



ETM[®] (Enterprise Telephony Management) System

v7.2.0

System Administration and Maintenance Guide



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and support contracts, see our web site at**

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Preface

About the ETM[®] System Documentation

The complete documentation the ETM[®] System consists of a set of user guides in PDF format and in-depth, context-sensitive online Help, Knowledge Base articles, and supplementary documentation available from the SecureLogix Website . A set of electronic user guides PDFs are available from the **SecureLogix** directory on the **Start** menu, the **Documentation** folder in the ETM System installation directory, and the root of the ETM Software installation DVD.

ETM[®] System User Guides

The following set of guides is provided for the ETM[®] System:

ETM[®] System User Guide—Explains ETM System Concepts and provides task-oriented instructions for using the ETM System, including a Quick Start.

ETM[®] System Installation Guides—Provide task-oriented installation and configuration instructions and explanations for technicians performing system setup. This set of guides includes a primary system installation guide and separate guides for the Unified Trunk Application (UTA) installation and for database preparation.

Voice Firewall User Guide—Provides an overview of the Voice Firewall, examples of and instructions for creating and managing Firewall Policies, and instructions for viewing results of Policy monitoring and enforcement.

Voice IPS User Guide—Provides an overview of the Voice IPS (Intrusion Prevention System), examples of and instructions for creating and managing IPS Policies, and instructions for viewing results of Policy monitoring and enforcement.

ETM[®] Call Recorder User Guide—Provides an overview of the Call Recorder system, instructions for installing, configuring and using the system, examples of and instructions for creating and managing Call Recorder Policies, and instructions for accessing and managing the recordings.

ETM[®] System Caller ID Authentication (CIDA) User Guide—Describes installation and use of the ETM System CIDA feature.

Usage Manager User Guide—Provides task-oriented instructions and tutorials for producing reports of telecommunications accounting and Policy

enforcement. Includes an appendix describing each of the predefined Reports.

ETM[®] System Administration and Maintenance Guide—Provides task-oriented instructions for using the ETM System to monitor telco status and manage the ETM Server and ETM System Appliances.

ETM[®] System Technical Reference—Provides technical information and explanations for system administrators.

ETM[®] Database Schema—Outlines the schema of the SecureLogix database, to facilitate use of third-party reporting tools.

ETM[®] Safety and Regulatory Compliance Information—Provides statements regarding safety warnings and cautions; includes statements required for compliance with applicable regulatory and certification authorities. (Provided as a package insert with new Appliance hardware.)

Additional Documentation on the Web

SecureLogix Corporation provides corrections and additional documentation for its products via the SecureLogix Knowledge Base online at the following web address:

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Tell Us What You Think

We welcome your suggestions or comments on the user guides and the online Help provided with your ETM[®] System. Please send your documentation feedback to the following email address:

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Conventions Used in This Guide

The following conventions are used in this guide:

- Functions that require two or more mouse clicks to open a dialog box or make a selection are written using the pipe symbol. For example:
Click **View | Implied Rules**.
- Names of keys on the keyboard are uppercase. For example:
Highlight the field and press DELETE.
- If two or more keys must be pressed at the same time, the PLUS SIGN (+) is used as follows:
Press CTRL+ALT+DELETE.
- Bold text indicates GUI labels, menu items and options, literal file names, and paths. For example:
Click **Edit**, and then click **Preferences**.
C:\Program Files\SecureLogix\ETM\TWLicense.txt
- Keyboard input is indicated by monospaced font. For example:
In the **Name** box, type: `My report tutorial`

- Italics indicate web addresses and names of publications.
- ETM System components and features are capitalized.

User Administration

Managing Users

User accounts are specific to the Management Server on which they are defined. This section explains how to:

- Create user profiles for a Management Server and the Appliances it controls.
- Change a user's login method
- Change a user's password or permissions.
- Define a security policy for user accounts.
- Monitor user logins to a Management Server and the Appliances it controls.

Note that you must have **Manage Users** permission to perform any of the procedures in this section other than changing your own password.

User Profiles

A user profile:

- Specifies the login method, login username/password or CAC UID that authorizes a user to log in to a Management Server.
- Define the permissions granted to the user.

The default **admin** account provides all permissions, allowing complete control of all aspects of the system. You can modify or delete the default **admin** account, but you must have at least one user account with **Manage Users** permission.

When users log in, they see only the client tools for which they have permission. For client tools with subpermissions, application features for which the user does not have permission are grayed out or hidden when that user is logged in.

User Permissions

The following user permissions govern access to the ETM System:

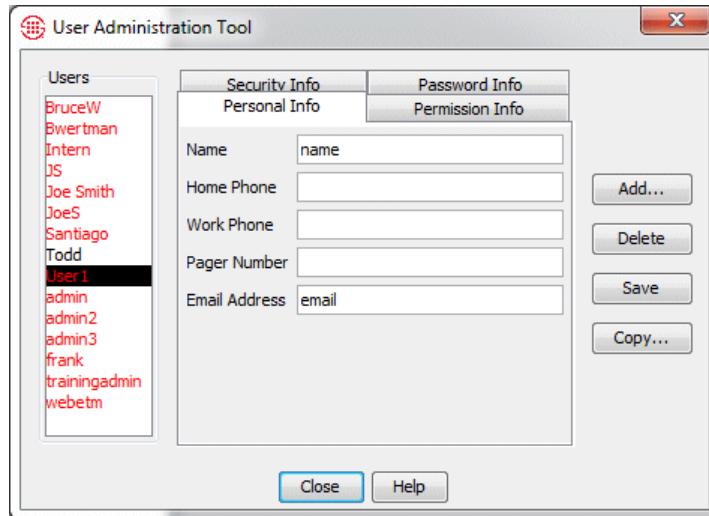
- **Manage Users**—Create/edit user profiles. Usernames of users with permission to edit other users appear in red in the **Users** box. Users who do not have permission to edit other users do not see the list of other users; only their own information is visible to them, but is grayed out. Note that users do not need **Manage Users** permission to change their own passwords; this is governed by the user password security policy. See "User Password Security" on page 23 for details.
- **Manage Server**—Access the **Server Administration Tool**, **Diagnostic Log**, and **ETM Server File Management Tool**.
- **View Access Codes**—View Access Codes in Reports and onscreen. For users who do not have this permission, the Access Code appears as a series of asterisks in Reports, and the **SMDR Access Code** column is unavailable in Logs. Note that this permission is automatically selected if **Manage Access Code Sets** is selected.
- **Access Directory Manager**—Open the Directory Manager and view its contents.
 - **Manage Directory Entities**—Add, edit, delete, and import Directory content.
 - **Manage Access Code Sets**—View, edit, and distribute Access Code Sets.
- **Access Usage Manager**—Open the Usage Manager and view its contents; run and schedule reports; define new templates, elements, and relative date ranges.
 - **Administer Scheduled Reports**—Manage all other users' scheduled reports. Users without this permission who have **Access Usage Manager** permission can create and manage their own scheduled reports, but cannot see or control those of other users.
 - **Full Control**—Access and manage all features of the Usage Manager.
 - **Schedule Reports from WebETM**—Schedule automated reports from the ETM Web Portal. Not applicable to this release.
- **Access Performance Manager**—Open the Performance Manager.
 - **Log in to Card/Span via Telnet/Serial**—Connect to Cards and Spans via Telnet/SSH or the **Console** port using this username and password. Only users with this permission are able to directly access the Cards and Spans, including via the **ASCII Management Interface** in the GUI. When you define or modify and save a user profile with **Log in to Card/Span via**

- Telnet/Serial** permission, it is also downloaded to each of the Cards and Spans owned by that Management Server.
- **Access Policy Features**—Define and manage Span Groups and other items used in ETM System Policies (Contacts, Times, Tracks, Durations, Service Types, Billing Plans, Intervals).
 - **View & Reinstall Firewall Policies**—See the **Firewall Policies** subtree in the Performance Manager, view any Firewall Policy, and reinstall Firewall Policies that are already installed (for example, when Listings used in the Policy change).
Full Control—Create, edit, delete, uninstall, or install any Firewall Policy.
 - **View & Reinstall IPS Policies**—See the **IPS Policies** subtree in the Performance Manager, view any IPS Policy, and reinstall IPS Policies that are already installed (for example, when Listings used in the Policy change).
Full Control—Create, edit, delete, uninstall, or install any IPS Policy.
 - **View & Reinstall Recording Policies**—See the **Recording Policies** subtree in the Performance Manager; view any Recording Policy, and reinstall Recording Policies that are already installed (for example, when Listings used in the Policy change).
Full Control—Create, edit, delete, uninstall, or install any Recording Policy.
 - **Manage Telecommunications Configuration**—View and change configuration of all items in the **Platform Configuration** and **Telco Configuration** subtrees (Appliances, Cards, Spans, NFAS Groups, SS7 Groups, Switches); authorize Card IP addresses; manage Codecs and Masking/Redirection Plans.
 - **Terminate Calls**—Terminate calls via the **Call Monitor** or **ASCII Management Interface**.

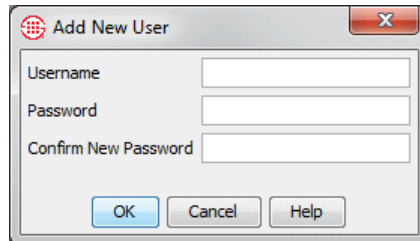
Creating a User Profile

To create a user profile

1. On the ETM System Console main menu, click **Servers | User Management**. The **User Administration Tool** appears.



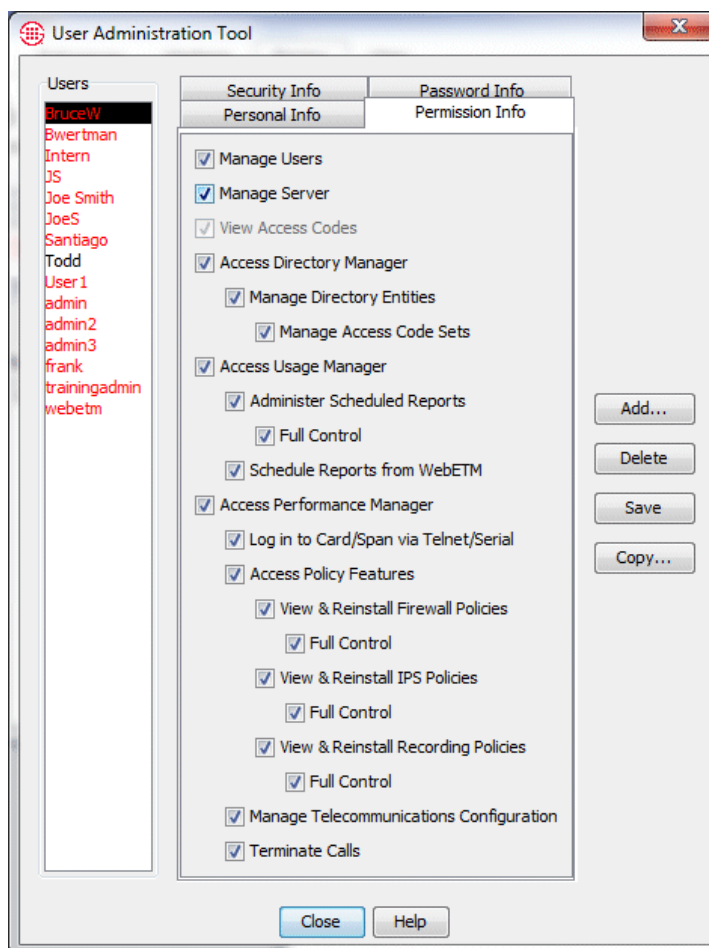
2. Click **Add**. The **Add New User** dialog box appears. All users must have a default local username/password account. After the user account is created, you can then specify if a user account is to use LDAP or CAC authentication.



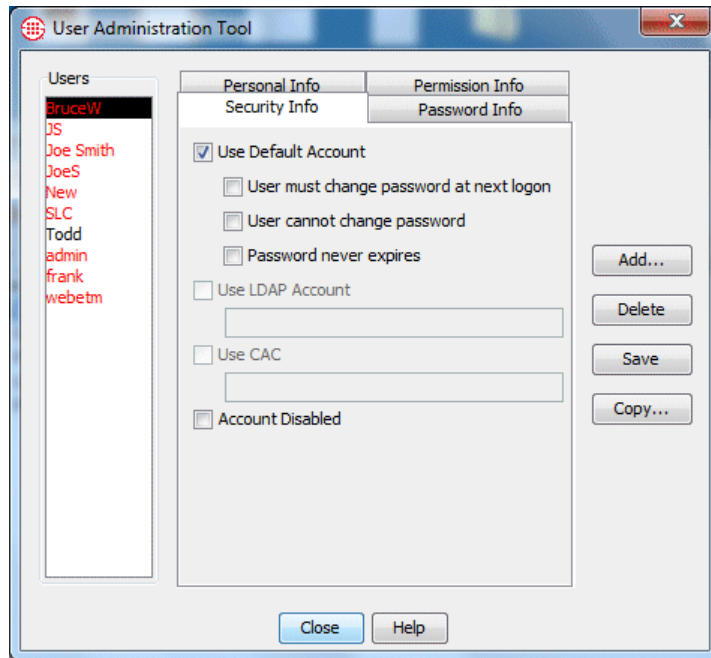
3. In the **Username** box, type the string of characters the user will type as the login username. A username can be a maximum of 25 characters, and can include any combination of letters, numbers, spaces, and the following special characters:
! @ . & () + = '
4. In the **Password** box, type the string of characters the user will type as the login password. A password can consist of any combination of letters, digits, spaces, and special characters except the | ("pipe") symbol. It must be a minimum of eight characters and include at least one change of case and one digit.
5. In the **Confirm New Password** box, type the same password again.

See "User Password Security" on page 23 for instructions regarding the user password security policy.

6. Click **OK**. The new username appears in the list of users in the **User Administration Tool** and is selected.
7. On the **Personal Info** tab, type identifying information for this user. In particular, the email address you type here is automatically supplied in some Usage Manager Report activities.
8. Click the **Permission Info** tab, and then select the permissions for this user. Refer to "User Permissions" on page 16 for a description of each of the available permissions.



9. Click the **Security Info** tab.
 - a. Select any of the following account options that you want to apply to this account:



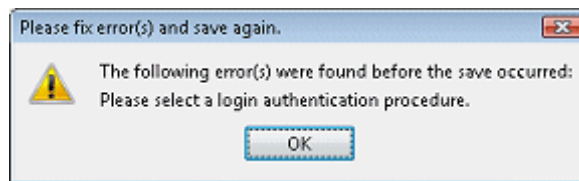
- **Use Default Account**—Sets this account for local username/password login. Selected by default.
 - **User must change password at next logon**—The next time this user attempts to log into the system, a **Change Password** dialog box is presented in which the user must change the password before being allowed to log in.
 - **User cannot change password**—This user cannot change the password. By default, users can change their own passwords, regardless of their other assigned permissions.
 - **Password never expires**—This user account password never expires, regardless of the setting in the global user password security policy defined for this Management Server in the **Server Administration Tool**.
- **Use LDAP Account**—Sets this user account for LDAP login. Select the checkbox and then type the LDAP login username. The LDAP username is not case sensitive. When an account is set for LDAP login, the default local username and password for the ETM System account cannot be used to login. Note that the

See “LDAP Authentication” on page 29 for instructions for configuring the ETM Server for LDAP authentication logins.

See "CAC Authentication" on page 32 for instructions for configuring the ETM Server for CAC authentication logins.

LDAP username can match the ETM User Profile username for the currently selected profile; however diligence should be taken to ensure that the LDAP username and local default username are different to avoid ambiguity in the login process. It must be unique from all other usernames. To enable LDAP only, **CAC** and **Default** must be cleared.

- **Use CAC**— Sets this user account for CAC (Common Access Card) login. An ETM System that uses CAC authentication will not allow LDAP authentication and vice versa. Select the checkbox and then type the user's UID (Unique Identification) string. To enable CAC only, LDAP and Default need to be cleared.
 - **Account disabled**—Prevents login to the system from this account. Note that this setting prevents future logins from this account, but does not terminate an active login. See "Monitoring User Logins" on page 25 for instructions for viewing current logins and disconnecting current logins.
- b. Click **Save** to save the Security Information for the user account. At least one account type must be selected. If no checkboxes are selected when the **Save** button is clicked, the following message box is displayed:



Changing Security Settings for a User Account

See "User Password Security" on page 23 for instructions regarding the user password security policy.

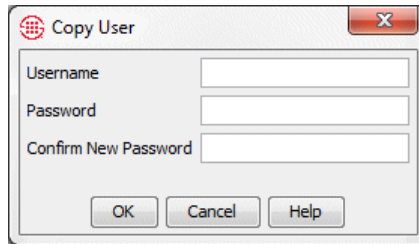
To change user account security settings

1. On the ETM System Console main menu, click **Servers | User Management**. The **User Administration Tool** appears.
2. In the **Users** list, click the username for which you want to change account security settings.
3. (*Optional*) Refer to step 9 above in the section "Creating a User Profile" for selection options on the **Security Info** tab.

Creating a New User from an Existing User

To copy a user to create a new user with the same permissions

1. On the ETM System Console main menu, click **Servers | User Management**. The **User Administration Tool** appears.
2. In the **Users** list, click the user you want to copy.
3. Click **Copy**. The **Copy User** dialog box appears.



4. Type a **Username**, **Password**, and **Confirm Password** for the new user, and then click **OK**.
5. Click the **Personal Info** tab of the **User Administration Tool**, and then type identifying information for the new user. In particular, the email address you type here is automatically supplied in some Usage Manager Report activities.
6. Click the **Permission Info** tab and verify that the permissions are as you intend.
7. Click **Save** to save the new user.

Deleting a User

IMPORTANT: When you delete a user account, the user's Usage Manager **<user>** folder and its contents are deleted, as are any scheduled report tasks the user scheduled.

To delete a user

1. On the ETM System Console main menu, click **Servers | User Management**. The **User Administration Tool** appears.
2. In the **Users** list, click the user you want to delete.
3. Click **Delete**.
4. A confirmation message appears. Click **Yes**.

Resetting a User's Forgotten Password

Use this procedure when you need to reset a user's forgotten password.

You do not need to know the user's current password to reset the password, but you must have **Manage Users** permission.

To change a user's password

1. On the ETM System Console main menu, click **Servers | UserManagement**. The **User Administration Tool** appears.
2. In the **Users** list, click the user whose password you want to change, and then click the **Password Info** tab.
3. In the **Your Current Password** box, type the password that you used to log in to the Management Server.
4. Type the new password in both the **New Password** and **Confirm Password** boxes, and then click **Save**.

Changing the Password for an ETM® System Account

You do not need **Manage Users** permission to change your own password. All users can change their own passwords unless the ETM System administrator has specifically disabled that ability on your account. For information about disabling a user's ability to change his or her password, see "Changing Security Settings for a User Account" on page 21.

To reset another user's password, you do not need to know a user's current password, but you must have **Manage Users** permission.

To change a user's password

1. On the ETM System Console main menu, click **Servers | UserManagement**. The **User Administration Tool** appears.
2. In the **Users** list, click the user whose password you want to change, and then click the **Password Info** tab.
3. In the **Your Current Password** box, type the password that you used to log in to the Management Server.
4. Type the new password in both the **New Password** and **Confirm Password** boxes, and then click **Save**. The new password must differ from the previous password by at least 8 characters.

Changing a User's Permissions

Tip: You cannot change the permissions for the account from which you are currently logged in, regardless of your user permissions.

To change a user's permissions

1. On the ETM System Console main menu, click **Servers | User Management**. The **User Administration Tool** appears.
2. In the **Users** list, click the user whose permissions you want to change, and then click the **Permissions** tab.
3. Select the check boxes for permissions you want to authorize for this user; clear the check boxes for permissions you do not want this user to have. See "User Permissions" on page 16 for a description of each of the available permissions.
4. Click **Save**.

User Password Security

The user password security policy determines:

- Whether user account passwords expire, and if so, how often. By default, ETM® System passwords do not expire.
- If passwords are set to expire, whether a warning is presented in advance, and if so, how far in advance.
- Whether new passwords are checked for uniqueness against previous passwords, and if so, with how many they are compared.

By default, the user password policy applies to all user accounts on a Management Server; however, you can prevent the passwords on specific accounts from expiring. See "Changing Security Settings for a User Account" on page 21 for more information.

Setting the User Password Policy

To set the user password policy

1. On the ETM System Console main menu, click **Servers | Server Management**. The **Server Administration Tool** appears.
2. Click the **User Password Policy** tab.

The screenshot shows the 'Server Administration Tool' window with the 'User Password Policy' tab selected. The window contains several sections for configuring password policies:

- Maximum password age:** Radio buttons for 'Passwords never expire' (selected) and 'Passwords expire after 90 days'.
- Password expiration warning:** Radio buttons for 'Do not warn prior to expiration' (selected) and 'Warn starting 3 days prior to expiration'.
- Expired password reset allowance:** Radio buttons for 'Allow unlimited opportunities' (selected) and 'Disable account after 3 opportunities'.
- Password reset frequency restrictions:** Radio buttons for 'No restrictions' (selected) and 'Restrict to once every 1 days'.
- Password uniqueness:** Radio buttons for 'Do not check for uniqueness' (selected) and 'Compare with last 5 passwords'.
- Password format requirements:** Spinners for 'Minimum length' (8), 'Minimum # upper case letters' (1), 'Minimum # lower case letters' (1), 'Minimum # numeric characters' (1), and 'Minimum # special characters' (0).

At the bottom of the window are buttons for 'OK', 'Close', 'Apply', and 'Help'.

3. In the **Maximum password age** area, select one of the following:
 - **Passwords never expire**—Users are never required to change their passwords.
 - **Passwords expire after n days**—All users whose accounts are not specifically exempted from the user password expiration

- policy must change their passwords at the specified interval. If you select this option, type or select the number of days, from 1 to 999.
4. If you selected **Passwords expire after n days**, in the **Password expiration warning** area, select one of the following options:
 - **Do not warn prior to expiration**—Users are not warned prior to password expiration; they are simply presented with a prompt when the password expires.
 - **Warn starting n days prior to expiration**—Type or select the number of days prior to expiration that users are to be warned that their password will expire in a certain number of days.
 5. If you selected **Passwords expire after n days** and enabled expiration warnings, in the **Expired password reset allowance** area, select one of the following:
 - **Allow unlimited opportunities**—Users have unlimited password expiration warnings to opt to respond to without their accounts being locked prior to expiration.
 - **Disable account after n opportunities**—Disable the user's account after the specified number of reset warnings are ignored.
 6. In the **Password reset frequency restrictions** area, select one of the following:
 - **No restrictions**—Users can reset their passwords as often as they wish.
 - **Restrict to once every n days**—Specify how often a user is allowed to reset his or her password.
 7. In the **Password Uniqueness** area, select one of the following options:
 - **Do not check for uniqueness**—Any valid password is accepted, regardless of whether this user has used it before or how long ago it was used.
 - **Compare with last n passwords**—Type or select the number of previous passwords with which to compare the new password for uniqueness. For example, if you type 5, users cannot reuse any of their last five passwords.
 8. In the **Password Format Requirements** area, optionally set restrictions on the minimum length and minimum number of upper case, lower case, numeric, and special characters for a valid password on your system.

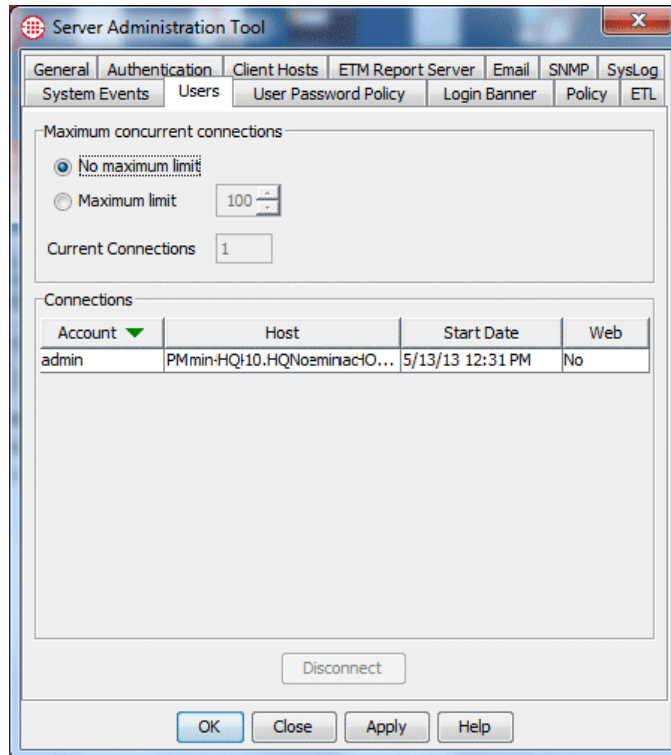
Monitoring User Logins

You can view information about each user logged in to the Management Server, including the username, client host computer, and start date/time of the login. You can also disconnect a login.

Viewing Logged-in Users

To monitor user logins

1. On the ETM System Console main menu, click **Servers | Server Management**. The **Server Administration Tool** appears.
2. Click the **Users** tab.



- **Account** shows the username of the logged-in user.
- **Host** shows the hostname and IP address of the client tool from which the user logged in.
- **Start Date** shows the date and time at which the user logged in.
- **Web** indicates whether the user is logged in via the ETM System Web Portal. Not applicable to this release.

Disconnecting a User Login

To disconnect a user login

1. On the ETM[®] System Console main menu, click **Servers | Server Management**. The **Server Administration Tool** appears.
2. Click the **Users** tab. A list of all of the logged in users appears.
3. Click the user you want to disconnect, and then click **Disconnect**.

ETM[®] Server Administration

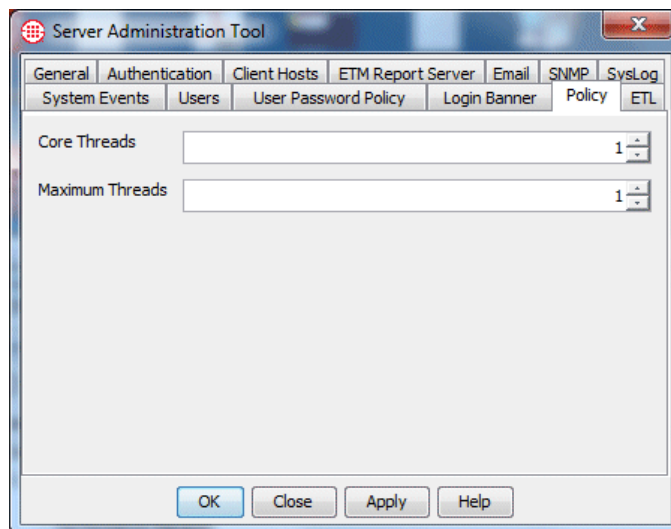
Administering the ETM[®] Server

ETM Management Server administration includes configuration settings governed by the ETM Server, many of which apply to the system as a whole.

Simultaneous Policy Push Configuration

To configure simultaneous policy push

1. On the ETM System Console main menu, click **Servers | Server Management**. The **Server Administration Tool** appears.
2. Click the **Policy** tab.



3. **Core Threads**—The minimum number of threads that will always be allocated for policy pushes. This defaults to 1.
4. **Maximum Threads** – The max number of threads that the ETM Server allocates for policy pushes. If all core threads are in use, the thread pool will grow up to the number of max threads configured. These threads remain idle for 10 minutes, after which time they are released.

Note: No Server restart is needed to effect the configuration change. If a policy push is in progress when the configuration change is made, one of two behaviors will occur:

- If the number of threads is increased, any existing policy push will make use of those threads as needed.
- If the number of threads is decreased, in-progress policy pushes using those threads are allowed to complete, and then the specified thread are released.

Note: Although this mechanism enables policies to be pushed simultaneously to multiple spans across the enterprise, dramatically increasing installation speed for enterprise-wide installation, the Server only pushes to one span on the same Card at a time. This means that if you are pushing to 4 spans on the same Card, those policies are still pushed serially.

ETM[®] System User Authentication Options

ETM System User Authentication options include:

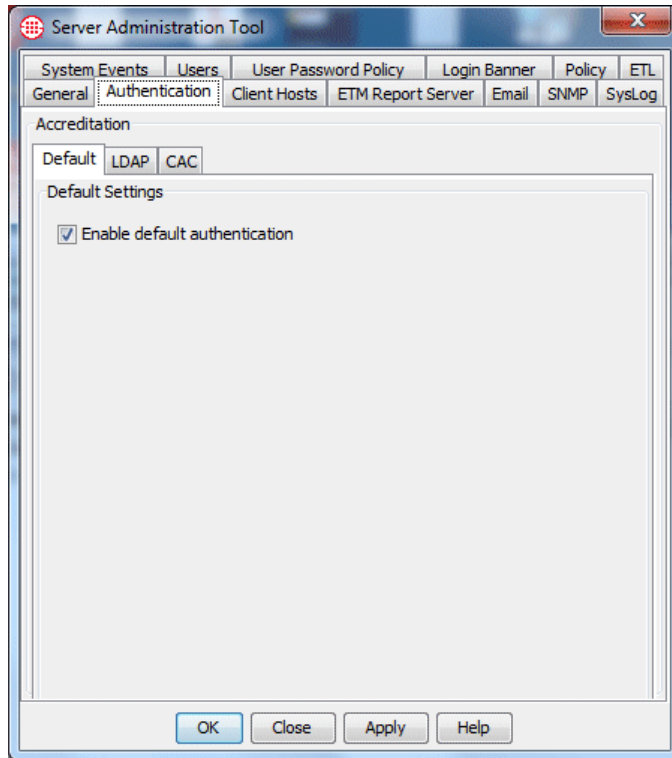
- Default authentication
- LDAP authentication
- CAC authentication

Default Authentication

Using Default authentication, logins are accomplished with the local user name and password associated with an ETM System user profile.

To configure the Server for Default authentication

1. On the ETM System Console main menu, click **Servers | Server Management**. The **Server Administration Tool** appears.



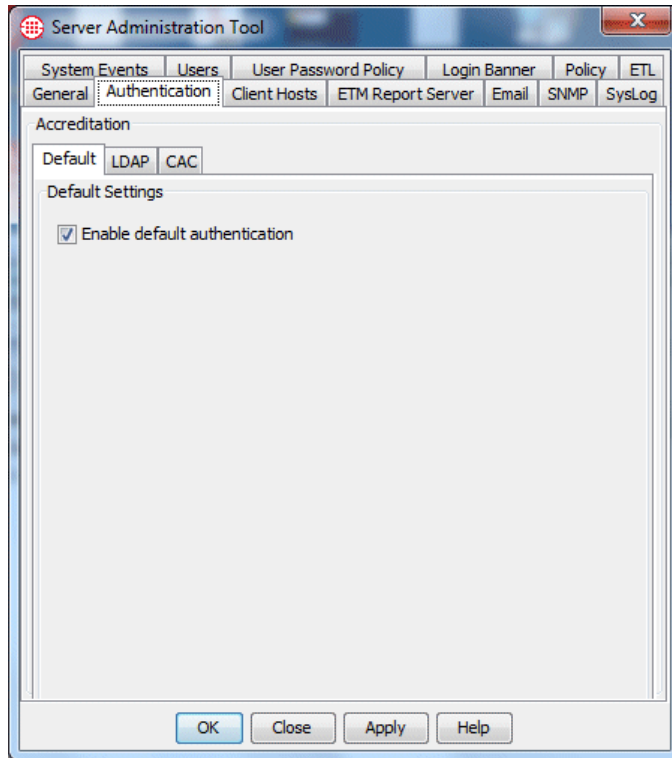
2. Click the **Authentication** tab. The **Accreditation** dialog box appears with the **Default** tab selected.
3. Select the **Enable default authentication** checkbox.
4. Click **Apply** to save changes and leave the dialog box open. Click **OK** to save changes and close the dialog box.

LDAP Authentication

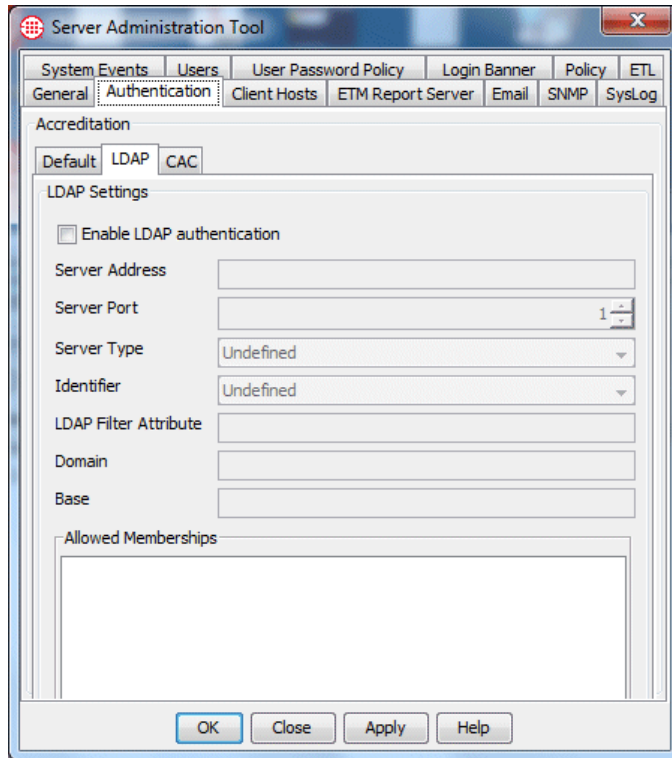
You can configure the ETM System to authenticate users against your corporate LDAP Directory Server. Microsoft Active Directory and Sun ONE Directory Server are supported. A Server setting is provided that determines which types of authentication this Server allows. Then, for each user account that is to use LDAP authentication, you specify the associated LDAP username. An ETM Server that uses CAC authentication will not allow LDAP authentication and vice versa.

To configure the Server for LDAP authentication

1. On the ETM System Console main menu, click **Servers | Server Management**. The **Server Administration Tool** appears.



2. Click the **Authentication** tab. The **Accreditation** dialog box appears with the **Default** tab selected.
3. To allow Default Authentication by users whose profiles are configured to use it in addition to allowing LDAP Authentication for this ETM Server, select the **Enable default authentication** checkbox. For example, you might want to create select local login accounts for certain contractors who are authorized to use the ETM System but for whom you do not want to create an LDAP record.
4. If no user logins are allowed using local ETM System user profile credentials, clear the **Default Authentication** check box
5. Click the **LDAP** tab.



6. If user accounts are to be configured to use LDAP authentication, select the **Enable LDAP authentication** checkbox. In LDAP authentication, logins are accomplished by verifying the information entered by a user against your corporate LDAP Directory Server.
7. In the **Server Address** box, type the IP address of the LDAP server.
8. In the **Server Port** box, type the port on which the ETM Server is to connect to the LDAP server.
9. In the **Server Type** box, click the drop down and select one of the following supported LDAP servers: Active Directory or SUN One.
10. In the **Identifier** box, click the down arrow and select the identifier that represents the login username.
11. In the **LDAP Filter Attribute** box, enter the search filter. The LDAP setting fields that appear depend on what you select for **Server Type** and **Identifier**.

For example:

- When **Server Type** is set to Active Directory and **Identifier** is set to **dn**, the default **LDAP Filter Attribute** is **cn**.
- When **Server Type** is set to **SunOne Directory Server**, the default **LDAP Filter Attribute** is **uid**.

12. In the **Domain** box, type the network domain LDAP users log in to.
13. In the **Base** box, type the base object that defines where in the DIT the search is to start. (For example, `ou=People,dc=securelogix,dc=com`)
14. Under the **Allowed Memberships** box, click **New**. The **LDAP Allowed Memberships** dialog appears.
15. Type the name of the group authorized to access the ETM System.
16. Click **Apply** to save changes and leave the dialog box open. Click **OK** to save changes and close the dialog box.

CAC Authentication

LDAP must be disabled to use CAC authentication See “Disabling LDAP to Change to CAC Authentication” on page 34 if necessary.

For installations that use a CAC/PKI (Common Access Card / Public Key Infrastructure) system, you can configure the ETM System to authenticate users via their Common Access Card (CAC). Microsoft Windows Operating System is supported. An ETM Server that uses CAC authentication will not allow LDAP authentication and vice versa. A Server setting is provided that determines the type of authentication the Server allows. CAC authentication must be enabled on each server of a multiple server installation. Then, each user account can be updated/created to allow CAC login.

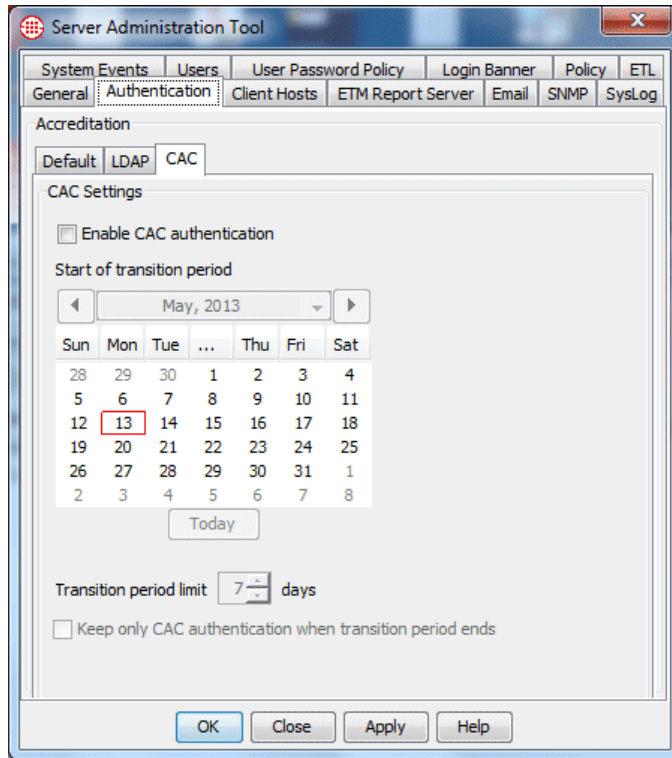
To reduce System Administrator workload, a transition period can be set to allow existing ETM users with a username and password to update their user accounts with their UID (Unique Identification) and certificate information. See “Setting a CAC Transition Period” on page 33.

Enable CAC

A System Administrator must log in using their **Default** username/password to enable CAC Authorization. When the ETM software is first installed or upgraded from a version prior to the implementation of the LDAP feature, the system will automatically be set to **Default** authentication. For ETM systems currently using LDAP login being changed to CAC authentication, you must clear **LDAP Authentication**, and restart the Management Server prior to logging in with your default username/password. (See “Disabling LDAP to Change to CAC Authentication” on page34.)

To enable a Server for CAC authentication

1. Log in using the **Default** authentication method (username/password).
2. On the ETM System Console main menu, click **Servers | Server Management**. The **Server Administration Tool** appears.



3. Click the **Authentication** tab. The **Accreditation** dialog box appears.
4. Click the **CAC** tab. The **CAC Settings** dialog box appears.
5. Click the **Enable CAC authentication** checkbox.
6. To set up a transition period during which time users can update their account information, see “Setting a CAC Transition Period” on page 33.
7. Click **Apply** to save changes and leave the dialog box open. Click **OK** to save changes and close the dialog box.

Setting a CAC Transition Period for a Server

When converting to the CAC authentication method for a server, you can set up a transition period to give existing ETM users time to update their account with their UID and certification information. When a user attempts to connect via their CAC when their UID is not found in the ETM System, a login dialog box appears. If the user enters a valid username and password (either their default local username/password or LDAP username/password, if applicable), login will be successful and the ETM system will automatically update the user account with the UID and certificate from the card. During the transition period, the user will be able to log in using both their username/password and their CAC. An option is provided to prevent username/password login after the CAC transition period.

The transition period can be from 7 to 90 days.

To set a CAC transition period

1. Ensure that the **Enable CAC authentication** checkbox is selected on the **CAC** tab located on the **Authentication** tab of the **Server Administration Tool** dialog box. (See “Enable CAC” on page 32.)
2. Click the start date for the transition period.
3. Set the end date by entering the total number of days of the transition in the **Transition period limit** box. You can set a transition period of 7 to 90 days.
4. To disable the previously used authentication method after the transition period ends and force users to use their CAC or contact the System Administrator for account setup, select the **Keep only CAC authentication when transition period end** checkbox. When this checkbox is cleared, CAC users will be able to log in using both their default username/password and their CAC; and users without a CAC will be able to log in with their username/password.
5. Click **OK** to save changes and close the dialog box.
6. Restart the **Management Server**.

Disabling LDAP to Change to CAC Authentication

To disable LDAP

1. If **LDAP Authentication** is currently used, it must be disabled before CAC Authentication can be selected. On the ETM System Console main menu, click **Servers | Server Management**. The **Server Administration Tool** appears.
2. Click the **Authentication** tab.
7. Click the **LDAP** subtab and clear the **LDAP Authentication** checkbox
3. Click **OK** to save changes and close the dialog box.
4. Restart the **Management Server**.

Manually Entering a User's UID

If the CAC transition period is not used (which allows users to enter their UID), or when it is necessary to set up CAC authorization for an ETM user, you can manually enter a user's UID via the **Security Info** tab of the **User Administration Tool**. See “Creating a User Profile” on page 18.

Note: To read the user's UID from their CAC, a specialized card reading software such as ActivClient™ is required.

Shutting Down a Management Server

To stop the Management Server from the ETM System Console, you must have **Manage Server** permission. (The **admin** account has this permission by default.) Note that you cannot remotely start the Management Server; you must have physical access to the Server computer to start the Server.

To stop the Management Server

1. In the ETM System Console, click the Server you want to stop.
2. Click **Servers | Shutdown Server**.
3. A confirmation message appears. Click **Yes**.

System Events

ETM System operation can generate a variety of system events that indicate such things as telecom or system configuration changes or errors, and potential security violations. System events are managed per ETM Server and appear in the **Diagnostic Log** for that ETM Server.

You can track specific types of System Events by assigning one or more Tracks to cause follow-up actions, such as email notification or Real-Time Alert, that result each time that type of System Event occurs. You can also apply filters to applied System Event Tracks to limit when they are triggered. For example, if one person is in charge of the telco equipment at Switch A and a different person is in charge of the telco equipment at Switch B, you can add a filter to applied Email Tracks so that the responsible parties receive telco event notifications only for the Switch for which they are responsible. For a description of each type of system event to which you can assign a track, see "Types of System Events" on page 193.

Note that not all available types of Tracks are appropriate for all types of events. For example, a Real-Time Alert for Standby Mode is not effective, since Real-Time Alerts are sent only to connected clients, and all clients lose connection when the Server enters Standby Mode.

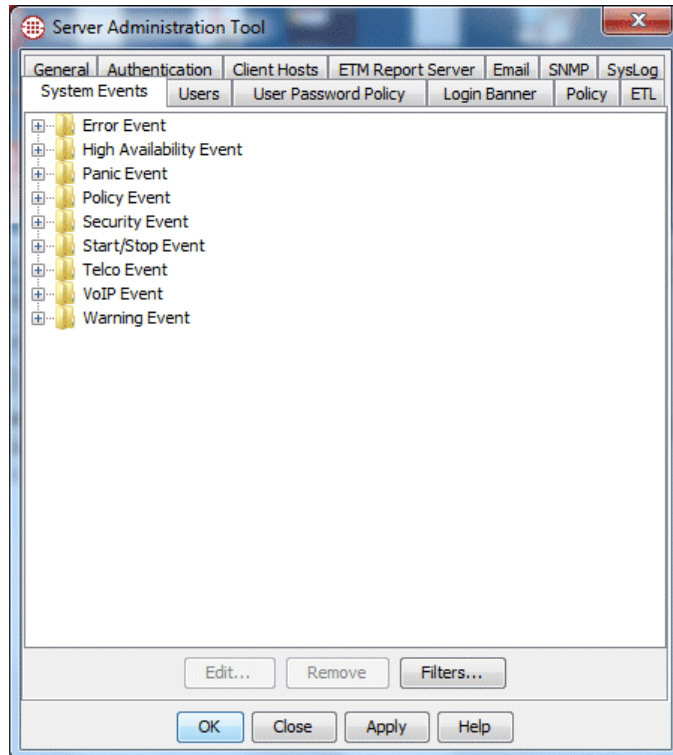
Setting Track Actions for System Events

Multiple tracks can be assigned to an event.

For a description of each type of system event, see "Types of System Events" on page 193.

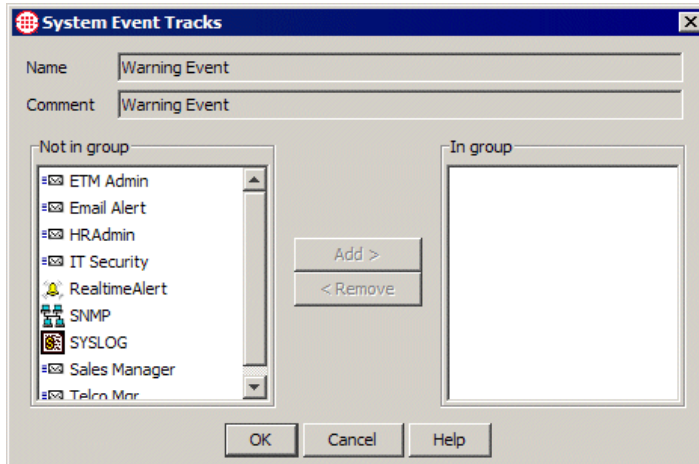
To set a Track action for a system event

1. On the ETM System Console main menu, click **Servers | Server Management**. The **Server Administration** dialog box appears.
2. Click the **System Events** tab.



