine.

Cause 2: Administrators do not have DCOM permissions on the distribution manager machine.

Action: Add the administrators group to DCOM. For steps to add DCOM permissions to the administrators group, see the previous [Symptom](#).

Symptom

A `Can't start any distribution managers` message appears when starting the system.

Cause 1: The MicroStrategy Logging Client Windows service failed to start.

Action: Try using the System Configuration Wizard to reset the MicroStrategy Logging Server and Logging Client configuration. Check the Event viewer on the machine where the MicroStrategy Logging Client is not loading to determine if there is a port conflict or other problem.

Cause 2: None of the distribution manager machines is available. Insufficient permissions.

Action: Verify that all the machines configured as distribution managers have the software installed correctly. Is at least one of them up and running? Does the Windows login being used on the Narrowcast Administrator machine have administrator permissions on the distribution manager machines? Is the distribution manager services account password correct?

Symptom

A database deadlock occurs during service segmentation on the MicroStrategy Narrowcast Server system for Web e-mail scheduling and Send Now.

Cause: For a Send Now schedule, the MicroStrategy Narrowcast Server system executes six services every minute. These six services are for delivering a Document or a Report in a File, Print, and E-mail format. If no service is associated with the Send Now schedule, the six services are not required to run. In such cases, the Distribution Manager yields zero segments. Thus, the Distribution Manager is unnecessarily loaded, which subsequently loads the Subscription Book Repository database.

Action: Select the On Demand Schedule check box on the Interval page of the Schedule Wizard. In this case, if there are no Send Now schedules, the service execution is stopped before the segmentation of a service is done. Segmentation is done only when a Send Now subscription is created for the service.

Select the On Demand Schedule check box on the Interval page of the Schedule Wizard. Select this check box for a Send Now schedule so that

service execution is stopped before the segmentation of a service is performed. Segmentation is performed only when there is a subscription associated with the schedule that is fired.

Service creation and execution

Modifying registry values incorrectly can cause serious, system-wide problems that might require the reinstallation of Microsoft Windows. Any edit of the registry is done at your own risk. Since these are user-initiated changes, they are not covered by any MicroStrategy warranty. If using Microsoft Windows, you should back up the registry and/or update an Emergency Repair Disk (ERD) prior to alterations.

Symptom

When users send messages via e-mail, wireless, or to a directory location using the E-mail (SMTP) or Wireless (SMTP) Information Transmitters, the service fails to be delivered and one or more of the following error messages is present in the system message viewer: `Unavailable DNS for the system` or `Unable to initialize SMTP Service SMTP is down.`

Cause:

- The Domain Name Server (DNS) settings used by the Microsoft Windows Simple Mail Transfer Protocol (SMTP) service are not properly configured in the registry (DNS settings are Windows operating system networking properties used by Narrowcast Server).
- The machine has Dynamic Host Configuration Protocol (DHCP) enabled but is logged off from the DHCP-Server.

Action:


To resolve this problem you need to update the appropriate keys in the Windows registry in all machines used as execution engines by your Narrowcast Server system. The specific keys to be modified or added depend on whether the network uses DHCP (Dynamic Host Configuration

Protocol—machines that obtain their IP address configured dynamically) or Static IP addresses (machines that have hard-coded IP addresses).

To check whether the machine uses DHCP or a Static IP Address, follow the steps below:

- 1 Right-click My Network Places (Network Neighborhood in Windows NT) and select Properties.
- 2 Right-click Local Area Connection or the LAN icon currently in use and click Properties.
- 3 Double-click Internet Protocol (TCP/IP).
- 4 Click Advanced.
- 5 Click the IP Settings tab. This tab displays DHCP Enabled under IP addresses if this machine uses DHCP.

Then follow the procedure described below to update the registry on every machine used as an execution engine by Narrowcast Server.

 When in doubt about which values to enter, contact the System Administrator for assistance. You can also check if this information is already entered on another machine in the same domain.

Updating the registry

- 1 Stop all Narrowcast Server services (distribution manager, execution engines, logging services, and so on) before manually editing the registry.
- 2 Locate and update the `Domain Name` and `DNS IP address` keys in the registry.

For machines that use static addresses, locate the following registry location:

```
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\  
Services\Tcpip\Parameters
```

Then add `Domain` and `Name server` string keys with values as specified by your System Administrator.

For networks using DHCP, locate the following registry location:


```
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\  
Services\Tcpip\Parameters
```

Check whether the `DhcpDomain` and `DhcpNameServer` keys are present. The action you take now depends on whether the required keys are present and contain empty strings or whether the keys themselves are not present.


Scenario 1: Registry Keys are Present

In this scenario, the registry values are present but contain empty strings. This often occurs in a test domain scenario where there is a DHCP-Server but no DNS configured. Check the IP address of the DHCP-Server using the `ipconfig /all` command at the Windows command prompt. Contact the Domain Administrator to perform the following changes on the DHCP-Server:

- 1 Log in to the DHCP-Server as Domain Admin.
- 2 Configure DHCP (Windows NT).
 - a. Open the WinNT tool DHCP Manager.
 - b. Select the localmachine (that is, the DHCP-Server).
 - c. From the DHCP Options menu, select Scope.
 - d. Move the item 015 - Domain Name to the Active Options.
 - e. Enter the user's domain name into the string box.