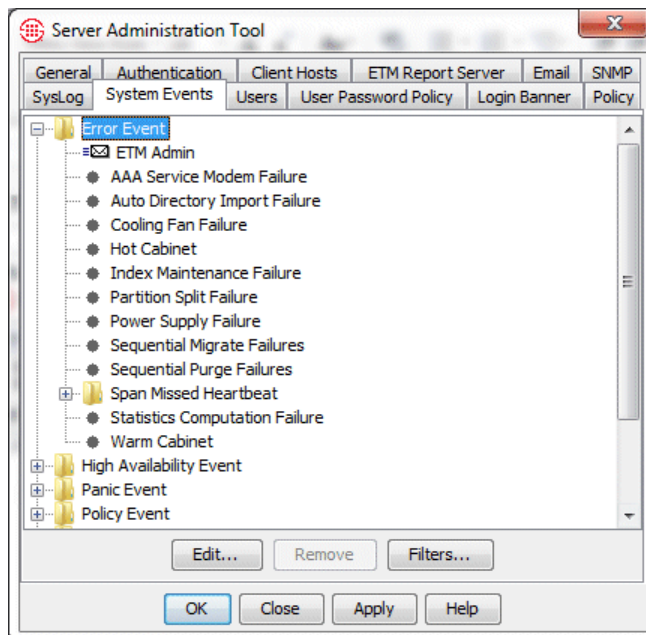
3. Click the event type or subtype you want to track, and then click **Edit**.
 - To apply the Track only to a subcategory or to a single event within a category, click the **PLUS SIGN** next to the category node to expand the tree and view the subcategories. If you add a Track to the top-level event, the Track applies to all of the subcategories of that event.

The **System Event Tracks** dialog box appears.



See "Tracks" in the *ETM® System User Guide* for instructions for defining email tracks.

4. In the **Not in group** box, click one or more Tracks that you want to assign to the selected system event, and then click **Add**. The selected Track(s) move(s) to the **In group** box.
5. Click **OK**. An icon for each specified Track appears on the **System Events** tab beneath the event to which it was applied. If the event was added to the category, any event in that category causes the specified Track(s) to occur.



6. To apply a filter to the Track to narrow the criteria for which the Track fires, see "Filtering System Event Tracks" below.

Filtering System Event Tracks

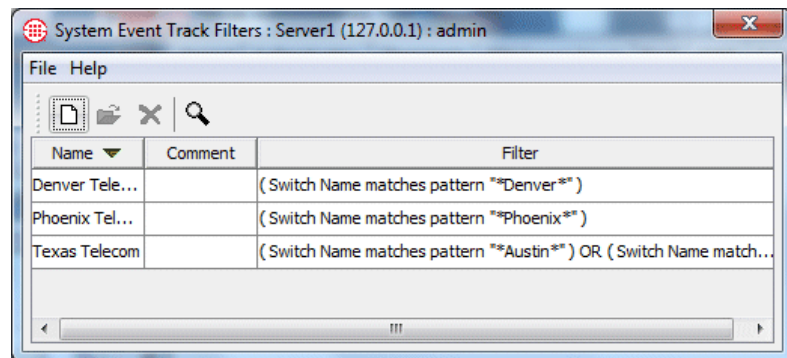
Tip If the Filter you want to apply has not yet been defined, you can do it on the fly from this dialog box. See "Defining System Event Track Filters" on page 38, if necessary.

You can apply filters to System Event Tracks to limit the dissemination of Tracks to certain contacts, based on the Span Group, Span, Card, Switch, Event Time, and/or Event Description associated with the System Event. You can apply one filter per applied Track. The filter applies specifically to the Track's association with the System Event; that is, if you apply the same Track to a different System Event, you can apply a different filter to that application of the Track.

To filter System Event Tracks

1. Apply a Track to a System Event. See "Setting Track Actions for System Events" on page 36, if necessary.
2. Right-click the Track, and then click **Filter | Set Filter**.

The **System Event Track Filters** dialog box appears.

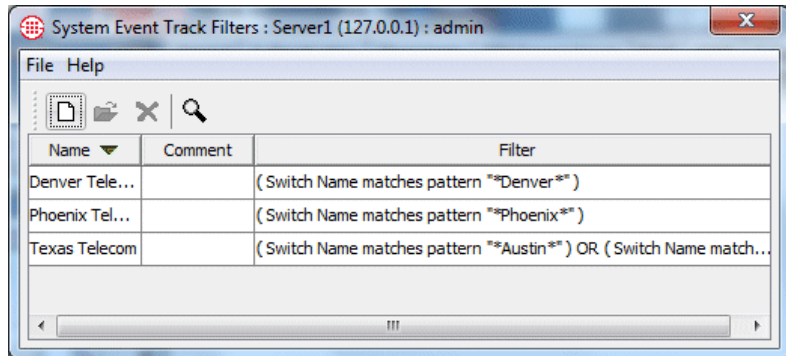


3. Click the Filter you want to apply to the selected Track action, and then click **OK**.

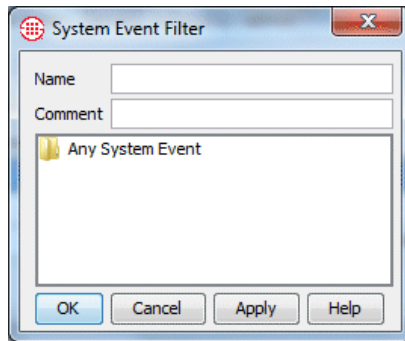
Defining System Event Track Filters

To define a System Event Track Filter

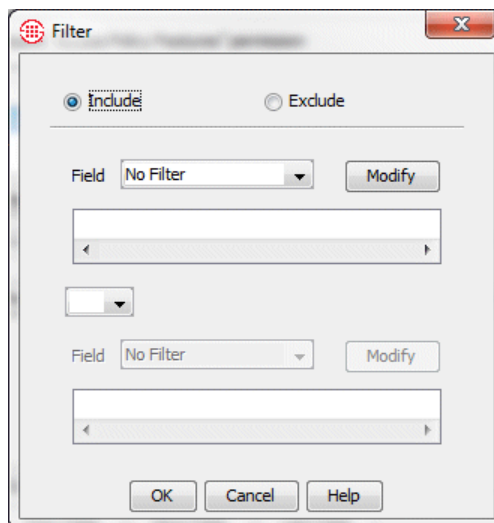
1. On the ETM System Console main menu, click **Servers | Server Management**. The **Server Administration Tool** appears.
2. Click the **System Events** tab.
3. Click **Filters**. The **System Event Track Filters** dialog box appears.



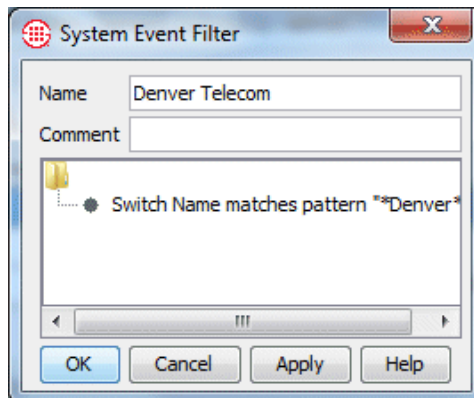
4. Click **File | New**. The **System Event Filter** dialog box appears.



5. In the **Name** box, type a unique name for the filter.
6. Optionally, in the **Comment** box, type a comment, perhaps to identify the intent of the filter.
7. Double-click **Any System Event**. The **Filter** dialog box appears. This is the same dialog box used to define filters in Usage Manager Reports, the **Call Log**, and so forth.



8. Select one of the following:
 - **Exclude**—Only data for events that *do not* match the filter criteria is included.
 - **Include**—Only data for events that match the filter criteria is included.
9. In the first **Field** box, click the down arrow, and then select a field. The following fields are available: **Event Time, Description, Span Name, Span Group Name, Switch Name, Card Name**. If you select **Event Time**, the **Date Filter** dialog box appears; if you select any other field, the **String Filter** appears. See "Filters for Monitoring Tools" in the *ETM® System User Guide* for detailed instructions for defining filters.
10. When you have defined the filter criteria, click **OK**.
11. Click **OK** in the **System Event Filter** dialog box. The new Filter appears in the **System Even Track Filters** dialog box. For example, the illustration below shows a String Filter.



Removing a Track from a System Event

To remove a Track from a System Event

1. On the ETM System Console main menu, click **Servers | Server Management**. The **Server Administration Tool** appears.
2. Click the **System Events** tab.
3. Click the **PLUS SIGN** to the left of the system event from which you want to remove the Track, to expand the tree.
4. Right-click the Track, and then click **Remove**, or click the Track, and then click **Remove**.

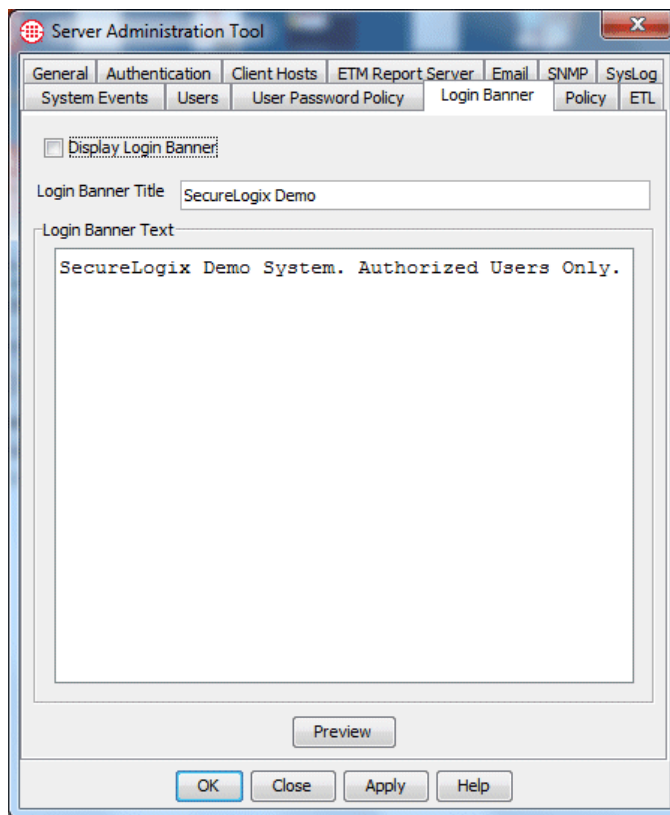
Login Banner

You can define a custom login banner that is presented when a user logs in to the Management Server. For example, you might want to provide an improper-use warning.

Defining a Login Banner

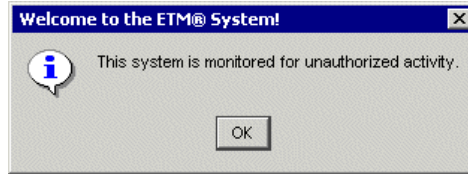
To define a login banner

1. On the ETM System Console main menu, click **Servers | Server Management**. The **Server Administration Tool** appears.
2. Click the **Login Banner** tab.



3. Select the **Display Login Banner** check box.
4. In the **Login Banner Title** box, type (or copy and paste) the words that are to appear in the title bar of the login banner (up to 50 characters). For example, type:
Welcome to the ETM System!
5. In the **Login Banner Text** box, type (or copy and paste) the words that are to appear as the message portion of the login banner (up to 1500 characters). For example, type:
All activity on this system is monitored.

- To view how the login banner will look, click **Preview**. The login banner appears.



- Click **OK** to close the sample banner.
- When you are satisfied with the banner, click **Apply** to save the settings and leave the **Server Administration Tool** open, or click **OK** to save the settings and close the **Server Administration Tool**.

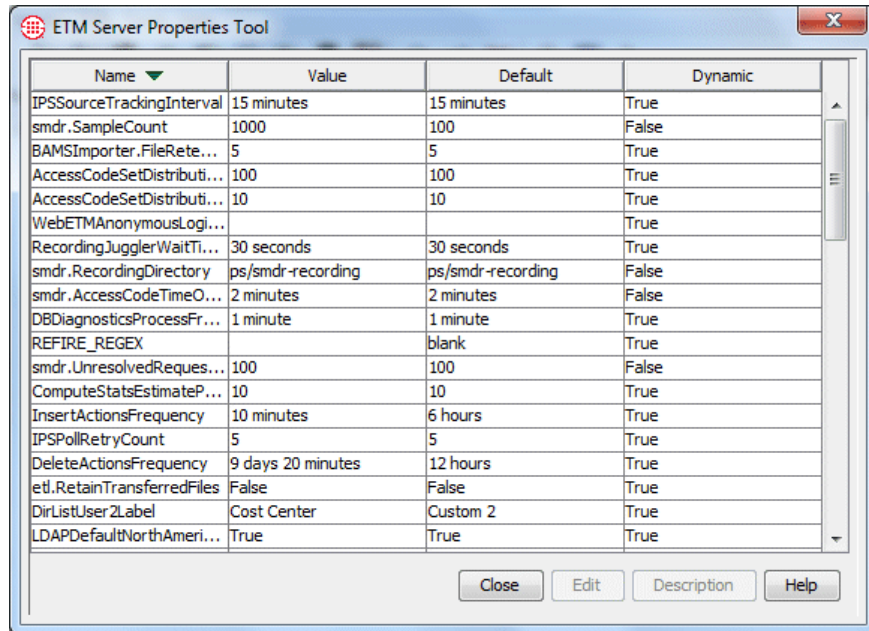
ETM® Server Properties Tool

The **ETM Server Properties Tool** provides a convenient means to modify various Management Server settings that are stored in the **Properties** table in the ETM Database. Some of these settings govern system functions that directly affect users of the system and that you may want to modify in everyday use. Others are specific to internal database maintenance or other low-level functions and should not be casually changed.

Setting Properties in the ETM® Server Properties Tool

To set properties via the ETM Server Properties Tool

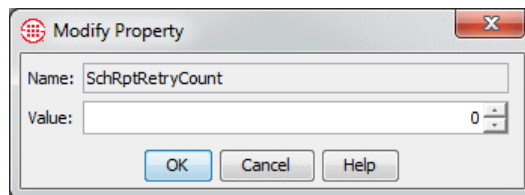
- In the ETM System Console, click the Server whose properties you want to edit, and then click **Servers | ETM Server Properties**. The **ETM Server Properties Tool** appears.
- Each line represents a single Server-related database setting. The following fields are provided for each setting:
 - Name**—The variable name for the setting.
 - Value**—The current value for the variable. You can edit this value.
 - Default**—The default setting for the value.
 - Dynamic**—Whether the Management Server must be restarted for a new value to take effect. **True** means the value takes effect without a Server restart; **False** means the value only takes effect after the next Server restart. Some properties that do not require a Server restart only appear in the GUI after it is closed and reopened. If the GUI does not update when you change a value, close and reopen the ETM Client.



3. Do either of the following:

- To view a description of each setting, click the line containing the setting, and then click **Description**.
- To edit a property, click the row for the property, and then click **Edit**. The **Modify Property** dialog box appears. Type the new value, and then click **OK**.

IMPORTANT No error checking is performed on the typed value. If you enter an invalid value, the default is used.



4. If the property you changed has **False** in the **Dynamic** field, restart the Management Server for the change to take effect. If it has **True** in the **Dynamic** field, the value will be read in the next time the Server performs the action (if it is an ongoing task) or the next time you open the affected GUI (for label and presentation changes).

Properties in the Tool

You can use the **ETM Server Properties Tool** to change the properties listed below. If a property has **False** in the **Dynamic** field, restart the Management Server for the change to take effect. If it has **True** in the **Dynamic** field, the value will be read the next time the Server performs the action (if it is an ongoing task) or the next time you open the affected GUI (for label and presentation changes).

- **AccessCodeSetDistributionBatchSize**—The number of emails distributed before Access Code Set distribution pauses for the time set in the **AccessCodeSetDistributionThrottlePeriod** property. The valid range is from 0 to 10,000. Setting the value to 0 disables throttling. The default is 50 emails. Dynamic.
- **AccessCodeSetDistributionErrorThreshold**—The number of allowable errors before an Access Code Set import should automatically abort. Setting the value to -1 disables this functionality. The default is 100. Dynamic.
- **AccessCodeSetDistributionThreadCount**—The number of threads to use for delivering Access Code Set distribution messages to the email server. The valid range is 1 or more. The default is 10. Dynamic.
- **AccessCodeSetDistributionThrottlePeriod**—The amount of time to pause between sending the number of emails specified in the **AccessCodeSetDistributionBatchSize** property. Setting the value to 0 disables throttling. The default is 1 second. Dynamic.
- **AccessCodeSetImportErrorThreshold**—The number of allowable errors before an Access Code Set distribution should automatically abort. Setting the value to -1 disables this functionality. The default is 100. Dynamic.
- **BAMSImporter.FileRetentionDays**—Governs the purging interval of processed imported BAMS files. The default value is 5 days. Dynamic.
- **BillingRuleGUI.RatePrecision**—The number of decimal places that can be specified for the rate in a Billing Rule. The default is 4. Dynamic.
- **CDRImporter.FileRetentionDays**—Governs the purging interval of processed imported CDR files. The default value is 5 days. Dynamic.
- **CheckIndexesDeletePercent**—The percentage of an index dedicated to deleted entries. This is the measure of fragmentation. For example, if the procedure is run with a percentage of 40, then all indices that have 40% of their capacity dedicated to deleted entries are rebuilt. Normally, this number should be between 0 and 100. If the

percentage is larger than 100, no indexes are rebuilt; If the percentage is less than 0, all indexes are rebuilt. The default is 20. Dynamic.

- **CheckIndexesOnline**—A Boolean representing whether the rebuild process should happen online, that is, whether updates are allowed on an index while it is being rebuilt. Valid values are TRUE and FALSE. Specifying online as TRUE on a highly concurrent system might be beneficial, but in a test on an idle system (with no updates occurring), it was shown that rebuilding online doubles the execution time of the script. The default is False. Dynamic.
- **ComputeStatsEstimatePercent**—The percentage of rows to sample when estimating statistics. The valid range is 0.000001 to 100. The default is 10. Dynamic.
- **DataFileLocation**—The location at which the data files related to CCMI are stored. The default is **ps/data**. Dynamic.
- **DBDiagnosticsProcessFrequency**—The frequency at which the ETM Server checks and processes any diagnostics messages originating from the scheduled database tasks. The default is 1 minute. Dynamic.
- **DelDupsOnImport**—When you import phone numbers into an Import Set in the ETM Database, duplicates in the file are allowed by default. If you change this property to TRUE, duplicate phone numbers are deleted from the import file before reconciliation occurs. If the flag is set to 'TRUE', when duplicate entries are encountered in an import file, only the LAST duplicate entry in the import file is saved. Valid values are TRUE or FALSE. The default is False. Dynamic.
- **DeleteActionsBatchSize**—Specifies how many call, IPS, and Diagnostic Log records are deleted at a time from the active area of the database during the deletion records previously copied to the historical area. The default is 10,000 records. Dynamic.
- **DeleteActionsFrequency**—Specifies how often call, IPS, and Diagnostic Log data records that have already been copied to the historical call table are deleted from the active call table. The default is 12 hours. Dynamic.
- **DirListUser1Label**—The label for the first user-defined Directory Listing field, labeled **Custom 1** by default. Dynamic.
- **DirListUser2Label**—The label for the second user-defined Directory Listing field, labeled **Custom 2** by default. Dynamic.
- **DirListUser3Label**—The label for the third user-defined Directory Listing field, labeled **Custom 3** by default. Dynamic.
- **DisplayAppToolTips**—Specifies whether the Span comment tooltip appears in the Performance Manager. The default is True. Dynamic.

- **etl.RetainTransferredFiles**—Denotes whether extracted ETL files for the Enterprise Dashboard feature should be retained on the ETM Server after successful file transfer. Valid values are True and False. The default is False, meaning the files are deleted from the ETM Server after successful transfer. Dynamic.
- **FailedLoginLockoutCount**—The number of failed login attempts after which an account is locked. The default is 4 attempts. Dynamic.
- **FailedLoginLockoutPeriod**—The amount of time for which an account is locked if the FailedLoginLockoutCount is exceeded. The default is 15 minutes. Dynamic.
- **FailedLoginLockoutRetryPeriod**—The period for which failed login attempts are counted against an account. Begins at the first failed attempt. The default is 30 minutes. Dynamic.
- **FileDownloadCheckInterval**—Specifies how often the Management Server verifies that the download of the import set file is progressing. The default is 1 minute. Dynamic.
- **FileDownloadChunkSize**—Specifies in bytes the size of the packets that are read from the Client to the Server. Testing during development showed that 256K (262144 bytes) is the ideal size. The default is 262144 bytes.
- **InsertActionsBatchSize**—Specifies how many call, IPS, and Diagnostic Log data records are copied at a time during copy of records from the active to historical call table. The default is 10,000 records. Dynamic.
- **InsertActionsFrequency**—Specifies how often call, IPS, and Diagnostic Log data records are copied from the active to the historical call table. The default is 6 hours. Dynamic. Note that you should not set the copy frequency to a very small value (a minimum of 30 minutes), or long-running reports may fail with a "stale rollback segment" error (depending on your call volume and rollback segment size).
- **IPSPollInterval**—The frequency at which the polling mechanism runs for the Voice IPS detection engine. This value can be set to a smaller setting to enable quicker breach detections, but this may have an adverse effect in that the Management Server and DB machine will use more CPU. The default is 5 minutes. Dynamic.
- **IPSRuleCompleteDelay**—The amount of time that a Rule continues to collect IPS Rule-fired values from the Spans after the Interval has ended. This value is intended to allow compensation for late-arriving messages. The default is 5 minutes. Dynamic.
- **IPSPollRetryCount**—The number of times the IPS poller retries if it receives an Oracle Resource Busy message. The default is 5. Dynamic.

- **IPSSourceTrackingEnabled**--Determines whether Adaptive IPS is enabled on the Server. The default is FALSE. Dynamic.
- **IPSSourceTrackingInterval**--The amount of time to hold call data for tracking repeated calls from the same number. The default is 15 minutes. Dynamic>
- **LDAPDefaultNorthAmericanNumbers**—Specifies whether the LDAP importer treats unformatted 10- and 11-digit numbers as North American Numbers. If the value is TRUE, an unformatted 10- or 11-digit number that begins with 1 is treated as a North American Number; if the value is FALSE, the format of the imported number determines how it is imported, based on the locale selected. The default is True. Dynamic.
- **LOCALE**—The location (for example, United States) where the Management Server is installed; initialized by the ETM Database Maintenance Tool according to user selection when the data instance is created; provides certain default locale-specific values. Not dynamic; you must restart the ETM Server for a change to take effect.
- **OraClientToolsPath**—The path to the directory on the ETM Server host that contains the Oracle Client Tools; used for Directory Listing and city/state data imports. Not dynamic; you must restart the ETM Server for a change to take effect. You can change this value in the **Data Management Tool** instead and then you do not need to restart the Server.
- **ReconciliationReportHistoryCount**—This value specifies the number of reconciliation reports that are archived and displayed in the **Import Set Details** dialog box in the Directory Manager. The default is 5. Dynamic.
- **RecordingJugglerWaitTimeout**—How long the ETM Server waits between recording chunks received from the Call Recording Cache before the session times out. If the session times out, the **.wav** file request is cancelled and an error message is generated. The default is 30 seconds. Dynamic.
- **RecordingListGetterWaitTimeout**—How long the ETM Server waits between messages received from the Call Recording Cache when attempting to retrieve the file list. If this timeout is exceeded, the request is cancelled and an error is generated. The default is 30 seconds. Dynamic.
- **REFIRE_REGEX**—This property only applies to outbound calls; it specifies whether any Tracks are to be refired after SMDR data is received. By default, Tracks fire once when a call is first identified as matching a Rule, when all of the call data may not yet be available. This optional value is defined as a regular expression and is compared against a call's Destination Flag to determine if a Rule should refire after the SMDR Data arrives. You may want Tracks for certain types of Rules to refire. For example, you may want Tracks for the Emergency

Rule to refire when the source of the call has been obtained from SMDR. The default is blank (no Tracks refire). Dynamic.

- **SchRptRetryCount**—The number of times to attempt to run a scheduled report when the first attempt fails. The default is 0, meaning no retries occur. Dynamic. See “Scheduled Report Retry Settings” in the *Usage Manager User Guide* for details about this setting. Not dynamic.
- **SchRptRetryDelay**—The amount of time between Scheduled Report retry attempts. The default is 30 minutes. See “Scheduled Report Retry Settings” in the *Usage Manager User Guide* for details about this setting. Not dynamic.
- **smdr.AccessCodeTimeOffset**—Synchronizes the Access Code record start time value in the ETM Server with that of the PBX. The default is 3 minutes. Not dynamic.
- **smdr.CorrelateDelay**—Specifies the delay after SMDR data is parsed before finding requests for the data. The default is 5 seconds. Not dynamic.
- **smdr.DebugPerSwitch**—Determines whether SMDR debug logs are to be segregated per Switch (True) or consolidated in one file (False). The default is False. Dynamic.
- **smdr.DriftDelta**—Specifies the acceptable margin of error for calculating the time drift between the ETM Server and the PBX. The default is 15 seconds. Not dynamic.
- **smdr.DurationAmbigThresh**—Specifies a bounding period that must contain only one matching call's duration for the call to be considered an exclusive match. If multiple matching calls have a duration within this period, the SMDR match algorithm will continue to execute and may end up with an ambiguous resolution. *See also **smdr.StartTimeAmbigThreshold***. The default is 6 seconds. Not dynamic.
- **smdr.DurationOffset**—Defines the allowable difference in duration between the data received via SMDR and the duration as measured by the ETM System. The default is 3 minutes. Not dynamic.
- **smdr.FailedResolvesWarningCount**—Specifies the count of sequential unmatched outbound SMDR records before a Diagnostic Log message is generated. The default is 100. Not dynamic.
- **smdr.NumRetainedAccessCodes**—Specifies how many uncorrelated Access Codes extracted from SMDR are to be retained at a time. Uncorrelated Access Codes are Access Codes that have been extracted from SMDR but have not yet matched an SMDR request. The default is 1000. Not dynamic.
- **smdr.NumRetainedRequests**—Specifies the number of uncorrelated SMDR requests that will be retained at a time.

Uncorrelated requests are Span requests for SMDR from the Server that have not yet matched a parsed SMDR record. The default is 1000. Not dynamic.

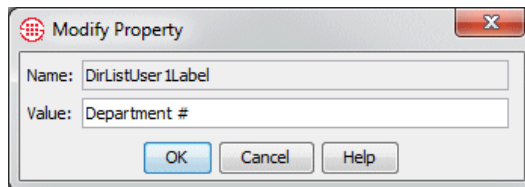
- **smdr.PreferCompletedCalls**—Determines whether completed calls take precedence over calls in progress (True) when both match an SMDR record. The default is True. Not dynamic. **Note:** *It is strongly recommended that you leave this setting at the default for best results.*
- **smdr.RecordingDirectory**—Denotes the base directory where SMDR recordings are stored. The default is ps/smdr-recording under the ETM Server installation directory. Not dynamic.
- **smdr.RequireCompletedCalls**—Determines whether only completed calls can match SMDR data (True) or whether incomplete calls are also considered potential matches (False). The default is True. Not dynamic. **Note:** *It is strongly recommended that you leave this setting at the default for best results.*
- **smdr.SampleCount**—Denotes the number of samples to use when calculating time drift between the ETM Management Server and the PBX. The default is 100. Not dynamic.
- **smdr.StartTimeAmbigThresh**—Specifies a bounding period that must contain only one matching call's start time for the call to be considered an exclusive match. If multiple matching calls start within this period, the SMDR match algorithm will continue to execute and may end up with an ambiguous resolution. *See also **smdr.DurationAmbigThreshold**.* The default is 6 seconds. Not dynamic.
- **smdr.StartTimeOffset**—Defines the allowable difference in start time between the data received via SMDR and the start time as measured by the ETM System. The default is 30 seconds. Not dynamic.
- **smdr.UnresolvedInboundRequestsWarningCount**—Specifies the count of sequentially received unresolved requests for inbound SMDR at which a Diagnostic Log message is generated. The default is 100. Not dynamic.
- **smdr.UnresolvedRequestsWarningCount**—Specifies the count of sequentially received unresolved requests for outbound SMDR at which a Diagnostic Log message is generated. The default is 100. Not dynamic.
- **VerboseLoginMessageEnabled**—Controls whether verbose login messages are provided. Values are True or False. The default is False. Not dynamic..
- **WebETMAllowDuplicates**—Specifies whether the same user can log in concurrently from the ETM System Console and the Web Portal, or from multiple Web Portal instances. The default is False. Not dynamic. Not applicable to this release.

- **WebETMAnonymousLoginUser**—Specifies the username associated with anonymous login to the Web Portal. If no username is specified, anonymous login is disabled. Dynamic. Not applicable to this release.

Changing User-Defined Directory Listing Field Labels

To change the labels for the user-defined Directory Listing fields

1. In the ETM System Console, click the Server whose properties you want to edit, and then click **Servers | ETM Server Properties**. The **ETM Server Properties Tool** appears.
2. Click the heading of the **Name** column to sort the entries in alphabetical order.
3. Locate the fields named **DirListUser1Label**, **DirListUser2Label**, and **DirListUser3Label**. These fields correspond to the fields labeled **Custom 1**, **Custom 2**, and **Custom 3** by default in a Directory Listing, as denoted by the **Default** column.
4. To change the value for a field, click the field, and then click **Edit**. The **Modify Property** dialog box appears.



5. In the **Value** box, replace the current text with the text you want as the label.
6. Click **OK**. The change is saved and applied. Note that the **Dynamic** field for this property contains **True**, which means you do not have to restart the Server for the change to take effect.
7. Click **Close**.

Discarding Duplicates in a Directory Import File

By default, duplicate entries in a Directory Listing import file are processed. If you want duplicates to be discarded before reconciliation occurs, modify the **DelDupsOnImport** value in the **ETM Server Properties Tool**. If the value is set to 'TRUE', when duplicate entries are encountered in an import file, only the LAST duplicate entry in the import file is saved.

To modify the value

1. In the ETM System Console, click the Server whose properties you want to edit, and then click **Servers | ETM Server Properties**. The **ETM Server Properties Tool** appears.
2. Click the **DelDupsOnImport** property, and then click **Edit**. The **Modify Property** dialog box appears.

3. Type the value in the **Value** field. Valid values are TRUE (duplicates are discarded), and FALSE (duplicates are processed).
4. Click **OK**. This property is dynamic, so you do not need to restart the Server for it to take effect.

Billing Rate Decimal Precision

Billing rate decimal precision governs the number of decimal places that can be specified for the rate in a Billing Rule. The default is 4.

To change the decimal precision for Billing Rules

1. In the ETM System Console, click the Server whose properties you want to edit, and then click **Servers | ETM Server Properties**. The **ETM Server Properties Tool** appears.
2. Click the **BillingRuleGUI.RatePrecision** property, and then click **Edit**. The **Modify Property** dialog box appears.
3. Type an integer in the **Value** field.
4. Click **OK**. This property is dynamic, so you do not need to restart the Server for it to take effect.

Active-to- Historical Data Transfer Properties

It is recommended that you contact SecureLogix Customer Support for advice before changing these properties.

Each instance in the ETM Database stores two sets of call, IPS, and Diagnostic Log data: *active* and *historical*. This enables the ETM Database to function as both a transactional and data warehouse database, and improves performance for reports.

The **Policy Log** retrieves data from the active data area; the Usage Manager retrieves data from the historical data area. Once data has been copied to the historical area, it is available for reports. Once data has been deleted from the active area, it is no longer viewable in the **Policy Log**. By default, the copy frequency is twice as often as the delete frequency. Note that data is never deleted from the active area unless it has been copied to the historical area and is older than the specified delete frequency. By default, data is copied to the historical area every 6 hours and copied data is deleted from the active area every 12 hours. You can change these values using the **ETM Server Properties Tool** in the ETM System Console.

The process that migrates the data from the active tables to the historical tables reads the property values governing the transfer every time it performs a migration task (that is, at the specified copy and delete frequencies). You do not need to restart the Management Server for changes to take effect unless you want them to take effect immediately. Note that only positive numbers are allowed as values. If the value you type for these fields is non-numeric or negative, the system logs an error and uses the defaults.

To change the active-to-historical transfer settings

1. In the ETM System Console, click the Server whose properties you want to edit, and then click **Servers | ETM Server Properties**. The **ETM Server Properties Tool** appears.
2. Double-click the property you want to change, make changes, and then click **OK**. These properties are dynamic, so you do not need to restart the Server for them to take effect unless you want them implemented immediately.

The following properties govern how often data is copied and deleted and the batch size for these actions:

- **DeleteActionsBatchSize** specifies how many records are deleted at a time during the deletion of previously copied records. The default is 10,000 records.
- **DeleteActionsFrequency** specifies how often records that have already been copied to the historical call table are deleted from the active call table. The default is 12 hours.
- **InsertActionsBatchSize** specifies how many records are copied at a time during copy of records from the active to historical call table. The default is 10,000 records.
- **InsertActionsFrequency** specifies how often records are copied from the active to the historical call table. The default is 6 hours. Note that you should not set the copy frequency to a very small value (a minimum of 30 minutes), or long-running reports may fail with a "stale rollback segment" error (depending on your call volume and rollback segment size).

To view a description of a property, click the row for the property, and then click **Description**.

These values are instance specific. Changes apply only to the instance used by the Server you are logged in to.

IPS Detection Engine Polling Interval

By default, the IPS detection engine executes to evaluate the thresholds every 5 minutes. Depending on the number of thresholds being monitored, you can change this frequency to a higher value to decrease processing load on the Management Server computer.

To change the Detection Engine Polling Interval

1. In the ETM System Console, click the Server whose properties you want to change.
2. On the main menu, click **Servers | ETM Server Properties**. The **ETM Server Properties Tool** appears.
3. Click the item named **IPSPollInterval**, and then click **Edit**. The **Modify Property** dialog box appears.
4. In the **Value** box, type the value, and then click **OK**. Valid values are 30 seconds to 60 minutes. Note that the **Dynamic** field for this property is **true**. This means you do not have to restart the Server for the change to take effect; the polling engine reads the new value at its next execution, at which time it changes to the new value.

IPS Rule Complete Delay

After the interval for an IPS Rule has completed, call data being received from the Spans continues to be applied to the accumulations for a user-configurable amount of time, to allow for late-arriving messages. The default is 5 minutes.

To change the Rule complete delay value

1. In the ETM System Console, click the Server whose properties you want to change.
2. On the main menu, click **Servers | ETM Server Properties**. The **ETM Server Properties Tool** appears.
3. Click the item named **IPSRuleCompleteDelay**, and then click **Edit**. The **Modify Property** dialog box appears.
4. In the **Value** box, type the new value. Note that the **Dynamic** field for this property is **true**. This means you do not have to restart the Server for the change to take effect; it is read by the polling engine at its next execution, at which time it changes to the new value.

Number of Reconciliations to Report

By default, each Import Set in the Directory Manager retains five reconciliation histories. You can use the **ETM[®] Server Properties Tool** to set this to a different value.

To change the number of reconciliation reports retained

1. In the ETM[®] System Console, click the Server whose properties you want to change.
2. On the main menu, click **Servers | ETM Server Properties**. The **ETM Server Properties Tool** appears.
3. Click the item named **ReconciliationReportHistoryCount**, and then click **Edit**. The **Modify Property** dialog box appears.
4. In the **Value** box, type a positive integer, and then click **OK**. This property is dynamic, so you do not need to restart the Server. If the Directory Manager is open, close and reopen it to see the change.

Access Code Import and Distribution Settings

To prevent overwhelming the mail server when Access Codes are distributed, you can set the number of emails to be sent at once and the interval between batches sent. You can also specify the allowable number of errors before an Access Code distribution or import attempt should abort and you can set the number of threads to be used.

To change the Access Code import and distribution settings

1. In the ETM[®] System Console, click the Server whose properties you want to change.
2. On the main menu, click **Servers | ETM Server Properties**. The **ETM Server Properties Tool** appears.

3. Double-click the setting for which you want to change the value, make changes, and click **OK**.

The following settings apply to Access Code distribution throttling and errors. These settings are dynamic, which means you do not need to restart the Management Server for them to take effect.

To view a description of a property, click the row for the property, and then click **Description**.

These values are instance specific. Changes apply only to the instance used by the Server you are logged in to.

- **AccessCodeDistributionBatchSize** specifies how many emails are sent to the mail server at once before pausing so the mail server can process the queue. The default is 50. Setting this value to 0 disables throttling.
- **AccessCodeDistributionThrottlePeriod** specifies the delay between sending batches of emails to the email server. The default is 1 second. Setting this value to 0 disables throttling.
- **AccessCodeSetDistributionErrorThreshold** specifies the number of allowed distribution errors before an Access Code Set distribution attempt aborts. The default is 100. To disable aborting based on errors, set this value to -1.
- **AccessCodeSetImportErrorThreshold** specifies the number of allowed parsing errors before an Access Code Set import attempt aborts. The default is 100. To disable aborting based on errors, set this value to -1.
- **AccessCodeSetDistributionThreadCount** specifies the number of threads to be used in distributing an Access Code Set. The default is 10. Valid values are 1 or more. When delivering email to an email server, the inherent delay caused by email server processing makes it advisable to use multiple threads for email distribution. Using a single thread significantly slows down distribution, and the threads are not resource-intensive.

Failed Login Properties

To change failed login properties

1. In the ETM[®] System Console, click the Server whose properties you want to change.
2. On the main menu, click **Servers | ETM Server Properties**. The **ETM Server Properties Tool** appears.
3. Double-click the property you want to change, make changes, and then click **OK**.

The following properties govern failed login attempts:

- **FailedLoginLockoutCount**—The number of failed login tries after which an account is locked. The default is 4 attempts.
- **FailedLoginLockoutPeriod**—The amount of time for which an account is locked if the **FailedLoginLockoutCount** is exceeded. The default is 15 minutes.

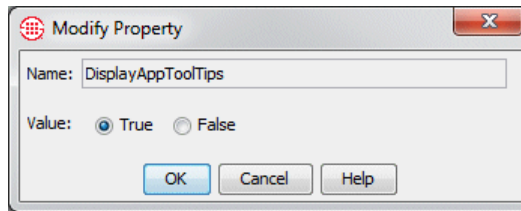
- **FailedLoginLockoutRetryPeriod**—The period for which failed login attempts are counted against an account. Begins at the first failed attempt. The default is 30 minutes.
- **VerboseLoginMessageEnabled**—Controls whether verbose login messages are provided. Values are True or False. The default is False. Not dynamic..

Span Tool Tip Property

By default, if a Span contains a comment on the **General** tab of its **Configuration** dialog box, a tool tip containing the comment appears when you hover the mouse cursor over the Span icon in the Performance Manager tree pane. This feature applies to all resources below the Card level in the Telco Configuration subtree, including Spans, Signaling Links, and Caches. You can optionally disable this tool tip.

To disable the Span tool tip

1. In the ETM System Console, click the Server for which you want to disable the Span tool tip.
2. On the main menu, click **Servers | ETM Server Properties**. The **ETM Server Properties Tool** appears.
3. Double-click the property named **DisplayAppToolTips**. The property opens in the **Modify Property** dialog box.



4. To disable the tool tip feature, select **False**. To re-enable the tool tip, select **True**.

This property is dynamic, so you do not have to restart the Server for the change to take effect. However, if the Performance Manager is open, you must close and reopen it before the change is reflected.

Scheduled Report Retry Settings

Two settings govern whether failed Scheduled Reports are retried, and if so, how many times and how far apart. See “Scheduled Report Retry Settings” in the *Usage Manager User Guide* for details about these settings. These settings are not dynamic; you must restart the Server for changes to take effect.

- **SchRptRetryCount** specifies the number of retry attempts. When set to 0 (the default) no retry occurs.
- **SchRptRetryDelay** specifies the time between retries. The default is 30 minutes.

SMDR Configuration

For SMDR to work properly, a number of settings are configured to work together. These include:

- Settings in the **Switch Properties** dialog box that enable SMDR to be used by identifying the SMDR Provider Card, the type of SMDR, time correlation settings, correct parse file for the SMDR format, SMDR extension conversion information, and associated Access Code Set. See “Configuring a Switch for SMDR” in the *ETM® System Installation and Configuration Guide* for details.
- SMDR resolution settings in the **ETM Server Properties Tool** that govern SMDR correlation thresholds. See “SMDR Correlation Settings” on page 56 and “Ambiguous SMDR Resolution” on page 59 for details.
- The **Request Inbound SMDR** and **Request Outbound SMDR** settings on the **Channel Map** tab of the **Span Configuration** dialog box. See “Channel Map Tab” in the *ETM® System Installation and Configuration Guide* for details.
- The **SMDR Timeout** setting on the **Telephony** tab of the **Span Configuration** dialog box. See “SMDR Timeout Setting” on page 146 for details.

Other optional SMDR settings include:

- Setting Track Actions to refire when SMDR is received. See “Setting Track Actions to Refire After SMDR Update” on page 58 for details.
- Enabling a separate SMDR debug log per Switch for troubleshooting, instead of having all of the information in one file for all Switches. See “Enabling a Separate SMDR Debug Log per Switch” on page 59 for details.

SMDR Correlation Settings

The following properties in the **ETM Server Properties Tool** govern SMDR resolution thresholds.

- **smdr.AccessCodeTimeOffset**—Synchronizes the Access Code record start time value in the ETM Server with that of the PBX. The default is 2 seconds. Not dynamic.
- **smdr.CorrelateDelay**—Specifies the delay after SMDR data is parsed before finding requests for the data.. The default is 5 seconds. Not dynamic.
- **smdr.DebugPerSwitch**—Determines whether SMDR debug logs are to be segregated per Switch (**TRUE**) or consolidated in one file (**FALSE**). The default is **FALSE**. Dynamic.
- **smdr.DriftDelta**—Specifies the acceptable margin of error for calculating the time drift between the ETM Server and the PBX. The default is 15 seconds. Not dynamic.

- **smdr.DurationAmbigThresh**—Specifies a bounding period that must contain only one matching call's duration for the call to be considered an exclusive match. If multiple matching calls have a duration within this period, the SMDR match algorithm will continue to execute and may end up with an ambiguous resolution. *See also **smdr.StartTimeAmbigThreshold***. The default is 6 seconds. Not dynamic.
- **smdr.DurationOffset**—Defines the allowable difference in duration between the data received via SMDR and the duration as measured by the ETM System. The default is 3 minutes. Not dynamic.
- **smdr.FailedResolvesWarningCount**—Specifies the count of sequential unmatched outbound SMDR records before a Diagnostic Log message is generated. The default is **100**. Not dynamic.
- **smdr.NumRetainedAccessCodes**—Specifies how many uncorrelated Access Codes extracted from SMDR are to be retained at a time. Uncorrelated Access Codes are Access Codes that have been extracted from SMDR but have not yet matched an SMDR request. The default is 1000. Not dynamic.
- **smdr.NumRetainedRequests**—Specifies the number of uncorrelated SMDR requests that will be retained at a time. Uncorrelated requests are Span requests for SMDR from the Server that have not yet matched a parsed SMDR record. The default is 1000. Not dynamic.
- **smdr.PreferCompletedCalls**—Determines whether completed calls take precedence over calls in progress (**TRUE**) when both match an SMDR record. The default is **TRUE**. Not dynamic. **Note:** *For best results, it is strongly recommended that you leave this setting at the default.*
- **smdr.RequireCompletedCalls**—Determines whether only completed calls are considered when matching SMDR data (**TRUE**) or whether incomplete calls are also considered potential matches (**FALSE**). The default is **TRUE**. Not dynamic. **Note:** *For best results, it is strongly recommended that you leave this setting at the default.*
- **smdr.SampleCount**—Denotes the number of samples to use when calculating time drift between the ETM Management Server and the PBX. The default is 100. Not dynamic.
- **smdr.StartTimeAmbigThresh**—Specifies a bounding period that must contain only one matching call's start time for the call to be considered an exclusive match. If multiple matching calls start within this period, the SMDR match algorithm will continue to execute and may end up with an ambiguous resolution. Not dynamic. *See also **smdr.DurationAmbigThreshold***. The default is 6 seconds.

- **smdr.StartTimeOffset**—Defines the allowable difference in start time between the data received via SMDR and the start time as measured by the ETM System. The default is 3 minutes. Not dynamic.
- **smdr.UnresolvedInboundRequestsWarningCount**—Specifies the count of sequentially received unresolved requests for inbound SMDR at which a Diagnostic Log message is generated. The default is 100. Not dynamic.
- **smdr.UnresolvedRequestsWarningCount**—Specifies the count of sequentially received unresolved requests for outbound SMDR at which a Diagnostic Log message is generated. The default is 100. Not dynamic.