 For the purpose of sending messages to directory locations only, that is, not using SMTP, you can enter any dummy value.

- 3 Configure DHCP (Windows 2000 Advanced Server).

- a. In Computer Management, expand Services and Applications.
 - b. Expand DHCP and right-click Server Options. Choose Configure Options.
 - c. On the General tab, select the 015 DNS Domain Name check box and type the domain name in the space provided for String Value.
 -  For the purpose of sending messages to directory locations only, that is, not using SMTP, you can enter any dummy value.
- 4 When you reboot any client in that domain, it picks up the dummy value at startup and writes it into the registry.

Scenario 2: Registry Keys are Not Present

In this scenario, the two registry values are not present although the client is configured as DHCP enabled. This happens most likely on a laptop that is not connected to its DHCP-Server.

- 1 Stop the MicroStrategy Distribution Manager service.
- 2 Add the registry string values `DhcpDomain` and `DhcpNameServer` as String values into `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters`.
- 3 Enter any dummy entries into the two string values.
- 4 Restart the MicroStrategy Distribution Manager service.

The service should now run successfully.

Symptom

You cannot access, write to or manipulate the Object Repository.

Cause: You have incorrect or insufficient permissions to the Object Repository.

Action: Check to see if the login used to access the database was entered correctly and if it has the appropriate permissions for that database.

Symptom

The Object Repository is not responding or is returning incorrect information or no information at all.

Cause: A non-supported or non-certified Open Database Connectivity (ODBC) driver is used for the repository.

Action: Determine the answers to the following questions:

- 1 Where is the repository stored (same machine as Narrowcast Server or Subscription Book Repository)?
- 2 Is the data source name (DSN) for that database configured properly (check to ensure validity)?
- 3 What database platform is used for the repository?
- 4 What version of the ODBC driver is used for that database platform?
- 5 Is your platform and/or driver certified or supported? (Check the readme for supported and certified platforms and drivers.)
- 6 Is the repository an upgrade from or connection to a previous version or a new repository altogether?

Symptom

Some documents are removed from the service. For example, only the subject is sent, while the message body is empty.

Cause: The document contains information objects that are failing to execute or to be formatted.

Action: Edit the document that is failing. Double-click each document element and add Error Handling Rules for each field. Run the service

again. This time the document is received, possibly with some error messages, as specified in the rules.

Symptom

An information object within a document is returning an error or no data.

Cause 1: The recipient is not personalized correctly.

Action: If the information object has a question object associated to it, ensure that the recipients have a preference objects associated to them. Go to the Static Subscription Set Editor and for each user, double-click and check the Preference tab. Or double-click each subscription and check the Preference tab.

Cause 2: The MicroStrategy report is not configured properly to run in Narrowcast Server.

Action: Run the report using the MicroStrategy Developer interface. Does the report fail? Fix the problem in Developer and try to run the service again. Does the report contain prompts? Then you need to set up a default answer or create question and preference objects in Narrowcast Administrator. Check the documentation for more information. Does the report return no data? This is fine. Add appropriate error handling for it or change the filtering criteria so that the report returns data.

Symptom

A document element failed to be formatted.

Cause 1: The stylesheet applied does not match the document type.

Action: Inside the document editor, verify that the selected stylesheet matches the type of document. That is, for HTML, use the `MicroStrategy7 default` XSL file stored in the "For HTML documents" folder.

Cause 2: The stylesheet file in the repository was not loaded correctly.

Action: From the object browser, double-click the XSL file. The path and file name appears in the File text box. Is it pointing to the right location? If not, click the browse (...) button and reimport it.

Cause 3: XML results combined with XSL do not produce the expected output.

Action: There might be a problem with the XSL definition that causes it to fail during XSL transformation. Or the resulting XML might not match the format expected for the Excel or Plain text DFMs. If you wrote custom XSLs, verify that they meet the specifications as specified in the XML for Narrowcast Server Objects appendix of the Narrowcast Server Application Designer Guide. Verify that they transform correctly by testing your custom XSLs using the TestXML Tool. By default, this tool is installed in the `C:\Program Files\MicroStrategy\Narrowcast Server\Delivery Engine\Utilities` folder.

Symptom

Some or all of the messages for a service are not sent.

Cause 1: The recipient device-locale combination does not match any publication.

Action: Open the Static Subscription Set Editor and verify that

- the user locale matches the publication locale. System is the default for services created with the Service Wizard.
- the addresses subscribed to the service use the devices supported by the publication. By default, the Service Wizard uses Generic E-mail.

Cause 2: If using remote machines as the distribution manager or execution engine, the data source name (DSN) for the Subscription Book is not present on one of those machines.

Action: Configure a DSN for the Subscription Book Repository on all the machines. Configure a DSN for the Object Repository on machines used as distribution managers.

Cause 3: A document failed that is required for the publication.

Actions: Edit the documents contained in the service that is failing. Double-click each document element and add Error Handling Rules for each field.