Setting Track Actions to Refire After SMDR Update

Because SMDR data may not be available until a call has ended, termination cannot be enforced, but multiple actions specified for a Rule triggered by the call can be performed. For outbound calls, you can configure the Management Server to refire email notifications, SNMP traps, syslog alerts, and real-time alerts after SMDR data is received. For example, if the Firewall Policy Emergency Rule fires on a Span that requires SMDR for outbound source, you can specify that the actions for the Rule fire again after SMDR is received (after the call ends) so that you can identify the source of the call.

You can enable this behavior for all calls, (not recommended) or only for specific types of calls, such as emergency calls.

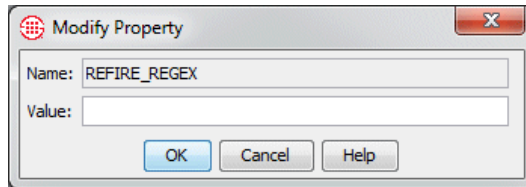
Calls for which Tracks should refire are identified by the Destination Phone Number Label, which is defined in the Span's Dialing Plan and is stored in logs in the **Destination Details** field. See "Phone Number Labels" in the *ETM® System Technical Reference* for more information and a list of the default labels.

The refire value for REFIRE_REGEX is stored in the **PROPERTIES** table for each Data Instance in the ETM Database. By default, the refire value is set to NULL. You can change this value using the **ETM Server Properties Tool** in the ETM System Console.

Note that the refire setting applies to the Server, not to individual Policies or Spans.

To change the REFIRE_REGEX setting

1. In the ETM System Console, click the Server whose properties you want to edit, and then click **Servers | ETM Server Properties**. The **ETM Server Properties Tool** appears.
2. Double-click the line named **REFIRE_REGEX**. The **Modify Property** dialog box appears.



3. In the **Value** box, type a regular expression denoting the calls for which you want tracks to refire. For example:
 - To refire tracks for all calls (not recommended), type: `. *`
 - To refire tracks only for emergency calls, type: `EMRG`
4. Click **OK**.

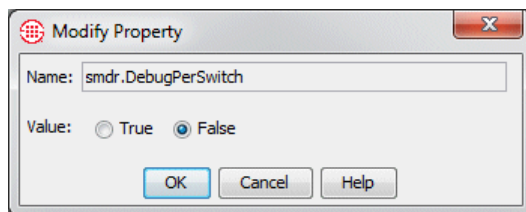
Enabling a Separate SMDR Debug Log per Switch

By default, when SMDR debugging is enabled, SMDR debug information for all configured Switches is captured in a single file named **SMDR_DEBUG.txt**. Optionally, you can cause a separate file to be created for each configured Switch, to ease troubleshooting. The resulting file is named **SMDR_DEBUG_<switchname>.txt**. When this setting is enabled, each entry in the file is prefixed with a timestamp, but not with the Switch name, since the file is unique to the Switch indicated in the filename.

For instructions for enabling SMDR debug logging, see “Enabling SMDR Debug Logging” on page 75.

To enable a separate debug log per Switch

1. In the **ETM Server Properties Tool**, click the property named **smdr.DebugPerSwitch**, and then click **Edit**. The **Modify Property** box appears.



2. Select **True**.
3. Click **OK**. This property is dynamic, so you do not need to restart the Server for it to take effect.

Ambiguous SMDR Resolution

In most environments, SMDR resolution properly correlates calls with called and calling numbers. Some calling environments, however, present challenges in uniquely identifying the called and calling numbers for a call. For example, if multiple internal callers dial the same phone number at nearly the same second, such as for conference calls, SMDR correlation may be ambiguous. These calls are represented in the **Source Details** field of the Call Log as **AMBIG_nnnn**, where n is the extension that could not be uniquely correlated with a call. If multiple SMDR records are potential matches for the same call, the **Source Details** field contains all

of those extensions, up to a maximum of 60 characters. Several values in the **ETM Server Properties Tool**, along with the **Duration** field in the SMDR parse file, allow you to fine-tune the thresholds for labeling SMDR extensions as ambiguous.

- When set to TRUE, the **smdr.RequireCompletedCalls** property prevents SMDR from being correlated with in-progress calls. Whether a call is complete is determined at the time of correlation, which occurs a user-definable number of time after the Server receives the SMDR data from the SMDR provider. The property **smdr.CorrelateDelay** governs the delay between receiving the data and beginning correlation.
- The **smdr.StartTimeAmbigThresh** property defines a bounding period that must contain only one matching call's start time for the call to be considered an exclusive match. If multiple calls fall within that threshold, they are deemed ambiguous, unless the Duration calculation (below) provides a unique resolution.
- If the SMDR data contains both Start Time and Duration and the SMDR parse file is defined to parse the Duration, **smdr.DurationAmbigThresh** is used to further evaluate a potentially ambiguous match. In this case, only if two calls have the same call destination, have a start time within the **smdr.StartTimeAmbigThresh** value and have a Duration within the **smdr.DurationAmbigThresh** value, are they flagged as ambiguous. This can minimize the number of calls that are determined to be ambiguous.

Data Management Tool

The **Data Management Tool** is used to:

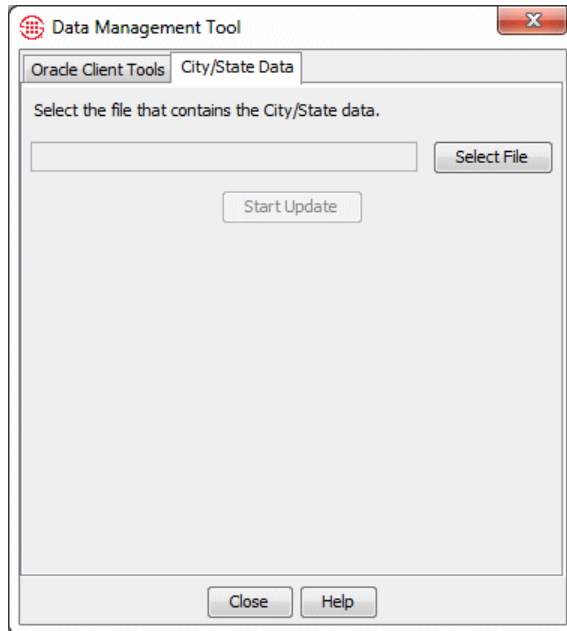
- Specify the location of the Oracle Client Tools used to import city/state data and text files of Directory Listings.
- Import city/state data files periodically as the information changes.

Importing City/State Data

You can include city/state and other locale-based information about called and calling numbers in Usage Manager reports. Periodic import of updated data files keeps the data up-to-date. Updated files are available monthly on the SecureLogix website or by contacting SecureLogix Customer Support.

To import city/state data

1. In the ETM System Console, click the ETM Server for which you want to import data.
2. On the main menu, click **Servers | ETM Server Data Management**. The **Data Management Tool** appears.



3. Click the **City/State Data** tab.
4. Click **Select File** to browse for the file. By default, the **Open** dialog box opens in the ETM Server installation directory.
5. Click **CCMI.slc**, and then click **Open**.
6. Click **Start Update**.

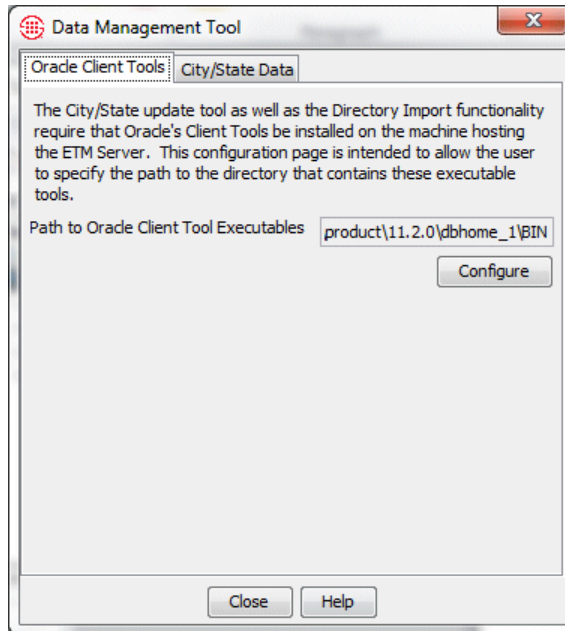
Specifying the Oracle Client Tools Location

The ETM Server uses the Oracle client tools to import Directory Listings and city/state data. Typically, the Management Server is configured with the path to the Oracle client tools during installation.

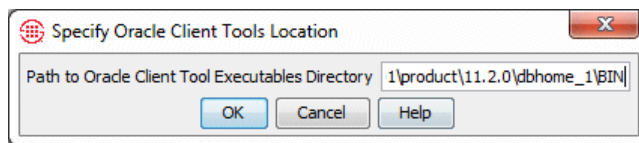
To specify the path to the Oracle client tools

1. In the ETM System Console, click the ETM Server for which you are specifying the information, and then click **Servers | ETM Server Data Management**. The **Data Management Tool** appears.
2. Click the **Oracle Client Tools** tab.

For instructions for installing the Oracle Client Tools on the ETM Server host when the database and ETM Server are on separate computers, see "Installing the Oracle Client Tools" in the *ETM® System Installation Guide*. This task is typically performed during system installation.



3. Click **Configure**. The **Specify Oracle Client Tools Location** dialog box appears.



4. In the **Path to Oracle Client Tools Executables Directory** box, type the path to the directory where the Oracle client tool executables reside on the ETM Server machine. The default location is: **<ORACLE_HOME>\bin**.
5. Click **OK**.

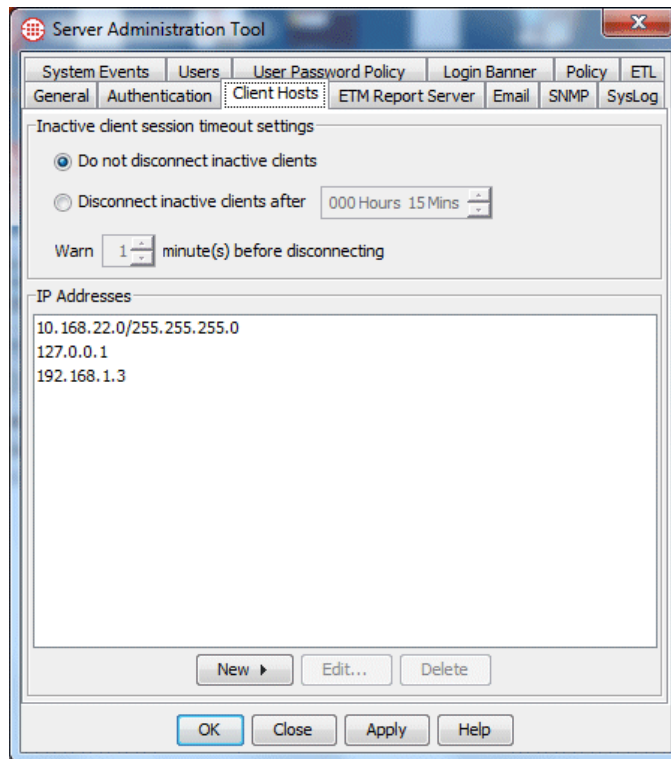
Authorizing Client Connections

Remote client hosts may have external IP addresses.

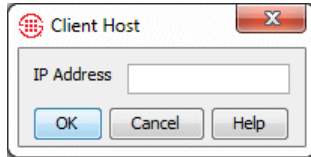
Only ETM System Consoles and Usage Managers whose IP addresses appear in the **Client Hosts** list for the ETM Server are allowed to connect to the Server. You can also use a mask to authorize all ETM client IP addresses within a given subnet (i.e., 10.1.1.255). One client IP address is authorized during system installation. Use the procedure below to add others.

To authorize a remote ETM Client to connect to a Management Server

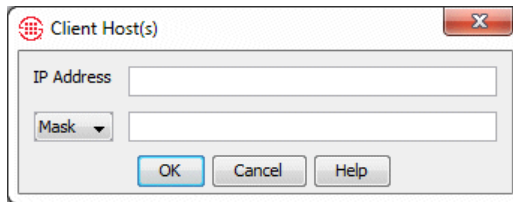
1. Log in to the Management Server from an authorized ETM System Console.
2. In the ETM System Console, click the Management Server to select it.
3. On the ETM System Console main menu, click **Servers | Server Management**. The **Server Administration Tool** appears.
4. Click the **Client Hosts** tab.



5. Do one of the following:
 - To authorize a specific IP address, click **New** and then click **IP Address**. The **Client Host** dialog box appears.



- a. Type the IPv4 or IPv6 address of the Client.
 - b. Click **OK**.
- To authorize a range of IP addresses, click **New** and then click **IP Range**. The **Client Hosts** dialog box appears.



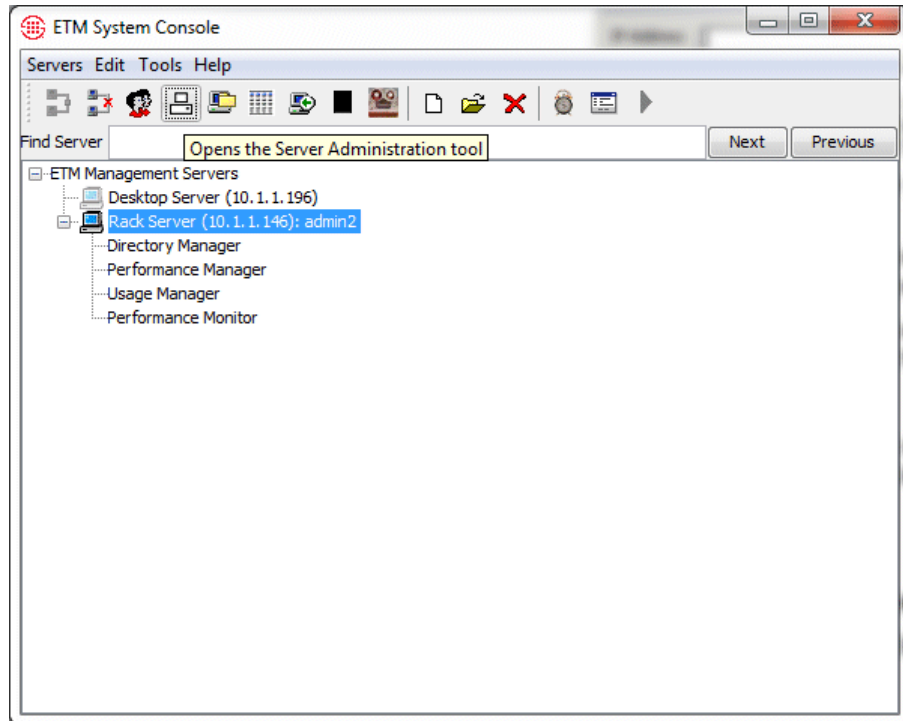
- a. In the **IP Address** box, type the IPv4 or IPv6 base address.
 - b. If you typed an IPv6 address, click the down arrow and select **Prefix**, and then type the prefix length.
 - c. If you typed an IPv4 address, select **Mask** and type the subnet mask or select **Prefix** and type a prefix length.
 - d. Click **OK**.
6. Click **OK** to save the changes and close the dialog box or **Apply** to save the changes and leave the dialog box open.

Configuring an Idle Client Session Timeout

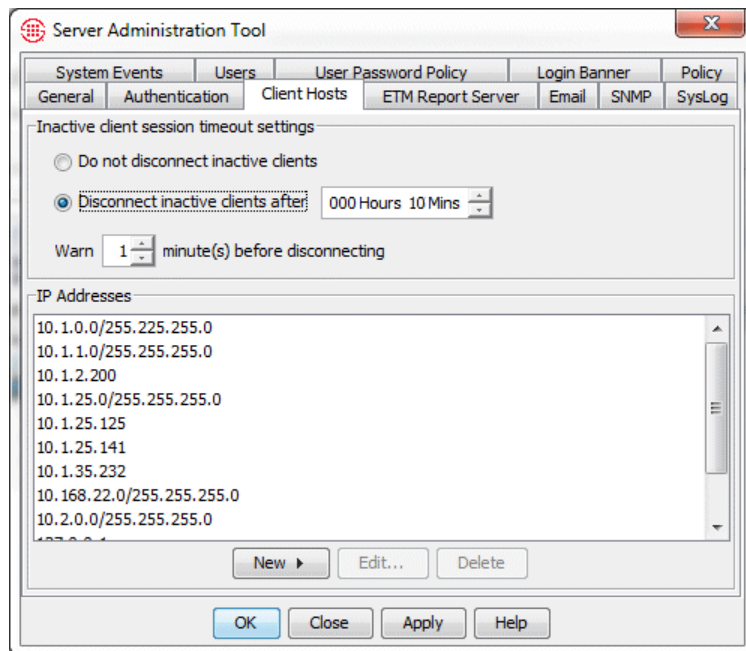
By default, idle ETM Client sessions do not time out and remain connected until you log out or close the ETM System Console or Database Maintenance Tool. However, you can configure an idle Client session timeout. This timeout is configured per Management Server in your deployment.

To configure an inactive (idle) Client timeout

1. On the ETM System Console toolbar, click the Management Server to select it and then click the **Server Administration Tool** icon.




2. Click the **Client Hosts** tab.



3. In the **Inactive client session timeout settings** area, select **Disconnect inactive clients after *hhh*Hours *mm*Mins**.

4. Type or use the up and down arrows to specify the amount of time. When the timeout is enabled, the default is 10 minutes.
5. In the **Warn nn minutes before disconnecting** field, type or use the up and down arrows to select how long before disconnection a warning message is displayed. Taking any action in the GUI such as a mouse click resets the timer for the session so that it does not disconnect.

Authorizing Cards to Connect to the Management Server

Before the Management Server accepts connections from an ETM Appliance Card, you must add the Card's IP address to the Management Server's **Authorized Cards** list. You can also use a subnet mask to authorize all Cards within a specific subnet (for example, **10.1.1.255** authorizes all Cards with a **10.1.1.x** IP address). As soon as you add the IP address to the list, the Management Server accepts connection from the Card and a green  icon for the Card appears in the **Platform Configuration** subtree.

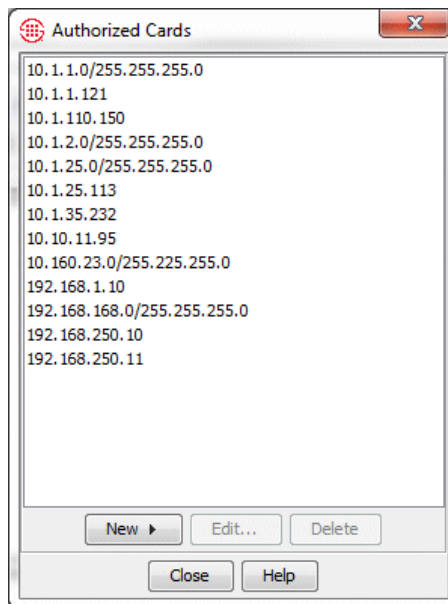
For inline SIP applications, add the Call Processor node's eth2 address to the **Authorized Cards** list.

Cards always initiate contact with the Management Server; the Management Server never initiates contact with the Card.

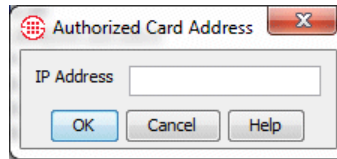
If you are installing a new application or appliance, see the *ETM® System Installation Guide* for complete instructions.

To authorize a Card to connect to the ETM Server

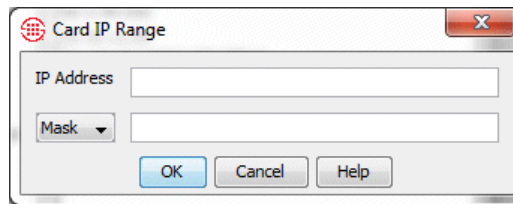
1. On the Performance Manager main menu, click **Manage | Authorized Cards**. The **Authorized Cards** dialog box appears.



2. Do one of the following:
 - To authorize a specific IP address, click **New** and then click **IP Address**. The **Authorized Card Address** dialog box appears.



- a. Type the IPv4 or IPv6 address of the Card.
 - b. Click **OK**. The IP address appears in the **Authorized Cards** dialog box. When a Card connects, a green icon and the Card name appear in the **Platform Configuration** subtree of the Performance Manager tree pane. The Card name defaults to its MAC address; you will assign a more recognizable name in a later procedure.
- To authorize a range of IP addresses, click **New** and then click **IP Range**. The **Card IP Range** dialog box appears.



- a. In the **IP Address** box, type the IPv4 or IPv6 base address.
 - b. If you typed an IPv6 address, click the down arrow and select **Prefix**, and then type the prefix length.
 - c. If you typed an IPv4 address, select **Mask** and type the subnet mask or select **Prefix** and type a prefix length.
 - d. Click **OK**.
3. The IP address appears in the **Authorized Cards** dialog box.
 4. Click **Close**. When a Card connects, a green icon and the Card name appear in the **Platform Configuration** subtree. Upon initial connection, the Server accepts and stores configuration from the Card.

After the Card has connected, the Server is authoritative on all configuration. See "Server Authority Over Appliance/ Application Configuration" on page 97 for details.

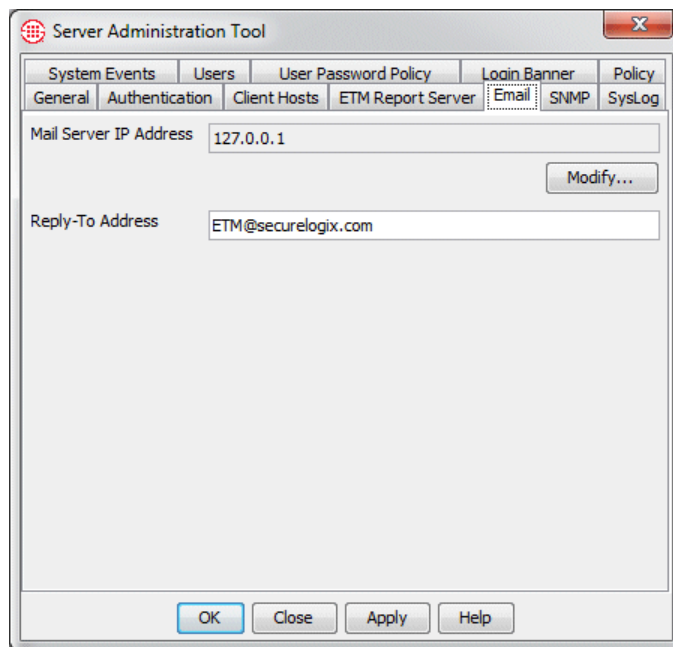
For complete Card configuration instructions, see "Card Configuration" in the *ETM[®] System Installation Guide*.

Specifying an Email Server

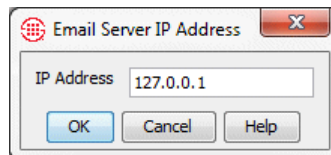
The Management Server can send email notifications of Policy, telco, and system events, and send Scheduled Reports as attachments. However, before the Management Server can send email, an email server and reply-to address must be specified.

To specify an email server and reply-to address

1. On the ETM System Console main menu, click **Servers | Server Management**. The **Server Administration Tool** appears.
2. Click the **Email** tab.



3. Under the **Mail Server IP Address** box, click **Modify**. The **Email Server IP Address** dialog box appears.



4. Type the IP address or hostname of the mail server, and then click **OK**.
5. In the **Reply-To Address** box, type the email address that is to appear in the **From** and **Reply-To** field of the email message header. This is the address to which email is sent when someone replies to a Management Server email. If you do not specify a Reply-To address,

Be certain to define the **Reply-To Address**, because some email servers reject email from fabricated email addresses.

Management Server-generated email messages have **ETM Management Server <Email@ETM>** in the **From** field.

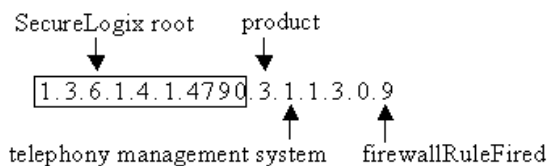
6. Click **OK** to apply the change and close the dialog box or **Apply** to apply the change and leave the dialog box open.

SNMP

In a TCP/IP network, networked devices can report events to an SNMP server via SNMP traps. In the ETM System, the ETM Server can report events for any ETM System component to the host-network server. The ETM System supports SNMPv2 protocol and Specification of Management Information (SMI) v2 to send traps to a host-network SNMP server and provides the SecureLogix Management Information Base (MIB) to interpret the data. The MIB definitions are provided in the SecureLogix MIB files, which are installed in the ETM System installation directory when you install the ETM System Console, ETM Server, Usage Manager Report Server or GUI, or the ETM Database Maintenance Tool.

The SecureLogix MIB

The SecureLogix MIB files contain the traps and their descriptions used for ETM Server-generated SNMP traps. When a trap is sent, it is in the format 1.3.6.1.4.1.4790.3.1.1.3.0.9 and contains a text description of the trap; the format in which it appears on the receiving end depends on the configuration of your network's MIB manager. A prefix of 1.3.6.1.4.1.4790.3.1.1 indicates an SNMP trap in the SecureLogix ETM System private MIB; the numbers at the end of the sequence indicate the trap that was sent. For example, **1.3.6.1.4.1.4790.3.1.1.3.0.9** specifies that a Firewall Rule fired.



If you installed the ETM System in the default location, the path to the MIB files is: **C:\Program Files\SecureLogix\ETM\SNMP**

For proper configuration, ask your network administrator to import the SecureLogix MIB files into the host network's SNMP manager.

The topics below describe the traps provided by the ETM System.

Rule Fired Traps

The following types of Policy-Rule-fired traps are provided: Firewall Policy Rule Fired, and IPS Policy Rule Fired,.

Firewall Policy Rule Fired traps include:

- Call Information: Start Time, Direction, Call Label, Call Type, Status (allowed or terminated), Source (Name, Site, Department, Location), Destination (Name, Site, Department, Location)

- Span Name
- Switch
- Server Name
- Policy Information: Name, Rule Number, Rule Comment

IPS Policy Rule Fired traps include:

- Server Name
- Policy Information: Name, Rule Number, Comment, Action
- Interval Information: Create Time, End Time, Current and Completed Count, Current and completed Duration, Current and Completed Cost, Threshold Count, Threshold Duration, and Threshold Cost

Diagnostic Traps

Four types of Diagnostic traps are provided: Management Server, Card, and Span. All of these traps contain the following information:

- Source—MAC address plus Span offset. Span offset for Spans is the Span number (1-4); for Cards, it is -1.
- Application type
- Management Server name
- Diagnostic type and subtype
- Timestamp
- Resource
- Description

Card Diagnostics also include Card name, Appliance, and Card model.

Span Diagnostics also include Span name, Span type, Appliance, Card model, Switch, and Span number (1-4).

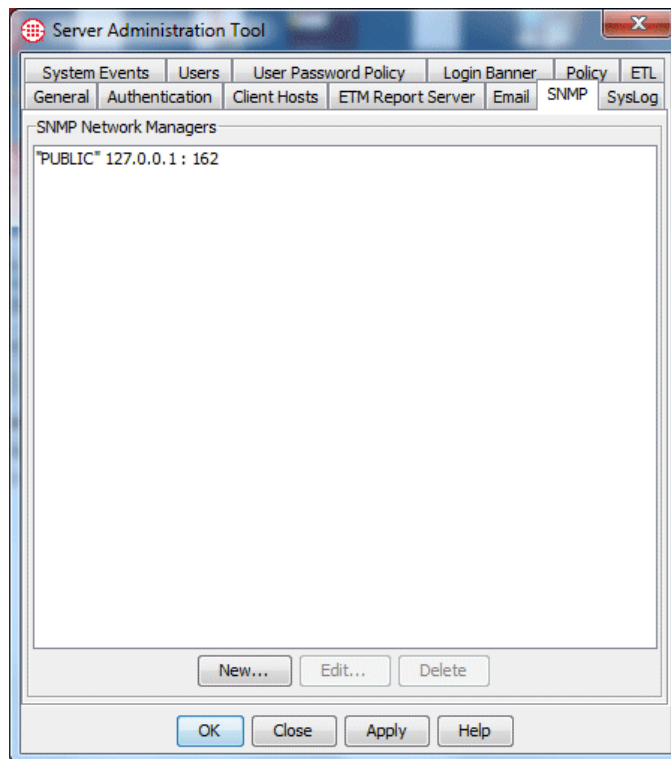
Specifying an SNMP Network Manager

Before the Management Server can send SNMP traps, the IP address(es) of one or more SNMP network managers must be specified.

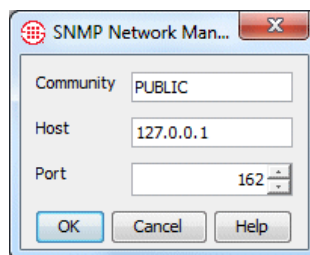
You can specify multiple SNMP Network Managers to receive ETM System traps. When an SNMP trap is generated, it is sent to all of the Network Managers listed in this dialog box.

To specify an SNMP Network Manager

1. On the ETM System Console main menu, click **Servers | Server Management**. The **Server Administration Tool** appears.
2. Click the **SNMP** tab.



3. Click **New**. The **SNMP Network Manager** dialog box appears.



4. Modify fields as needed for your Network Manager, and then click **OK**.
5. Repeat for additional Network Managers, if needed.

Syslog Alerting

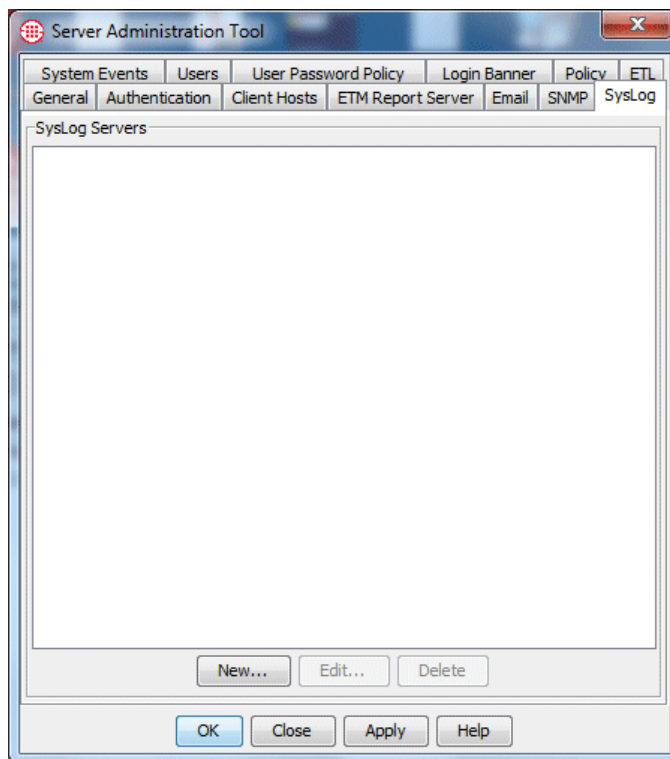
The ETM System supports system event and Policy alerting via Syslog. You can specify one or more Syslog servers to receive alerts generated in response to specific system events or firing of Policy rules. Generated alerts are sent to all configured Syslog servers. You can also run a desktop Syslog daemon and receive alerts to your desktop. For example, you might want to handle 911 alerts this way.

Specifying Syslog Servers

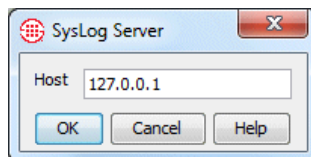
To specify a Syslog server

1. With the Server selected in the tree, on the ETM System Console main menu, click **Servers | Server Management**.

The **Server Administration Tool** appears.



2. Click the **Syslog** tab.
3. Click **New**. The **Syslog Server** dialog box appears.



4. In the **Host** box, type the IP address of the Syslog server.
5. Only the default Syslog port (514) is supported in this release.
6. Click **OK**. The Syslog server appears in the Syslog servers list.
7. Repeat for additional servers as needed. When you are done, click **OK** to save the changes and close the dialog box, or **Apply** to save the changes and leave the dialog box open.

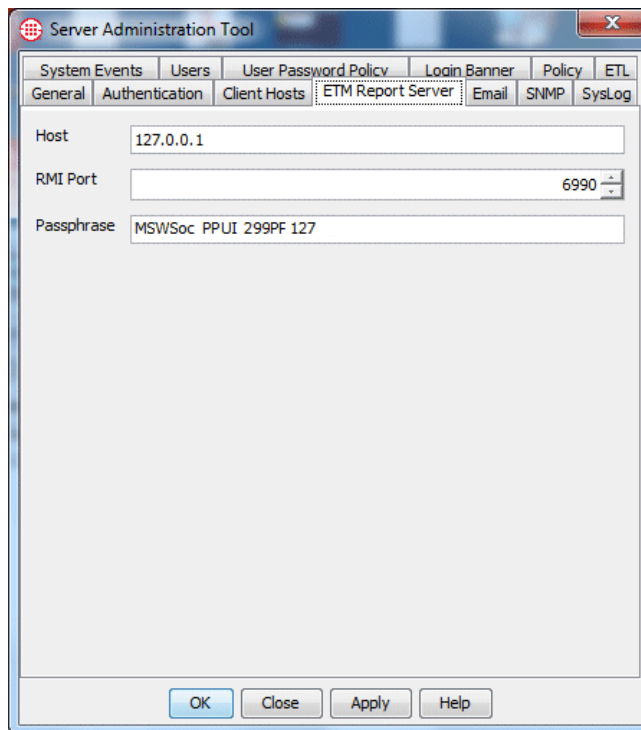
Report Server Connection Information

The ETM Report Server is associated with a single Management Server. Typically, the Report Server and the Management Server are installed on the same computer, although they can be installed on separate computers. The **ETM Report Server** tab provides information that enables the Management Server to connect to the Report Server. Typically, this information is provided during installation and requires no modification unless you change port assignments or move the Report Server to another computer.

Viewing and Modifying Report Server Connection Information

To view or modify Report Server connection information

1. On the ETM System Console main menu, click **Servers | Server Management**. The **Server Administration Tool** appears.
2. Click the **ETM Report Server** tab.



- **Host**—The fully qualified host name or IP address of the computer on which the Report Server is installed. If the Report

Server is configured to communicate with remote Usage Manager clients through a NAT firewall, you must specify the hostname that was entered in the **hosts** file of the Report Server host computer. See “Connecting Through a Firewall” in the *ETM® System Technical Reference* for details.

- **RMI Port**—The port on which client applications communicate with the Report Server. This value must match the value set in the **twms.properties** file on the Report Server computer. The default is **6990**. If the Report Server and the Management Server are installed on the same computer, both use the same RMI port.
- **Password**—The DES key password for encrypted communication between the Usage Manager and the RMI registry. Initial communication is always encrypted to validate the connection. This DES key is specified in the **twms.properties** file on the Report Server computer, in the section labeled **RegistryPassword**. If the Report Server and the Management Server are installed on the same computer, both use the same RMI password.

Log Management

Log types include the following:

- **Appliance debug Logs**, stored on the Management Server’s hard drive, are only created if enabled for troubleshooting system issues.
- **Call records**, stored in the database, contain telecommunications monitoring and Firewall Policy processing data.
- **Diagnostic records**, stored in the database, contain messages relating to ETM System and telecom operation.
- **Error logs**, stored on the Management Server's hard drive, contain records of system and user errors.
- **IPS records**, stored in the database, contain IPS Policy processing data.
- **SMDR debug logs**, stored on the Management Server's hard drive, are only created if enabled for troubleshooting SMDR resolution issues.

The Oracle DBMS provides settings that can control database size. Refer to your Oracle documentation for information.

By default, the ETM System stores data permanently, with the only size limit being the amount of disk space available on the computer where the data is stored, or settings you have defined in your ETM Database to limit the size. However, you can specify log storage limits for call, IPS, error, and diagnostic logs and enable the ETM System to automatically adjust data storage according to the limits you specify.

SMDR debug and Appliance debug event logs cannot be automatically purged; when they are no longer needed, they should be manually deleted. See "Accessing an ETM® Server File from the ETM® Client" on page 81 for instructions for remotely deleting the unneeded files. The contents of these logs are described in "Error and Debug Logs" in the *ETM® System Technical Reference*.

Enabling SMDR Debug Logging

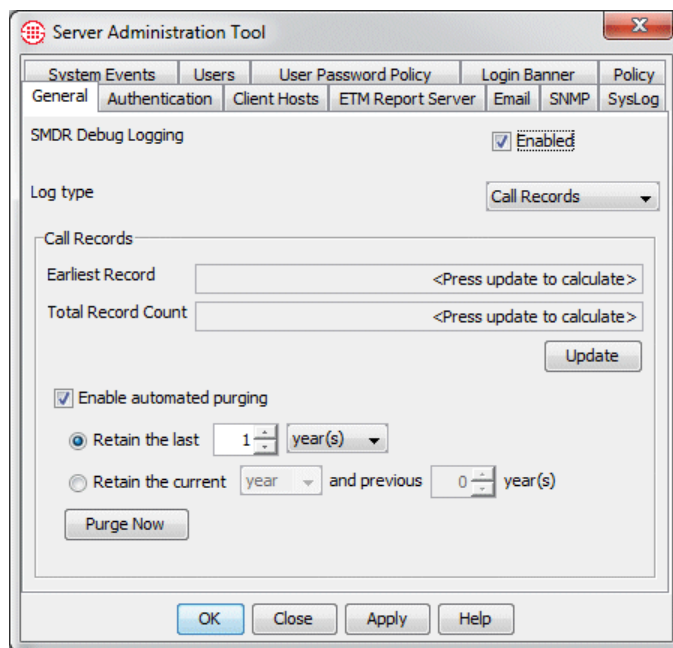
SMDR debug logging can be used for configuring the ETM System to use SMDR data and for troubleshooting SMDR resolution issues. When enabled, SMDR debug logging captures SMDR data and debugging information in a file on the hard drive of the Server computer. By default, SMDR information for all configured Switches is captured in a single file named **SMDR_DEBUG.txt**. Each message is prefixed with a timestamp and the Server name. Optionally, you can cause a separate file to be created for each configured Switch, to ease troubleshooting. For instructions for generating a separate file per Switch, see “Enabling a Separate SMDR Debug Log per Switch” on page 59.

By default, SMDR debug files are located at the following path:

C:\Program Files\SecureLogix\ETM\ps\debug

To enable/disable SMDR debug logging

1. On the ETM System Console main menu, click **Servers | Server Management**. The **Server Administration Tool** appears.



2. On the **General** tab, in the **SMDR Debugging** area:
 - Select the **Enabled** check box to capture raw SMDR data.
 - Clear the **Enabled** check box when you no longer need to store the data, so that it does not unnecessarily consume hard drive space.
3. Click **OK** to apply the setting and close the dialog box, or **Apply** to apply the setting and leave the dialog box open.

4. SMDR data and debugging information is captured and stored until you disable this setting.

For instructions for viewing this log file from the ETM Client, see "Accessing an ETM® Server File from the ETM® Client" on page 81.

See "Reading the SMDR Debug Log" in the *ETM® System Technical Reference* for details about the contents of the log.

Viewing Current Log Storage

To view current log storage

1. On the ETM System Console main menu, click **Servers | Server Management**. The **Server Administration Tool** appears.
2. Click the **General** tab, if not already selected.
3. In the **Log type** box, click the down arrow, and then click the type of log for which you want to view information: **IPS Records**, **Error Logs**, **Call Records**, or **Diagnostic Records**. The area below the box changes to reflect the type of log selected.
4. Click **Update**. The information is updated.
 - For call, IPS, and diagnostic logs, the date and time of the earliest record and the total record count are shown.
 - For error logs, the date of the earliest log file and the cumulative log size in MB are shown.

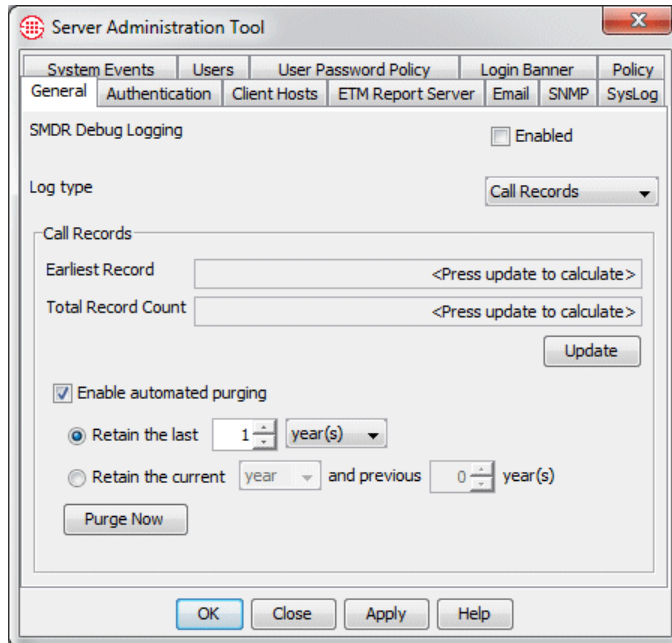
Enabling Automatic Purging of Logs

By default, the Management Server stores log data permanently, with the only size limit being the amount of disk space available. However, you can allow the ETM System to automatically delete old logs according to storage limits you specify. When enabled, purging occurs daily at midnight.

SMDR debug and Appliance debug logs cannot be automatically purged; they should be manually deleted when no longer needed.

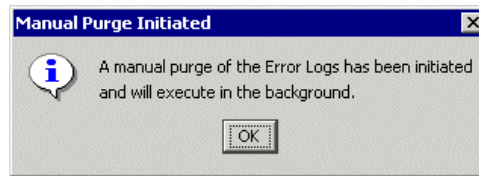
To set data storage limits

1. On the ETM System Console main menu, click **Servers | Server Management**. The **Server Administration Tool** appears.
2. Click the **General** tab.



3. In the **Log type** box, click the down arrow, and then click the type of log for which you want to enable automatic purging: **IPS Records**, **Error Records**, **Call Records**, or **Diagnostic Logs**. The area below changes to reflect information specific to the selected log type. Settings you make in this area apply only to the selected log type. No other data store is affected.
4. Select the **Enable automated purging** check box.
5. Do one of the following:
 - For **Call**, **IPS**, or **Diagnostic** data storage, do one of the following:
 - To specify purging based only on a previous amount of data to retain, select **Retain the last** and then specify a count and a unit. For example, to retain the last year's data, select **1** and **year(s)**. This results in a sliding window of data from the current date.
 - To specify purging based on both a current and previous amount of data to retain: Select **Retain the current...** and then select the unit (day, week, month, or year). Then select how many historical instances of that same unit to retain. For example, you might specify "Retain the current month and the previous 12 months." When determining the dates for purging, the same values are used as those used in Retrieval Ranges in Usage Manager Reports: call data is based on End Time, Diagnostic data is based on Event Time, and IPS data is based on Complete Time.

- For **Error** log storage, type or select the maximum cumulative log size in MB. When this limit is reached, older log files are deleted up to the set maximum. Note that purging never deletes the current log file.
6. Automated purging occurs every day at midnight. To immediately adjust the storage to the set limits, click **Purge Now**.
- The **Manual Purge Initiated** message appears. Click **OK**.



7. Click **Apply** to apply your settings and leave the **Server Administration Tool** open, or **OK** to apply your changes and close the **Server Administration Tool**.

Managing ETM[®] Server Files from the ETM[®] Client

A number of files reside on the ETM Server that you may at times need to view, modify, delete, or replace. These include appliance software files, Dialing Plan files, error and debug logs, and configuration files. Since the ETM Server is often remote from the ETM Client and since physical access to the ETM Server is usually restricted for security, a convenient **ETM Server File Management Tool** is available from the ETM System Console. You can use this tool to view files in the ETM directory on the Server, copy files to the Client from the Server so you can edit them, and copy files to the Server to update configuration. You can also delete files that are no longer needed, such as SMDR debug files.