Cause 4: The subscription set contains zero valid recipients.

Action: Open the Static Subscription Set Editor. Make sure that the Subscription Set box contains at least one valid and active address.

Symptom

Services are not fired.

Cause: A schedule or service might be inactive.

Action: Verify that both the service and schedule are active. Click Administration, then Scheduled Services. Are the next occurrences for the service shown? If not, click Set Queue Parameters in the toolbar and change the parameters accordingly. If you still cannot see your services, the schedule definition might be incorrect.

Symptom

In the Publication Wizard, a device does not appear in the list of available devices.

Cause: The device does not correspond to the selected transmitter.

Action: Go back and select the transmitter that is used by the device, or create an additional publication that uses the desired transmitter.

Symptom

In the Publication Wizard, when browsing for files to be attached, imported files are not displayed.

Cause: Files cannot be used as attachments.

Action: Create a new document of type Formatted Content. Associate it with the imported file and save it. Go to the Publication Wizard. The document is displayed and it can be used as a binary attachment.

Symptom

Graphic information objects are not available to be inserted in an Excel document.

Cause: Graphic information objects can only be used in HTML documents.

Action: Create a new tabular information object and insert it in the workbook. Use an Excel macro to render this tabular data as an Excel chart.

Symptom

A service with a dynamic subscription set delivers some duplicated e-mails.

Cause: Segment Boundary prompt default values were altered, becoming uninterpretable by Narrowcast Server.

Action: Use automatic segmentation. See the Narrowcast Server Application Designer Guide for instructions on using automatic segmentation.

Symptom

No data is returned for a service with a segment size of 1.

Cause: Segmentation metrics are incorrectly constructed (or set with 7.0 directions).

Action: Use automatic segmentation. See the Narrowcast Server Application Designer Guide for instructions on using automatic segmentation.

Symptom

Occasionally, the toolbar icons are shown as black squares.

Cause: This is because the toolbar file `agent.tb` is corrupted.

Action: Find and delete the `agent.tb` file, close the application, and open again.

Symptom

Symptom 1: The Narrowcast Services are started on the server machine, but you see that the system is stopped in the Narrowcast Administrator.

Symptom 2: You have enough Narrowcast privileges and you are trying to run a service, but nothing happens.

Symptom 3: When a user configures the Narrowcast Administrator on a remote machine, a message appears indicating that the account is not set up in the Narrowcast system. Along with this message, any of the following cases can be applicable:

- The MicroStrategy setup application does not ask for credentials in an upgrade process.
- The user decides to use the local system account as the account for the services.
- The credentials presented during installation are not correct.
- The password used to set up the identity has expired.


Cause: The user does not have administrative privileges on the remote machine.


Action: If your non-administrative users want an access to the Narrowcast run time functionality, you need to configure the Identity settings of the DCOM servers.

The user in charge of configuring a Narrowcast cluster still needs to be a Windows NT Administrator.

DCOM configuration must be correct for the system to run successfully. An error in the DCOM configuration may render the system unusable.

To configure the DCOM servers, perform the following steps:

- 1 Click Start and select Run.
- 2 Enter `dcomcnfg` and click OK.
- 3 Select the DCOM servers to configure.
 -  You need to configure the MCDMProxy and MCProxy servers.
- 4 Click the Identity tab.
- 5 Select This user: and enter the required data in the User, Password, and Confirm Password text boxes.
- 6 Click OK.
- 7 Restart the system.

-  If you want to revert to the regular Administrative mode, set the DCOM identity for the servers to the user that is launching the Narrowcast Server.

Symptom

When a protected Excel 2003 file is imported and used as a template for an email report delivery in a service, the Excel file is not editable. But after the report is generated and delivered to the user, the cells that contain the report data can be edited.

Cause: Narrowcast Server changes the properties of the Excel file so that the protected cells that contain the report data become editable after it is imported into a service.

Action: Ensure that the Excel 2003 file has worksheet/workbook-level protection enabled, before it is imported into Narrowcast Server. After the Excel file is imported, you need to create a `LockExcelCells` registry key and set the value to true.

The registry key should be created at the following location: `\HKEY_LOCAL_MACHINE\SOFTWARE\MicroStrategy\MicroStrategy Broadcast Server\7.0\ExecutionEngine.`

Symptom

While executing a service that uses Information Objects, the Narrowcast Server ISM cannot connect to the Intelligence Server machine. Due to the connectivity issue, the execution fails and an error message is displayed.

Cause: If your system is clustered, and if the Intelligence Server machine and the Narrowcast Server machine that contains the ISM are in different domains, you may encounter connectivity issues.

Action: To establish a connection between the Narrowcast Server ISM and the Intelligence Server, add the machine name and IP address of the Intelligence Server in the host file

(`C:\WINDOWS\system32\drivers\etc\hosts`) of the Narrowcast Server ISM machine. The machine name specified in the host file should match with the Intelligence Server name in the Narrowcast Server ISM.


Symptom

Narrowcast Server is not responding while executing a service and the Maximum Concurrent Service execution error is listed in the error log.