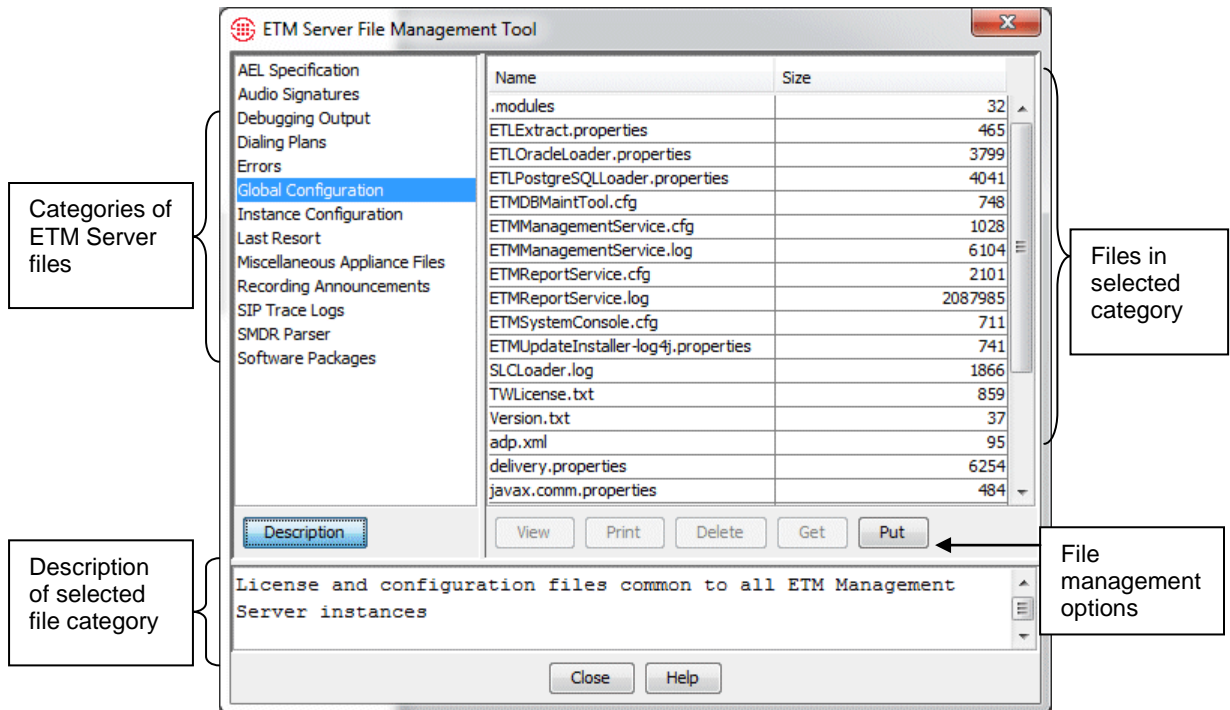
To access the **ETM Server File Management Tool**, your user account must have **Manage Server** permission. When you view, copy, delete, or modify a file via the **ETM Server File Management Tool**, the action is logged in the **Diagnostic Log**. No log is produced if you simply list the available files in a category. File access is restricted to directories under the ETM System installation directory.

Opening the ETM[®] Server File Management Tool

To open the ETM[®] Server File Management Tool

- In the ETM System Console, while logged in to the Server, click the Server for which you want to manage files, and then click **Servers | ETM Server File Management**.

The **ETM Server File Management Tool** appears.



The tool provides the following fields and options:

- **Left pane**—Lists available file types. When you select a file type, a list of files of that type appears in the right pane. To view a description of the selected file type, click **Description**.

The following file types are available:

- **AEL Specification**—The AEL file used by the CIDA feature.
- **Debugging Output**—Appliance and Server debugging files in **ps\debug**. Files with the following extensions are shown: .txt, .dbg, .log.
- **Dialing Plans**—Dialing Plan files in **ps\software_repository\ini**. Files with the following extensions are shown: .LNP, .WNP.
- **Errors**—System error files in **ps\errors**. Files with the following extension are shown: .data
- **Global Configuration**—Configuration and log files common to all Management Server instances on the Server host computer, stored at the root of the installation folder. Files with the following extensions are shown: .modules, .properties, .dump, .hmac, .txt, .log, .cfg, .xml.
- **Instance Configuration**—Configuration and log files specific to the Management Server instance you are logged in to. Files with

the following extensions are shown: .modules, .properties, .dump, .hmac, .txt, .log, .cfg, .xml.

- **Last Resort**—Last resort support files in **ps\software_repository\last_resort**. All files in the directory are shown.
- **Miscellaneous Appliance Files**—Files in **ps\software_repository\misc**. All files in the directory are shown.
- **Recording Announcements**—Call recording announcements in **ps\software_repository\wav_announce**. Files with the following extension are shown: .wav.
- **SIP Trace Logs**—Log files created by running SIP trace.
- **SMDR Parser**—SMDR parse files in **ps\software_repository\smdr**. Files with the following extension are shown: .txt.
- **Software Packages**—Card software packages in **ps\software_repository\package**. Files with the following extension are shown: .pkg.
- **Description**—Works as a toggle to show or hide a description of the file type selected in the left pane.
- **Right pane**—Displays the list of available files of the type selected in the left pane; shows name and size of each file. When you select a file in the list, the option buttons below the pane become active. Not all options apply to all files; only applicable options become available.
 - **View**—Loads the selected file into a viewing window for inspection, if the file is a viewable type. You cannot edit the file in this window, but you can print it or save it to a disk drive location from which you can open and edit it. Files with the following extensions are considered text and are therefore viewable: .txt, .log, .xml, .properties, .WNP, .LNP, .data, .dump, .modules. *See also Put and Get.*
 - **Print**— Prints the contents of the selected file, if the file is a viewable type. See **View** above for a list of viewable file types.
 - **Delete**—Deletes the selected file from the Server.
 - **Get**—Retrieves the selected file and opens the **Save File As** dialog box for you to browse to a location to save a copy of the file. After you have saved it, you can edit the copy and then use **Put** to copy the edited file to the Server.
 - **Put**—Opens the **Select File to Transfer** dialog box for you to browse for and select a file, and then copies the file to the directory on the ETM Server represented by the selection in the left pane.
- **Close**—Closes the dialog box.

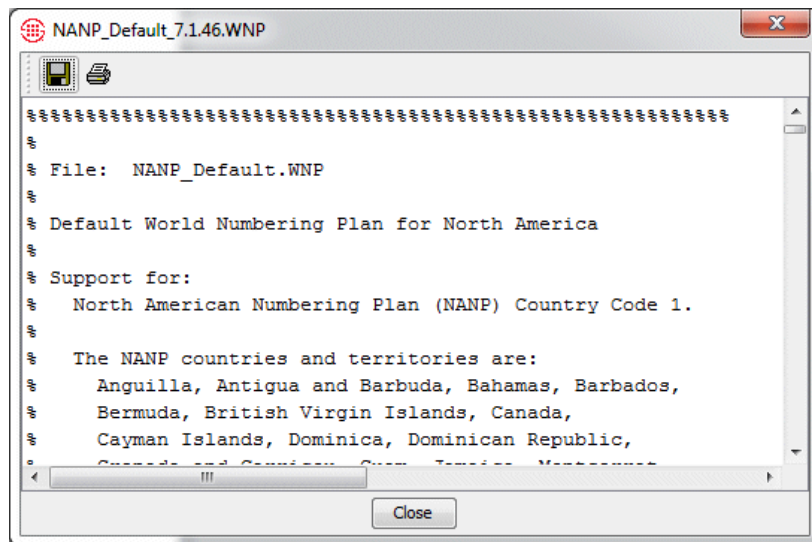
Accessing an ETM[®] Server File from the ETM[®] Client

- **Help**—Opens the context-sensitive Help topic for the dialog box.

Some instructions below refer to "viewable file types." Viewable files are those expected to be text. Files with the following extensions are considered text and are therefore viewable: **.txt, .log, .xml, .properties, .WNP, .LNP, .data, .dump, .modules.**

To access an ETM[®] Server file from the ETM[®] Client

1. Open the **ETM Server File Management Tool**.
2. In the left pane, click the category of file. A list of the files in that category appears in the right pane. The size of each file is also shown.
3. In the right pane, click the file you want to access. The applicable option buttons become available.
 - (*Viewable file types only*) To view the file contents, click **View**. The file is transferred to the ETM Client and appears in the **File Viewer**. This viewer is read only.
 - If you want to edit the file, save a copy to disk by clicking the **Save** icon.
 - To print it or save a copy to disk on the Client, click the applicable icon.



- (*Viewable file types only*) To print the file, click **Print**.
- To delete the selected file, click **Delete**. The file is permanently deleted from the Server. **WARNING** If you delete a system file, system operation will be impaired or disabled. You cannot delete the .jar files.

- To copy the file to the ETM Client, click **Get**. A **Save File As** dialog box appears for you to select the location to which to save the file. Browse to the location and then click **Save**.

Editing an ETM[®] Server File from the ETM[®] Client

To edit an ETM Server file from the ETM[®] Client

1. In the **ETM Server File Management Tool**, select the file you want to edit.
2. Click **Get**. The **Save File As** dialog box appears.
3. Browse for the location on the Client where you want to save the file, and then click **Save**. The file is copied from the Server to the Client.
4. Open the saved file and edit as needed, and then save the file.
5. In the **ETM Server File Management Tool**, click the file type in the left pane, and then click **Put**. The **Select File to Transfer** dialog box appears.
6. Browse for and select the file you edited, and then click **Put**.
 - If the file has the same name as an existing file on the ETM Server, a **Confirm File Overwrite** message appears. Click **Yes**.
7. The file is copied to the Server. When complete, a **Transfer Complete** message appears. Click **OK**.

Copying a File to the ETM[®] Server from the ETM[®] Client

To copy a file to the ETM Server from the ETM Client

1. Open the **ETM Server File Management Tool**.
2. In the left pane, click the file type, and then click **Put**. The **Select File to Transfer** dialog box appears.
3. Browse for and select the file you want to copy to the Server, and then click **Put**.
 - If the file has the same name as an existing file on the ETM Server, a **Confirm File Overwrite** message appears. Click **Yes**.
4. The file is copied to the Server location selected in the left pane. When complete, a **Transfer Complete** message appears. Click **OK**.

Standby Mode

The ETM Server must be connected to the ETM Database to actively function. Should communication between the ETM Server and the Database be temporarily interrupted (for example, if the Database computer is rebooted or an unexpected Oracle error occurs), the ETM Server enters *standby mode*. While in standby mode, the ETM Server periodically attempts to reinitialize at a user-definable interval (by default, every 60 seconds) until the Database is again available.

If you are logged in to the ETM Server when it enters standby mode, an error message similar to the following appears:



See "Variables in the twms.properties File" in the *ETM® System Technical Reference* for instructions for modifying this value.

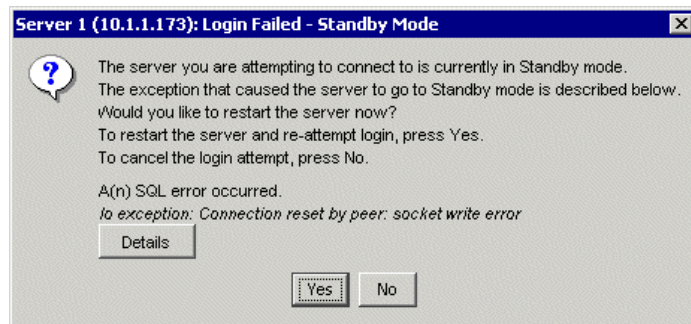
- To read a detailed description of the event that caused the ETM Server to enter standby mode, click **Details**. This information is also written to the System Error log in the ETM Server installation directory at the following path:

<install_dir>\ps\errors

- Click **OK** to close the message dialog box.

If you attempt to log in to the ETM Server while it is in standby mode, you are presented with one of two messages, depending on whether you have the **Manage Server** user permission.

- If you have **Manage Server** permission, an error message similar to the following appears:



- To read a detailed description of the event that caused the ETM Server to enter standby mode, click **Details**. This information is also written to the System Error log in the ETM Server installation directory.

- To attempt to manually restart the ETM Server, click **Yes**. The **Login** dialog box appears. Attempt to log in as usual. If the issue that caused the ETM Server to enter standby mode is resolved and the ETM Server has restarted, and then login succeeds. If the issue has not yet resolved, the above error message appears again. Wait a few minutes and attempt to log in again. In either case, inform your ETM System administrator.
- To allow the ETM Server to attempt to automatically reinitialize at the reinitialization interval, click **No**. Wait 60 seconds and attempt to login again.
- If you do not have **Manage Server** permission, an error message similar to the following appears:



- To read a detailed description of the event that caused the ETM Server to enter standby mode, click the **Details** button. This information is also written to the System Error log in the ETM Server installation directory.
- Click **OK**. Wait at least 60 seconds and attempt to log in again. If the issue has been resolved that caused the ETM Server to enter standby mode, login succeeds. Inform your ETM System administrator.
- If you continue to be unable to log in, contact your ETM System administrator so he or she can determine the cause of the extended disconnection.

Fatal Oracle Errors (No Standby Mode)

IMPORTANT Certain Oracle database errors cause the Management Server to terminate rather than enter standby mode. These errors, which must be evaluated and corrected by your ETM System administrator or Oracle database administrator, include the following:

ORA-600	ORA-602	ORA-18
ORA-601	ORA-1000	ORA-604

Encrypting Values in the twms.properties File

By default, several potentially sensitive values that the ETM Server needs for initialization are stored in clear text in the **twms.properties** file in the ETM Server installation directory. These include the database passphrase and the DES Key passphrases. Since access to the ETM Server should be limited by physical security measures, such as housing the Server host computer in a secure server closet, many organizations do not need these values to be encrypted.

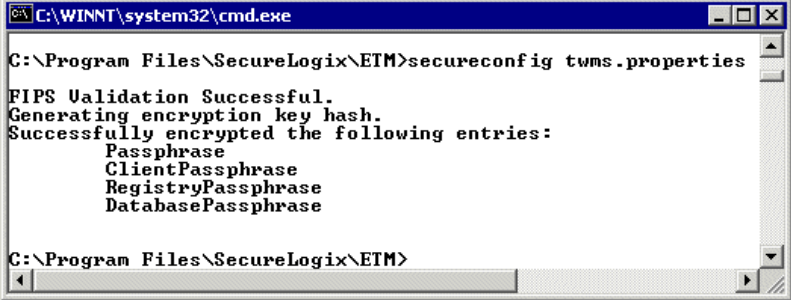
However, some organizations prefer to encrypt these values. For example, one group in the organization may control database access while another group provides server management functions, and the database management group may not want the database connection information available to the server management group.

For organizations that prefer to encrypt the values, the ETM System provides an encryption utility in a shell script called **SecureConfig..**

Encrypting the Passphrases

To encrypt the passphrases in the twms.properties file

1. Open a command prompt and navigate to the directory that contains the **twms.properties** file you want to encrypt.
 - To encrypt the global **twms.properties** file, run the script from the root of the ETM System installation directory.
 - To encrypt an instance-specific file, run the utility from the **ps_<instance_name>** directory.
2. Execute **SecureConfig..**
 - On Windows, at the prompt, type:
`secureconfig twms.properties`
 - On Linux, type:
`./SecureConfig.sh twms.properties`
3. The script executes and encrypts the passphrase values in the **twms.properties** file, as shown in the illustration below.



```
C:\WINNT\system32\cmd.exe
C:\Program Files\SecureLogix\ETM>secureconfig twms.properties
FIPS Validation Successful.
Generating encryption key hash.
Successfully encrypted the following entries:
    Passphrase
    ClientPassphrase
    RegistryPassphrase
    DatabasePassphrase
C:\Program Files\SecureLogix\ETM>
```

Encrypted values are denoted in the file by the word "Encrypted." For example, an encrypted database passphrase is shown below.

```
## The passphrase to log into the database
DatabasePassphrase=ENCRYPTED_66b8753de0e89f
```

Encryption Hash Key

When you run the utility, an Encryption Hash Key is produced that is then used in the encryption. If you would rather use a hash key you provide instead of the generated one, type the following line at the end of the **twms.properties** file before running the utility:

```
EncryptionHashKey=<hash_key>
```

where <hash_key> is a text string. A length of 32 characters is suggested, although strings of 1 or greater can be processed.

Modifying an Encrypted Passphrase

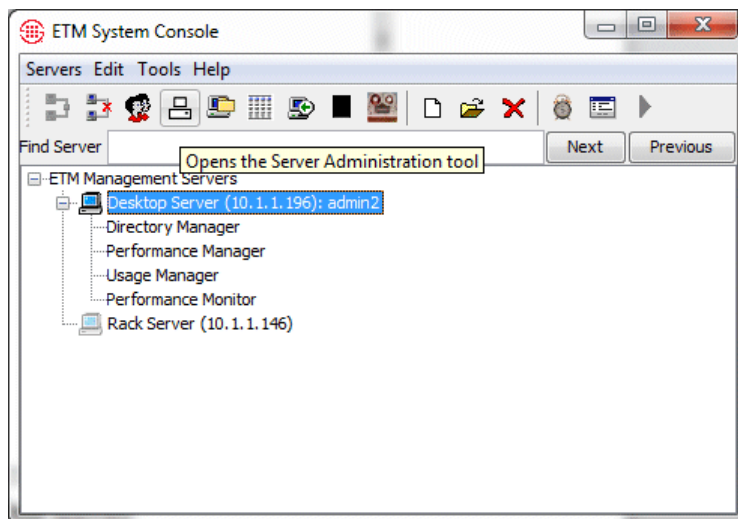
If you need to modify the value for an encrypted passphrase, simply delete the current value, beginning with the word "ENCRYPTED," and type a new value, and then rerun the encryption utility. Only values that are currently unencrypted are affected by the utility. Those that are already encrypted are not changed.

Setting a Maximum Number of Concurrent Client Sessions

By default, no maximum number of concurrent ETM Client sessions is defined. You can choose to limit the number of allowed concurrent Client sessions for the Management Server.

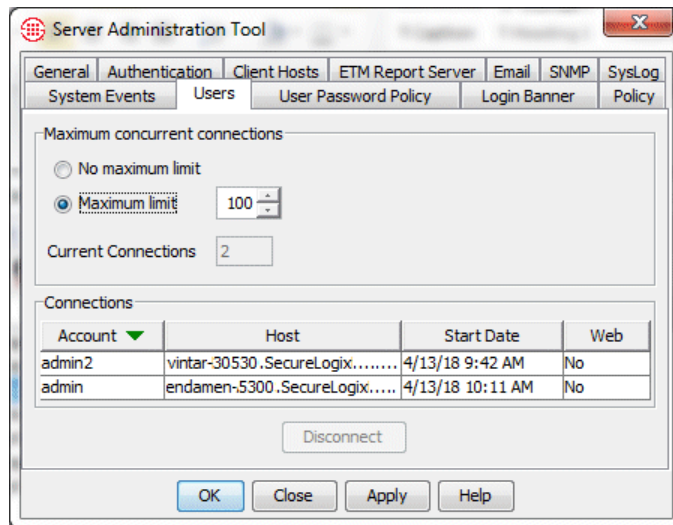
To specify the maximum number of concurrent Client sessions allowed

1. In the ETM System Console, click the Management Server to select it.
2. On the toolbar, click the **Server Administration Tool** icon.



3. The **Server Administration Tool** appears.

Click the **Users** tab.



4. In the **Maximum concurrent connections** area, select **Maximum limit** and then type or use the up and down arrows to select the number.

Excess Rule-Fired Alert Throttling

Misconfigured Policy Rules or a large number of calls matching a given Rule in a short period of time, such as during a potential attack, can cause a large number of Rule-fired alerts to be generated, potentially stressing the message target, such as an email server. The ETM System allows threshold-based throttling of Rule-fired alerts. The default to trigger throttling is 50 Rule-fired alert messages in 1000 ms. You can modify these threshold values.

Throttling applies to Real-Time Alert, SNMP, Syslog, and Email Tracks. Logging always continues as normal.

Changing Throttling Threshold Values

To change the throttling threshold values

1. Open the file **tracker_throttle.properties** in a text editor. This file is located at the root of the ETM System installation directory. The file contains two entries:
 - **trackerThrottleCount=<count>**: The count of alerts within the **trackerThrottlePeriodMs** that triggers throttling to begin. The default is 50.
 - **trackerThrottlePeriodMs=<interval>**—The time interval. The default is 1000 ms.

If the count of alerts is met within the interval, alerts in excess of that count during that interval are not generated and error messages are sent to the **Diagnostic Log** indicating that they were throttled.

2. Edit the count and/or interval values as needed and then save the file.
3. Restart the ETM Management Server using the Windows **Services** dialog box for the change to take effect.

ETM[®] Database Administration

Administering the Database

The sections below provide instructions for various facets of ETM Database configuration and maintenance.

Using the ETM[®] Database Maintenance Tool

The ETM Database Maintenance Tool is typically installed on the ETM Server computer, but can also be installed on any computer where a remote ETM System Console is installed. For installation instructions, see "Installing the ETM Software" in the *ETM[®] System Installation Guide*.

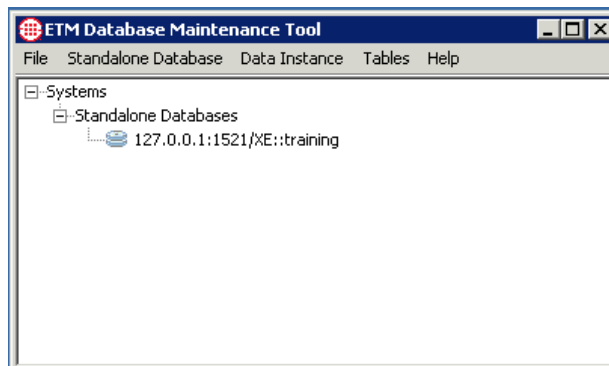
The ETM Database Maintenance Tool can also be used to perform other more technical database administration tasks. These tasks are discussed in the *ETM[®] System Technical Reference*.

Opening the ETM[®] Database Maintenance Tool

To open the ETM[®] Database Maintenance Tool

- On a computer where the Database Maintenance Tool is installed and configured, click **Start | Programs | SecureLogix | ETM System Software | Utilities | ETM Database Maintenance Tool**

The ETM Database Maintenance Tool appears.

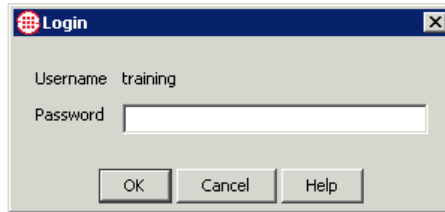


For instructions for creating an ETM Database object, see "Creating a Database Object" in the *ETM[®] System Technical Reference*.

Logging in to the ETM[®] Database via the ETM[®] Database Maintenance Tool






To log in to the ETM[®] Database via the ETM[®] Database Maintenance Tool

1. Click the PLUS SIGN to expand the **Standalone Databases** node of the ETM Database Maintenance Tool, right-click the database, and then click **Connect**. The **Login** dialog box appears.



2. In the **Password** box, type the password for the database username.
3. Click **OK**.

The ETM Database Maintenance Tool connects to the database and verifies each of the tables in the database. When verification is complete, an icon appears next to each table, indicating its status.

Icon	Meaning
	Indicates the table is valid.
	Indicates an error in the table. Right-click the table, and then click Repair Table to correct the problem.
	Indicates a missing expected table. Right-click the table, and then click Create Table to create the table.
	Indicates an unknown table. These are typically temporary tables created during database operation, or tables created by DBAs rather than by the ETM System. These do not represent an invalid Database state and does not impair system operation. Contact SecureLogix Customer Support before deleting any tables.
	Indicates views and temporary tables created and managed by the ETM Management Server.

Disconnecting from a Database

To disconnect from a Database

- Right-click the applicable database in the **Databases** tree, and then click **Disconnect**.

Scheduled Tasks

When the ETM database and data instance are created, several scheduled tasks are created and scheduled to execute periodically. The execution of these tasks greatly improves database performance and efficiency. Some of the tasks are global and apply to the database as a whole (statistics calculation and index maintenance), while others apply to each instance (partitioning). You cannot delete these tasks, but you can change the start time at which they first run and the schedule at which they execute. You can also manually force them to run at a specific time and disable them to prevent them from running as scheduled (not recommended during normal operation).

Viewing All Tasks for a Database

Use this procedure to view both global and Instance-specific scheduled tasks for the database and all of its data Instances. To view tasks only for a specific Data Instance, see "Viewing Tasks for a Specific Instance" on page 92.

To view all scheduled tasks for a Database

- While logged into the Database, in the **Databases** node of the ETM Database Maintenance Tool, right-click the database, and then click **View all Tasks**. The **All Scheduled Tasks** dialog box appears.

Enabled	Instance	Task	Start Date	Interval	Job Number	L
<input type="checkbox"/>	ETM	Partition Split	08-28-2016 00:0...	Every 1 Week(s)		
<input type="checkbox"/>	TRAIN	Partition Split	08-07-2016 00:0...	Every 1 Week(s)		
<input checked="" type="checkbox"/>	<GLOBAL>	Statistics Comput...	08-07-2016 02:0...	Every 1 Week(s)	1	09-16-
<input checked="" type="checkbox"/>	<GLOBAL>	Index Maintenance	09-01-2016 00:0...	Every 1 Month(s)	2	09-01-

Each row in the dialog box represents one scheduled task. To sort the dialog box according to a specific field, click the field name. The direction of the arrow indicated the sort direction (ascending or descending). For each scheduled task, the following information is provided:

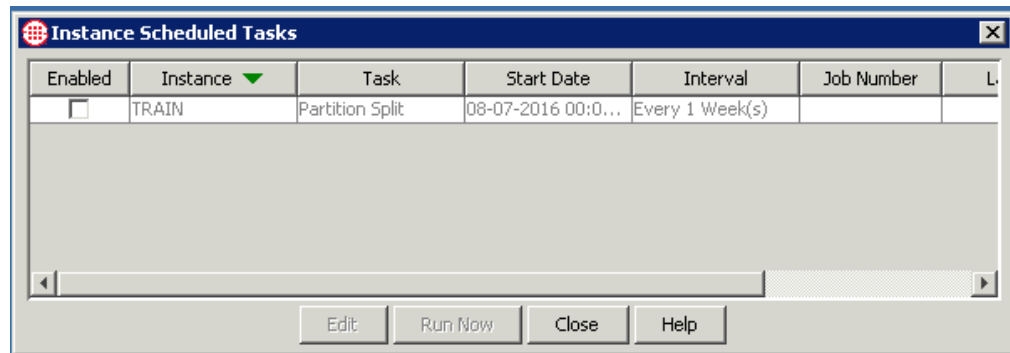
- **Enabled**—Whether the task is enabled to run.
- **Instance**—The name of the instance to which the task applies. **<GLOBAL>** means the task applies to all instances.
- **Task**—The name of the task.
- **Start Date**—The first date and time the task is to/was run.
- **Interval**—The frequency at which the task is to run.

- **Job Number**—A number assigned to the task by Oracle.
- **Last Date**—The last time the task ran. (Blank if it has never run.)
- **Next Date**—The next date and time the task is scheduled to run.

Viewing Tasks for a Specific Instance

To view tasks for a specific Instance

- While logged into the database, in the **ETM Data Instances** node of the ETM Database Maintenance Tool, right-click the instance, and then click **View Instance Tasks**. The **Instance Scheduled Tasks** dialog box appears.



Each row represents a single scheduled task for the selected Instance. To sort the dialog box according to a specific field, click the field name. The direction of the arrow indicated the sort direction (ascending or descending). For each scheduled task, the following information is provided:

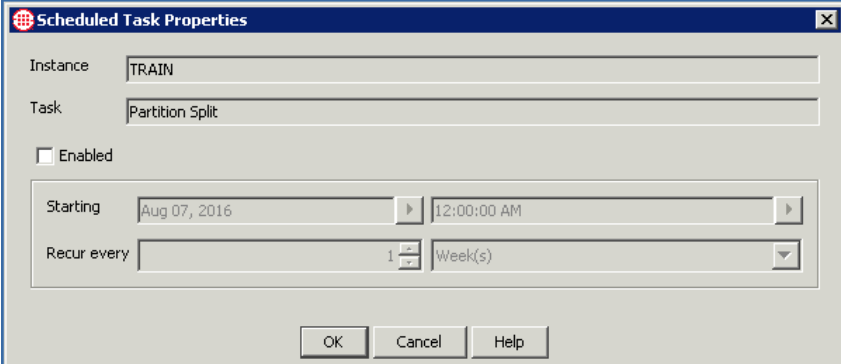
Partitioning is only enabled by default on Enterprise Edition databases that have Partitioning enabled. If Partitioning is unavailable, the **Partition Split** task is not selected and is grayed out.

- **Enabled**—Whether the task is enabled to run.
- **Instance**—The name of the instance for which you are viewing scheduled tasks.
- **Task**—The name of the task.
- **Start Date**—The first date and time the task is to/was run.
- **Interval**—The frequency at which the task is to run.
- **Job Number**—A number assigned to the task by Oracle.
- **Last Date**—The last time the task ran. (Blank if it has never run.)
- **Next Date**—The next date and time the task is scheduled to run.

Editing a Scheduled Task

To edit a scheduled task

- While logged into the database, do one of the following:
- **To select from all the tasks for the Database:**
In the **Databases** node of the ETM Database Maintenance Tool, right-click the database, and then click **View all Tasks**. The **All Scheduled Tasks** dialog box appears.
- **To select from the tasks for a given Data Instance:**
In the **ETM Data Instances** node of the ETM Database Maintenance Tool, right-click the instance, and then click **View Instance Tasks**. The **Instance Scheduled Tasks** dialog box appears.
- Click the task you want to edit, and then click **Edit**. The **Scheduled Task Properties** dialog box appears.



The screenshot shows the 'Scheduled Task Properties' dialog box. It has a title bar with a close button. The 'Instance' field is a text box containing 'TRAIN'. The 'Task' field is a text box containing 'Partition Split'. Below these is an 'Enabled' checkbox which is currently unchecked. There are two 'Starting' fields: a date field containing 'Aug 07, 2016' and a time field containing '12:00:00 AM'. Below these is a 'Recur every' field with a spinner box set to '1' and a dropdown menu set to 'Week(s)'. At the bottom are three buttons: 'OK', 'Cancel', and 'Help'.

The **Instance** box displays the instance to which the task applies, or **<GLOBAL>** if it applies to the database as a whole rather than to a specific Instance. You cannot edit the **Instance** field.

The **Task** box displays the name of the task. You cannot edit the task name.

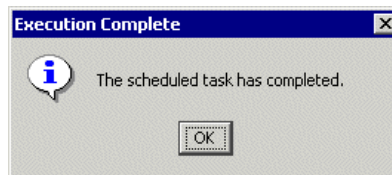
- Do any of the following:
- To enable the task to run as scheduled, select the **Enabled** check box; to disable the task so that it does not run, clear the **Enabled** check box.
- To change the start date or time, in the **Starting** fields, type or select the new date/time.
- To change the recurrence, in the **Recur every** fields, type or select the count and the unit (**Minute**, **Hour**, **Day**, **Week**, or **Month**).
- To save your changes and close the dialog box, click **OK**; to discard your changes and close the dialog box, click **Cancel**.

Starting a Scheduled Task Manually

Scheduled tasks can be forced to run manually at times other than when they are scheduled. This does not change the time of the next scheduled execution.

To force a scheduled task to start

1. While logged into the Database, do one of the following:
 - **To select from all the tasks for the database:**
In the **Databases** node of the ETM Database Maintenance Tool, right-click the Database, and then click **View all Tasks**. The **All Scheduled Tasks** dialog box appears.
 - **To select from the tasks for a given Data Instance:**
In the **ETM Data Instances** node of the ETM Database Maintenance Tool, right-click the Instance, and then click **View Instance Tasks**. The **Instance Scheduled Tasks** dialog box appears.
2. Click the task you want to run, and then click **Run Now**.
3. A message dialog box appears while the task is being executed. When the task completes, the **Execution Complete** dialog box appears.



4. Click **OK**.

Non-Owner Database User Accounts

The Management Server, by default, connects to the database through the database owner account. The Management Server really only needs to change data – it does not need to drop or create objects.

A non-owner database user account allows the Management Server to connect to the database through an account that has access to modify data only and not to modify the underlying database objects (tables, views, etc.). Therefore, a non-owner account has privileges limited to only the privileges needed for the Management Server to operate.

To associate a non-owner database user with an instance, the non-owner user account must first be created and assigned the required permissions by a database administrator.

Creating a Non-Owner Database User

To create a non-owner database user account

1. Log into SQL*Plus as SYSDBA

2. Create a non-owner user. The following is an example command to create a user. Replace <RUNUSER> with the name of the user and <RUNUSERPASS> with the password.

```
CREATE USER <RUNUSER> PROFILE "DEFAULT"  
IDENTIFIED BY <RUNUSERPASS>  
  
DEFAULT TABLESPACE "ETM"  
  
TEMPORARY TABLESPACE "TEMP"  
  
ACCOUNT UNLOCK;
```

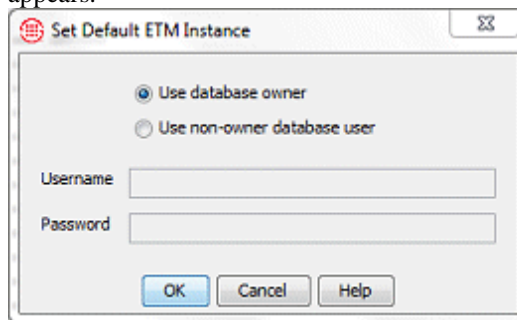
3. Grant the following privileges to the run user account .

```
SELECT ANY DICTIONARY  
ALTER SESSION  
CREATE PROCEDURE  
CREATE SESSION  
CREATE MATERIALIZED VIEW  
CREATE TABLE  
CREATE VIEW
```

Associate a Data Instance with a Management Server

To associate a data instance with a Management Server

1. In the ETM Database Maintenance Tool, while connected to the ETM Standalone Database, right-click the correct data instance, and then click **Set as default**. The **Set Default ETM Instance** dialog box appears.



2. Do one of the following to set the default instance and associate the appropriate login credentials:
 - Select **Use database owner** to set this instance as the default instance and to specify that this instance will use the database owner's username and password to access the Management Server database, and then click **OK**.
 - Select **Use non-owner database user** to specify that this default instance will use a specified user's username and password

to access the Management Server. (The non-owner user account must have already been created and assigned the required permissions.) Enter the non-owner database user's **Username** and **Password**, and then click **OK**.

The ETM Database Maintenance Tool updates the **twms.properties** file on its computer with all of the information the Management Server needs to connect to the database and access the correct data instance

ETM[®] Platform Administration

Administering the ETM[®] Platform

You can and should perform most Appliance configuration and monitoring tasks from the Performance Manager and Performance Monitor. Direct access to the Appliances is not necessary. In fact, since the ETM Server is authoritative on configuration settings, most configuration changes are not retained unless they are performed from the Performance Manager, as explained below.

Note that Appliance components are configured during installation and most settings should not be changed unless you are instructed to do so by SecureLogix Customer Support. Improper Card or Span settings may impair call monitoring, prevent Policy processing, and degrade or prevent proper signal traffic.

Instructions are provided below for settings that you may need to change at some time (such as installing a new Dialing Plan that addresses a change to your calling area or installing an upgrade version of Card software). If you are installing a new Card, detailed instructions for complete Card and Span configuration are provided in the *ETM[®] System Installation Guide*.

For CRC and recording configuration information, see the *Call Recorder User Guide* and online Help.

Server Authority Over Appliance/ Application Configuration

After Cards/Spans/Applications have initially established communication with their owning Management Server, the Server stores a copy of the component's configuration and is authoritative over all configuration settings. This means that each time the Card/Span/Application connects to the Server, the Server determines whether the component's configuration matches the copy stored on the Server. If they differ, the Server automatically pushes its copy of the configuration settings to the component.

Since the Server is authoritative, if you change a component's configuration via the Console port on the Card or via Telnet or SSH, the changes are overwritten the next time the component connects to the Server.

You can make permanent changes to configuration settings using the Performance Manager. When you save your changes, they are automatically pushed to the component.

Searching the Performance Manager Tree Pane

To find a component in the tree pane

1. In the **Find** box, type any part of the label for the component you want to find.

Only the labels that appear in the tree pane are searched. (If the item is nested, it need not be showing to be found.) This field uses a substring search and finds the specified character string anywhere it appears in the label.

2. Click **Next** or press ENTER. The first matching label is highlighted. If the item is nested in the tree, the section of the tree where it is found expands so it is visible.
3. If this is not the component you are looking for, click **Next** or press ENTER again. Repeat until the correct item is located.
4. To return to a previous match, click **Previous**.

Monitoring Platform Status

Use the Performance Monitor for an at-a-glance view of Appliance components in an error state. A right-click menu of options provides jump-to access to the affected component for troubleshooting and corrective action.

To open the Performance Monitor

1. Open the ETM System Console and log in to the ETM Server that owns the platforms you are monitoring.
2. Under the applicable server in the ETM System Console, right-click **Performance Monitor** and click **Open Tool**.

The Performance Monitor appears. Right-clicking a row provides the same menu of options as provided in the Performance Manager tree pane, without the need to open that application.

Application Name	Comments	Application Type	Status
T1Span: 1		T1 Span	Disconnected
10.1.2.21--T1 Span/Span: 1		T1 Span	Disconnected
0019d2012542		Card	Disconnected
Recording Card 2		Card	Disconnected
0000C7, SS7 Signaling Link...		SS7 Signaling Link	Disconnected
3200 Card 1		Card	Disconnected
Tim's 1012		Card	Disconnected
e		BAMS Server	Disconnected
3200 Card A		Card	Disconnected
1090 Card		Card	Disconnected
0030F6111E04		Card	Disconnected
0030F6111F70		Card	Disconnected
Analog Span		Analog Span	Disconnected
0030F6111E06		Card	Disconnected
Span: 3		T1 Span	Disconnected

Jumping from Spans to Owing Components

To jump to an owning component from a Span

- In the Performance Manager tree pane, right-click the Span, point to **Jump**, and then click one of the following:
 - **To Owing Platform**—Jumps to and highlights the Card to which this Span belongs.
 - **To Owing Switch**—Jumps to and highlights the Switch to which this Span belongs, if it is assigned to a Switch.
 - **To Owing Span Group**—Jumps to and highlights the Span Group to which this Span belongs.

Card Software Installation

Software updates may be made available from the SecureLogix website at www.support.securelogix.com. Appliance software is located at the following path:

<INSTALL_DIR>\ps\software_repository\package

Copy the latest version to this directory. You can install software on multiple Cards at once when the Appliances are the same models. Otherwise, you must install software on individual Cards.

**Important
Information about
Installing Card
Software**

When you download a software package to a Card, it is imperative that you do not reboot or power cycle the Card until the upgrade is complete, or the firmware may become corrupted, rendering the Card inoperable. The Card automatically reboots when the upgrade is complete.

How long a Card upgrade takes varies depending on the size of the package and which firmware devices are being reprogrammed. During a Card upgrade, the compact flash (hard drive) is first reprogrammed; then, depending on the upgrade, the boot flash and one to six other firmware devices may be reprogrammed. The firmware devices are verified against the new code; if different, they are reprogrammed. Verification can take from 20 to 120 seconds per device (depending on the size of the device) and reprogramming can take from 30 to 240 seconds per device.

During reprogramming of the devices, interrupts are ignored, so the Card is very quiet. This is normal and does not indicate a problem. When reprogramming is complete, the Card automatically reboots. This should occur in no more than 15 minutes.

In rare cases, errors do occur that render the Card unresponsive. Should the Card become completely unresponsive, a "watchdog timer" will normally cause the Card to automatically reboot. If it does not and you believe the Card is completely unresponsive, be certain that 15 minutes has elapsed since you began the download. Do not manually power cycle or reboot the Card. Connect via the **Console** port if possible and call SecureLogix Customer Support. A Last Resort recovery boot is available to recover unresponsive Cards.

**Installing Card
Software**

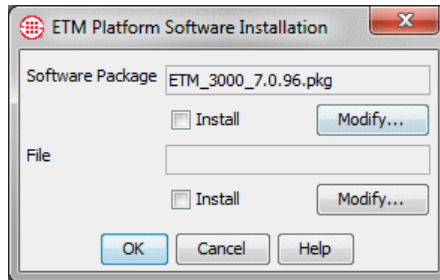
IMPORTANT If you are upgrading from a previous software version, see the SecureLogix Knowledge Base for upgrade instructions applicable to the installed Card software version. Before beginning, ensure that the software to be installed resides in the following directory:

<INSTALL_DIR>\ps\software_repository\package

To install Card software

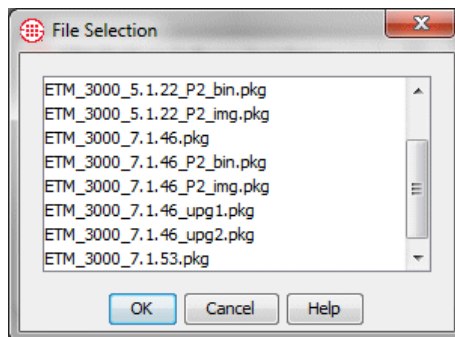
1. In the **Platform Configuration** subtree, do one of the following:
 - **Single Card**—Right-click the Card, and then click **Manage Software**.
 - **Multiple Cards**—Hold down CTRL, and then click each same-model Card you want to install software on, right-click the selection, and then click **Manage Software**.

The **ETM Platform Software Installation** dialog box appears.



2. Under the **Software Package** box, click **Modify**.

The **File Selection** dialog box appears, showing all of the packages on the Server that apply to the selected Card type. For example, if you are selecting software for an ETM 1090 Card, only software packages applicable to 1090 Cards appear.



3. Click the software package, for example. **ETM_1090_7.1.10.pkg**, and then click **OK**.




WARNING Do not reboot or power cycle the Card during software download, or you may render the Card inoperable. The Card automatically reboots after the software is installed. Observe the **Status Tool** and **Diagnostic Log** during the download. If you believe the Card is completely unresponsive, be certain that 15 minutes has elapsed since you began the download, and then contact SecureLogix Customer Support before you manually power cycle or reboot the Card. A Last Resort recovery boot is available to recover unresponsive Cards.


Additional Steps for UTA:

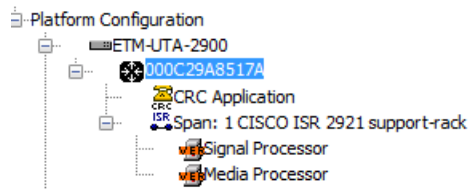
- If you are installing software on a UTA Appliance, the procedure above pushed the software to the Call Processor, which then made it available on the Signal Processor and Media Proxy nodes. Continue with “UTA Appliances Only” on page 102 to activate the new software on the proxy nodes.

UTA Appliances Only

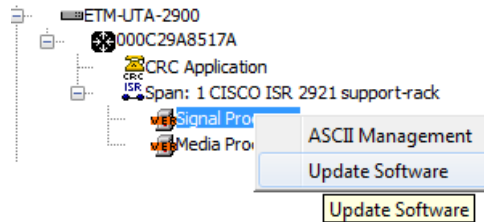
After installing new Appliance software on the UTA Call Processor , you must activate it on each of the UTA nodes for that appliance.

To activate newly installed software on the UTA nodes

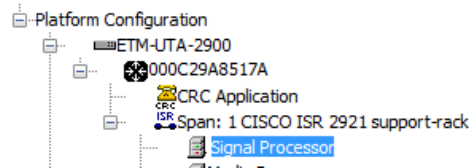
1. Ensure that the software has completed installation on the Call Processor by viewing the Status Tool before continuing with the steps below. When the installation on the Call Processor is complete, a version mismatch indicator  appears on the icons for the Media and Signal Processors. Expand the Span icon to access the Media and Signal Processors.



2. Right-click the Signal Processor and click **Update Software**.



The update is complete when the version mismatch indicator disappears from the Signal Processor icon. This may take a few minutes. The status is not shown in the Status Tool.



3. Right-click the Media Processor and click **Update Software**. The update is complete when the version mismatch indicator disappears from the Media Processor icon. This may take a few minutes. The status is not shown in the Status Tool.

Viewing Health and Status

See the *ETM® System User's Guide* for instructions for viewing health and status of Cards and Spans.

UTA System Resource Monitor

The UTA System Resource Monitor runs as a script on the UTA Appliance to monitor resource utilization and to alert system administrators in the unlikely event that low resource conditions are encountered. The script monitors memory usage, disk partition space (**/opt**, where UTA is installed), and CPU utilization at a set polling interval. Each time the script runs, it logs the results via Syslog to **/var/log/messages**.

Each log message has the following format:

```
Nov 6 17:40:02 etm_uta_5079 logger: ETM System Mem used=2.13% Disk part space used=2% CPU used=1.5% ETM is running
```

If any of the set resource limits are exceeded, the log message is annotated to denote this and whether the UTA System is running, shutting down, or stopped.

The Linux system audit daemon automatically rotates/deletes the **/var/log/messages** files, by default weekly, retaining the last 4 files. This behavior is configurable after deployment.

You can modify the resource thresholds and the polling interval. You also optionally can configure the script to automatically shut down the UTA services if any of the set resource limits are exceeded, until corrective action is taken to restore system functionality and return UTA to service.

The script is located on the UTA Appliance at:

/opt/slc/bin/SystemResourceMonitor.sh

Changing Utilization Thresholds or Shutdown Behavior

To change utilization thresholds or shutdown behavior

1. SSH to the UTA Appliance.
2. Open the following file in a text editor:
/opt/slc/bin/SystemResourceMonitor.sh
3. Locate the lines that read:

```
# Shutdown the system if any of the limits are exceeded
#
SHUTDOWN=0
MAX_MEM=95
MAX_DISK=95
MAX_CPU=95
```

- You can modify the utilization threshold values, which represent percentages. When any of these values is exceeded, a Syslog alert is generated to **/var/log/messages**.

- If you want the service to stop when any of the utilization values is exceeded, change SHUTDOWN=0 to:

```
SHUTDOWN=1
```

4. After making changes, save the script. You do not need to restart the service. **DO NOT** modify any other section of the script.

Changing the Polling Interval

The default polling interval is 5 minutes. The cronjob that controls the script execution is located in **/etc/crontab** on the UTA Appliance. You can change the polling interval using **crontab -e**:

To change the polling interval

1. SSH to the UTA Appliance.
2. In **/etc/crontab**, edit the following cronjob:

```
* /5 * * * * etmuser /opt/slc/bin/SystemResourceMonitor.sh
```

For example, if you want the script to run every 30 minutes instead of every 5 minutes, change **** /5*** to **** /30***.

Station-Side CDR Importing for Reporting

You can configure the ETM System to import Call Detail Records (CDR) for calls that did not pass through an ETM Appliance, such as station-to-station calls. While you cannot apply ETM Voice Policies to these calls, you can run Usage Manager reports against them. This is a licensed add-on feature. Contact your sales representative to obtain a license.

Station-side CDR is imported into the same call tables in the ETM Database as calls that are monitored by the ETM System. Each imported call is identified by a special service type, **CDRIMPORTED** in the **Call Details** field.

To import station-side CDR, you first configure an ETM Appliance Card to act as an SMDR recorder and then configure the device that generates the CDR to send the records to the Appliance. The Appliance relays the records to a folder on the ETM Server (or any network-accessible location), where a CDR Importer retrieves and parses the data and stores it in the Call Table in the ETM Database. These call records are then available for reporting.

Authorization/ Access Code Support for Station-Side CDR Import

The Station-Side CDR Import feature has been enhanced to support importing SMDR access codes from the CUCM flat file or other SMDR to enable departmental billback on these records. Additionally, the Directory Manager now supports alphanumeric values for manually defined Access Codes.

Steps to Configure Station-Side CDR Importing

To configure the ETM System to import station-side CDR, follow these steps:

1. License the feature.
2. Configure an appliance Card/Switch to record SMDR from each CDR source.
3. Define a CDR importer to correspond to each configured Switch so it can import and parse the data into the ETM Database at user-defined intervals. The CDR Importer is associated with the Switch by the directory from which it retrieves the data. Each directory corresponds to one Switch.

Licensing Station-Side CDR Reporting

Fields and options related to station-side CDR do not appear in the GUI until the feature is licensed.

To license station-side CDR reporting on an existing system

1. After purchasing the feature, contact Customer Support to obtain an updated license file.
2. Stop the ETM Management Server.

3. Copy the file to the ETM System installation directory, overwriting the existing license file.
4. Start the ETM Management Server.

Supported SMDR Types

The CDR importer supports standard single-line ASCII SMDR. Multi-line formats, such as from Cisco CME, are not supported.

Parse files are provided for several switches, including Cisco Unified Communications Manager (UCM) and Avaya G3. Others can be developed to suit other PBXs.

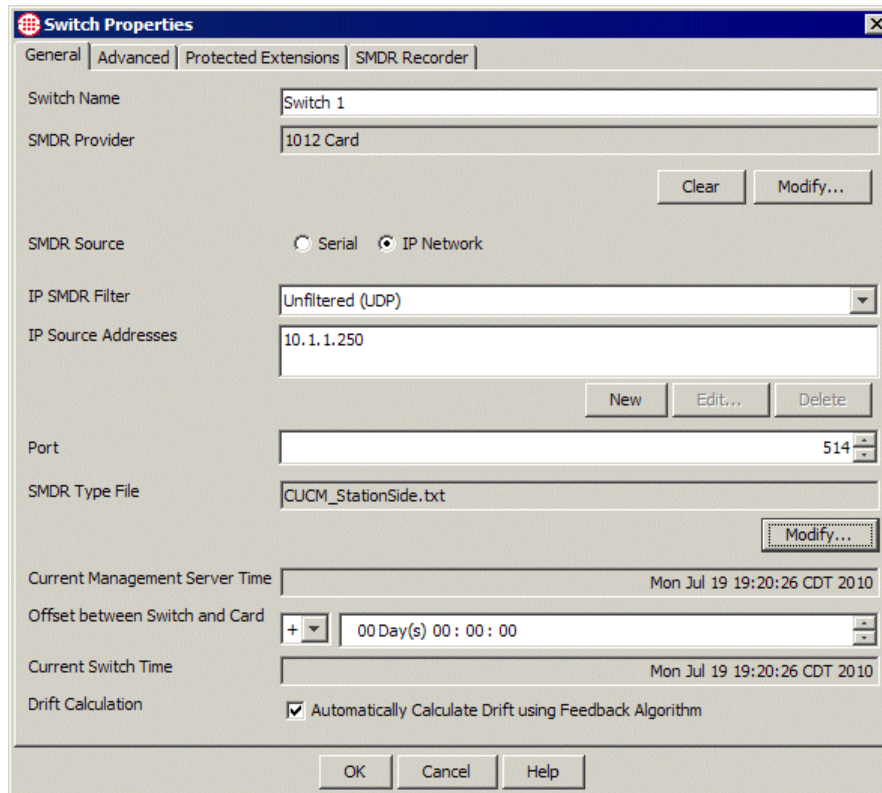
Configuring an Appliance Card to Record SMDR

ETM Appliance Cards can be configured to record raw SMDR data, both for calls monitored by the ETM System and for other station-side calls.

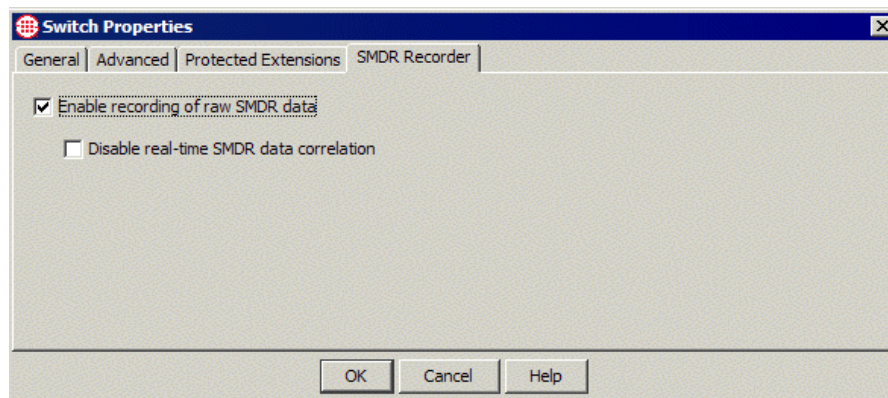
To configure an Appliance as an SMDR recorder

1. Create and configure a Switch. A single Switch can be configured for both outbound SMDR call processing and for recording raw SMDR.
2. Assign Span 1 of the Card that is to record SMDR to the Switch. For serial SMDR, ensure that the SMDR cable is connected to the Card. See the *ETM System Installation Guide* for instructions, if necessary.
3. In the **Telco Configuration** subtree, right-click the Switch and click **Edit Switch**. The **Switch Properties** dialog box appears.
4. On the **General** tab, configure the settings as with normal trunk-side SMDR configuration. The parse file you choose here applies to trunk side calls. If you are not doing real-time SMDR correlation, this parse file is ignored but one must still be selected. The parse file for the station-side calls is selected when you define the CDR Importer.

See the *ETM System Installation Guide* for instructions for configuring a Switch for SMDR, if necessary.



5. Click the **SMDR Recorder** tab.



6. Select **Enable recording of raw SMDR data**.

7. Do one of the following:

- If you want to record the data only but not use it for real-time SMDR processing against monitored calls, select **Disable real-time SMDR data correlation**.

- Leave the **Disable real-time SMDR data correlation** check box cleared if you want to both record SMDR and use it for trunk side call processing against Policies.

Note: Real-time SMDR data correlation does not apply to station-side CDR recording, which can only be used for reporting.

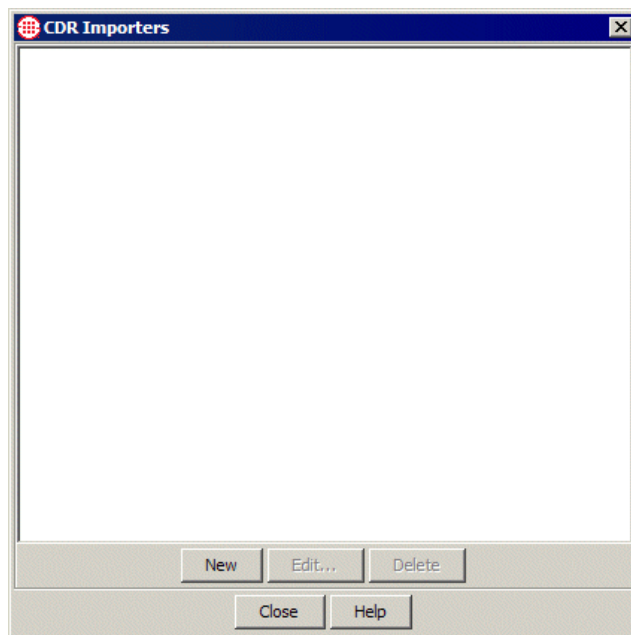
8. Click **OK** to save the changes and close the dialog box. A **Confirm Changes** message appears.
9. Click **Yes**.

Defining a CDR Importer

A CDR Converter parses the recorded CDR files to enable the data to be stored in the Call Table in the ETM Database.

To define a CDR Importer

1. On the Performance Manager main menu, click **Manage | CDR Importers**. The **CDR Importers** dialog box appears.



2. Click **New**. The **Configure CDR Import Trunk** dialog box appears.

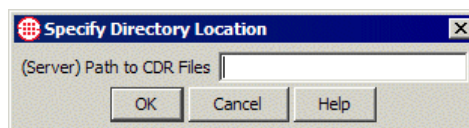
3. In the **Trunk Value** box, type a user-defined trunk label to be placed in the **SMDR_1** and **SMDR_2** fields of calls processed by this importer. For example, you might want to identify it by the name of the Switch from which it was imported.
4. In the **Time Zone** box, click the down arrow and select the time zone for the device sending the CDR.
5. Certain devices, such as the Avaya G3, do not include a date format in the CDR. If the CDR is originating from an Avaya switch or another type that does not include the data format in the data file, select the **Use Specified Date Format** box. In the adjacent box, type the date format. The **Example** below the field updates to show the results of the specified format, using January 15th as a reference date.

For example, if you type: yyMMdd, the result is shown as **100115**.

The following values are valid:

Letter	Date or Time Component	Presentation	Examples
G	Era designator	Text	AD
y	Year	Year	1996; 96
M	Month in year	Month	July; Jul; 07
w	Week in year	Number	27
W	Week in month	Number	2
D	Day in year	Number	189
d	Day in month	Number	10
F	Day of week in month	Number	2
E	Day in week	Text	Tuesday; Tue
a	Am/pm marker	Text	PM
H	Hour in day (0-23)	Number	0
k	Hour in day (1-24)	Number	24
K	Hour in am/pm (0-11)	Number	0
h	Hour in am/pm (1-12)	Number	12
m	Minute in hour	Number	30
s	Second in minute	Number	55
S	Millisecond	Number	978
z	Time zone	General time zone	Pacific Standard Time; PST; GMT-08:00
Z	Time zone	RFC 822 time zone	-0800

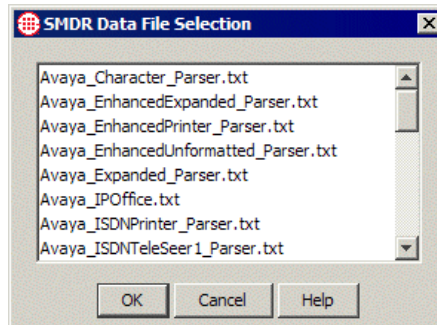
- Next to the **Directory** box, click **Modify**. The **Specify Directory Location** dialog box appears.



- In the **(Server) Path to CDR Files** box, specify the full path to the directory on the ETM Server where the CDR importer is to retrieve the files to be processed. This is the directory where the CDR files were stored when they were imported. The folder bears the name of the Switch and is located by default at **<INSTALL_DIR>\ps\ smdr-recording\<switch_name>**.

Note that this directory must be an absolute path on the Server host, not the Client host.

8. Next to the **Parse File** box, **Modify**. The **SMDR Data Selection** dialog box appears.



9. Select the parse file that applies to the device the files are imported from and then click **OK**.

The importer retrieves the files from the specified directory at the specified interval. Processed files are stored in folder for a configurable amount of time on the ETM Server and then purged. A value in the **Server Properties** tool, **CDRImporter.FileRetentionDays**, governs the purging of those files. The default value is 5 days.

10. In the **Number Expansion** area, create a number expansion for each expected extension pattern. For each pattern, click the **New** icon and specify the expansion as follows:
 - **Remove these digits**—(Optional) Specify one or more digits to be removed from the beginning of the extension.
 - **Prepend these digits**—(Optional) Specify one or more digits to be prepended to the beginning of the extension, after any digits specified in the Remove these digits field.
 - **Apply to numbers of length**—(Optional) Select this checkbox if the expansion rule should apply only to numbers of a certain length. If you select this checkbox, in the adjacent field, type or select the length to which it applies. If you do not select this option, the rule will be applied to all extensions.
 - **Area Code**—The area code to which the extensions matching this rule belong.
 - **Country Code**—(Not editable) The country code to be appended to the normalized phone number. This is always the country code of the ETM Server to which this BAMS belongs.
11. Optionally, in the **Comment** area, type a descriptive comment.
12. Click **OK** to save the changes and close the dialog box.

Configuring CDR Import from a Cisco BAMS Server

You can import CDR records from a Cisco BAMS Server into the ETM Database for reporting.

To configure CDR import from a Cisco BAMS server, perform the following steps:

1. Configure sftp.
2. Define and configure a BAMS server object in the **Platform Configuration** subtree of the Performance Manager tree pane.

Configure sftp

Obtain the ssh host key of the BAMS host and store it in **<INSTALL_DIR>ETM\known_hosts**. A sample key is below.*

```
10.1.110.186 ssh-rsa
AAAAB3NzaC1yc2EAAAABIwAAAQEA9c15CJdkBZE5S/B+8K2wjh
Mn+yWiHxtj9t+yE1Fi1daPSKHS4/VR3wwv1g7yZivn0wetNdDu
OOXnc04ADoH6jSN9Pm53Ixgk8O11aXlz8/z+nvpvOnxJ6ZIpEy
nwEUum8xAgtcimjXEhYPZ0HbRP6XznIlaTz/mnSehUmK12CbhR
IZGmOzi2WnQyRnTkCeZSpJcxaCGUF7wpFnfRO4C2dYhpcOPhCu
zELMA48dJs0D26Vof+uovDEqyYd3N05R01Pkyt4DaYnn/zfSsd
nIaGzNnFg9iLEJWwJ7KPCGu0Ud61oq5EB3+wkqmP5oLEYN88Ss
Y5QAM09tgZ9GoQR2eyeQ==
```

To obtain the host key:

1. From a Linux/Unix system, SSH to the BAMS server. A successful SSH login to the BAMS server updates the user's **known_host** file with the host key for the BAMS server.
2. From the user's home directory in the Linux/Unix server, execute the following commands:

- a. `cd .ssh`
- b. `more known_hosts`

3. Using FTP, SFTP, or SCP, copy this **known_hosts** file from the Linux/Unix system to the ETM Server and place it in the root of the ETM System installation directory.

* **Note:** By default, the **known_hosts** file is expected to exist in the installation directory. If not, a new environment variable can be set to designate an alternate location of the **known_hosts** file for both the ETM Server and BAMS server. To do this, add the following JVM command-line argument to the **ETMManagementService.cfg** file.

```
-Dslc.ssh.known_hosts="<path_to_known_hosts"
```

4. Restart the ETM Server.

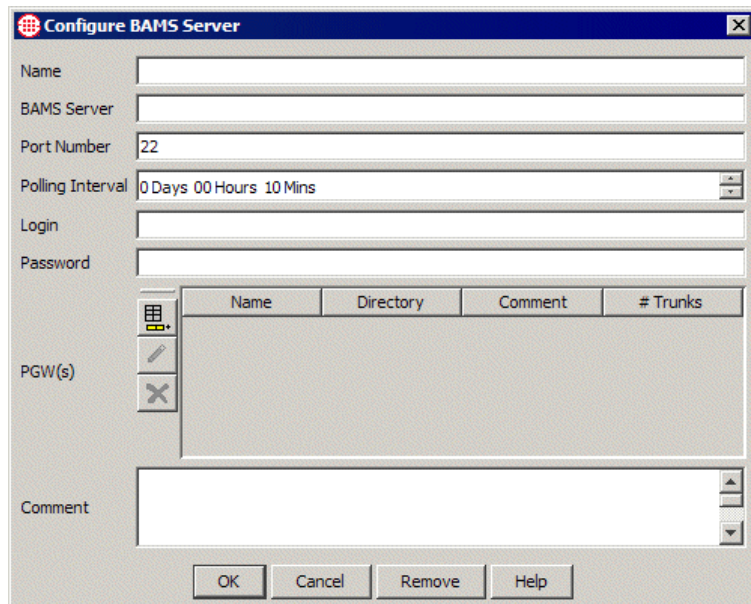
Configuring a BAMS Server

To configure a BAMS Server

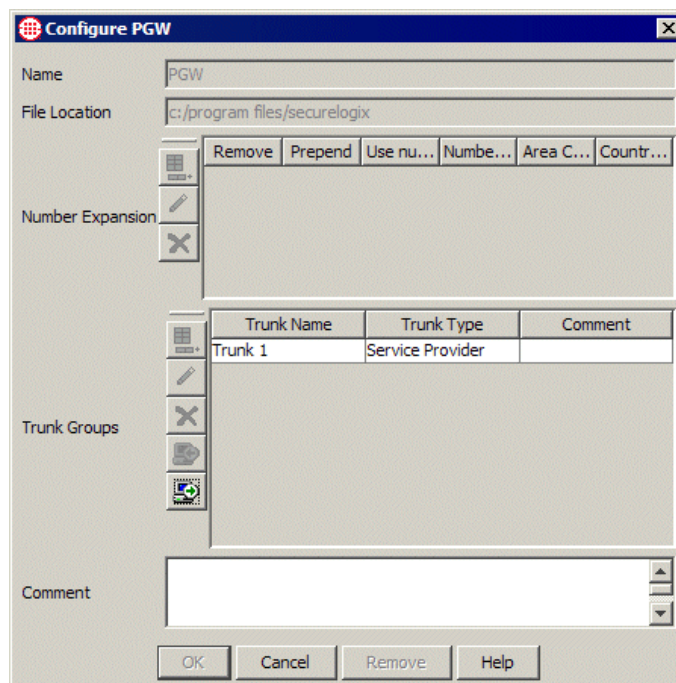
1. In the Performance Manager tree pane, right-click **Platform Configuration** and click **Manage BAMS Server**. The **BAMS Server** dialog box appears.



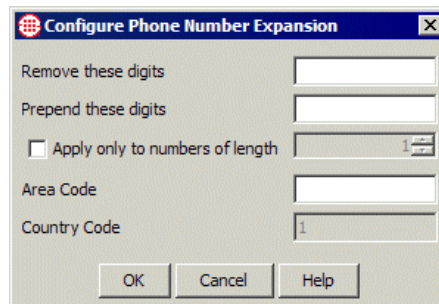
2. Click **New**. The **Configure BAMS Server** dialog box appears.



3. In the **Name** box, type a unique identifier for the BAMS Server. This name is used in the tree pane and in logs and reports.
4. In the **BAMS Server** box, type the IP address or fully qualified host name of the BAMS host to which you are configuring a connection. (The IP address resolves to the corresponding hostname, so the entry in the **known_hosts** file should contain the hostname rather than the IP address.)
5. In the **Port Number** box, type the port number on which the BAMS Server receives connection requests from the ETM Server. This is the port on which the ETM Server connects to download CDR files. The default port for sftp is port 22.
6. In the **Polling Interval** box, type or select the interval at which the ETM Server polls the BAMS Server for new CDR files to download.
7. In the **Login** box, type the login username for the ETM Server on the BAMS server.
8. In the **Password** box, type the password associated with the supplied username.
9. The PGWs area is used to define up to 8 directories from which to retrieve CDR data files. Next to the PGWs box, click the **New** icon. The **Configure PGW** dialog box appears.

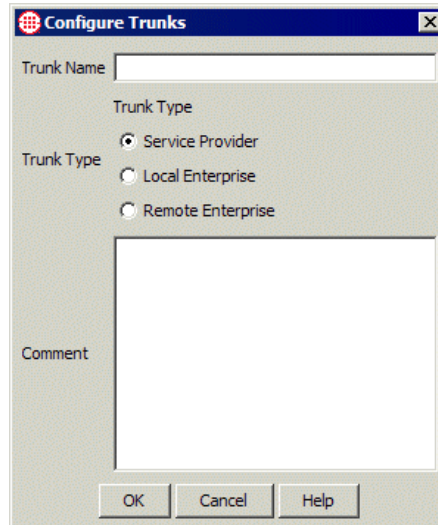


10. For each PGW, define the fields as follows:
 - a. In the **Name** box, type a unique name for the PGW. This name appears in the Performance Manager tree pane and in logs and reports.
 - b. In the **File Location** box, type the directory on the BAMS host from which the CDR files are to be retrieved.
 - c. In the **Number Expansion** area, define the rules by which extensions in the CDR data are to be expanded into fully qualified numbers.
 - d. To define a number expansion rule, click the **New** icon. The **Configure Phone Number Expansion** dialog box appears.



- i. In the **Remove these digits** box, type the digits to be removed from the beginning of the extension prior to prepending any digits. (*optional*)
 - ii. In the **Prepend these digits** box, type the digits to be prepended to the beginning of the extension after any previously specified digits are removed. (*optional*)
 - iii. If the rule applies only to extensions of a specific length, select the **Apply only to numbers of length** check box and then type or select the length. If this field is not specified, the rule is applied to all extensions in the data regardless of length.
 - iv. In the **Area Code** box, type the area code for the extensions to which this rule applies.
 - v. The **Country Code** box is not editable. A country code of 1 is prepended to all extensions.
 - vi. Click **OK** to save the rule.
 - vii. Repeat the above steps to each expansion rule needed for the data being imported.
- e. The **Trunk Groups** area is used to identify the trunk groups found in the CDR data to be imported and their types. Only records containing one of the defined trunk groups for each of source and destination are processed. Do one of the following:

- To manually define a trunk group, click the **New** icon. The **Configure Trunks** dialog box appears.



- i. In the **Trunk Name** box, type the string by which this trunk is identified in the data.
 - ii. In the **Trunk Type** area, select the type of trunk this is:
 - **Service Provider**—Trunk from your location to the service provider for PSTN calls.
 - **Local Enterprise**—Trunk associated with calls that originate and terminate in your location.
 - **Remote Enterprise**—Dedicated trunk used in between sites to place calls without going through PSTN.
 - iii. In the **Comment** area, optionally type a comment about this trunk.
- To import a CSV file of trunk group definitions, click the **Import** icon, and then brows to and select the CSV file containing the trunk groups.

Formatting the Trunk Groups File for Import

For successful import, the trunk groups file must be formatted as follows, with each trunk on a separate line:

<Trunk_type>, <trunk_#>, <comment>

Trunk type values:

- 0—Service provider. Trunk from your location to the service provider for PSTN calls.
- 1 —Enterprise local. Trunk associated with calls that originate and terminate in your location.

- 2—Enterprise remote .Dedicated trunk used in between sites to place calls without going through PSTN.

For example:

```
1,1300, Internal Trunk 1300
1,1302, Internal Trunk 1302
1,1303, Internal Trunk 1303
2,1304,Trunk number 1304
2,1305,Trunk number 1305
0,ATT5001,Trunk number ATT5001
0,ATT5002,Trunk number ATT5002
0,ATT5004,Trunk number ATT5004
0,ATT5005,Trunk number ATT5005
```

IMPORTANT When you import trunk definitions, all trunk definitions in the PGW are overwritten.

Changing the Number of Records Per Import File

By default, the recorder writes up to 10,000 records in a file before creating a new file.

To specify a different value

1. Add the following JVM command-line argument to the **ETMManagementService.cfg** file:

```
-Dsmdr.RecorderRecordsPerFile=<value>
```

Where value is a number greater than 0.

2. Save the file.
3. Restart the ETM Server.

Note: By default, the **known_hosts** file is expected to exist in the installation directory. If not, a new environment variable can be set to designate an alternate location of the **known_hosts** file for both the ETM Server and the CDR conversion utility. To do this, add the following JVM command-line argument when invoking the Java:

```
-Dslc.ssh.known_hosts="<path_to_known_hosts"
```

Codecs

(This feature is only used with the ETM Inline SIP Appliance.) The ETM System includes a number of predefined voice and video codec definitions, including G.711(PCMU), G.723.1, and G.729. The **Codecs** dialog box is flexible and allows you to add additional codec definitions as they become available. In addition, if a SIP call occurs for which no codec is currently defined, as much information as possible is extracted for the codec and a new codec definition is added to the **VoIP Codecs** dialog box. These extracted codecs have a call type classification of **Unknown**. You can edit them to provide the missing information and associate them with a call type classification when available. The call type reported for a given call is based on the codec classification.

When a SIP Span connects to the Server, the list of codecs and their properties is sent to the Span. When you change any codec properties via the **Codecs** dialog box (accessed from the Performance Manager **Manage** menu), the Management Server automatically distributes the changes to each connected SIP Span.

Codec Definitions

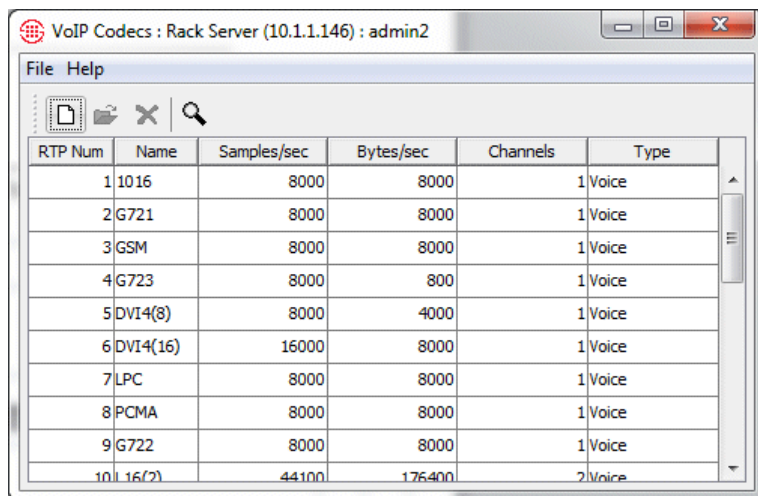
The ETM System recognizes the following codecs:

- **Voice**—DV14(11), DV14(22), CN, QCELP, G721, G723, G728, G729, MPA, L16(1), L16(2), G722, PCMA, LCP, DVI4(8), DVI4(16), GSM, 1016, PCMU
- **Video**—H261, NV, JPEG, CELB

Viewing a List of Codecs

To view a list of the codec definitions

- On the Performance Manager main menu, click **Manage | Codecs**. The **VoIP Codecs** dialog box appears.





The screenshot shows a window titled "VoIP Codecs : Rack Server (10.1.1.146) : admin2". The window contains a table with the following data:


RTP Num	Name	Samples/sec	Bytes/sec	Channels	Type
1	1016	8000	8000	1	Voice
2	G721	8000	8000	1	Voice
3	GSM	8000	8000	1	Voice
4	G723	8000	800	1	Voice
5	DVI4(8)	8000	4000	1	Voice
6	DVI4(16)	16000	8000	1	Voice
7	LPC	8000	8000	1	Voice
8	PCMA	8000	8000	1	Voice
9	G722	8000	8000	1	Voice
10	L16(2)	44100	176400	2	Voice


Each row provides summary information for a single codec. To view details, double-click the row.

Right-clicking a row in the **VoIP Codecs** dialog box opens a submenu of options, which are also available from the toolbar:

New— Opens a dialog box in which you can define a new codec definition. See "Creating a Codec Definition" on page 121.

Open— Opens a dialog box in which you can view details and edit the properties of the selected codec definition. See "Viewing or Editing a Codec" on page 119.

Delete— Deletes the selected codec definition. You cannot delete the predefined codec definitions. See "Deleting a Codec" on page 123.

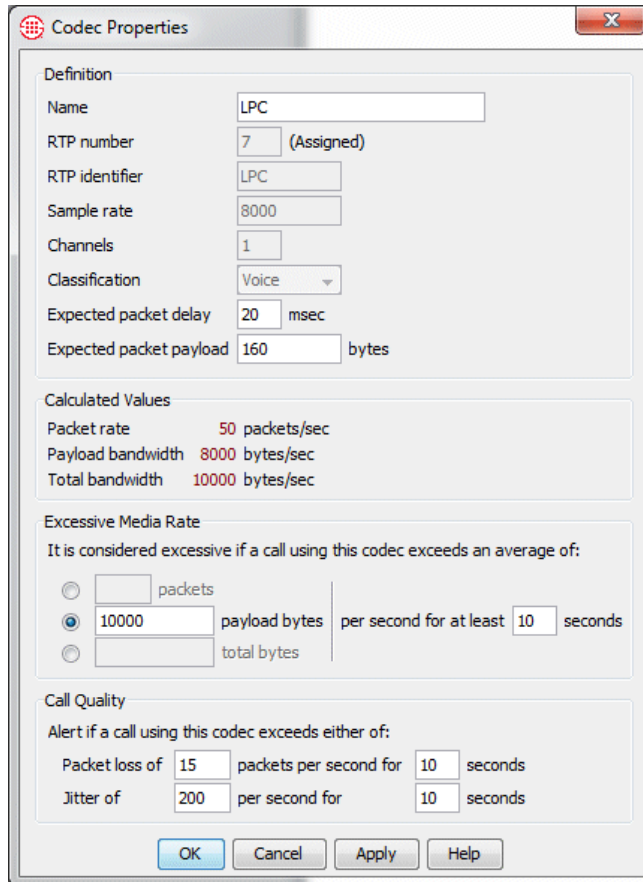
Search— Opens a dialog box in which you can define a search for one or more codecs matching specified criteria. See "Searching for Codecs" on page 123.

Viewing or Editing a Codec

To view or edit a codec definition

1. On the Performance Manager main menu, click **Manage | Codecs**. The **VoIP Codecs** dialog box appears.
2. Do one of the following:
 - Double-click the codec that you want to view or edit.
 - or-
 - Click the codec that you want to view or edit, and then click the **Open** icon on the task bar.

The **Codec Properties** dialog box appears containing the properties of the selected codec.



3. Edit the codec properties as needed. Note that all fields are required and must have a value greater than 0. See "Creating a Codec Definition" on page 121 for a description of the fields. Note that when you edit a predefined codec, you cannot change **RTP number**, **RTP identifier**, **Sample rate**, **Channels**, or **Classification**.
4. Click **Apply** to accept the changes without closing the dialog box, or click **OK** to save the changes and close the dialog box.

Setting Excessive Media Rate Limits for a Codec

To set excessive media rate limits for a codec

1. On the Performance Manager main menu, click **Manage | Codecs**. The **VoIP Codecs** dialog box appears.
2. Double-click the codec to which you want to apply the limit. The **Codec Properties** dialog box appears.

3. In the **Excessive Media Rate** area, specify when the media rate is considered excessive as follows:
 - a. Select one of the following options:
 - Number of packets per second
 - Payload bytes per second
 - Total number of bytes per second.
 - b. Type a value greater than 0 for the selected value.
 - c. Specify the minimum number of seconds for which the specified value is exceeded before the rate is considered excessive. Calls are tracked to verify that their media rate conforms to the expected characteristics of the codec. You can use the **Attributes** field of Firewall Policies to prescribe actions (such as call termination) based on this value. You can also define system events to notify applicable personnel.

Setting Call Quality Alert Limits for a Codec

The **Call Quality Alert Limit** triggers a system event if a call using this codec exceeds the specified value:

To set call quality alert limits for a codec

1. On the Performance Manager main menu, click **Manage | Codecs**. The **VoIP Codecs** dialog box appears.
2. Double-click the codec to which you want to apply the limit. The **Codec Properties** dialog box appears.
3. In the **Call Quality** area, specify the limits that trigger an alert (values must be greater than 0). If either value is exceeded, an alert is triggered.
 - Packet loss of n packets per second for n seconds.
 - Jitter of n per second for n seconds.

Creating a Codec Definition

The ETM System provides flexibility to add new codec definitions as they become available.

You must have the **Access Policy Features** user permission to create new codec definitions.

To define a new codec

1. On the Performance Manager main menu, click **Manage | Codecs**. The **VoIP Codecs** dialog box appears.
2. Click **File | New**. The **Codec Properties** dialog box appears.

The table below describes each field in a Codec definition. All fields are required and values must be greater than 0.

Codec Field	Description
Definition	<p>Name—Identifier of the codec (must be unique), between 1 and 38 characters.</p> <p>RTP number—The RTP number of the codec (number between 1-127).</p> <p>RTP Identifier—The identifier of the codec.</p> <p>Sample rate—The rate per second at which the voice path data is sampled.</p> <p>Channels—The number of channels (1-9) the codec uses.</p> <p>Classification—Call type associated with the codec: Voice, Video, Fax, Data, or Unknown.</p> <p>Expected packet delay—The expected time, from 1 to 10000 milliseconds, between two successive packets. A packet delay of 20ms, for example, would correspond to a frequency of 50 packets per second. As you change this value, the information in the Calculated Values area updates.</p> <p>Expected packet payload—Bandwidth in bytes per second; a number from 1 to 4294967296. As you change this value, the information in the Calculated Values area updates.</p>
Calculated values	<p>Packet rate—Packets per second</p> <p>Payload bandwidth—Bytes per second</p> <p>Total bandwidth—Bytes per second</p>
Excessive Media Rate	<p>To specify when the media rate is considered excessive:</p> <ol style="list-style-type: none"> 1. Select one of the following options, and then type a value greater than 0: Number of packets per second, Payload bytes per second, or Total number of bytes per second. 2. Specify the minimum number of seconds for which the specified value is exceeded before the rate is considered excessive. Calls are tracked to verify that their media rate conforms to the expected characteristics of the codec. You can use the Attributes column of firewall policies to prescribe actions (such as call termination) based on this value. You can also define system events to notify applicable personnel.
Call Quality	<p>Triggers a system event if a call using this codec exceeds either of the following values (values must be greater than 0): Packet loss of n packets per second for n seconds or jitter of n per second for n seconds</p>

3. Click **OK** to save the changes and close the dialog box.

The new codec definition appears in the **VoIP Codecs** dialog box.


Deleting a Codec

To delete a codec

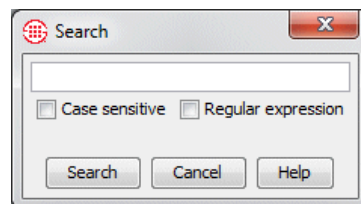
1. On the Performance Manager main menu, click **Manage | Codecs**. The **VoIP Codecs** dialog box appears.
2. Click the codec you want to delete, and then click **File | Delete**. You cannot delete predefined codecs.
3. A confirmation dialog box appears. Click **Yes**.

Searching for Codecs

To search for codecs

1. On the Performance Manager main menu, click **Manage | Codecs**. The **VoIP Codecs** dialog box appears.
2. Do one of the following:
 - On the toolbar, click the **Search**  icon.
 - or-
 - Click **File | Search**.

The **Search** dialog box appears.



3. Type the string you want to search for. All fields in the Codec are considered when searching.
4. If you want to find only items that match the capitalization that you typed in the text box, select the **Case sensitive** check box; if you want to ignore capitalization when searching, clear the check box.
5. Select the **Regular Expression** check box if the search string is a regular expression.
6. Click **Search**. If one or more matching items are found, the first matching item is highlighted. To see the next match (if any), click **Search** again. Repeat until you locate the item you are seeking, or until **Search wrapped around** appears in the **Search** dialog box (meaning that all items were searched and the search is beginning again from the top). If no items are found that match, **Text not found** appears in the **Search** dialog box.

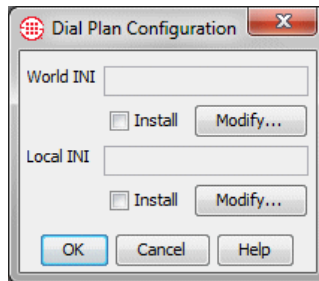
Dialing Plans

The Span Dialing Plan provides information about the dialing environment and classification of calls. Occasionally, the Dialing Plan installed on a Span may need to be changed if the dialing environment where the Span is located changes (for example, if a new area code is added to the local calling area) or if you want to add new call labels to be used in Service Type objects. The procedure below explains how to download a new Dialing Plan to a Span. For instructions for modifying the Dialing Plan file, see "Defining Dialing Plan Sections" the *ETM® System Technical Reference*.

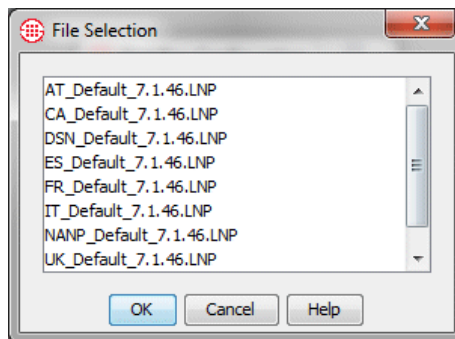
Downloading a Dialing Plan to a Span

To download a new Dialing Plan to a Span

1. In the **Platform Configuration** subtree, right-click the Span, and then click **Manage Dial Plan**. The **Dial Plan Configuration** dialog box appears.



2. Under the applicable box, select **Modify**. For example, if you are updating your Local Dialing Plan, under **Local INI**, click **Modify**. The **File Selection** dialog box appears.



3. Click the correct file, and then click **OK**. You are returned to the **Dial Plan Configuration** dialog box.
4. Be sure the **Install** check box is selected, and then click **OK**. The Dialing Plan is downloaded to the Span.

Span Configuration Settings

Span configuration settings provide the Span with telecom and call processing information specific to the telecom environment where the Span is located. These settings enable the Span to properly process calls and enforce Policies.

These settings are configured during installation; most settings are unlikely to need to be modified during system operation unless the telecom system itself changes. Others, such as the Span Name, Loopback Passthrough Mode, Extension Masking, and Call Termination setting, may need to be changed.

WARNING Do not change Span line settings unless instructed to do so by SecureLogix Customer Support. Improper settings can impair the ETM System's ability to monitor calls and may degrade telecom network operation.

Extension Masking/Call Redirection

Masking/Redirection Plans enable you to mask calling extensions and redirect calls on based on source, destination, and/or direction. For example, you can:

- Redirect harassing inbound calls from known sources to the security department.
- Supply a substitute source number to be transmitted to called destinations.
- Redirect calls to your CEO and other executives for which Caller ID has been blocked to a recorded message that explains such calls are not accepted.

Masking is available for PRI and inline SIP applications. Redirection is available for UTA, PRI, and inline SIP applications.

On PRI and inline SIP applications, you can mask the calling party number by restricting it from being transmitted to the called party, while still allowing it to be sent to the ETM Application for call monitoring. You can mask CPN for all source numbers on all calls on a given Span, or for specific sources and/or destinations..

On PRI, UTA, and inline SIP applications, you can also redirect certain calls to other destinations, such as a recorded message.

You can define Masking/Redirection Plan rules for any entity in the ETM Directory (Listings, Groups, Ranges, Filters, and Wildcards), for caller ID restricted calls, and for calls with no source.

IMPORTANT NOTES

- Masking/Redirection Plan rules are processed in the order in which they appear in the **Masking/Redirection Plan Properties** dialog box, and only the first rule that matches the call is executed.

- Masking results do not appear in the Call Monitor, Logs, or Reports; that is, the original number is reported rather than the substitution.
- (**PRI Only**) If you want to mask or restrict CPN for all calls on a specific Span, rather than implementing different rules based on source and/or destination, and do not need to redirect calls, use the **Masking Config** setting on the **PRI** tab of the **Span Configuration** dialog box instead of a Masking/Redirection Plan.
- After you define a Masking/Redirection Plan, you associate it with the Application (s) to which it applies in the **Application Configuration** dialog box for the given application.

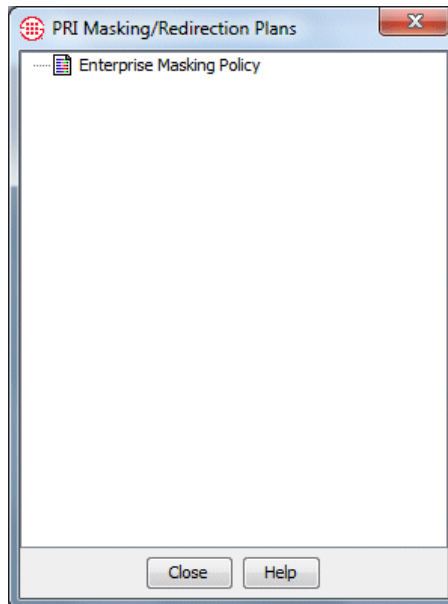
Defining a Masking/Redirection Plan for PRI Spans

You must have the **Manage Telecommunications Configuration** user permission to view or edit masking/redirection plans.

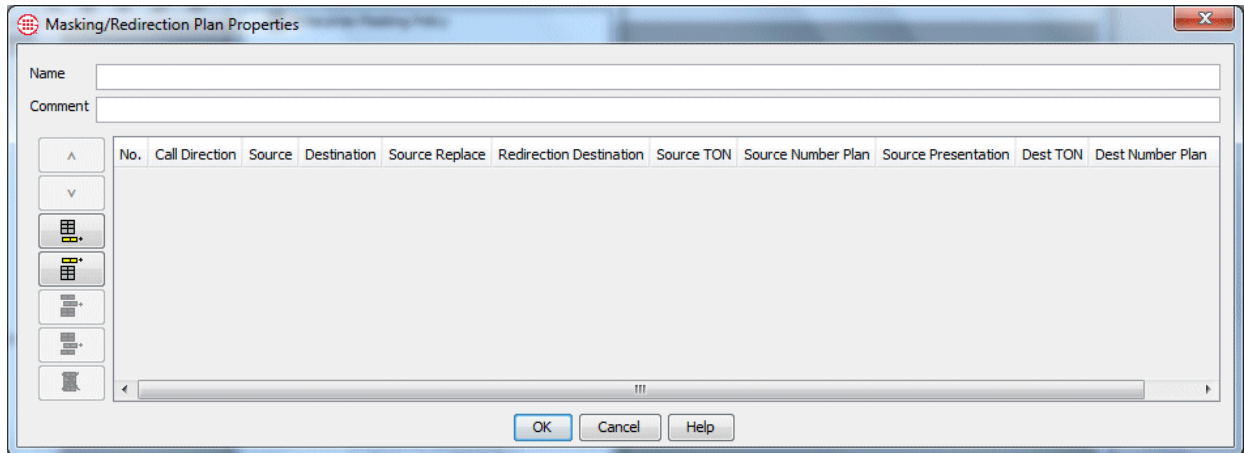
To define a PRI masking/redirection plan

1. On the Performance Manager main menu, click **Manage | Masking/Redirection Plans | PRI Masking/Redirection Plans**.

The **PRI Masking/Redirection Plans** dialog box appears.



2. Right-click in the white area of the dialog box, and then click **New PRI Masking/Redirection Plan**. The **Masking/Redirection Plan Properties** dialog box appears.



3. In the **Name** box, type a unique identifier for this plan.
4. Optionally, in the **Comment** box, type a descriptive comment.
5. Click one of the **Add Rule** icons to add a rule. These icons function exactly as those used for Policies in the Performance Manager.



6. A new blank rule appears in the **Masking/Redirection Plan Properties** dialog box.

No	Call Dire...	Source	Destination	Source Replace	Dest Replace	Source TON	Source Number Plan	Source Presentation	Dest TON	Dest Number Plan
1	Any			Unchanged	Unchanged	Unchanged	Unchanged	Unchanged	Unchang...	Unchanged

7. Define the fields. You must set a value for source and destination
IMPORTANT Only if you specify a replacement source or destination should you specify a different corresponding TON or Numbering Plan, because changing these values for an unchanged phone number may render the call unroutable. To prevent this, such changes are ignored by the Span.
 - **Call Direction**—Specifies the call direction to which the rule applies: **Inbound** calls, **Outbound** calls, or **Any** calls. **Any** is the default. This field also denotes whether the source or destination is internal or external.
 - To change the value, click in the field, and then click an option in the list.
 - **Source**—*Required*. Specify the source(s) to which the rule applies. You can specify **Any** or one or more Directory Entities (Listings, Groups, Ranges, Filters, or Wildcards), **Caller ID Restricted**, or **No Source**.

- To add a source, right-click in the field, click **Add**, and then click the source.
- **Destination**—*Required*. Specify the destination(s) to which the rule applies. You can specify **Any** or one or more Directory Entities (Listings, Groups, Ranges, Filters, or Wildcards).
 - To add a value, right-click in the field, click **Add**, and then click the destination.
- **Source Replace**—Used to send a replacement value instead of the actual source number. The value you specify replaces any of the Source numbers specified in the **Source** field. **Unchanged** is the default. Leave the default, which transmits the actual source, type the digit string that is to replace the actual source number, or clear the field to send a NULL value.
 - To change the value, right-click in the field, click **Edit**, and then type the replacement digits, or clear the field to send a NULL value. This field accepts up to 33 numeric characters.
 - To revert to the default, right-click in the field, and then click **Unchanged**.
- **Dest Replace**—Used to reroute a call. Calls from any of the sources in the **Source** field to any of the destinations in the **Destination** field are rerouted to the replacement destination. **Unchanged** is the default. Leave the default, which uses the dialed digits to route the call; or type the digit string that is to replace the dialed digits in routing the call. Note that this string represents the *raw* destination, or actual dialed digits.