Cause: If the number of segments in the segment execution queue reaches the specified At least value of the segment queue size, the segment queue does not receive new segments from the service queue. Due to this, the service queue exceeds the maximum number of concurrent executing services limit and the Maximum Concurrent Service execution error is listed.

Action: You can reset the At least value of the segment queue size as follows:

- 1 From the System menu, select the system, then select Set Governing Settings. The System Settings dialog box opens.
- 2 On the Execution tab, in the Segmentation section, increase the value in the At least field.

Increasing the At least value ensures that the available segment executors on the operational Execution Engines are fully utilized and the queue is not empty.  As more segments are included in the segment queue, the number of services in the service queue is reduced.

Symptom

When a service execution fails in Narrowcast Server, an error message `Unable to instantiate the SBM object` is listed in the DELogs and System Message Viewer.

Cause: This message can appear when some of the MicroStrategy DLL (Dynamic Link Library) files are not registered or are invalid.

Action: From Windows Add or Remove Programs, reinstall the MicroStrategy components. For steps to reinstall the MicroStrategy components, see Installation Procedures of the Narrowcast Server Installation and Configuration Guide.

Symptom

A delivery failure occurs during service execution on Narrowcast Server.

Cause: One possible cause of a failed service can be an authentication failure. The subscribed Narrowcast user is configured to inherit the authentication of a MicroStrategy user that is deleted in MicroStrategy Developer.

Action: To delete the authentication definition of Narrowcast user, edit the following settings from the Subscription Book in Narrowcast Administrator:

- 1 From the Tools menu, select Open Subscription Book. The Subscription Book Editor opens.
- 2 Select the user to edit from the list of Users and addresses.
- 3 From the Edit menu, select Edit. The User Properties Editor opens.
- 4 Click the Authentication and Security tab. The user's Authentication and Security information is displayed in the tables.
- 5 Select the information source in the Authentication table whose authentication definition needs to be removed.
- 6 Click Clear.
- 7 Click OK to save the changes.

For more information about editing users, see User Properties Editor of the Narrowcast Administrator Application Designer Guide.

Symptom

After upgrading MicroStrategy metadata, some services using dynamic subscriptions fail during segmentation and the error message `Segmentation failed or Unexpected error while receiving recipient array` is displayed in the DELog file. This occurs only for services that use information sources which existed prior to the upgrade. It does not affect those services that use a newly created information source in Narrowcast Server 9.2.0 that is pointing to the same project on the Intelligence Server.

Cause: During MicroStrategy metadata upgrade, the system object ID unification process unifies the system object IDs to a fixed value. Starting with version 8.0.2, MicroStrategy creates uniform system object IDs to support various MicroStrategy features. Information objects created prior to 8.0.2 may continue to use old IDs, causing this error.

Action: Run the Metadata IDs Updater Tool to find and fix any inconsistencies in Narrowcast objects caused by the metadata system objects unification process. You can run this tool in one of the following modes:

- **Assess:** To check whether there are any inconsistencies in your Narrowcast objects in the Narrowcast system.
- **Fix:** To fix the definition of your Narrowcast objects in the Narrowcast system. The changes are applied to the Narrowcast object repository.

Prerequisites

- It is important to back up the Narrowcast object repository before using the tool in Fix mode.
- The Updater Tool needs to be executed on a computer that has the Narrowcast Server system registered.
- The Updater Tool must have access to the metadata upgrade log file (`MDUPD-m-dd.log`). By default, this log file resides on the computer that performs the upgrade, in `Program Files\Common Files\MicroStrategy\Log`. The log is used to determine the objects that have changed in the metadata and those that need to be changed in the Narrowcast Server repository.

To install the Updater Tool

Run the `register.bat` file to register all the DLLs that are necessary to run the tool. The file is located in `/Delivery Engine/Utilities/Metadata IDs Updater Tool`.

- For Windows Vista, Windows 2008, and Windows 2007, run the `register.bat` file in one of the following ways:
- Right-click Command Prompt and select Run as administrator. Run the `register.bat` file.
- Log in to Windows as the Local Administrator and double-click the `register.bat` file.
- For all other Windows operating systems, double-click the `register.bat` file.

To execute the Updater Tool

Run the `MDIDsAssessTool.exe` file.

Select the Narrowcast system from the System Selection drop-down list. If the system connection is successful, a `Connected to: MySystem` message appears in the Status section.

Type the location of the log file in the MD Upgrade Log File field or browse to locate the log file. The default location of the log file is `Common Files\MicroStrategy\Log`.

Choose either Assess or Fix mode.

Click Run.

The result is displayed in the Status section once the Assess or Fix is completed.

Subscription administration

Symptom

You cannot access, write to, or manipulate users, addresses, subscriptions, or preferences in the Subscription Book Repository.

Cause: You have incorrect or insufficient permissions to the Subscription Book Repository.

Action: Check to see if the login used to access the database was entered correctly and if it has the appropriate permissions for that database.

Symptom

The Subscription Book Repository is not responding or is returning incorrect information or no information at all when you try to manipulate users, addresses, subscriptions, or preferences.