IMPORTANT The replacement number must be routable by the PBX or CO switch to which the call is being sent. In other words, if an inbound call has its 4 digit DID number replaced with a 10 digit external number, the PBX may not correctly route the call back out to this number. Likewise, to redirect an outbound call to an internal extension, you must supply a number that the CO can use to route the call to that internal extension.

- To change the value, right-click in the field, and then click **Edit**, and then type the number to which the call is to be redirected. This field accepts from 1 to 33 numeric characters and the pound **#** sign.
- To revert to **Unchanged**, right-click in the field, and then click **Unchanged**.

- **Source TON**—Specifies a value to replace the source TON value in the PRI messaging. Only modify this value if you specified a replacement source number and that number has a different TON. **Unchanged** is the default. Leave the default, which leaves the actual TON in the messaging, or select one of the following: **International, National, Subscriber, Network Specific, or Abbreviated**.
 - To specify a value or revert to **Unchanged**, click in the field, click the down arrow, and then click an option.
 - **Source Number Plan**—Specifies a value to replace the source number plan (NP) in the PRI messaging. Only modify this value if you specified a replacement source number and that number uses a different NP. **Unchanged** is the default. Leave the default, which leaves the actual source NP in the messaging, or select one of the following options: **Unknown, ISDN, Data, Telex, Standard, or Private**.
 - To specify a value or revert to the default, click in the field, click the down arrow, and then click an option.
 - **Source Presentation**—Specifies the source presentation indicator for the call. You can change this value whether or not you specify a replacement source or destination. **Unchanged** is the default. Leave the default, which leaves the presentation indicator as set by the caller; or select a value to which presentation indicator is to be set regardless of what was set by the caller. Values are **Allow, Restricted, or Not Available**.
 - To select a value or to revert to **Unchanged**, click in the field, and then click the down arrow, and then click an option.
 - **Dest TON**—Specifies a value to replace the destination TON value in the PRI messaging. Only modify this value if you specified a replacement destination number and that number has a different TON. **Unchanged** is the default. Leave the default, which leaves the actual destination TON in the messaging, or select one of the following: **International, National, Subscriber, Network Specific, or Abbreviated**.
 - **Dest Number Plan**—Specifies a value to replace the destination number plan (NP) in the PRI messaging. Only modify this value if you specified a replacement value for the destination number and that number uses a different NP. **Unchanged** is the default. Leave the default, which leaves the actual destination NP in the messaging, or select one of the following options: **Unknown, ISDN, Data, Telex, Standard, or Private**.
 - To specify a value or revert to **Unchanged**, click in the field, click the down arrow, and then click an option.
8. Repeat above steps for additional rules as needed.

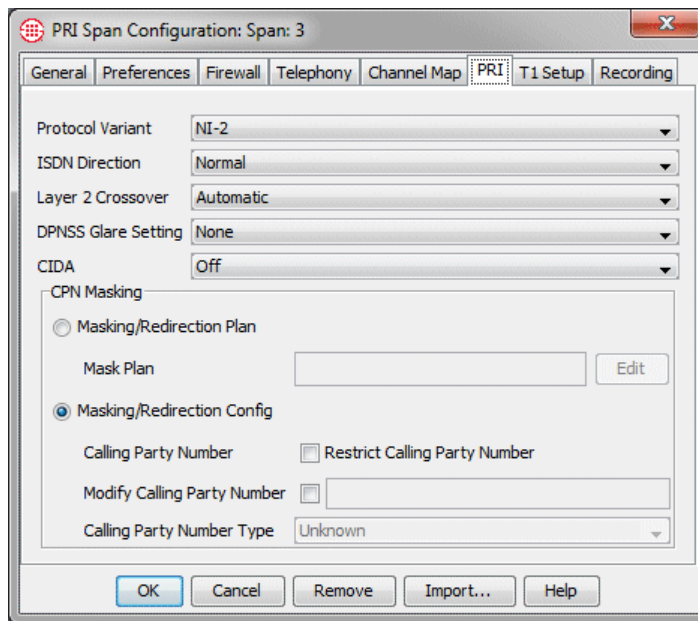
9. Masking plan rules are processed in the order in which they appear in the **Masking/Redirection Plan Properties** dialog box, and only the first rule that matches the call is executed. To reorder the rules, click the rule you want to move, and then click the Up or Down arrow.
10. When you have defined each of the rules for this masking/redirection plan, click **OK** to save the changes and close the dialog box. The new masking plan appears in the **Masking/Redirection Plans** dialog box and is available to use on any PRI Span. Remember that a masking plan has no effect until it is assigned to a PRI Span. Each PRI Span can use only one masking plan. See "Applying Masking or Redirection to a PRI Span" below for instructions for associating a masking plan with a Span.

Applying Masking or Redirection to a PRI Span

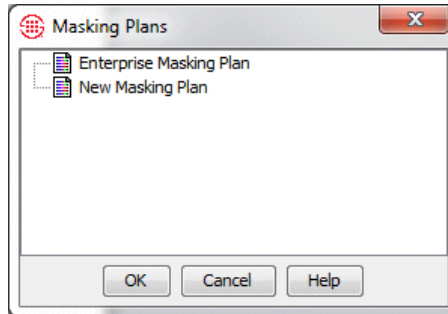
(PRI Spans) If you want to use an Extension Masking Plan to mask extensions or redirect calls based on the source, destination, and/or direction of the call, use the preceding procedure, "Defining a Masking/Redirection Plan," to define the Extension Masking Plan, if you have not already done so. Then use this procedure to associate the plan with the Span. If you simply want to mask source numbers for all outgoing calls on the Span, use the procedure below; you do not need to define an Extension Masking Plan.

To mask extensions and/or redirect calls

1. In the Performance Manager tree pane, right-click the PRI Span, and then click **Edit Span(s)**. The **Span Configuration** dialog box appears.
2. Click the **PRI** tab.



3. In the **CPN Masking** area, do one of the following:
 - To mask or redirect calls based on source, destination, and/or direction, select **Masking Plan**.
 - a. Click **Edit**. The **Masking Plans** dialog box appears.



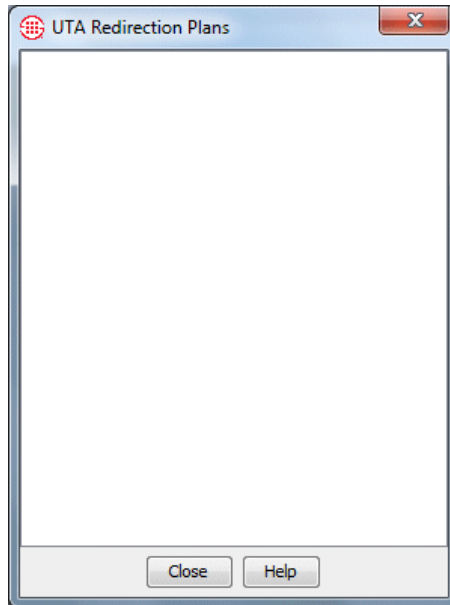
- b. Click the Masking Plan that applies to this Span, and then click **OK**. If the masking plan has not yet been defined, you can define it by right-clicking in this dialog box. For instructions for defining a masking plan, see "Defining a Masking/ Redirection Plan" on page 126.
 - To mask source numbers on all outgoing calls on the Span, select **Masking Config** and then do any of the following (each of these fields functions independently of the others):
 - a. To prevent the calling party number from being transmitted, select the **Restrict Calling Party Number** checkbox.
 - b. To replace the outbound CPN with a substitute string, select the **Modify Calling Party Number** check box, and then type the substitute number in the box. You can type up to 18 digits. You can also leave the box blank, if desired, to send a null value (blank).
 - c. In the **Calling Party Number Type** box, click the down arrow, and then select the TON for the number you specified in the **Modify Calling Party Number** box: **Unknown**, **International**, **National**, **Subscriber**, **Network Specific**, or **Abbreviated**. In the USA, **National** is most common.
4. When you have finished your changes to this Span, click **OK** to apply the changes and close the dialog box.
5. A confirmation message appears. Click **Yes** to download the changes to the Span.

Defining a UTA Redirection Plan

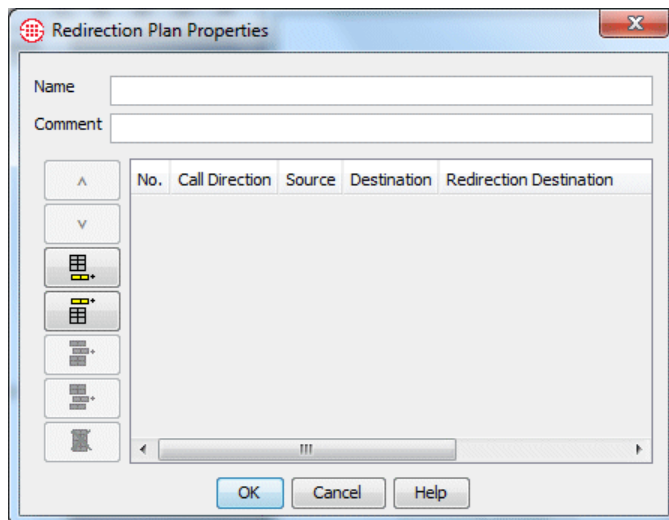
Note: Masking is not available on UTA from within the ETM System.

To define a UTA Redirection Plan

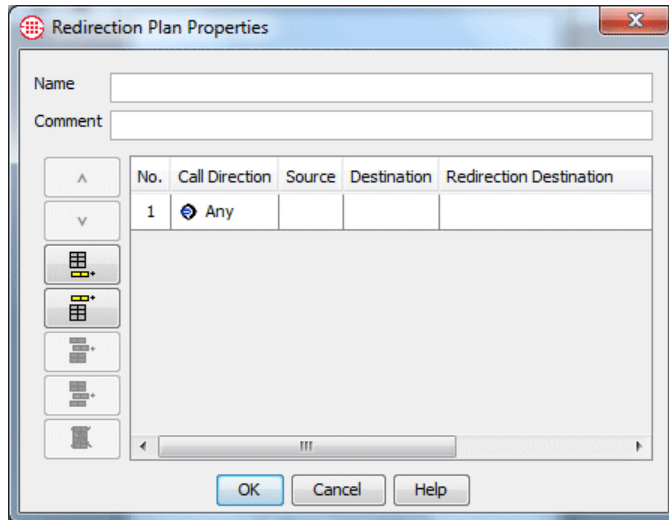
1. On the Performance Manager main menu, click **Manage | Masking/Redirection Plans | UTA Redirection Plans**.
2. The **UTA Redirection Plans** dialog box appears.



3. Right-click in the dialog box and click **New UTA Redirection Plan**.
4. The **Redirection Plan Properties** dialog box appears.



5. In the **Name** box, type a descriptive label for this Redirection Plan. This label is used in the GUI to identify the plan.
6. In the **Comment** box, optional type descriptive details about the purpose of this plan.
7. Click the **New Rule** icon on the right. A blank rule appears in the dialog box.



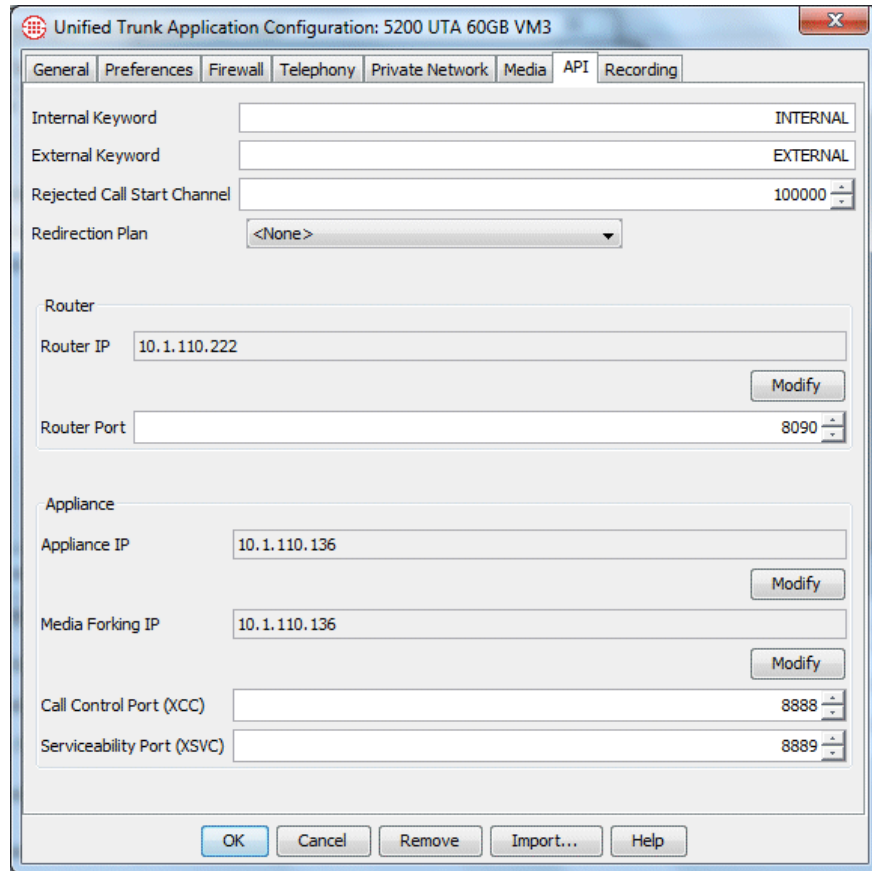
8. The **No.** field is automatically assigned. Rules are processed in the order in which they appear in the plan. No limit to the number of rules is imposed; the practical limit is governed by available system resources.
9. Define the fields as follows:
10. In the **Call Direction** field, **Any**, **Inbound** or **Outbound**.
11. **Source** specifies the calling number(s) to which the rule applies: **Any**, one or more Directory Objects, **No Source**, or **Caller ID Restricted**.
 - To specify the source(s) to which this rule applies, right-click in the field, click **Add** and then click select the applicable Object(s).:
12. **Destination** specifies the called number(s) to which this rule applies: **Any** or one or more Directory Objects that contain the destination number(s) to which this rule applies.
 - To select each Directory Object, right-click in the field, click **Add** and then select each Directory Object.
13. Right-click in the **Redirection Destination** field, click **Edit**, and then type the phone number VoIP URI that specifies the new routable called party address for the call. This field supports entry of a free-form text string of 1-250 characters.

14. **Redirection Display Name** specifies the Caller ID display name to present for calls to which this redirection rule is applied. Valid values are Unchanged, blank, or a free-form text string of up to 1-250 characters. The default is Unchanged.
 - To specify a replacement value, right-click in the field and either type a string or leave it blank.
15. Rules are applied in the order in which they are represented in this dialog box. To add additional rules, do one of the following and then follow the instructions above to define the rules:
 - To add a rule as the first rule, click the **Add to Top** icon.
 - To add a rule as the last rule in the set, click the **Add to Bottom** icon.
 - To place a new rule within the existing set of rules, click an existing rule and click the **Add Before** or **Add After** icon.
 - To rearrange the rules, click the rule you want to move and click the **Move Up** or **Move Down** arrows.
 - To delete a rule, click the rule and then click the **Delete** icon.
16. When all rules in the plan are defined, click **OK** to save the plan and close the dialog box.

***Applying a
Redirection Plan
to a UTA
Appliance***

To apply a Redirection Plan to a UTA Appliance

1. In the **Platform Configuration** subtree, right-click the Span node and click **Edit Span**. The **Unified Trunk Application Configuration** dialog box appears.
2. Click the **API** tab.



3. In the **Redirection Plan** box, click the down arrow and then click the plan you want to apply calls monitored by this UTA.
4. Click **OK** to apply the redirection plan and close the dialog box.
5. You are prompted to download changes to the UTA. Click **Yes**.

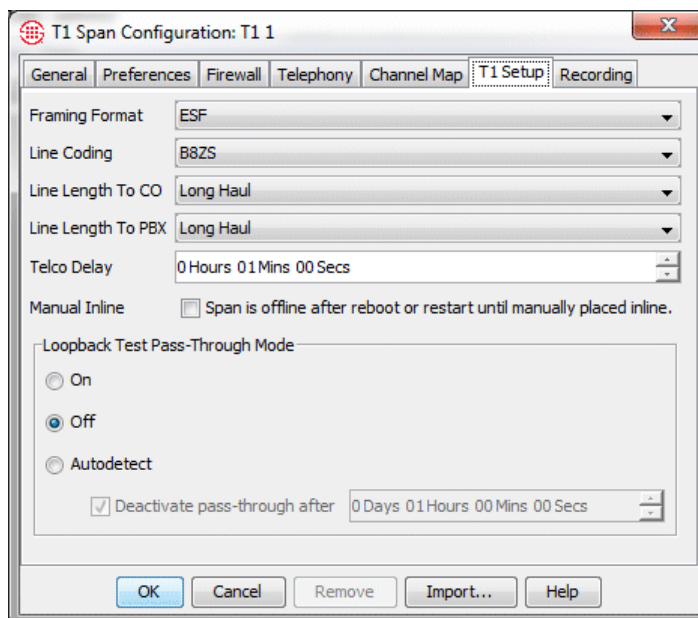
Configuring Digital TDM Spans to Restart Offline

(Does not apply to analog, inline SIP, or UTA) The **Manual Inline** check box allows you to configure a digital Span so that it does not automatically go inline after it is rebooted or restarted. When this box is selected, the Span remains offline until the ETM Command `SPAN INLINE` is executed. To allow the Span to automatically go inline after it is rebooted or restarted, clear the check box.

To cause a Span to always restart/reboot offline

1. In the Performance Manager tree pane, right-click the Span, and then click **Edit Span(s)**. The **Span Configuration** dialog box appears.
2. Do one of the following:
 - On T1 or PRI Spans, click the **T1 Setup** tab.

- On E1 Spans, click the **E1 Setup** tab.



3. Select the **Manual Inline** check box. When this check box is selected, the Span is offline after a reboot or restart until the ETM Command `SPAN INLINE` is executed.
 - To allow the Span to automatically go inline after it is rebooted or restarted, clear the check box.
4. Click **OK** to download the configuration change to the Span.

Placing Offline Digital Spans Inline

To place offline digital Spans inline

1. In the Performance Manager tree pane, right-click the Span and click **ASCII Management**.
 - To select multiple Spans, hold down CTRL or SHIFT and select each Span, and then right-click the selection and click ASCII Management. The **ASCII Management Interface** appears.
2. In the **Enter Command** box, type `SPAN INLINE` and then press ENTER.

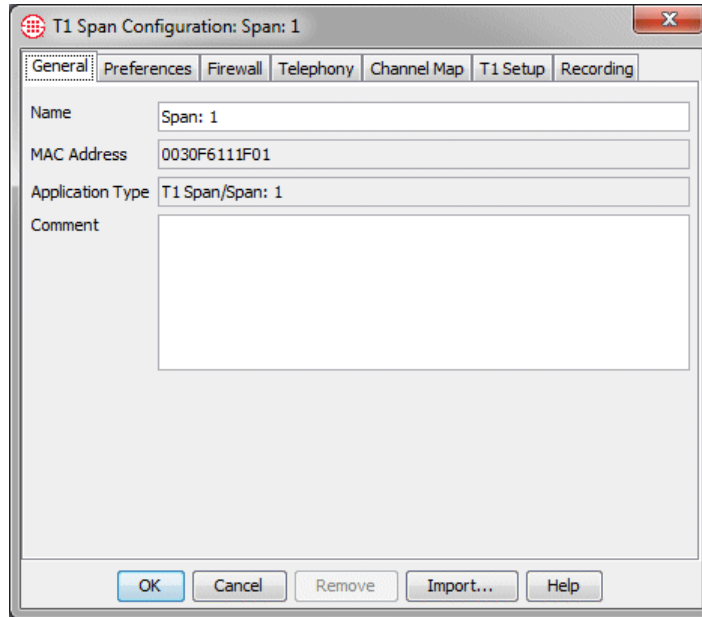
Viewing a Span's MAC Address

The media access control (MAC) address of the Span is the same as that of the Card. It is a unique hardware identifier specific to a given Card; it cannot be modified.

To view the MAC address of the Span

- In the **Platform Configuration** subtree of the Performance Manager tree pane, right-click the Span, and then click **Edit Span(s)**. The

Span Configuration dialog box appears with the **Span** tab selected. The MAC Address appears on this tab.



Renaming a Span

The **Name** box contains the user-defined name used to represent the Span in the Performance Manager tree pane, logs, and monitoring tools. This procedure applies to all Span types.

To rename a Span

1. In the **Platform Configuration** subtree, right-click the Span, and then click **Edit Span(s)**. The **Span Configuration** dialog box appears, with the **General** tab selected.
2. In the **Name** box, type the new Span name.
3. When you have finished your changes to this Span, click **OK** to apply the changes and close the dialog box.
4. A confirmation message appears. Click **Yes** to download the changes to the Span.

Span Comment/Tool Tip

Each Appliance component below the Card level has an optional **Comment** field that, by default, generates a tool tip when you hover over the icon in the Performance Manager tree pane. You can use this field to provide at-a-glance information, perhaps identifying the rack location, type of Span, and IP address, or some other key information. You can optionally disable the tool tip display. For instructions, see "Disabling the Span Tool Tip" below.

Adding a Span Comment/Tool Tip

To add a Span comment/tool tip

1. In the Performance Manager tree pane, right-click the Span or other applicable resource and click **Edit...** The **Configuration** dialog box for the selected resource appears with the **General** tab selected. **Note:** This feature applies only to resources that appear below the Card level in the **Platform Administration** subtree.
2. In the **Comment** field, type a descriptive comment. You can optionally use basic HTML tags to format the tool tip display.

IMPORTANT Since HTML tags are enclosed in angle brackets, use of angle brackets in the **Comment** field has the following limitation: If you want to display a left angle bracket, you must type the following code to denote it: `<`

In HTML, a typed left angle bracket character is never displayed, a right angle bracket is not displayed if a left angle bracket precedes it anywhere in the text, and any text enclosed in angle brackets is assumed to be a tag and not displayed.

For example, if you type `This is <span_2>` in the **Comment** field, the tool tip displays only `This is`. If you instead type `This is <span_2>`, the tool tip displays `This is <span_2>` as you intended.

3. Click **OK** to save changes and download them to the Span.
4. Click **OK** when the confirmation message appears.

Disabling the Span Tool Tip

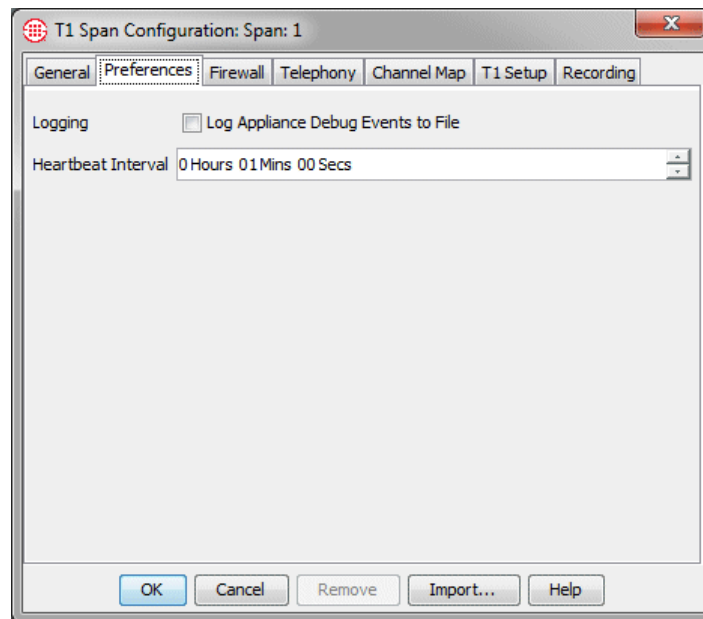
By default, the comment on the **General** tab of a Span (or other resource below the Card level) appears as a tool tip when you hover over the icon in the Performance Manager tree pane. You can disable this Span tool tip feature in the **ETM Server Properties Tool**.

To disable the Span tool tip

1. In the ETM System Console, click the Server for which you want to disable the Span tool tip.
2. Click **Servers | ETM Server Properties**. The **ETM Server Properties Tool** appears.
3. Double-click the entry called **DisplayAppToolTips**. The **Modify Property** dialog box appears for the selected property.
4. Select **False**, and then click **OK**. This property is dynamic, so you do not need to restart the Server for the change to take effect. However, if the Performance Manager is open when you change the value, you must close and reopen the Performance Manager before the change is reflected.

Span Heartbeat Interval Setting

The **Heartbeat Interval** on the **Preferences** tab of the **Span Configuration** dialog box specifies how often the Span sends health and status messages to the Management Server. The default heartbeat interval is one minute. It is strongly recommended that you do not change this setting. More frequent heartbeats increase network load and do not increase reliability, although a shorter heartbeat interval decreases the time until the Management Server becomes aware of a lost connection in some network configurations.

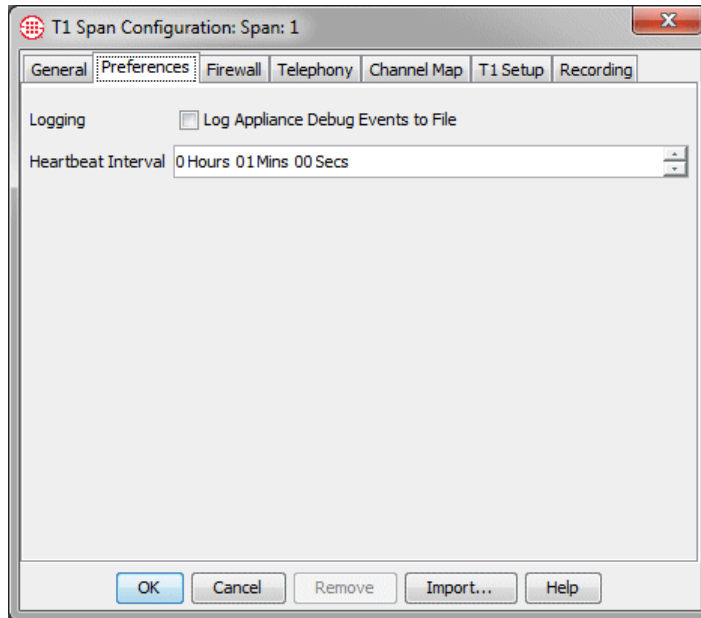


Appliance Debug Event Logging

To capture Span-specific Appliance debugging information in a file on the hard drive of the Management Server for troubleshooting purposes, use the following procedure. Be certain to clear this check box when you no longer need to store this information. Debug logging can quickly generate a large file and greatly increases the amount of network traffic and Appliance load, potentially impacting Appliance performance.

To enable Appliance debug event logging

1. In the **Platform Configuration** subtree, right-click the Span, and then click **Edit Span(s)**. The **Span Configuration** dialog box appears.
2. Click the **Preferences** tab.



3. In the **Logging** area, select the **Log Appliance Debug Events to File** check box. Be certain to clear this check box when you no longer need to store this information, to prevent unnecessary use of hard drive space. Debug logging can quickly generate a large file.

The file is saved in the ETM System installation directory on the Management Server computer at the following path:

`<INSTALL_DIR>/debug/<macaddress_Spannumber_uniqueid>.dbg`

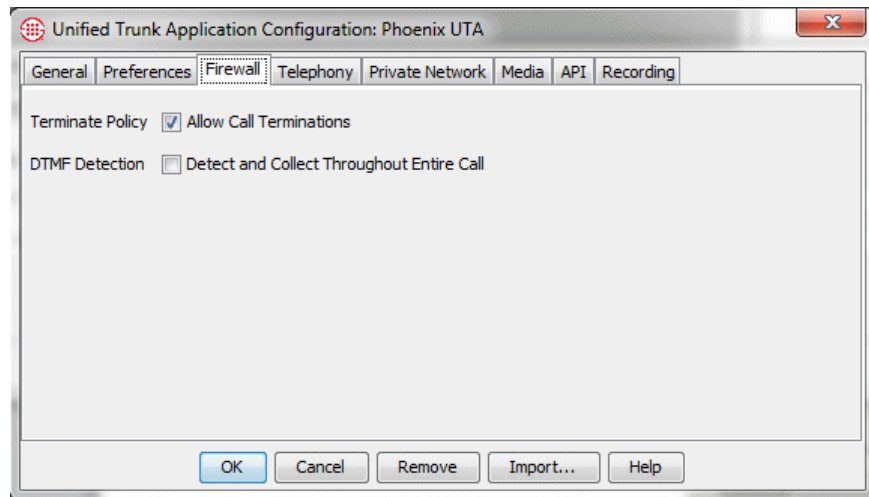
4. When you have finished your changes to this Span, click **OK** to apply the changes and close the dialog box.
5. A confirmation message appears. Click **Yes** to download the changes to the Span.

Call Termination Setting

(*Not on SS7 Signaling Links*) The **Terminate Policy** setting on the **Span Configuration** dialog box determines whether calls can be terminated on this Span, either manually or by Policies. If this check box is not selected, no calls can be terminated, regardless of the **Action** field setting in any Policy Rules or a user's permission.

To enable/disable call termination Rules for a Span

1. In the **Platform Configuration** subtree, right-click the Span, and then click **Edit Span(s)**. The **Span Configuration** dialog box appears.
2. Click the **Firewall** tab.



3. In the **Terminate Policy** area:
 - To allow termination of calls on this Span, select the **Allow Call Terminations** check box.
 - To prevent termination of calls on this Span, clear the **Allow Call Terminations** check box.
4. When you have finished your changes to this Span, click **OK** to apply the changes and close the dialog box.
5. A confirmation message appears. Click **Yes** to download the changes to the Span.

DTMF Digit Detection

You can have DTMF digits captured throughout the call and stored in the ETM Database along with their interdigit timing, for offline analysis.

Note that DTMF digit patterns can be used in Firewall and IPS Policies without storing them in the database. If you do not want them stored but want to use them in Policies, simply leave the setting described below cleared. When you place a DTMF pattern of interest in a Policy rule, midcall DTMF digits are analyzed throughout the life of the call in real time but are not stored in the ETM System.

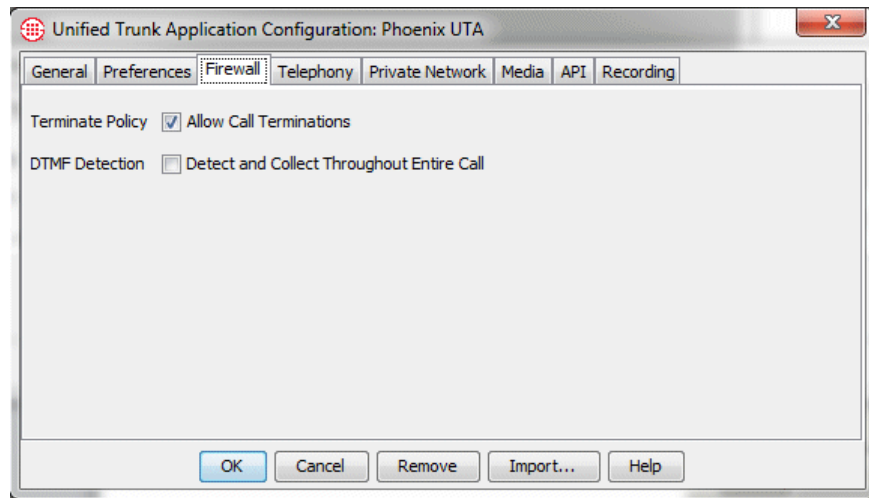
Configuring Midcall DTMF Digit Collection

(Not on SS7 Signaling Links) If you want DTMF digits to be captured throughout the call for offline analysis, rather than just during call establishment, perform the following procedure. Note that suffix digits (such as PIN codes) are also not captured and reported unless this check box is selected. When this checkbox is selected, the interdigit timing of the digits is also stored. This setting applies to all calls on all channels, since DTMF digits are passed once the call is established, even if MF digits are used for signaling.

Suffix digits are still seen in the **Raw Destination** field, regardless of this setting.

To capture mid-call DTMF digits

1. In the **Platform Configuration** subtree, right-click the Span, and then click **Edit Span(s)**. The **Span Configuration** dialog box appears.
2. Click the **Firewall** tab.



3. In the **DTMF Detection** area, select the **Detect and Collect Throughout Entire Call** check box.
4. When you have finished your changes to this Span, click **OK** to apply the changes and close the dialog box.
5. A confirmation message appears. Click **Yes** to download the changes to the Span.

STU Detection Setting

(Not on UTA, or SS7 Signaling Links) If STU phones are in use on monitored lines, the **Actively Detect STUs** check box must be selected before the ETM System reports them as STUs. If this is not selected, STU calls are reported as Modem Energy.

To enable STU detection

1. In the **Platform Configuration** subtree, right-click the Span, and then click **Edit Span(s)**. The **Span Configuration** dialog box appears.
2. Click the **Firewall** tab.
3. Select the **Actively Detect STU** check box.
4. When you have finished your changes to this Span, click **OK** to apply the changes and close the dialog box.
5. A confirmation message appears. Click **Yes** to download the changes to the Span.

Ambiguous Call Processing Setting

(*Not on SS7 Signaling Links or UTA*) An *ambiguous* call occurs when insufficient call data is available to evaluate a particular call against a Policy Rule. For example, if a Rule specifies outbound Source but the source is not available in the call data on the line, the call is ambiguous because it cannot be determined whether the source of the call matches the source in the Rule. Ambiguous Call Processing determines how such calls are processed.

To change the ambiguous call processing setting

1. In the **Platform Configuration** subtree, right-click the Span, and then click **Edit Span(s)**. The **Span Configuration** dialog box appears.
2. Click the **Firewall** tab.
3. Select one of the following options:
 - **Skip the rule**—If an ambiguous call is encountered, the Rule is skipped, and processing continues with the next Rule.
 - **Skip the rule only on an inbound call**—If an ambiguous call is encountered during an *inbound* call, the Rule is skipped and processing continues with the next Rule in the Policy. When an ambiguous call is encountered during an *outbound* call, the Firewall Policy stops executing and no Tracks (except logging) are executed.

Inbound calls are distinguished from outbound calls because SMDR data can be used to resolve outbound calls that were ambiguous because the source phone number was unavailable during the call. When SMDR data is available to provide the source number, the outbound call is again processed against the Firewall Policy and any applicable Tracks are executed.
 - **Do not skip the rule**—If an ambiguous call is encountered during any call, the Firewall Policy stops executing and no Tracks (except logging) are executed. If SMDR is in use, outbound calls that were ambiguous due to missing source number are reprocessed against the Firewall Policy when SMDR data is available to provide the source, and any applicable Tracks are executed.
4. When you have finished your changes to this Span, click **OK** to apply the changes and close the dialog box.
5. A confirmation message appears. Click **Yes** to download the changes to the Span.

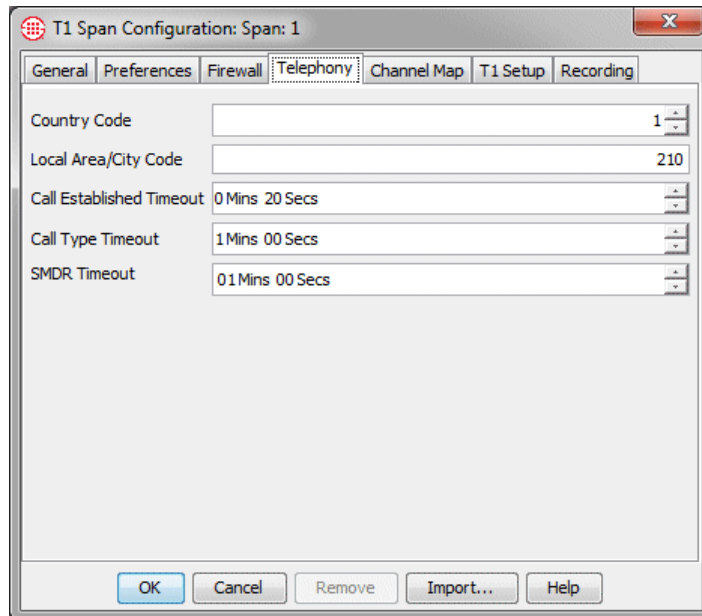
Ambiguous calls are always logged in the Policy Log, regardless of the Track setting, unless **Skip the rule** is selected.

Span Country Code Setting

(Not on SS7 Signaling Links)

To view the Span's Country Code

- In the Performance Manager tree pane, right-click the Span, and then click **Edit Span(s)**. The **Span Configuration** dialog box appears. The Span's Country Code appears in the **Country Code** box on the **Telephony** tab.



Local Area/City Code for a Span

(Not on SS7 Signaling Links)

To view the Span's local area/city code

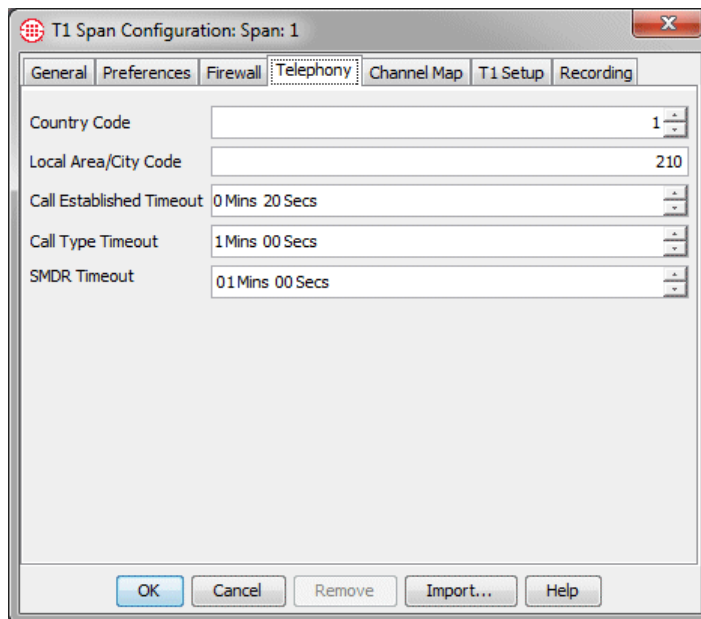
- In the Performance Manager tree pane, right-click the Span, and then click **Edit Span(s)**. The **Span Configuration** dialog box appears. The Span's local city/area code appears in the **Local City/Area Code** box on the **Telephony** tab. This setting only needs modified if the area code where the Span is located changes.

Call Type Timeout Setting

(Not on SS7 Signaling Links) Call Type Timeout only applies to calls where lack of activity on the line prevents the Span from identifying the call type. The **Call Type Timeout** specifies the length of time the Span waits to identify the call type before first classifying a silent or indistinguishable call as Voice. Setting this value too low can cause an excessive number of call type changes.

To change the Call Type Timeout

1. In the Performance Manager tree pane, right-click the Span, and then click **Edit Span(s)**. The **Span Configuration** dialog box appears.
2. Click the **Telephony** tab.



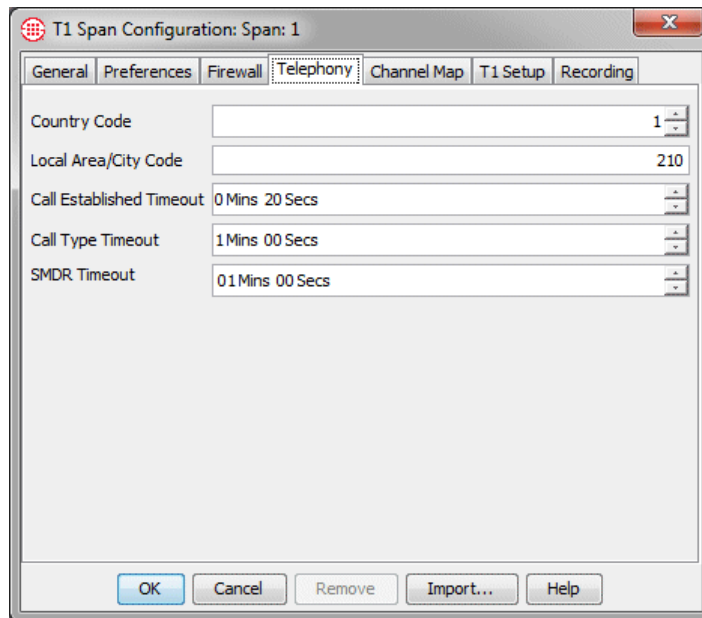
3. In the **Call Type Timeout** box, type or select the timeout value in minutes and seconds.
4. When you have finished your changes to this Span, click **OK** to apply the changes and close the dialog box.
5. A confirmation message appears. Click **Yes** to download the changes to the Span.

SMDR Timeout Setting

(Not on SS7 Signaling Links) The SMDR Timeout specifies how long the Span is to wait for an SMDR result from the Server after the call ends.

To set the SMDR Timeout

1. In the Performance Manager tree pane, right-click the Span, and then click **Edit Span(s)**. The **Span Configuration** dialog box appears.
2. Click the **Telephony** tab.



3. In the **SMDR Timeout** box, type or select the timeout value in minutes and seconds.
4. When you have finished your changes to this Span, click **OK** to apply the changes and close the dialog box.
5. A confirmation message appears. Click **Yes** to download the changes to the Span.

Call Established Timeout Setting

(*Not on SS7 Signaling Links*) The **Call Established Timeout** setting is used on analog and T1 loop start and ground start calls, which do not provide answer supervision. It specifies how long after the last digit is dialed until the call is marked as established.

To view the Call Established Timeout

- In the Performance Manager tree pane, right-click the Span, and then click **Edit Span(s)**. The **Span Configuration** dialog box appears. The **Call Established Timeout** setting appears on the **Telephony** tab. The default is 20 seconds, which corresponds with the timeout value of most telephone network Switches. If your network differs, adjust this value accordingly.

Loopback Test Pass-Through Mode Setting

To prevent errors on T1 lines during loopback testing, the ETM System supports loopback pass-through functionality on T1 Spans (CAS, PRI, SS7 Signaling Link, and SS7 Bearer).

The following pass-through modes are available:

On—The telephony data is transmitted through the Span and no call monitoring or Policy enforcement occurs. When **Loopback Test Pass-Through Mode** is on, D-channel re-establishment and error-count threshold checking/logging are disabled. An error count of 0 is sent to the Management Server.

Off—(Default) Loopback Test Pass-Through Mode is disabled. The telephony data is transmitted through the Span; call monitoring and Policy is enforcement occurs.

Autodetect—Causes the Span to automatically detect standard loop-up and loop-down codes and enter pass-through within 5 seconds of loop-up or loopdown. When **Autodetect** is selected, you can also specify a timeout value, from 1 second to 1 day (1 hour is the default), at which Loopback Test Pass-Through Mode is turned off if no loopdown code has been detected. This prevents the Span from remaining in pass-through mode indefinitely.


When a Span is brought inline, restarted, or rebooted, it resumes in the previous pass-through state. If the pass-through mode is set to **Auto**, the Span resumes in the pass-through inactive state.

Loopback Test Pass-Through Mode Limitations

The following are important to note regarding loopback test pass-through mode:

- Only standard CSU loop-up/loop-down codes are supported:
 - In-band CSU (10000/100)
 - ESF data link line (11111111 01110000/11111111 00011100)
 - ESF data link payload (11111111 00101000/11111111 01001100)
- Autodetect does not detect in-band loop codes that gap the loop codes for the framing bits. If these loop codes are in use, set loopback pass-through ON or set the Span offline before beginning the test.
- When the loopback test is performed, if the framing type does not match the framing of the Span, the Span will go into alarm and the loopback test will be corrupted.
- When **Autodetect** is selected, if the automatic timeout expires before the test is complete, a message appears in the **Diagnostic Log**.
- On T1 Spans, call traffic is prevented when Loopback Test Pass-Through Mode is set to ON; ensure that the affected trunk is placed out of service or set the Span offline before setting Loopback Test Pass-Through Mode ON. When Loopback Test Pass-Through Mode is set to Automatic, ghost calls may occur on either side of the loopback test and other errors may occur.
- The ETM System must detect the loop-up or loop-down code for 5 seconds; if the CSU goes to loop-up or loop-down in less than 5 seconds, the ETM System will not recognize the code and will not loop-up or loop-down.

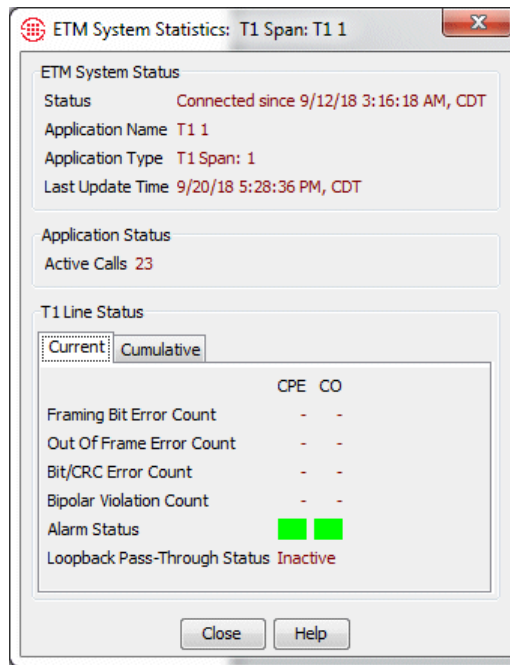
Viewing Loopback Pass- Through Status

The Span's pass-through status is sent to the Management Server with each heartbeat and when a change of state occurs. Pass-through status is reported in the Performance Manager tree pane via an icon  next to the associated Span, in the Management Server's system events, in the **ETM System Statistics** dialog box for the Span, and via the `SHOW STATUS ETM` Command in the **ASCII Management Interface**, Telnet, or serial connection.