Cause: A nonsupported or noncertified ODBC driver is used for the repository.

Action: Determine the answers to the following questions:

- 1 Where is the repository stored (same machine as Narrowcast Server or Object Repository)?
- 2 Is the data source name (DSN) for that database configured properly (check to ensure validity)?
- 3 What database platform is used for the repository?
- 4 What version of the ODBC driver is used for that database platform?
- 5 Is your platform and/or driver certified or supported? (Check the readme for supported and certified platforms and drivers.)
- 6 Turn on the `Level_Info_SBM` and `Level_Trace_SBM` keys in the registry and obtain those logs plus the debug viewer log.

Symptom

The message `You do not have Write access to this Prompt object` appears when you try to define a security object or a preference object.

Cause: The authentication object for the user (or the default authentication object for the information source, if no authentication object is defined for

the user) does not have Write permissions for the security object and/or question object prompts.

Action: Allow users to have Write access to prompts.

- 1 In the MicroStrategy Developer interface, right-click the prompt.
- 2 Choose Properties.
- 3 Select the Security tab.
- 4 Add a user or group and set permissions to Modify (or create a custom access control entry that grants Write permission).

Since all users created in the MicroStrategy Developer interface could potentially be used to define authentication objects in Narrowcast Server, it might be useful to set all prompts with Write access for the Everyone group.

In addition, it might be desirable to prevent users in MicroStrategy Developer from having access to the prompts used for security objects and question objects in Narrowcast Server. To prevent unauthorized users from editing prompt objects through MicroStrategy Developer, keep prompt objects in a separate folder, and set the security on the parent folder to prohibit unauthorized users to access the children of the folder. To do this, set the permissions to Default in the Children list for the user or group.

Symptom

A prompt for a personalized service fails to be rendered.

Cause: The prompt is a level prompt.

Action: Level prompts are not supported in the Subscription Portal. Redefine your prompt in the MicroStrategy Developer interface.

Symptom

The first prompt for a personalized service is rendered, but the second prompt is skipped.

Cause: The second prompt is an embedded prompt (a prompt based on the answer to the first prompt).

Action: Embedded prompts are not supported in the Subscription Portal. Redefine your prompts in the MicroStrategy Developer interface and your question objects in Narrowcast Server.

Symptom

`Showerrors.asp` is showing a large number of `communication link failure` errors, or similar error messages indicating a lost database connection.

Cause: SequeLink has lost contact with one or more databases.

Action: Stop and start the SequeLink Server service from the services Control Panel.

Symptom

Many display issues (question marks, blanks...) are encountered while using DB2 repositories.

Cause: The ODBC DSN may not be correctly configured.

Action: Follow the instructions in DB2 requirements in the Narrowcast Server Installation and Configuration Guide to correctly set up the DB2 driver.

Symptom

SequeLink seems to raise frequent Access Violations.

Cause: The ODBC driver version used is not the certified one.

Action: Verify that your driver version is certified. Check Database requirements of the Narrowcast Server Installation and Configuration Guide.

Symptom

Some of the service schedules are not shown under the Subscription Portal.

Cause: The Subscription Portal does not display any schedules in which the associated subscription set is reused as part of the definition of another service.

Action: Make sure each schedule in your service definition is associated with a unique subscription set.

Symptom

A link to an Excel attachment for a report on the Subscription Portal fails to open an Excel document.

Cause: The wrong version of Excel is on the client machine.

Action: On the client machine, install the correct version: Excel 97 or Excel 2000 SR-1.

Symptom

When using the Subscription Book synchronization tool, some valid CSV files are rejected as corrupted files.

Cause: The Subscription Book cannot process the CSV files in which the number of fields in each row does not match the number of fields in the header row.

Action: When generating the CSV files, ensure that every row has the same number of fields. You can do this by using Microsoft Excel. Add a dummy column to the end of each row and populate that column with the values in each row.

Symptom

An error message `Element not found` appears when you try to edit a subscription information object.

Cause: If an information source definition is modified so that some information is no longer retrieved from the Subscription Book, editing a subscription information object that relies on this information produces this error message.

Action:

- 1 Modify the information source definition temporarily to allow retrieving information from the Subscription Book.
- 2 Modify the affected subscription information object definition so that it no longer retrieves information from the Subscription Book.
- 3 Revert the information source definition back to its previous state, removing the ability to retrieve information from the Subscription Book.

E-mail (SMTP)

Modifying registry values incorrectly may cause serious, system-wide problems that may require the re-installation of Microsoft Windows. Any edit of the registry is done at the user's own risk. Since these are user-initiated changes, they are not covered by any MicroStrategy warranty. If using Microsoft Windows, the user should backup the registry and/or update an Emergency Repair Disk (ERD) prior to alterations.

Symptom

E-mails are neither saved to file nor delivered to the recipient's inbox.

Cause 1: The SMTP information transmission module was misconfigured.

Action: Verify that the from, reply-to and delivery notification addresses are well constructed, that is, something similar to `aaa@aaa.aaa`.

Cause 2: SMTP is using the wrong character set.