When pass-through is active, T1 alarm status is unavailable and shown as black in the **ETM System Statistics** dialog box for the Span.

To view loopback pass-through status

- Do one of the following:
 - In the **Span Groups**, **Telco Configuration**, or **Platform Configuration** subtree, right-click the Span, and then click **Health & Status**. The **ETM System Statistics** dialog box appears.



Loopback Pass-Through Status indicates **Inactive** or **Active**. **Alarm Status** turns black when Loopback Pass-Through mode is Active.

- At the **Console** port, via telnet, or in the **ASCII Management Interface** for the Span, type:

```
SHOW STATUS
```

The line labeled Loopback Status indicates Passthrough ACTIVE or Passthrough INACTIVE.

```

Active calls: 2
CPU busy:      0.00% (5 secs) -0.00% (60 secs)  1.46% (since
startup)

Booted:        Fri Sep  5 22:23:58 2003
Started:       Fri Sep  5 22:24:09 2003
Time:          Fri Sep  5 22:31:00 2003

Log size:      47872 records
Log end ID:    20929880

MS (Platform) Fri Sep  5 22:24:12 2003 connected to IP 10.1.1.206
  (Span)       Fri Sep  5 22:24:14 2003 connected to IP 10.1.1.206
Serial         None
Telnet         none

Status:        OK

Signal Relays:      OPEN - Appliance is INLINE
Loopback Status:   Passthrough INACTIVE
T1 Link Status (CO): GREEN
T1 Link Status (PBX): GREEN

```

- At the **Console** port of the Card, via telnet, or in the **ASCII Management Interface**, type:

```
SHOW T1
```

The Loopback Mode (ON, OFF, or AUTO), current loopback mode status (ACTIVE or INACTIVE), and the loopback mode timeout setting are included in the output.

```

T1 Call Start:      200 ms
Debounce A Bit:    10 ms
Debounce B Bit:    200 ms
Digit:             150 ms
Hangup:            225 ms
Pulse:             175 ms
Alert:             7000 ms
Terminate:         25 ms
TELCO Delay:       60 secs
Error Threshold:   NOT SET
Span Checking:     ON
Clock Source:      CO
Loopback Mode:     OFF
Loopback Timeout:  4 secs
Framing:           SF (Super Frame)
Line Encoding:     AMI
Line Length (CO):  SH 0..110 feet
Line Length (PBX): SH 0..110 feet

Link Status (CO):  RED ALARM
Link Status (PBX): RED ALARM
Signal Relays:    OPEN - Appliance is INLINE
Loopback Status:  Passthrough INACTIVE

```


Loopback Test Pass-Through Mode GUI Setting

T1 PRI, T1 CAS, and T1 SS7 Spans support Loopback Test Pass-Through Mode. Three settings are provided:

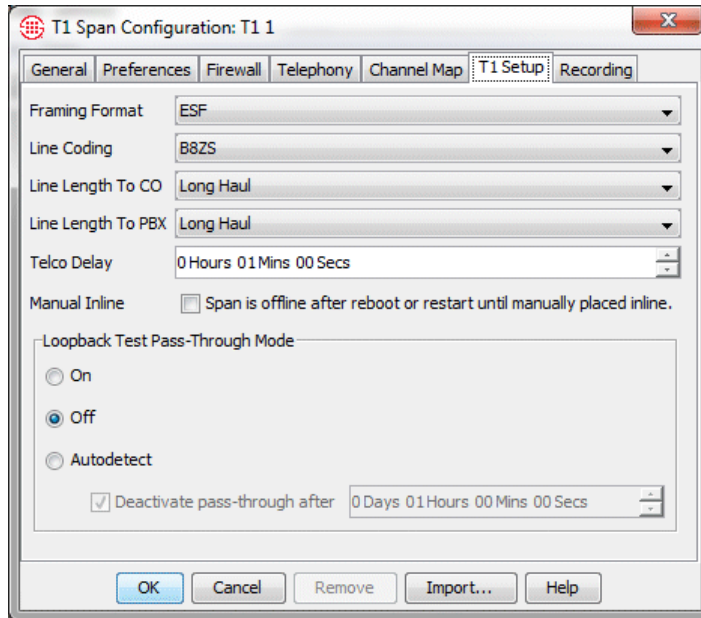
- **Off** disables Loopback Test Pass-Through Mode.
- **On** places the Span in Loopback Test Pass-Through Mode. No call monitoring or Policy enforcement occurs in this mode. On PRI Spans, all calls pass through unimpeded. On T1 Spans, call traffic is prevented when Loopback Test Pass-Through Mode is on; ensure that the affected trunk is placed out of service or set the Span offline before setting Loopback Test Pass-Through Mode on.
- **Autodetect** causes the Span to automatically detect standard loopup and loopdown codes and enter pass-through within 5 seconds of loopup or loopdown. Note that on T1 CAS Spans, ghost calls may occur on either side of the loopback test.

During normal operation, set **Loopback Test Pass-Through Mode** to **Off** or **Autodetect**. Since no call monitoring or Policy enforcement occurs when Loopback Pass-through Mode is **On**, only set Loopback Pass-Through Mode **On** when you plan to begin loopback testing.

WARNING On T1 CAS Spans, turning loopback mode ON can interfere with call traffic. Take the T1 CAS Span offline before setting loopback pass-through mode to ON.

To set loopback pass-through mode via the GUI

1. In the Performance Manager tree pane, right-click the Span, and then click **Edit Span(s)**. The **Span Configuration** dialog box appears.
2. Click the **T1 Setup** tab.



3. In the **Loopback Test Pass-Through Mode** area, select **On**, **Off**, or **Autodetect**.
4. If you select **Autodetect**, the **Deactivate pass-through after** field becomes available. This field specifies a timeout at which Loopback Test Pass-Through Mode is turned off if no loopdown code has been detected. This prevents the Span from remaining in pass-through mode indefinitely. Type or select a value. The default is 1 hour.
5. When you have finished your changes to this Span, click **OK** to apply the changes and close the dialog box.
6. A confirmation message appears. Click **Yes** to download the changes to the Span.

Loopback Setting via ETM Command

You can also turn loopback mode on or off using ETM Commands in the **ASCII Management Interface** or via a telnet or serial connection.

- To turn loopback mode on type:
T1 LOOPBACK MODE ON
- To turn loopback mode off type:
T1 LOOPBACK MODE OFF

Layer 2 Crossover

(PRI only) The **Layer 2 Crossover** setting is used for debugging PRI issues to allow logical insertion/isolation from layer 2 and 3 on PRI Spans. Only change this setting if instructed to do so by SecureLogix Support personnel.

To change the Layer 2 Crossover setting

1. In the Performance Manager tree pane, right-click the Span, and then click **Edit Span(s)**. The **Span Configuration** dialog box appears.
2. Click the **PRI** tab.
3. In the **Layer 2 Crossover** box, click the down arrow and select an option. Valid values are ON, OFF, and AUTOMATIC. (AUTOMATIC is not supported for DASS2 protocol variant.)

Changing the Telco Delay

(T1 and E1 only) **Telco Delay** applies to T1 and E1 Spans and specifies the time (hours, minutes, and seconds) before notification that the trunk is down is sent to the **Diagnostic Log** (at which time any specified System Event Tracks are executed, such as email alerts). The default is 60 seconds.

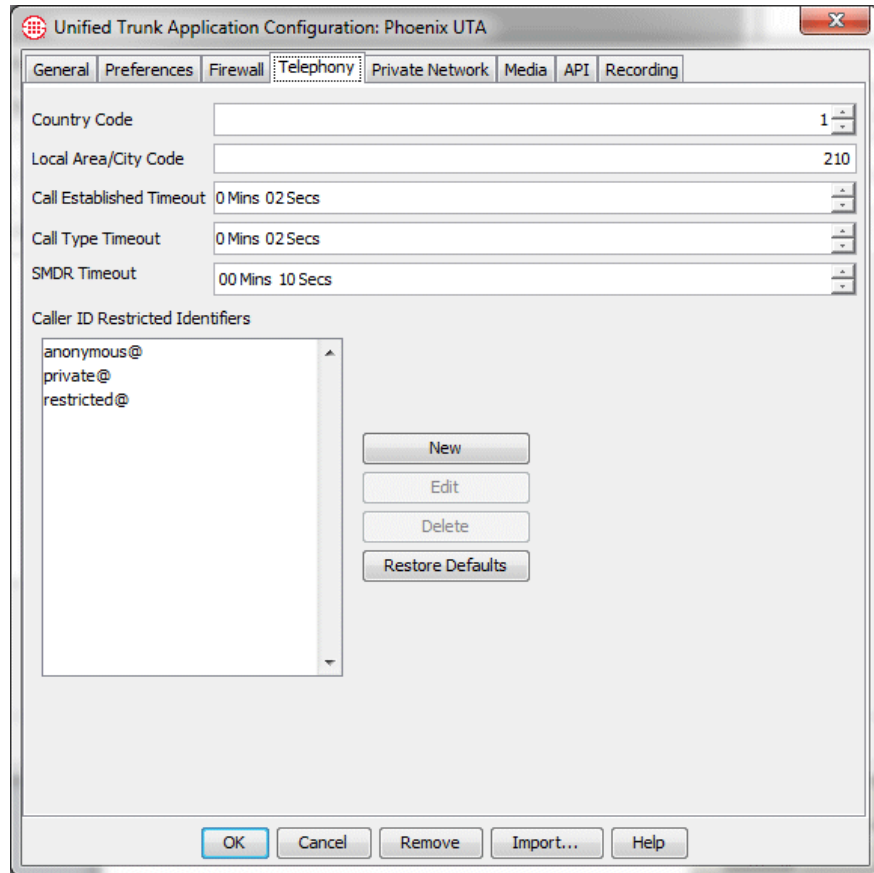
To change the Telco Delay

1. In the Performance Manager tree pane, right-click the Span, and then click **Edit Span(s)**. The **Span Configuration** dialog box appears.
2. Click the **T1 Setup** or **E1 Setup** tab.
3. In the **Telco Delay** box, type or select a value in hours, minutes, and seconds.

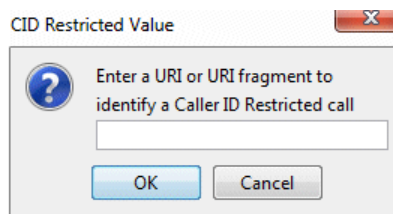
Specifying Caller ID Restricted Identifiers (UTA)

To specify Caller ID Restricted identifiers for a UTA Span

1. In the Platform Configuration subtree, right-click the UTA Span and click **Edit Span(s)**. The **Unified Trunk Application Configuration** dialog box appears.
2. Click the **Telephony** tab.



3. Next to the **Caller ID Restricted Identifiers** box, click **New**. The **CID Restricted Value** dialog box appears.



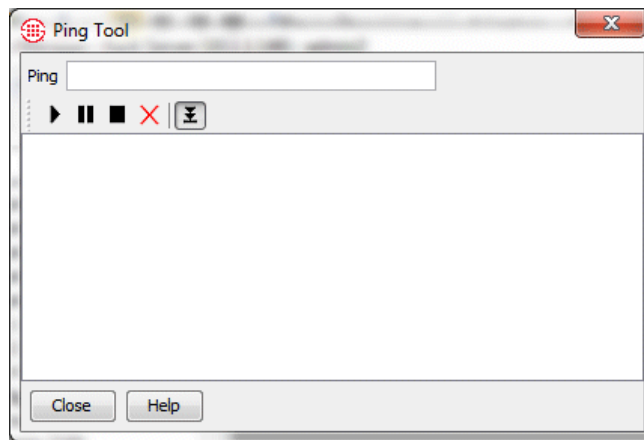
4. Type the string and then click **OK**.
5. When you have completed your changes, click **OK** to download the changes to the Span and close the dialog box.

Ping Tool

(Not available on dedicated CRC Appliance) Ping functionality is provided to aid in troubleshooting Span network connectivity issues. Ping is available from both the **Ping Tool** in the Performance Manager and a command line (**ASCII Management Interface**, Telnet, or a serial connection). To ping from a command line, use the following ETM Command: PING <IP_address>

To ping using the Ping Tool

1. In the Performance Manager tree pane, right-click the Span, and then click **Tools | Ping**. The **Ping Tool** appears.



2. In the **Ping** boxes, type the IP address of a network resource that should be reachable from the Span (for example, the ETM Server host).
3. Press ENTER or click the **Start the job** icon. Below is a sample of the output from a successful ping:

```
PING 10.1.12.190 (10.1.12.190): 56 data bytes
64 bytes from 10.1.12.190: icmp_seq=0 ttl=64 time=0.6 ms
64 bytes from 10.1.12.190: icmp_seq=1 ttl=64 time=0.3 ms
64 bytes from 10.1.12.190: icmp_seq=2 ttl=64 time=0.3 ms
64 bytes from 10.1.12.190: icmp_seq=3 ttl=64 time=0.2 ms
64 bytes from 10.1.12.190: icmp_seq=4 ttl=64 time=0.3 ms
64 bytes from 10.1.12.190: icmp_seq=5 ttl=64 time=0.2 ms
64 bytes from 10.1.12.190: icmp_seq=6 ttl=64 time=0.2 ms
64 bytes from 10.1.12.190: icmp_seq=7 ttl=64 time=0.2 ms
64 bytes from 10.1.12.190: icmp_seq=8 ttl=64 time=0.2 ms
64 bytes from 10.1.12.190: icmp_seq=9 ttl=64 time=0.2 ms
64 bytes from 10.1.12.190: icmp_seq=10 ttl=64 time=0.2 ms
64 bytes from 10.1.12.190: icmp_seq=11 ttl=64 time=0.2 ms
64 bytes from 10.1.12.190: icmp_seq=12 ttl=64 time=0.2 ms
64 bytes from 10.1.12.190: icmp_seq=13 ttl=64 time=0.2 ms
64 bytes from 10.1.12.190: icmp_seq=14 ttl=64 time=0.2 ms

--- 10.1.12.190 ping statistics ---
15 packets transmitted, 15 packets received, 0% packet loss
round-trip min/avg/max = 0.2/0.2/0.6 ms
```

- To pause a running job, click the **Pause the running job** icon.
- To stop a running job, click the **Stop the running job** icon.
- To clear the screen of text, click the **Clear the screen text** icon.
- To prevent the screen from automatically scrolling to new text, click the **Auto scroll to new text** icon, which is selected by default.

Traceroute Tool

On inline SIP applications, you can also execute a SIP trace to view signaling via ETM Commands at a command line.

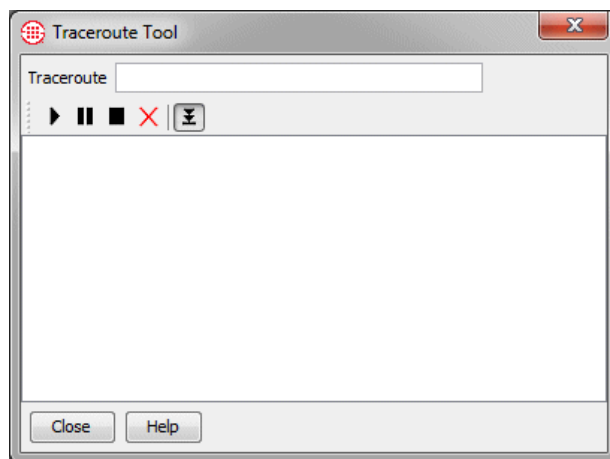
(*Not available on dedicated CRC appliances*) Traceroute functionality is provided to aid in troubleshooting Span network connectivity issues. Traceroute is available from both a **Traceroute Tool** in the Performance Manager and a command line (**ASCII Management Interface**, Telnet/SSH, or a serial connection).

To execute traceroute from a command line, use the following ETM Command: `TRACEROUTE<IP_address>`, where `<IP_address>` is the IP address of a network resource that should be reachable from the Span, such as the Management Server host. To execute traceroute from the **Traceroute Tool** in the Performance Manager, use the following procedure.

To execute traceroute from a Span with the Traceroute Tool

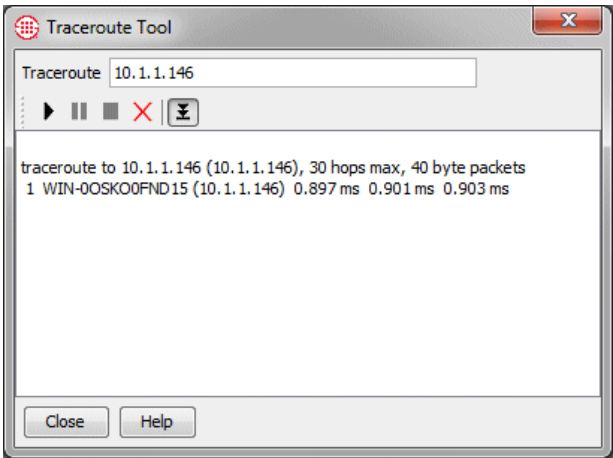
1. In the Performance Manager tree pane, right-click the Span, and then click **Tools | Traceroute**.

The **Traceroute Tool** appears.



2. In the **Traceroute** box, type the IP address of a network resource that should be reachable from the Span (for example, the ETM Server host).
3. Press ENTER or click the **Start the Job** icon.

Sample
Traceroute output



- To pause a running job, click the **Pause the running job** icon.
- To stop a running job, click the **Stop the running job** icon.
- To clear the screen of text, click the **Clear the screen text** icon.
- To prevent the screen from automatically scrolling to new text, click the **Auto scroll to new text** icon, which is selected by default.

Removing a Span from the Tree Pane

You can only remove Span icons when the Span is not communicating with the Management Server. This removes the Server's copy of the Span's configuration. If the Span subsequently reconnects to the Server, the Server accepts and stores the Span's configuration as though it were a new Span.

To remove a Span from the tree pane

1. In the **Platform Configuration** subtree, right-click the Span, and then click **Edit Span(s)**. The **Span Configuration** dialog box appears.
2. Click **Remove**.

Viewing Health and Status

See the *ETM® System User's Guide* for instructions for viewing health and status of Cards and Spans.

Command-Line Interface in the GUI

The **ASCII Management Interface** in the Performance Manager provides a command-line interface from which you can view Card, Span, and proxy node settings and status information using ETM Commands. Changes made via the **ASCII Management Interface** are identical to those made via the Card or Serial port; they do not change the Server's copy of the configuration.

You must have the **Log in to Card/Span via Telnet/Serial** user permission on your user account to access the **ASCII Management Interface**. The option is grayed out and unavailable to users without this permission.

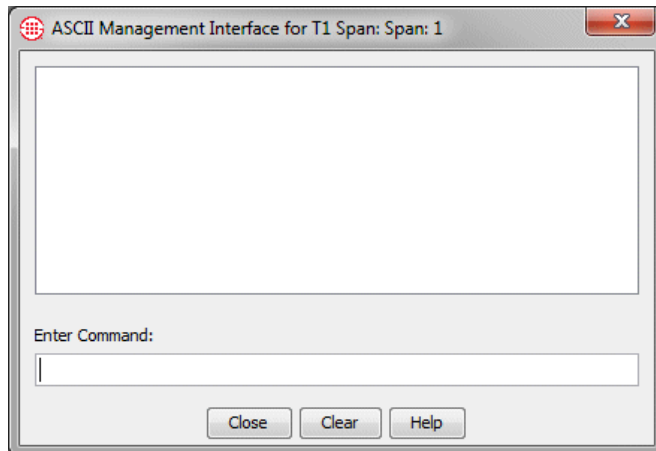
See "ETM[®] Command Reference" in the *ETM[®] System Technical Reference* for a listing and explanation of the ETM Commands, or type `Help` in the **ASCII Management Interface**.

How to Access the ASCII Management Interface

You must have the **Log in to Card/Span via Telnet/Serial** user permission on your user account to access the **ASCII Management Interface**. The option is grayed out and unavailable to users without this permission.

To open and use the ASCII Management Interface

1. In the **Platform Configuration** subtree, right-click the Card, Span, or proxy node you want to manage, and then click **ASCII Management**. The **ASCII Management Interface** appears.



2. In the **Enter Command** box, type the command, and then press ENTER.

IMPORTANT If you open the **ASCII Management Interface** by right-clicking a Card, you can see and change settings for the Card and

for Span 1 on the Card. To manage other licensed Spans on the Card, right-click the specific Span in the **Platform Configuration** subtree.

Terminating Calls via the ASCII Management Interface

For a complete list of ETM[®] Commands, see "Alphabetical Listing of Commands" in the *ETM[®] System Technical Reference*.

To manually terminate calls, **Allow Call Terminations** must be selected on the **Firewall** tab of the **Span Configuration** dialog box.

To manually terminate calls using the ASCII Management Interface

1. In the **Span Groups** or **Platform Configuration** subtree of the Performance Manager tree pane, right-click the Span that monitors the channel on which the call is occurring, and then click **ASCII Management**. The **ASCII Management Interface** appears with the name of the selected Span in the title bar.
2. In the **Enter Command** box, type one of the following:
 - To terminate the current call on a specific channel, type
`TERMINATE <channel number>`
For example, to terminate the current call on channel 8, type
`TERMINATE 8`
 - To terminate all calls in progress on the Span, type
`TERMINATE ALL`
3. Press ENTER. The call on the specified channel(s) is immediately terminated.

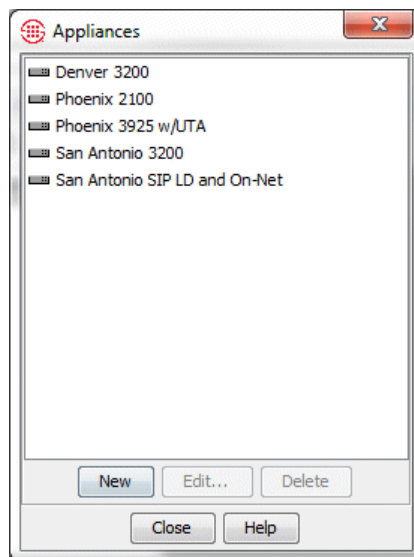
Appliances in the Platform Configuration Subtree

Appliances can be used to organize the Card icons in the **Platform Configuration** subtree according to the physical chassis in which they are contained. or any other organizational scheme. They provide no true functionality; they are simply used for organizing the tree pane.

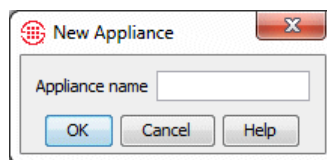
Creating an Appliance

To create an Appliance

1. Right-click the **Platform Configuration** subtree, and then click **Manage Appliance(s)**. The **Appliances** dialog box appears.



2. Click **New**. The **New Appliance** dialog box appears.



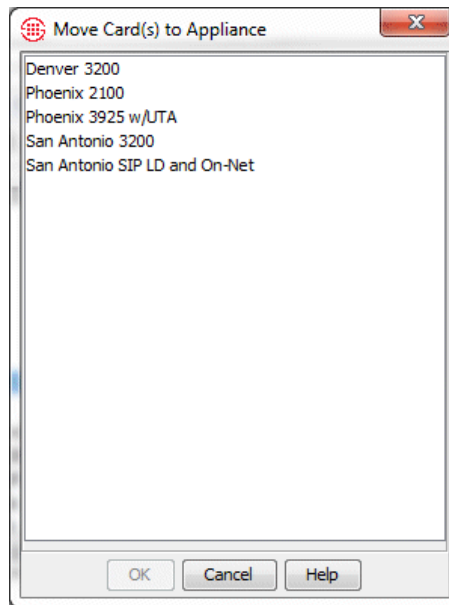
3. In the **Appliance name** box, type a unique name for the Appliance. For example, for an ETM 1024 Hybrid Analog/VoIP Appliance installed in rack one, you might type: 1024 Rack 1
4. Click **OK**. You are returned to the **Appliances** dialog box.
5. Click **OK**. The new Appliance appears in the **Platform Configuration** subtree. Appliances are listed in alphabetical order.

Moving Cards to an Appliance

Once you move a Card icon to an Appliance icon, you can move it to a different Appliance, but you cannot place it so that it is unassociated with any Appliance. This procedure applies to both initially associating a Card with an Appliance and for moving a Card from one Appliance to another.

To move a Card to an Appliance

1. In the **Platform Configuration** subtree, right-click the Card, and then click **Move Card**. To move multiple Cards at once, hold down CTRL while clicking. The **Move Card(s) to Appliance** dialog box appears.



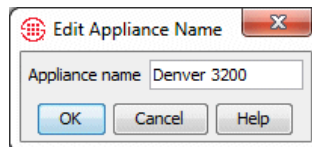
2. Click the Appliance with which the selected Card is to be associated, and then click **OK**. The Card icons move below the specified Appliance in the **Platform Configuration** subtree.

Renaming an Appliance

You can also click **Edit** in the **Appliances** dialog box to rename the Appliance.

To rename an Appliance

1. In the **Platform Configuration** subtree, right-click the Appliance, and then click **Edit Appliance(s)**. The **Edit Appliance Name** dialog box appears.



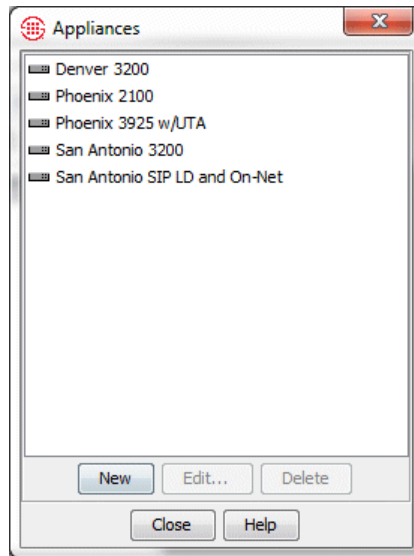
2. In the **Appliance name** box, type the new name, and then click **OK**.

Deleting an Appliance

You cannot delete an Appliance while it contains Cards; you must first move any Cards it contains to another Appliance.

To delete an Appliance

1. Right-click the **Platform Configuration** subtree, and then click **Manage Appliance(s)**. The **Appliances** dialog box appears.



2. Click the **Appliance** you want to delete, and then click **Delete**.
3. Click **Close**.

Switches

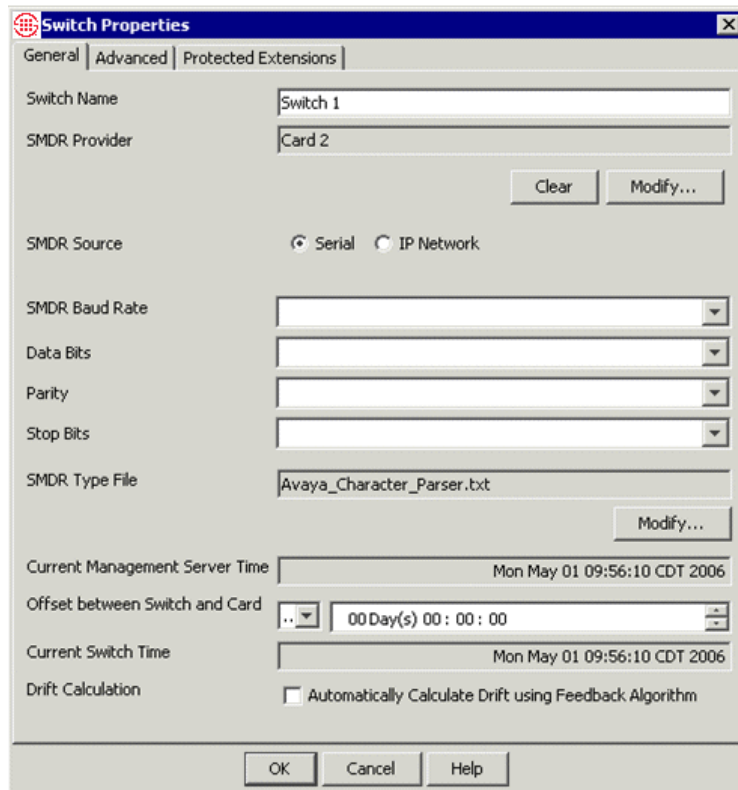
Switches are used to represent the PBX associated with the Appliances and to configure the ETM System for SMDR, NFAS, and SS7 Groups. See "Configuring SMDR, NFAS, and SS7 Groups" in the *ETM® System Installation Guide* for complete instructions for creating and configuring Switches, NFAS Groups, and SS7 Groups. The procedures below provide instructions for viewing settings and changing various configuration.

Viewing Switch Configuration

See "Configuring a Switch for SMDR" in the *ETM® System Installation Guide* for instructions for configuring the ETM System to use SMDR. See "About SMDR Parse Files" in the *ETM® System Technical Reference* for instructions for configuring SMDR Parse Files.

To view Switch configuration

- In the **Telco Configuration** subtree, right-click the Switch, and then click **Edit Switch**. The **Switch Properties** dialog box appears.



The screenshot shows the "Switch Properties" dialog box with the "General" tab selected. The dialog has three tabs: "General", "Advanced", and "Protected Extensions". The "General" tab contains the following fields and controls:

- Switch Name:** Text box containing "Switch 1".
- SMDR Provider:** Text box containing "Card 2". Below it are "Clear" and "Modify..." buttons.
- SMDR Source:** Radio buttons for "Serial" (selected) and "IP Network".
- SMDR Baud Rate:** Dropdown menu.
- Data Bits:** Dropdown menu.
- Parity:** Dropdown menu.
- Stop Bits:** Dropdown menu.
- SMDR Type File:** Text box containing "Avaya_Character_Parser.txt" and a "Modify..." button.
- Current Management Server Time:** Text box showing "Mon May 01 09:56:10 CDT 2006".
- Offset between Switch and Card:** A dropdown menu followed by a time field showing "00 Day(s) 00 : 00 : 00".
- Current Switch Time:** Text box showing "Mon May 01 09:56:10 CDT 2006".
- Drift Calculation:** A checkbox labeled "Automatically Calculate Drift using Feedback Algorithm" which is currently unchecked.

At the bottom of the dialog are "OK", "Cancel", and "Help" buttons.

The **Switch Properties** dialog box has three tabs:

- **General** specifies the Switch name and is used to configure basic SMDR processing.
- **Advanced** is used to associate an Access Code with the Switch and define algorithms for converting partial SMDR extensions to fully qualified phone number.

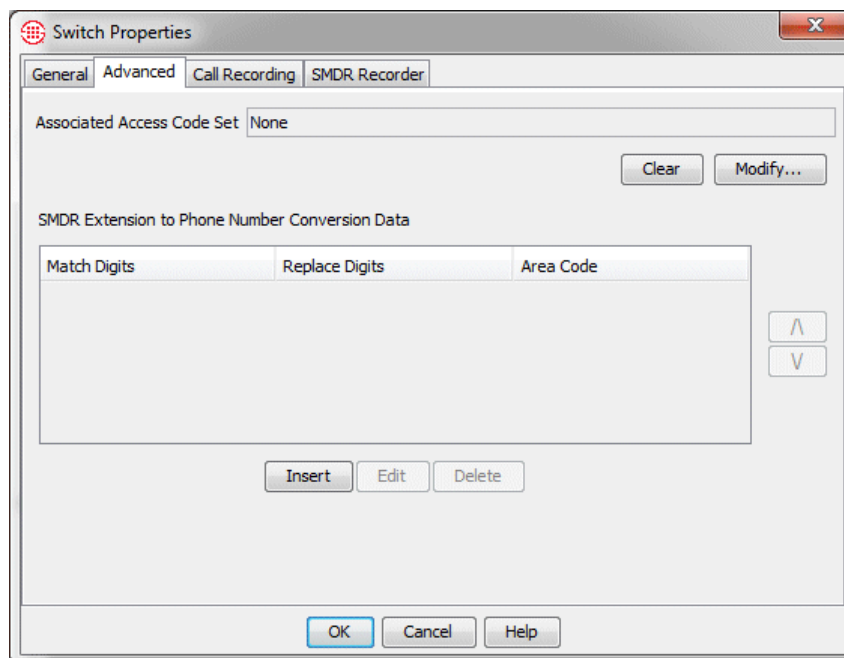
- **SMDR Extensions** are internal phone numbers identified by inbound SMDR correlation for which you want to prescribe special Call Recorder treatment . For example, you can use SMDR Extensions to define a whitelist of extensions to which calls are never to be recorded, or a blacklist of extensions to which calls are always to be recorded. Recordings can also be marked as sensitive based on this list, for example, for HIPAA-protected calls. (*Does not apply to UTA.*) See “SMDR Extensions” in the *ETM® System Call Recorder User Guide* for details.

Associating an Access Code Set with a Switch

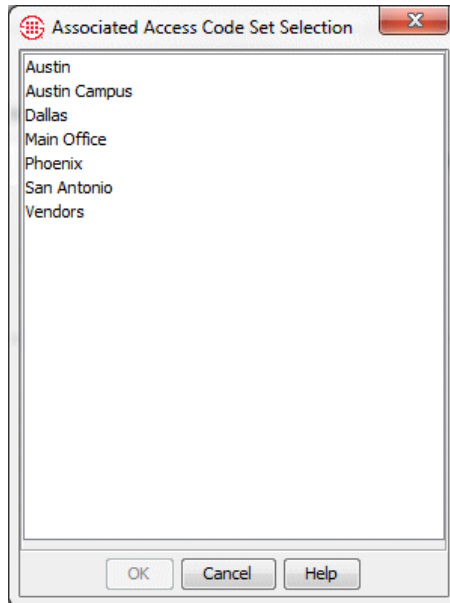
If more than one Access Code Set is defined, you must associate each Access Code Set with the Switch at which the access codes are used before the Usage Manager can correlate access codes in call data with Listings. This is because the same Access Codes may be used at different Switches but be correlated with different Listings. Only one Access Code Set can be associated with a given Switch.

To associate an Access Code Set with a Switch

1. In the Performance Manager tree pane, right-click the Switch and click **Edit Switch**. The **Switch Properties** dialog box appears.
2. Click the **Advanced** tab.



3. Under the **Associated Access Code Set** box, click **Modify**. The **Associated Access Code Selection** dialog box appears.



4. Click the Access Code Set that contains the Access Codes used on this Switch.
5. Click **OK**.

Removing an Access Code Set from a Switch

To remove an Access Code Set from a Switch

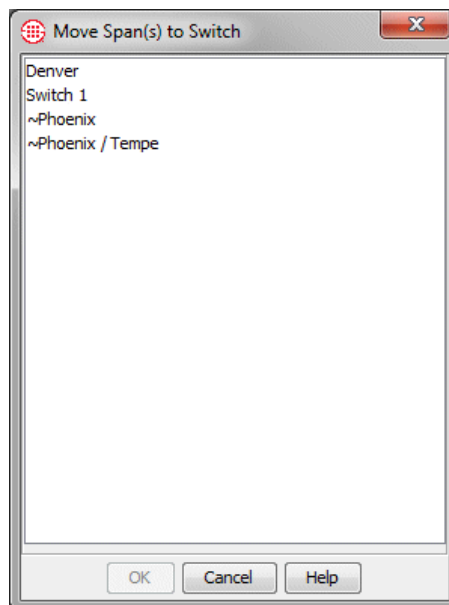
1. In the Performance Manager tree pane, right-click the Switch and click **Edit Switch**. The **Switch Properties** dialog box appears.
2. Click the **Advanced** tab.
3. Under the **Associated Access Code Set** box, click **Clear**.

Moving a Span to a Switch

Switches are used to organize Spans in the **Telco Configuration** subtree according to location and to configure SMDR, NFAS, and SS7 Groups.

To move a Span to a Switch

1. In the **Telco Configuration** subtree, right-click the Span, point to **Move Spans**, and then click **To Switch**. The **Move Span(s) to Switch** dialog box appears.
 - To move multiple Spans at once, hold down CTRL or SHIFT and select the Spans, and then right-click the selection.



2. Click the Switch to which the Span is to be moved, and then click **OK**. The Spans appear in the **Switch** node of the **Telco Configuration** subtree.

Deleting a Switch

You cannot delete a Switch that contains Spans. You must first move the Spans to a different Switch.

To delete a Switch

1. Do one of the following:
 - Right-click the **Telco Configuration** subtree, and then click **Manage Switches**.
 - On the Performance Manager main menu, click **Manage | Switches**. The **Switches** dialog box appears.
2. Click the Switch you want to delete, and then click **Delete**.

Renaming a Switch

To rename a Switch

1. Do one of the following:
 - Right-click the **Telco Configuration** subtree, and then click **Manage Switches**. The **Switches** dialog box appears. Click the Switch you want to rename, and then click **Edit**.
 - On the Performance Manager main menu, click **Manage | Switches**. The **Switches** dialog box appears. Click the Switch you want to rename, and then click **Edit**.
 - Right-click the Switch you want to rename, and then click **Edit Switch**.

The **Switch Properties** dialog box appears.

2. In the **Switch Name** box, type the new name. The name can consist of up to 50 characters and can include any special characters, spaces, digits, and letters.
3. Click **OK**. The **Confirm Changes** message appears.
4. Click **OK**.

Selecting a New SMDR Parse File

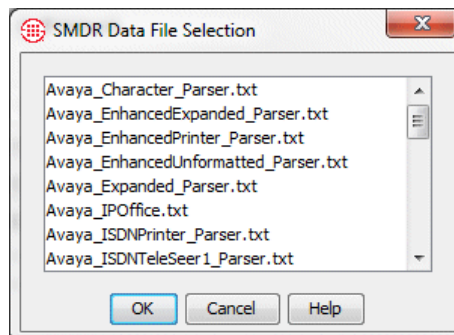
WARNING Only select a new SMDR parse file if instructed to do so by SecureLogix Support personnel.

Before you can select an SMDR parse file, it must be placed in the Management Server installation directory in the following folder:

<INSTALL_DIR>\ps\software_repository\smdr

To select a new SMDR parse file for a Switch

1. In the **Switch Properties** dialog box, under the **SMDR Type** box, click **Modify**. The **SMDR Data File Selection** dialog box appears.



2. Click the SMDR parse file that applies to the PBX in use.
3. Click **OK**.

4. Click **OK** to apply the changes. The **Confirm Changes** message appears.
5. Click **OK**.

Renaming an NFAS Group

To rename an NFAS Group

1. In the **Telco Configuration** subtree, right-click the NFAS Group and click **Edit NFAS Group**. The **NFAS Group Properties** dialog box appears.

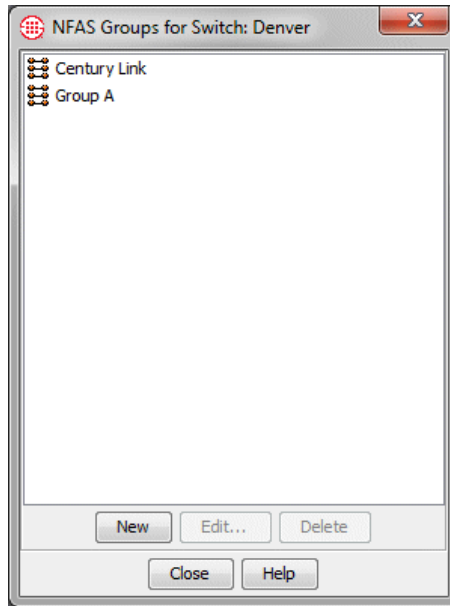
Type	Span Name	Interface ID
Backup	202	2
Primary	Span: 3	1

2. In the **NFAS Group Name** box, type the new name.
3. Click **OK**. The **Confirm Changes** message appears.
4. Click **OK**.

Deleting an NFAS Group

To delete an NFAS Group

1. In the **Telco Configuration** subtree, right-click the Switch to which the NFAS Group belongs, and then click **Manage NFAS Groups**. The **NFAS Groups** dialog box appears.

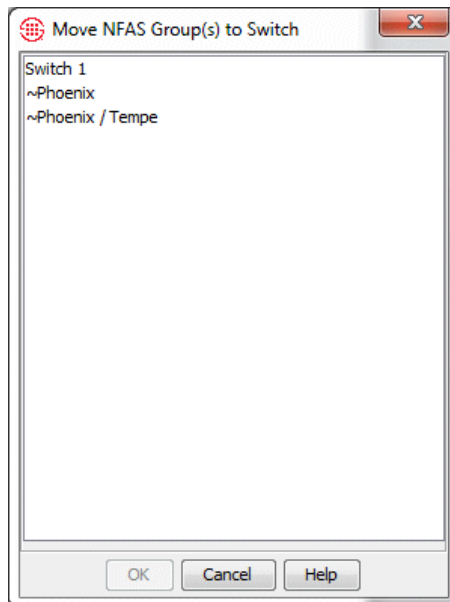


2. Click the NFAS Group, and then click **Delete**.

Moving an NFAS Group to a Different Switch

To move an NFAS Group to a Different Switch

1. In the **Telco Configuration** subtree, right-click the NFAS Group, and then click **Move Group**. The **Move NFAS Group to Switch** dialog box appears.



2. Click the Switch to which you want to move the NFAS Group, and then click **OK**.

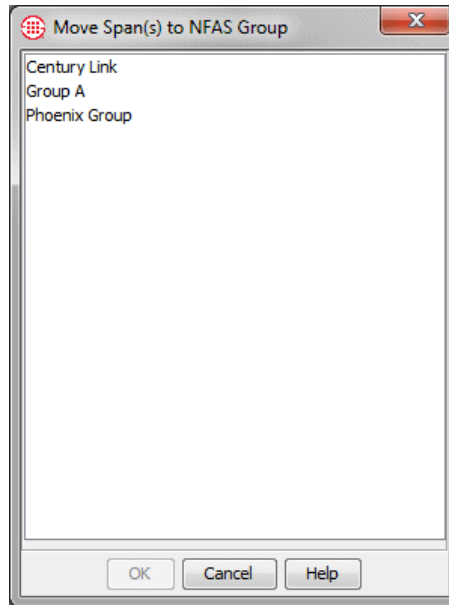
Moving a Span to an NFAS Group

Tip: To move multiple Spans, hold down CTRL, click each T1 PRI Span that is to be a member of the NFAS Group, right-click the selection, point to **Move Span(s)**, and then click **To NFAS Group**.

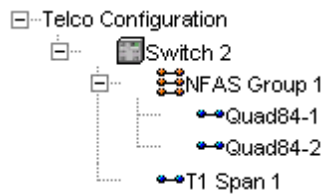
To move a T1 PRI Span to an NFAS Group

1. In the **Telco Configuration** subtree, right-click the Span, point to **Move Span(s)**, and then click **To NFAS Group**.

The **Move Span(s) to NFAS Group** dialog box appears.



2. Click the NFAS Group to which these Spans are to belong, and then click **OK**. The Spans move to the selected NFAS Group in the **Telco Configuration** subtree.



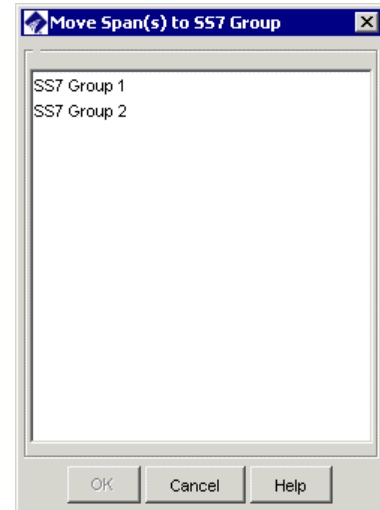
- To view the members of the NFAS Group, click the **PLUS SIGN** next to the NFAS Group name.

Moving a Span to an SS7 Group

To move an SS7 Bearer Span to an SS7 Group

1. In the **Telco Configuration** subtree, right-click the SS7 Bearer Span that is to be a member of the SS7 Group, point to **Move Span**, and then click **To SS7 Group**.
 - To move multiple Spans, hold down CTRL, click each SS7 Bearer Span that is to be a member of the SS7 Group, right-click the selection, point to **Move Span(s)**, and then click **To SS7 Group**.

The **Move Spans to SS7 Group** dialog box appears.



2. Click the SS7 Group to which you want to move the Span(s), and then click **OK**.

Moving an SS7 Group to a Different Switch

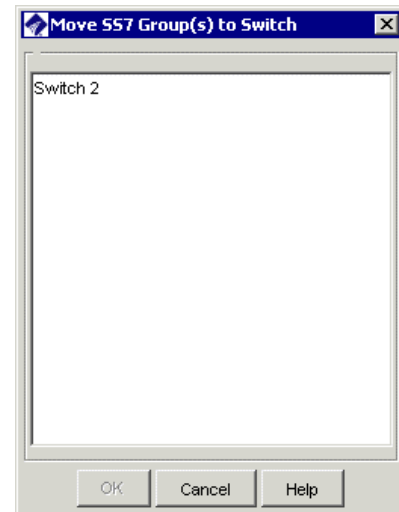
Tip: To move multiple SS7 Groups, hold down CTRL, click each Group, right-click the selection, and then click **Move Group**.