Action: Create a new locale. Click E-mail (SMTP) and choose an appropriate character set for the language you want to broadcast. For example, use Kanji for Japanese and Western for French and other European countries. For each document used in the service, edit it, select File, then Properties, and change its locale to the one you just created.

Cause 3: In the SMTP information transmission module configuration, Sender Display Name or Reply To Display Name contain double-byte characters.

Action: Create a new plain text document. Select File, then Properties. Change the document locale to the locale for the language you are trying to broadcast. Delete any content from the document (leave it empty). Save. Include this document in the publication in the Control document section.

Cause 4: The recipient name contains double-byte characters.

Action: Japanese or Korean characters in the recipient name are not supported for this release. Set the Transmission Properties for addresses to be in neither the To nor the Cc list.

Symptom

During MicroStrategy Narrowcast Server configuration, the following message appears:

```
'The operating system(s) on machine(s): XXX are not properly configured to support e-mail transmission...'
```

Cause: The Domain Name System (DNS) addresses for the machines on which MicroStrategy Narrowcast Server is installed are not in the required Windows registry entries.

Action:

Edit the registry string value with the appropriate DNS addresses. You can enter either the IP address of the machine or the complete domain name.

For the networks using Dynamic Host Configuration Protocol (DHCP):

- 1 Browse to the following location: `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters`
- 2 Edit the `DhcpDomain` and `DhcpNameServer` registry string values.

For the networks using Static Internet Protocol addresses:

1. Browse to the following location:

`HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters`

- 3 Edit the `Domain` and `NameServer` registry string values.

Symptom

E-mails are saved to file but not delivered to the recipient's inbox.

Cause: The physical address has an invalid domain.

Action: In the Subscription Book, double-click the address. Verify that the domain name exists and is well constructed (`address@domain.com`).

Symptom

A delivery notification is not sent to the address specified.

Cause: The recipient's e-mail server does not support notifications.

Action: Check that the Delivery Notification e-mail address is valid. If a valid address does not work, it is possible that the recipient's e-mail server does not recognize/accept delivery notifications.

Symptom

Messages sent to devices that use smart host are not delivered to the smart host e-mail server.

Cause: The device is not configured with the correct smart host address or port number.

Action: Open the Device Editor to verify the definition of the device. Verify that the Delivery Options tab contains correct information about the smart host. Verify that the e-mail server working as smart host is listening for SMTP messages in the port number that has been configured for the device.

Symptom

Messages sent to devices that use smart host are delivered to the smart host e-mail server but not to the final recipients.

Cause: The smart host e-mail server is not running or it is not running in relay mode.

Action: Check with the e-mail server administrator if the smart host server is running and ready to send messages. Check that the server is configured to work as a relay server.

Symptom

Messages do not reach the recipients, even when the e-mail addresses are valid.

Cause: The SMTP transmitter logs error messages indicating that the transmission to all the domains failed. The DNS server is not accessible to the SMTP transmitter.

Action: Open the registry and open the following key:

```
HKEY_LOCAL_MACHINE\SYSTEM\  
CurrentControlSet\Services\Tcpip\Parameters
```

Check the parameter NameServer (if the machine has a static IP address) or DhcpNameServer (if the machine uses a dynamic IP address). Make sure that these parameters contain valid DNS addresses. Check with the network administrator for proper values for this parameter.

Symptom

E-mails cannot be sent.

Cause: The network is configured with an internal-only DNS. Narrowcast Server and all e-mail applications depend on DNS servers to send e-mail. There are two types of DNS:

- Internal, which do not contain the information necessary for e-mail applications (MX records)
- External, which allow e-mail applications to function

When the network is configured with an internal-only DNS, no e-mail applications can send e-mail messages. This might have been done as a temporary measure to move a machine from one domain to another.

Action: Remove the internal DNS and reconfigure the network with an external DNS.

Symptom

HTML is not rendered properly for some recipients.

Cause: The e-mail client does not support a certain type of HTML.

Action: Use the MSTR7toHTML.xsl stylesheet specifically for AOL, Netscape, and Lotus Notes e-mail clients. The stylesheet is located in the Delivery Engine folder.s

Symptom

Narrowcast reports delivered in HTML format are not correctly displayed in Outlook 2007.

Cause: Outlook 2007 uses Microsoft Word 2007, which does not support all HTML attributes.

Action: Use the MSTR7ToHTMLDefaultFormatting.xsl and MSTR7ToHTMLDefaultFormatting2.xsl stylesheets. These XSLs are located in the Delivery Engine folder.

Symptom

Multi-layout Report Services documents are not delivered as multiple sheets in a single Microsoft Excel file.

Cause: The layout settings for the multi-layout Report Services document are not enabled in Narrowcast Administrator.

Action: Enable Report Services documents to display each layout on a separate Microsoft Excel sheet. Steps on how to complete this configuration are provided below.

- 1 In the Developer Document Selector dialog box, select the document to edit from the list of MicroStrategy Developer documents.
- 2 From the Choose document format drop-down list, select Excel.
- 3 Select the Excel 2003, Excel XP and above on recipient's machine option.
- 4 Click Advanced Properties. The Advanced Properties dialog box opens.
- 5 In the General tab, select the All Layouts option to receive all the layouts of a multi-layout Report Services document.
- 6 Select the Expand all pages option to display all the pages of a group by field in the document.
- 7 Click OK to save the changes.

For more information about the Developer Document Selector dialog box, see the Developer Document Selector dialog box chapter of the Narrowcast Administrator Application Designer Guide.

Symptom

Documents exported to Microsoft Excel using Intelligence Server cannot be opened or saved using Outlook Web Access.

Cause: The document is generated as an html file, and Outlook Web Access cannot open html files.

Action: Enable Report Services documents to be generated as mht files, which are compatible with Outlook Web Access. Steps on how to complete this configuration are provided below.

- 1 In the Developer Document Selector dialog box, select the document to edit from the list of MicroStrategy Developer documents.
- 2 From the Choose document format drop-down list, select Excel.
- 3 Select the Excel 2003, Excel XP and above on recipient's machine option.
- 4 Click OK to save the changes.

Printing

Symptom

No document is printed.

Cause: The temp file location is full.

Action: Clean up the temp file location, or select another location using the device editor.

Symptom

You cannot print to a particular printer.

Cause: The printer cannot be registered dynamically at execution.

Action: Register the printer manually using the Microsoft Add Printer Wizard.

Symptom

You cannot print PDF documents.

Cause: Neither Adobe Acrobat nor Adobe Acrobat Reader is installed.

Action: Install either Adobe Acrobat or Adobe Acrobat Reader on all execution engine machines.

Information Source Module

Symptom

While configuring the Information Source Module, the following error message is displayed:

```
System user needs to be a member of at least one of the following MicroStrategy groups: System Monitors, Narrowcast System Administrators, System Administrators.
```

Cause: The MicroStrategy user is not assigned to the required group.

Action: Assign the MicroStrategy user to the System Monitors, Narrowcast System Administrators, or System Administrators group. For detailed steps on how to assign users to a group, see the MicroStrategy Developer Help.

Symptom

While configuring the Information Source Module, the following error message is displayed:

```
System user needs to have the privilege Schedule Request in order to use this Information Source.
```

Cause: The Schedule Request privilege is removed from the System Monitors, Narrowcast System Administrators, or System Administrators group.

Action: Grant Schedule Request privilege to the MicroStrategy user. For detailed steps on how to grant privileges, see the MicroStrategy Developer Help.

HTML Document Editor

Modifying registry values incorrectly can cause serious, system-wide problems that might require the re-installation of Microsoft Windows. Any edit of the registry is done at your own risk. Since these are user-initiated changes, they are not covered by any MicroStrategy warranty. If using Microsoft Windows, you should back up the registry and/or update an Emergency Repair Disk (ERD) prior to alterations.

Symptom

Some characters, such as æ,å,and ö, are not displayed correctly in HTML documents when an HTML document email attachment is opened in Internet Explorer.

Cause: A Microsoft update has changed the character set that is automatically applied to HTML documents that are edited in Narrowcast Server Administrator on certain machines.

Action: You need to create a new registry string value for the registry key:
`\HKEY_LOCAL_MACHINE\SOFTWARE\MicroStrategy\
MicroStrategy Broadcast Server\7.0\
DocumentEditors.`

The new string value is `keepcharset`. The value must be set to `true` to retain the original character set of the HTML document. Setting the value to `false` allows the HTML editor to change the character set to Unicode, which may cause garbled characters.

Portal Administrator

Symptom

On Windows 2008 Enterprise R2 (64 bit) operating system, a local administrator (belonging to administrator group) is unable to access Portal Administrator by providing local admin credentials.

Cause: Microsoft changed the permissions structure for Windows 2008 and therefore privileges are not granted to the local administrator.

Action: To grant the privileges:

- 1 **Browse to** `\Program Files\MicroStrategy\Narrowcast Server\Subscription Portal\asp\admin` folder. The following message is displayed.
- 2 Click Continue. The required user is automatically added.

Symptom

While setting up MicroStrategy Subscription Portal through the Portal Administrator, the error `An error has occurred on this page is displayed` after specifying the database connection name. The error details are listed in the Portal log at the following location: `\Program Files\MicroStrategy\Narrowcast Server\Subscription Portal\asp\Logs`.

Cause: The error can appear if the Subscription Portal site was not created from MicroStrategy Narrowcast Administrator and hence the `MSTROBJPROPS` table is not created.

Action: You must create the Subscription Portal site using MicroStrategy Narrowcast Administrator.

- 1 From the System menu, point to the system that you want to edit, and select Edit System Configuration. The System Configuration Wizard opens.
- 2 Click Clustering at the top of the window. The Overview page opens.
- 3 Click Next. The Select Configuration Options page opens.
- 4 Select the Select and configure a single machine for Narrowcast Server option. You can click ... (the Browse button) to locate another machine.
- 5 Select the Create a Subscription Portal site check box to create the Subscription Portal site from Narrowcast Administrator.
- 6 Click Next to go to the next configuration step.

For more information about the System configuration process, see System configuration process in the Narrowcast Administrator Installation and Configuration Guide.

Licensing errors

Error message

"The execution engine on computer MachineName will not be added to the MicroStrategy Narrowcast Server cluster. Adding this computer to the cluster would make the cluster use x CPUs but the license only allows the cluster to use y CPUs. To correct this situation you can remove computers from the cluster or you can decrease the number of CPUs used by one or several computers. To enable this cluster to use more CPUs please contact MicroStrategy to upgrade your license."

Action: Remove computers from the cluster or decrease the number of CPUs used by one or more computers. If you have upgraded your license, be sure to update the licensing information on the distribution manager machines if you have a clustered system. For more information about clustering, see [Clustering](#).

Error message

"The computers which are configured to be part of the MicroStrategy Narrowcast Server cluster are using x CPUs but the license only allows the cluster to use y CPUs. Some of the execution engines have been set to idle in order to prevent the system from exceeding the maximum number of CPUs allowed by the license. To correct this situation you can remove computers from the cluster or you can decrease the number of CPUs used by one or several computers. To enable this cluster to use more CPUs please contact MicroStrategy to upgrade your license."

Action: Remove computers from the cluster or decrease the number of CPUs used by one or more computers. If you have upgraded your license, be sure to update the licensing information on the distribution manager machines if you have a clustered system. For more information about clustering, see [Clustering](#).

Error messages

Error messages for the following types of service transmissions are identified, along with suggested actions:

- [Printing](#)
- [Saving to file](#)

For information on additional error messages, see MicroStrategy Tech Note TN6200-72X-0525.

Printing

Error message

101: "Timeout occurred while loading HTML document."

Action: Increase the timeout setting in the Device Editor.

Error message

201: "Error occurred while setting print driver parameters."

Action 1: Ensure that the printer is available.

Action 2: Ensure that the user has access to the printer.

Error message

202: "Error opening printer handle to %PRINTER%."

Action 1: Ensure that the printer is available.

Action 2: Ensure that the user has access to the printer.

Error message

203: "Unable to get printer information."

Action 1: Ensure that the printer is available.

Action 2: Ensure that the user has access to the printer.

Error message

204: "Unable to get required buffer size to retrieve printer info."

Action 1: Ensure that the printer is available.

Action 2: Ensure that the user has access to the printer.

Error message

205: "Unable to get print spooler job information. The print job may have been printed or deleted from spooler."

Action: Go to the printer to locate your print job. Reschedule the print request if necessary.

Error message

206: "Unable to get required buffer size to retrieve print spooler job info."

Action 1: Ensure that the print spooler is available.

Action 2: Ensure that the user has access to the print spooler.

Error message

207: "Unable to retrieve list of registered printers."

Action: Review the log file to identify the specific error.

Error message

208: "Failed to add printer %PRINTER%."

Action: Register the printer manually.

Error message

209: "Failed to remove printer %PRINTER%."

Action: Unregister the printer manually.

Error message

210: "Failed to open a handle to remove printer %PRINTER%."

Action: Unregister the printer manually.

Error message

211: "Fail to set destination printer."

Action: Ensure that the account used by Narrowcast Server services has access to the Microsoft Windows registry.

Error message

212: "Fail to get default printer information."

Action 1: Ensure that the printer is available.

Action 2: Ensure that the user has access to the printer.

Error message

402: "Unable to print PDF: neither Adobe Acrobat nor Adobe Acrobat Reader is installed."

Action: Install either Adobe Acrobat or Adobe Acrobat Reader.

Error message

404: "Acrobat encountered an error while loading PDF file."

Action: Review the log file to identify the specific error.

Error message

405: "Acrobat encountered an error while printing PDF file."

Action: Review the log file to identify the specific error.

Error message

406: "Cannot launch Acrobat Reader process. Check application path: %ACRORD32%"

Action 1: Verify that Acrobat Reader is installed in the specified path.

Action 2: Ensure that the account used by Narrowcast Server services has permission to launch the Acrobat Reader process.

Error message

407: "Unable to get printer port and driver information for%PRINTER%."

Action: Unregister and reregister the printer.

Error message

408: "DDE initialization failure."

Action: Review the log file to identify the specific error.

Error message

409: "Unable to connect to DDE service."

Action: Review the log file to identify the specific error.

Error message

410: "Error executing DDE command."

Action: Review the log file to identify the specific error.

Saving to file

Error message

87006: "Invalid Path."

Cause 1: The path became invalid after replacing the macros.

Action: Verify that the device and address information are correct.

Cause 2: The folder does not exist, and the Create required folders option is not selected.

Action: Select the Create require folders option.

Cause 3: The folder does not exist, the Create required folders option is enabled, but the user does not have the privileges to create a folder.

Action: Grant the appropriate file system privileges to the user.

Error message

87007: "File already exists."

Cause: A file with the same name already exists in the target directory and the overwrite files option is not enabled.

Action: Enable the overwrite files option or remove the existing file.

Error message

87008: "Failed to write file."

Cause 1: The file was in use by another application.

Action: Close all applications using the target file.

Cause 2: The user does not have write privileges in the target folder.

Action: Grant the appropriate file system privileges to the user.