To move an SS7 Group to a different Switch

1. In the **Telco Configuration** subtree, right-click the SS7 Group, and then click **Move Group**.

The **Move SS7 Group(s) to Switch** dialog box appears.

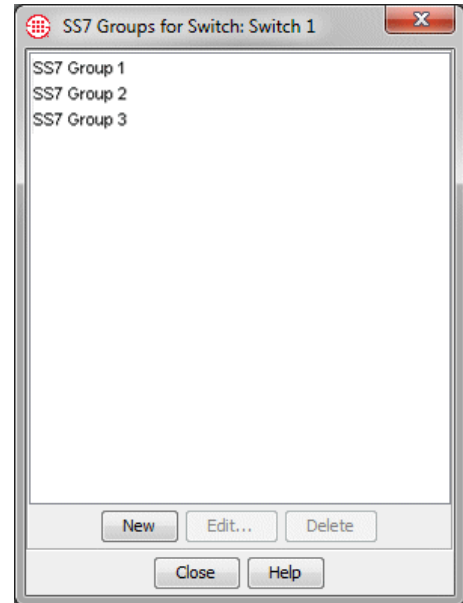
2. Click the Switch to which you want to move the SS7Group(s), and then click **OK**.



Deleting an SS7 Group

To delete an SS7 Group

1. Right-click the Switch to which the SS7 Group belongs, and then click **Manage SS7 Groups**. The **SS7 Groups for Switch** dialog box appears.
2. Click the Group you want to delete, and then click **Delete**.



Card Settings

Card configuration provides network connectivity information that allows the Card and its Spans to communicate on the TCP/IP network and connect to the ETM Server. Cards are initially configured during installation. Refer to the procedures below if you need to change any settings. For complete instructions for installing and configuring a new Card, see the *ETM[®] System Installation Guide*.

MTU Configurability

The interface MTU is configurable via an ETM Command on the Card: The `ethconfig` command allows for setting the MTU, auto-negotiation, duplex mode, and speed.

Syntax::

```
ETHCONFIG device [AUTONEG on|off] [SPEED  
10|100|1000] [DUPLEX half|full] [MTU mtu]
```

Valid MTU Ranges:

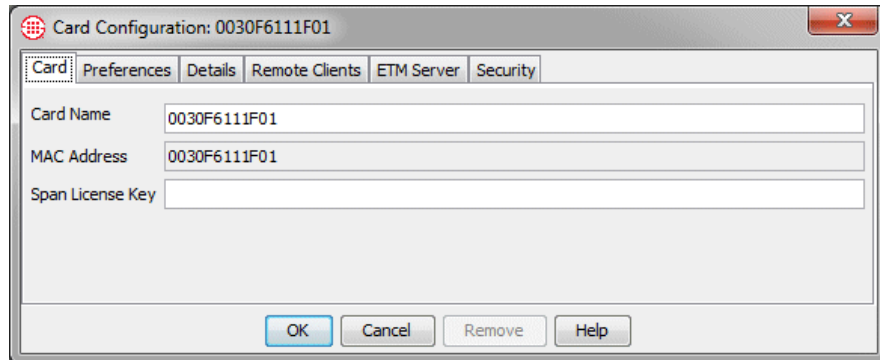
- If an IPv4 address is configured for the Card IP, then the valid MTU range is 576-1500.
- If an IPv6 address is configured for the Card IP, the valid range is 1280-1500.

The `SHOW STATUS` command displays the current MTU value in the Ethernet section of the output.

Renaming a Card

To rename a Card

1. In the **Platform Configuration** subtree, right-click the Card, and then click **Edit Card(s)**. The **Card Configuration** dialog box appears.



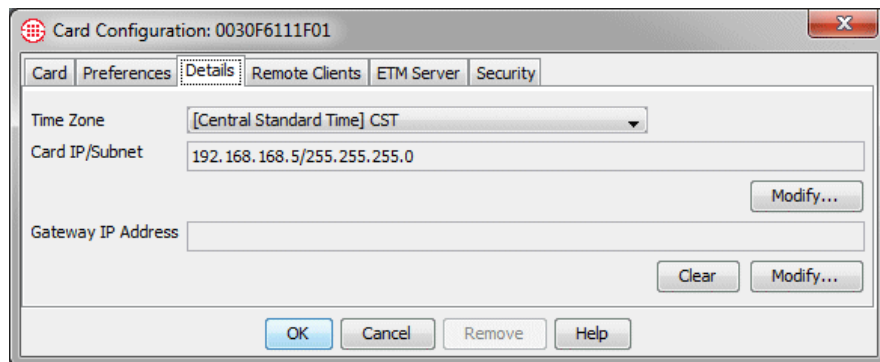
2. In the **Card Name** box, type the new name, and then click **OK**. The change is downloaded to the Card and appears in the **Platform Configuration** subtree.

Changing a Card's IP Address and Subnet

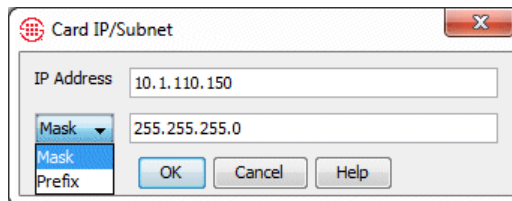
Important If you change a Card's IP address (for example, if your network environment changes), be sure to also add the new IP address to the list of authorized Card IPs accessed via the **Manage** menu.

To change a Card's IP address and/or subnet

1. In the **Platform Configuration** subtree, right-click the Card, and then click **Edit Card(s)**. The **Card Configuration** dialog box appears.
2. Click the **Details** tab.



3. Under the **Card IP/Subnet** box, click **Modify**. The **Card IP Address/Subnet** dialog box appears.



4. Type the new IP address and subnet mask or prefix length, and then click **OK**.
5. Click **OK** to download the change to the Card.

Licensing Additional Spans on a Card

(2100 or 3200 Appliances only) Use this procedure to enter a new Span license if you license additional Spans for an existing Card in an Appliance. Note that if you enter the license key incorrectly, the original license is overwritten and the Card reverts to single-Span operation. Simply reenter the new license key correctly and download it to the Card to restore multi-Span operation. After you license the additional Spans, refer to "Configuring Spans" in the *ETM[®] System Installation Guide* to complete the configuration for each new Span.

To license additional Spans on a Card

1. In the **Platform Configuration** subtree, right-click the Card, and then click **Edit Card(s)**.

The **Card Configuration** dialog box appears.

Card Configuration: 0030F6160018

Card | Preferences | Details | Remote Clients | ETM Server | Security

Card Name: 0030F6160018

MAC Address: 0030F6160018

Span License Key: a9b2d96ef3123d17

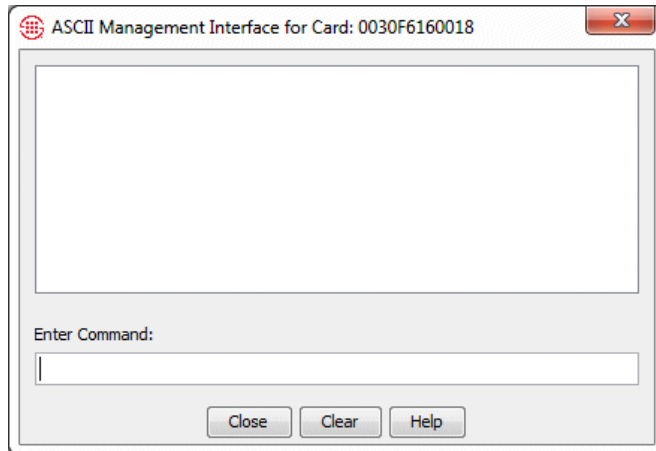
OK Cancel Remove Help

2. In the **Span License Key** box, type or paste the new key.
3. Click **OK**. The key is downloaded to the Card and the newly licensed Spans appear in the Performance Manager tree pane.

Viewing the Number of Licensed Spans on a Card

To view how many Spans are licensed on the current Card

1. Right-click the Card, and then click **ASCII Management**. The **ASCII Management Interface** appears.



2. In the **Enter Command** box, type `SHOW LICENSE`, and then press ENTER.

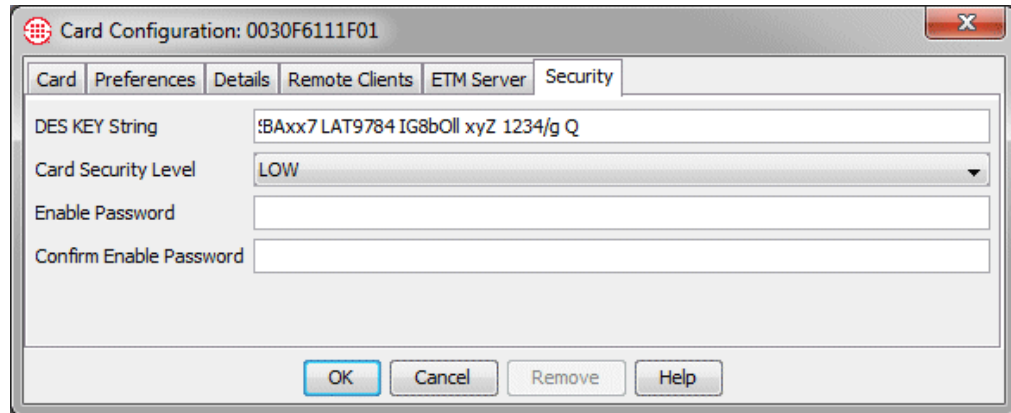
Changing the DES Key for Card/Server Communication

When a Card initially establishes connection with the Server, its DES Key must match the default value in the Management Server's **twms.properties** file for the Server to accept the connection. Once the Server has stored a copy of the Card's configuration, you can change the DES Key to a unique value using the **Card Configuration** dialog box. This value is then pushed to the Card, and becomes the value that the Server requires to accept connection from that Card.

IMPORTANT You can set this value simultaneously for multiple Cards when you want them to have the same value.

To change the DES Key

1. In the **Platform Configuration** subtree, right-click the Card, and then click **Edit Card(s)**. The **Card Configuration** dialog box appears.
 - To set the value simultaneously for multiple Cards, hold down CTRL or SHIFT and select the Cards, and then right-click the selection, and then click **Edit Card(s)**.
2. Click the **Security** tab.



3. In the **DES KEY String** box, type the new DES key. The DES Key must contain 16-50 characters and can consist of any combination of letters, digits, spaces, and special characters except the pipe (|) symbol.

Downloading New Software to a Card

IMPORTANT Only perform this procedure when instructed to do so by SecureLogix personnel.

IMPORTANT If you are upgrading software on a UTA application, see “UTA Appliances Only” on page 102 for important information before you begin.

You can install software on multiple Cards at once when the Cards are the same model. Otherwise, you must select individual Cards.

WARNING When you download a software package to an Appliance Card, it is imperative that you do not reboot or power cycle the Card until the upgrade is complete, or the firmware may become corrupted, rendering the Card inoperable. The Card automatically reboots when the upgrade is complete. If you believe the Card has become unresponsive, be certain that 15 minutes have elapsed since you began the download before you manually power cycle or reboot the Card. Before power cycling the Appliance, connect via a serial connection if possible and call SecureLogix Customer Support.

How long a Card upgrade takes varies depending on the size of the package and which firmware devices are being reprogrammed. During a Card upgrade, the compact flash (hard drive) is first reprogrammed; then, depending on the upgrade, the boot flash and one to six other firmware devices may be reprogrammed. The firmware devices are verified against the new code; if different, they are reprogrammed. Verification can take from 20 to 120 seconds per device (depending on the size of the device) and reprogramming can take from 30 to 240 seconds per device.

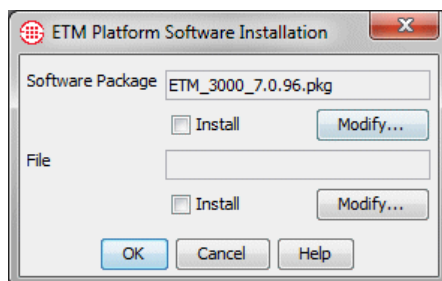
During reprogramming of the devices, interrupts are ignored, so the Card is very quiet. This is normal and does not indicate a problem. When reprogramming is complete, the Card automatically reboots. This should occur in no more than 15 minutes.

In rare cases, errors do occur that render the Card unresponsive. Should the Card become completely unresponsive, a "watchdog timer" will normally cause the Card to automatically reboot. If it does not and you believe the Card is completely unresponsive, be certain that 15 minutes have elapsed since you began the download, connect via a serial connection if possible, and call SecureLogix Customer Support. Do not manually power cycle or reboot the Card.

To download new software to a Card

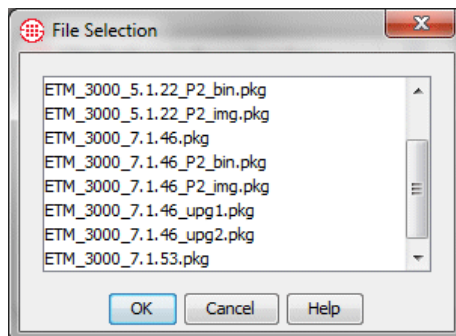
1. In the **Platform Configuration** subtree, right-click the Card, and then click **Manage Software**. To select multiple same-model Cards, hold down CTRL, and then click each Card.

The **ETM Platform Software Installation** dialog box appears.




2. Under the **Software Package** box, click **Modify**.

The **File Selection** dialog box appears.




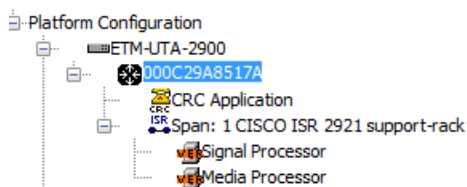
3. Click the correct software file, and then click **OK**. You are returned to the **ETM Platform Software Installation** dialog box.
4. Be sure that the **Install** box is selected, and then click **OK**. The software is downloaded to the Card.
5. If you are installing software on UTA, additional steps are required to complete the installation. Refer to the following procedure for instructions:
 - “UTA Appliances Only” on page 179.

UTA Appliances Only

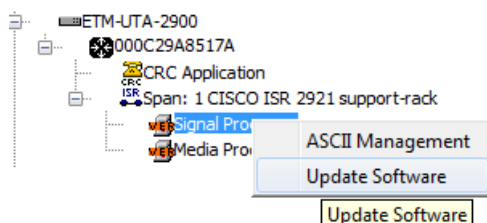
After installing new Appliance software on the UTA Call Processor , you must activate it on each of the UTA nodes for that appliance.

To activate newly installed software on the UTA nodes

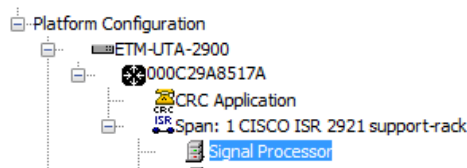
1. Ensure that the software has completed installation on the Call Processor by viewing the Status Tool before continuing with the steps below. When the installation on the Call Processor is complete, a version mismatch indicator  appears on the icons for the Media and Signal Processors. Expand the Span icon to access the Media and Signal Processors.



2. Right-click the Signal Processor and click **Update Software**.



The update is complete when the version mismatch indicator disappears from the Signal Processor icon. This may take a few minutes. The status is not shown in the Status Tool.



3. Right-click the Media Processor and click **Update Software**. The update is complete when the version mismatch indicator disappears from the Media Processor icon. This may take a few minutes. The status is not shown in the Status Tool.

Moving a Card to a Different Management Server

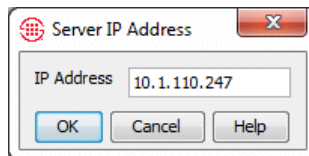
Be sure you have authorized the Card's IP address at the new Server to allow it to connect.

If you need to assign one or more Cards to a different Management Server (or if the Management Server's IP address is to change), use the procedure below. This procedure applies only to Cards that are already communicating with a Management Server.

CAUTION When you change the Management Server IP address, and then click **OK**, the Card will disconnect from this Server and attempt to connect to the new Server. Before you click **OK** to push the configuration changes to the Card, be sure that the **Management Server Port** specified on the **ETM Server** tab and the **DES Key String** specified on the **Security** tab of the **Card Configuration** dialog box match those specified in the **twms.properties** file of the new Server. Otherwise, the Card will fail to connect to any Server and you must use an authorized Telnet client or a direct serial connection to the Card to change the TCP/IP port and/or DES Key to enable communication.

To move the Card to a different Management Server

1. In the **Platform Configuration** subtree, right-click the Card, and then click **Edit Card(s)**. The **Card Configuration** dialog box appears.
2. Click the **ETM Server** tab.
3. Next to the **Management Server IP Address** box, click **Modify**. The **Server IP Address** dialog box appears.



4. In the **IP Address** box, type the IPv4 or IPv6 address of the new Management Server.
5. Click **OK**.
6. Click **OK** on the **Card Configuration** dialog box to download the change to the Card.

A red lightning bolt appears next to the Card in the Performance Manager tree pane to indicate that it is no longer communicating with this Server.

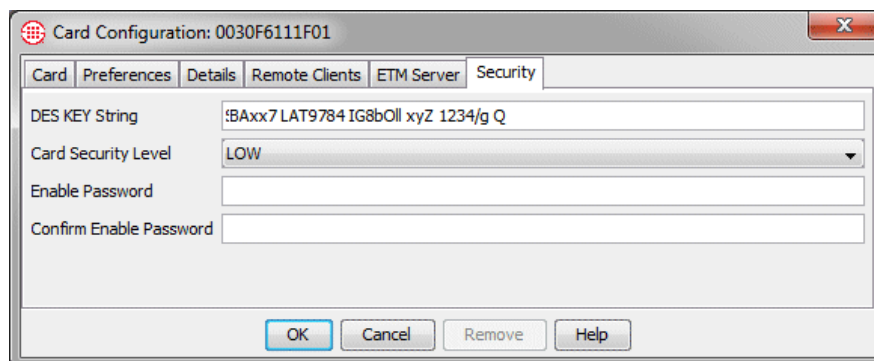
Changing the Enable Password

The Enable password allows authorized users to modify configuration when they log in to the Card using a serial connection, Telnet, or SSH. Unless an authorized user knows the Enable password, the Telnet, SSH or serial connection session is view-only.

To change the Enable password

1. In the **Platform Configuration** subtree, right-click the Card, and then click **Edit Configuration**. The **Card Configuration** dialog box appears.

2. Click the **Security** tab.



3. In the **Enable Password** and **Confirm Enable Password** boxes, type the new password.
4. Click **OK**.

Changing the Card Security Level

If the Card Security level is currently **Low** or **Med**, use the following procedure to change the level. If the security level is currently set to **High**, you must change the security level using ETM Commands from a serial connection to the **Console** port. See "ETM[®] Commands" in the *ETM[®] System Technical Reference* for instructions.

Only the following network- and security-related Card configuration settings are affected by the **Security Level** setting; the Card security level does not affect other configuration items:

- **Telnet/SSH access**—Telnet or SSH are only allowed when the Security level is set to Low.
- **Network connection information**—Netmask, gateway IP address, Management Server IP address, Management Server port.
- **Security settings**—DES Key, Card security level, Enable password.

To change the Card security level

1. In the **Platform Configuration** subtree, right-click the Card, and then click **Edit Card(s)**. The **Card Configuration** dialog box appears.
2. Click the **Security** tab.
3. In the **Card Security Level** box, click the down arrow and select the appropriate security level.

Low—Telnet or SSH allowed from authorized remote clients. Change security- and network- related configuration via the Performance Manager, Telnet, SSH, or the Card serial port.

Medium—No remote client access allowed. Change security- and network- related configuration via the Performance Manager or the Card serial port.

High—No remote client access allowed. Change security- and network- related configuration via the Card serial port only.

Disconnecting a Card from the Management Server

To disconnect a Card from the Management Server

1. On the Performance Manager main menu, click **Manage | Authorized Cards**. The **Authorized Cards** dialog box appears.
2. Click the IP address of the Card you want to disconnect, and then click **Delete**.
3. Click **OK** to accept the changes and close the dialog box.
4. In the **Platform Configuration** subtree, right-click the Card, and then click **ASCII Management**. The **ASCII Management Interface** for the selected Card appears.
5. Type `Reboot` and press ENTER. The Card disconnects from the Server and a red bolt appears next to the Card in the tree.
6. See "Removing a Card from the Tree Pane" on page 182 for instructions for deleting the Card icon, if necessary.

Removing a Card from the Tree Pane

A Card must be inactive (that is, not communicating with the Management Server) before you can remove it from the tree pane. If a red bolt appears beside the Card icon, the Card and its Spans are not communicating with the Server. Use the procedure "Disconnecting a Card from the Management Server" on page 182 to disconnect the Card before removing it.

To remove an inactive Card from the tree pane

- Open the **Card Configuration** dialog box for the Card, and then click **Remove**.

Managing Telnet or SSH Logins

Authorized users can access Spans and Cards via Telnet (TDM) or SSH (SIP) to view and set configuration. The following security features protect the Cards and Spans from unauthorized remote access:

- The IP address of a Telnet or SSH client must be authorized to connect to the Card. Each Card has a **Remote Clients** list and rejects remote connections from any IP address not listed. For instructions for allowing Telnet or SSH clients, see "Authorizing Client Connections" on page 63.
- A valid username and password for an account with the **Log in to Card/Span via Telnet/Serial** user permission must be provided to connect via Telnet or SSH, and the **Enable** password for the Card must be provided to modify settings.
- If three login attempts fail within 10 minutes, the Telnet port closes; if six Telnet login attempts fail within 10 minutes, the Card shuts down its Telnet Server for 60 real-time minutes, preventing Telnet access. For details about failed Telnet login attempts, see "Failed Telnet Logins Shut Down Telnet Server" on page 185.

Telnet and SSH are only allowed when the **Card Security Level** is set to **Low**. For more information about the **Card Security Level**, see "Changing the Card Security Level" on page 181.

Authorizing Remote Clients

See "Changing the Card Security Level" on page 181 for more information. See "Telnet Login to Spans" on page 185 for more information about Telnet access to Cards and Spans.

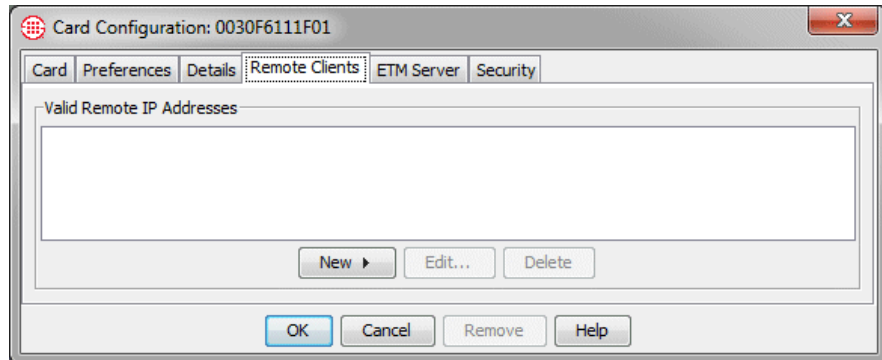
You can authorize certain computers as remote clients from which authorized users can connect directly to the Card and its Spans to view or change configuration. For TDM, these are Telnet clients. For SIP, these are SSH clients. Telnet is not supported on SIP appliances and SSH is not supported on TDM appliances. You can authorize up to 64 remote clients per Card. For example, remote Card access can be useful if network problems interrupt communication between the ETM Server and the Cards/Spans. As a security feature, remote Card access is only allowed from computers whose IP addresses are listed in this tab. A Card and its Spans only accept remote connections if the Card security posture is set to **LOW**.

To authorize remote clients

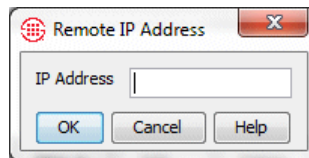
1. In the **Platform Configuration** subtree, right-click the Card, and then click **Edit Card(s)**.

The **Card Configuration** dialog box appears.

2. Click the **Remote Clients** tab.

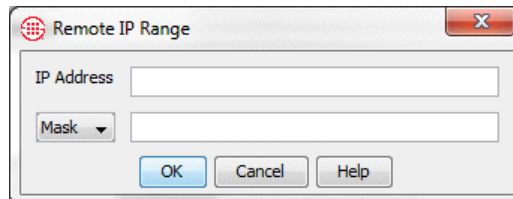


- To authorize a specific IP address, click **New** and then click **IP Address**. The **Remote IP Address** dialog box appears.



- Type the IPv4 or IPv6 address of the Card.
- Click **OK**.

- To authorize a range of IP addresses, click **New** and then click **IP Range**. The **Remote IP Range** dialog box appears.



- In the **IP Address** box, type the IPv4 or IPv6 base address.
 - If you typed an IPv6 address, click the down arrow and select **Prefix**, and then type the prefix length.
 - If you typed an IPv4 address, select **Mask** and type the subnet mask or select **Prefix** and type a prefix length.
 - Click **OK**.
- Click **OK** on the **Card Configuration** dialog box. The change is downloaded to the Card.

Telnet Login to Spans

Telnet clients are authorized per Card, but each Span has its own Telnet Server port. When you log in via Telnet, you can specify the Span you want to access. If you login to a Card via Telnet without specifying a Span port, you access Span 1 by default (port 23).

You must have the **Log in to Card/Span via Telnet/Serial** user permission on your user account to use Telnet login.

To Telnet to a specific Span

- After the IP address, type a space and then type the port number allocated to the Span that you want to access as follows:

Span 2—port 24

Span 3—port 25

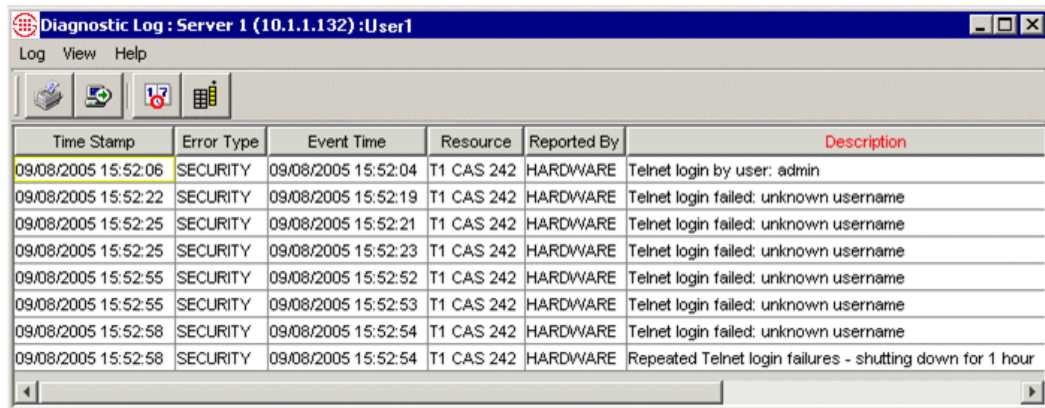
Span 4—port 26

For example, to Telnet to Span 3 of a Card at IP address 199.199.9.9, type:

```
telnet 199.199.9.9 25
```

Failed Telnet Logins Shut Down Telnet Server

When an attempt to log in to a Span via Telnet fails, the current time is recorded, a timer is started, and a notification is sent to the **Diagnostic Log**. If three Telnet login attempts fail within 10 minutes, the port is shut down (Telnet exits). If six Telnet login attempts fail within 10 minutes, the Span shuts down its Telnet Server for 60 real-time minutes, preventing Telnet access. Each failed login and the shutdown of the Telnet Server appears as SECURITY System Event in the **Diagnostic Log**.



The screenshot shows a window titled "Diagnostic Log : Server 1 (10.1.1.132) :User1". The window contains a table with the following columns: Time Stamp, Error Type, Event Time, Resource, Reported By, and Description. The table lists several security events, including successful logins and multiple failed login attempts, followed by a shutdown of the Telnet server.

Time Stamp	Error Type	Event Time	Resource	Reported By	Description
09/08/2005 15:52:06	SECURITY	09/08/2005 15:52:04	T1 CAS 242	HARDWARE	Telnet login by user: admin
09/08/2005 15:52:22	SECURITY	09/08/2005 15:52:19	T1 CAS 242	HARDWARE	Telnet login failed: unknown username
09/08/2005 15:52:25	SECURITY	09/08/2005 15:52:21	T1 CAS 242	HARDWARE	Telnet login failed: unknown username
09/08/2005 15:52:25	SECURITY	09/08/2005 15:52:23	T1 CAS 242	HARDWARE	Telnet login failed: unknown username
09/08/2005 15:52:55	SECURITY	09/08/2005 15:52:52	T1 CAS 242	HARDWARE	Telnet login failed: unknown username
09/08/2005 15:52:55	SECURITY	09/08/2005 15:52:53	T1 CAS 242	HARDWARE	Telnet login failed: unknown username
09/08/2005 15:52:58	SECURITY	09/08/2005 15:52:54	T1 CAS 242	HARDWARE	Telnet login failed: unknown username
09/08/2005 15:52:58	SECURITY	09/08/2005 15:52:54	T1 CAS 242	HARDWARE	Repeated Telnet login failures - shutting down for 1 hour

Viewing Telnet Server Status

To see when the Telnet Server will be reactivated

1. In the Performance Manager tree pane, right-click the Span, and then click **ASCII Management**. The **ASCII Management Interface** appears.

2. In the **Enter Command for Span** box, type:

```
SHOW TELNET
```

Press ENTER. The Telnet Server restart time is displayed in the following format:

```
Telnet Server Resume Time: Fri Jul 28: 11:55 2001
```

Note that the time displayed is Greenwich Mean Time (GMT), not local time. To determine the offset between GMT and local time, see "Viewing Time Offset" below.

Viewing Time Offset

To view the offset between GMT and local time

1. In the Performance Manager tree pane, right-click the Span, and then click **ASCII Management**. The **ASCII Management Interface** appears.

2. In the **Enter Command** box, type:

```
SHOW TIME
```

The local time, Greenwich Mean Time (GMT), GMT offset, and time zone appear, similar to the example below:

```
Local:          Mon Sep 8 16:05:40 2003
```

```
GMT:           Mon Sep 8 21:05:40 2003
```

```
GMT Offset:    -5:00:00 (hh:mm:ss)
```

```
Time Zone:     America/Chicago
```

Restarting the Telnet Server

To restart the Telnet Server before the time has expired, restart the Span.

CAUTION If you restart the Span, you will lose all active Policy processing and call monitoring information. Call traffic proceeds unaffected.

To restart the Span

1. In the Performance Manager tree pane, right-click the Span, and then click **ASCII Management**. The **ASCII Management Interface** appears.

2. In the **Enter Command** box, type: RESTART

3. Press ENTER.

Using Last Resort Card Recovery

(TDM Appliances only) When an Appliance Card is installed for the first time or when an Appliance Card loses connectivity because of a partially implemented or malformed download of a Policy, file, or software package, errors may occur that prevent the Appliance Card from booting into normal operating mode. The "Last Resort" Appliance Card recovery boot image was developed to recover an Appliance Card that cannot boot into normal operating mode.

About Last Resort

Note: Fail-Safe mode is a restricted mode of operation that provides some ability to recover from ETM[®] Application errors, but Fail-Safe mode requires that a significant portion of the compact flash and firmware be operational.

Each Card in the Appliance uses a boot image, programmable devices (FPGAs and CPLDs), and a compact flash disk during normal booting. During upgrades, it is possible for the boot image, programmable devices, and compact flash disk to become corrupted. In some cases, the corruption can cause the Appliance Card to become unresponsive.

The Appliance Cards have 2 pages of boot flash: Page 0 is used during normal operation; Page 1, or the backup page, contains the Last Resort boot image and Failsafe mode boot. Unlike Fail-Safe mode, the Last Resort boot image is self-contained and does not require any support files on the compact flash to operate. The Last Resort boot image is designed to either recover a corrupted compact flash or completely rebuild a blank compact flash. The Last Resort boot image can still operate when some of the programmable devices are either completely blank or programmed incorrectly. The Last Resort also allows the rebuilding of the page 0 boot image.

IMPORTANT Last resort is factory-installed on all Appliances shipped with v5.0.1 or later. If you are upgrading from a previous version, see the SecureLogix Knowledge Base or contact Customer Support for instructions for installing Last Resort before beginning the Appliance upgrade.

Using Last Resort

Last Resort communicates with the Management Server on a TCP network. When Last Resort is running on the Card, the script requests the network connection parameters. If the Card has connected to the Management Server at least once prior to entering Last Resort, the TCP network values presented are those last used to communicate with the Management Server. If the Card has not connected, the Last Resort script presents the TCP network default values. These values may not be the correct route to the Management Server; you will type the correct values at the script prompts. Each time the Card's Span 1 application executes, it updates the Card with the TCP parameters to ensure the current route to the Management Server is stored and available to Last Resort.

Before running Last Resort, gather the following information:

- Script name (e.g., LastResort-SLC8241-0.0.1-bootstrap)
- Card IP address (e.g., 10.1.2.55)
- Card Gateway IP (e.g., 10.1.2.1)
- Card Netmask (e.g., 255.255.255.0)
- Management Server IP address (e.g., 10.1.1.173)
- Management Server port (e.g., 4313)

Recovering a Card Using Last Resort

IMPORTANT Contact SecureLogix Customer Support before attempting to recover a Card with Last Resort!

To recover a Card using Last Resort

1. Attach an RS-232 serial cable from the **Console** port to the appropriate serial port on your terminal.
2. Start the terminal emulation application (such as HyperTerminal) on your terminal. Configure your terminal using the following serial port settings:
 - 115,200 bps
 - no parity
 - 8 data bits
 - no flow control
 - 1 stop bit
3. Press any key on your keyboard to activate the screen.
4. Press and hold the **Service** Switch, and then power on the Appliance or press the **Reset** switch.
5. Continue to hold the **Service** Switch until the **Error** LED turns red. The **Error** LED stays red for 5 seconds.
6. Release the **Service** Switch while the Error LED is red.
7. A script similar to the following appears on your terminal:

```
*****  
Downloading the Last Resort bootstrap file: LastResort-  
SLC8241-0.0.1-bootstrap  
*****  
Last Resort - Version 1.01 - 06 January 2005
```

Please specify the script filename and the IP parameters needed to connect to the Last Resort Server or MS. Enter 'q' at any prompt to restart at the script prompt. Hit 'Enter' to accept the default. The default values and default script will be used if a script name is not specified within 60 seconds.

```
Enter script name [LastResort-SLC8241-0.0.1-bootstrap]:
Enter appliance IP [10.1.2.55]:
Enter gateway IP [10.1.2.1]:
Enter netmask [255.255.255.0]:
Enter MS IP [10.1.1.173]: 10.1.2.46
Enter MS port [4313]:
eth0: driver changed get_stats after register
e100: eth0: e100_watchdog: link up, 100Mbps, full-duplex
-LR- Retrieving LastResort-SLC8241-0.0.1-bootstrap from
MS...
*****
Running the bootstrap file: /opt/slc/lr/LastResort-
SLC8241-0.0.1-bootstrap
*****
*** Downloading the Last Resort toolkit....
Last Resort - Version 1.01 - 06 January 2005

-LR- Parms file defined and read
-LR- Retrieving LastResort-toolkit-SLC824X-0.0.1.tgz
from MS...

*** Downloading the version list....
Last Resort - Version 1.01 - 06 January 2005

-LR- Parms file defined and read
-LR- Retrieving SLC8241/versions from MS...
```

These versions are available:

5.0
4.1
4.0

Enter the version you wish to install:

8. Type the version of Card software that you want to install from the offered versions, and then press ENTER.

The Management Server accepts the connection from the Card, and then transmits the files required to rebuild the compact flash and

firmware. When the process is complete, you are prompted to reboot the Card.

9. After the Card has rebooted, perform the "out-of-the-box" setup procedures as described in "Initial Card Configuration" in the *ETM® System Installation Guide*.

Using Fail Safe when Last Resort is Installed

The **Service** switch is used for both Fail-Safe boot and Last Resort boot. When you are connected to the serial port of the Card, if the **Service** switch is depressed when the Card initially comes out of reset, a prompt is presented instructing you to release the **Service** switch to run Last Resort or continue pressing it to enter Fail-Safe mode.

To enter Fail-Safe boot when Last Resort is installed

1. Press and hold the **Service** Switch, and then power on the Appliance or press the **Reset** switch. The **Error** LED will turn red and will remain in this state for 5 seconds.
2. Continue to hold the **Service** Switch until the Error LED turns off and the **Status** LED turns yellow.
3. After the **Error** LED has turned off and the **Status** LED has turned yellow, release the **Service** Switch.

Uninstalling, Modifying, or Repairing the ETM[®] Applications

How to Uninstall, Modify, or Repair the ETM[®] Applications

The sections below provide instructions for uninstalling, modifying, or repairing the ETM[®] Applications.

Administering the Applications

You can modify, repair, or remove the ETM System software suite using the **Program Maintenance** feature of the **InstallShield Wizard**. The ETM Server applications are only supported on 64-bit systems.

To modify, remove, or repair applications on Windows

1. Insert the installation DVD into the drive.
2. Open **My Computer**, double-click the DVD drive letter, and then double-click **Software\Installers\Complete\setup.exe**. The **InstallShield Wizard** dialog box appears.
3. Click **Next**. The **Program Maintenance** dialog box appears.
4. Select one of the following options:
 - **Modify**—Select this option if you want to add or remove one or more applications from the ETM System software installation. (If you want to remove the entire ETM System software suite, select **Remove**.)
 - a. Select **Modify**, and then click **Next**. The **Custom Setup** dialog box appears.
 - b. In the **Custom Setup** dialog box, select the components you want to remove/add, and then click **Next**.
 - c. Continue clicking **Next** until the **Ready to Modify** dialog box appears, and then click **Install**. The components you selected are added/removed.

- **Repair**—Select this option if you have inadvertently deleted a necessary ETM System file. The **Repair** option overwrites installation files; user-created files are not overwritten.
 - a. Select **Repair**, and then click **Next** until the **Ready to Repair the Program** dialog box appears.
 - b. Click **Install**. The **InstallShield Wizard** reinstalls the necessary files.
 - **Remove**—When you uninstall the ETM System applications from your computer, no user-created files are changed or removed and the ETM system file structure is not deleted.
 - a. Select **Remove**, and then click **Next**.
 - b. The **Remove the Program** dialog box appears.
 - c. Click **Remove**. The ETM System applications, desktop icons, **Start** menu items, and services are removed from your computer. The ETM System directory structure, which contains all user-modified files, are saved to a backup directory. The backup directory is:
<INSTALL_DIR>\Backup
5. When the **Installation Complete** dialog box appears, click **Finish**.

Appendix: System Event Descriptions

About System Events

This section lists the categories of system events that the ETM[®] System generates, describes the purpose of each category, and lists specific events defined in each category. You can assign tracking actions to each of these system events so that appropriate personnel are notified when a particular type of system event occurs. Tracks can be defined for an entire category (i.e., Security) or for specific events within a category (i.e., when someone logs in via Telnet). For the procedure for assigning a Track to a system event, see "Setting Track Actions for System Events" on page 36.

Types of System Events

Note that other general types of system events can occur within the top-level categories. This is simply a list of defined events for which you can specify individual tracking actions. To be notified of all events of a certain type, add a track to the top-level category.

Error Events

Error events indicate elevated cabinet temperature or call traffic errors. Many call traffic errors can occur in this category, but cannot have tracks individually assigned to them. If you want to be notified for all call traffic errors, assign a track to the top-level **Error Event** category. Error events include:

- **Auto Directory Import Failure**—An LDAP Directory Import process failed.
- **Cooling Fan Failure**—The cooling fan in the Appliance is inoperative.
- **Hot Cabinet**—The Appliance chassis temperature is above 70C.
- **Index Maintenance Failure**—Attempted database index maintenance failed.
- **Partition Split Failure**—Database partitioning failed.
- **Power Supply Failure**—One of the power supplies in the Appliance is inoperative.
- **Sequential Migrate Failures**—Multiple sequential data migrations failed.

- **Sequential Purge Failures**—Sequential attempts to purge data from the database failed.
- **Span Missed Heartbeat**—A Span's heartbeat interval expired without the Span communicating with the Management Server.
- **Statistics Computation Failure**—The scheduled statistics computation for the database failed.
- **Warm Cabinet**—Appliance chassis temperature is between 60 and 70C.

High Availability Event

High availability (HA) events apply only to SIP Appliances. High availability events include:

- **Loss of Redundancy**—A SIP Appliance configured for HA has lost redundancy.
- **New Processing Node**—A new processing node was added to a cluster.
- **Node Availability Changed**—An unavailable node was made available or an available node was made unavailable.
- **Node Isolation Changed**—A node was placed into or taken out of isolation.

Panic Events

Panic events represent potentially severe events, such as a hardware failure or a software exception. Panic is indicated by spontaneous restarting of the Span or Card, or reboot of the Card. Call Customer Support for assistance. Panic events include:

- **Application Panic**—The ETM application software on the Card detects an internal error and restarts the application.
- **Kernel Panic**—The Linux operating system on the Card detects an internal error and reboots the Card.

Policy Events

Policy events are associated with Policy enforcement. Policy events include:

- **Dial Plan Read Fail**—Error in reading the dialing plan on the specified Span, which prevents or affects Policy processing.
- **Dirty Policies Found After Automatic Directory Import**—One or more dirty Policies were detected following an LDAP Directory import.
- **New Policy**—A new Policy was installed on the specified Span.
- **Policy Read Fail**—Error reading a newly installed Policy due to file corruption.

Security Events

Security events include authorized and unauthorized access, connection, and configuration events. Security events include:

- **Bad RS232 Password**—An invalid password was provided during an attempted login at the Card **Console** port.
- **Bad Telnet Password**—A user attempted a Telnet login with an invalid password.
- **Cloned User**—A user created a new user account by copying an existing user account.
- **Config Item**—A user changed a Card or Span configuration setting and downloaded it to the Card or Span.
- **Console Max Failed Login**—Three consecutive failed Console port login attempts occurred.
- **Created New User**—A new user account was defined for the ETM Server.
- **Dialtone After Answer**—On inbound calls, reports when a second dial tone is detected after the call is answered, which can indicate "through-dialing" of the PBX (dialing into voicemail, a DISA line, or the like, getting dial tone, and then dialing out to a long distance or international number).
- **ETM Server Login**—A user logged in to the Management Server.
- **ETM Server Logout**—A user logged out of the Management Server.
- **ETM Server Temporary User Lockout**—Excessive failed login attempts caused a user account to be temporarily locked.
- **File Download**—A file, such as a Dialing Plan or SMDR definition, was downloaded to an Appliance component.
- **Missing Announcement Alert**—A Span is configured for announcement but no announcement file is available.
- **New Card Software**—A user downloaded new software to a Card.
- **New Dial Plan**—A user downloaded a dialing plan to a Span.
- **New ETM Server Configuration**—A user modified Management Server configuration.
- **NFAS Address**—An NFAS Member w/Primary or Backup D Channel received a connection request from an invalid IP address (one not listed in its NFAS Group members list).
- **NFAS DES Communication Error**—A received NFAS message was not formatted correctly. This usually indicates a DES key mismatch.
- **No DES Key**—The specified Card's configuration has no DES key. The Card's DES key must be in sync with that of the Management

Server, because the initial handshake between ETM System components is always encrypted to authenticate the connection.

- **No NFAS Key**—An NFAS Group member Span has no NFAS DES key specified. This DES key secures communication between Spans that are members of an NFAS Group.
- **Recording Requested**—A user attempted to access a call recording from the ETM Web Portal. Not applicable to this release.
- **Removed User**—A user account was deleted.
- **RS232 Login**—A user logged in via the Card **Console** port.
- **Server Call Termination**—A user terminated a call in the Call Monitor.
- **Span Call Termination**—A Voice Firewall Policy Rule fired that specified **Terminate**, or a user terminated a call using an ETM Command at a command line.
- **Successful Telnet Login**—A user connected via Telnet from an authorized IP address.
- **Telnet Max Failed Login**—Six Telnet login attempts have failed within 10 minutes and the Card has shut down its Telnet Server for 60 minutes as a security measure. See "Failed Telnet Logins Shut Down Telnet Server" on page 185 for more information.
- **Unauthorized Telnet Connection Attempted**—A user attempted to connect to a Card via Telnet from an invalid IP address.
- **Updated Card Configuration**—Card configuration was changed via the Performance Manager.
- **Updated Span Configuration**—Span configuration was changed via the Performance Manager.
- **Updated Switch Configuration**—Switch configuration was changed via the Performance Manager.
- **Updated User**—A user account was modified via the Performance Manager.
- **Weak DES Key**—A weak DES key is in use for encrypting ETM Server communication with the specified Card.

Start/Stop Events

Start/Stop events occur when a Card or the Management Server is shut down or initialized. Start/stop events include:

- **Card Halt**—The specified Card was shut down in preparation for a power off.
- **Card Reboot**—The specified Card was rebooted.
- **ETM Server Reinitialized**—The Management Server has fully reinitialized from standby mode to a normal operational state.
- **ETM Server Shutdown**—The Management Server was shut down.
- **ETM Server Standby**—The Management Server entered standby mode.
- **Span Restart**—The Restart command was executed on the specified Span.
- **Span Startup**—The specified Span has started.

Telco Events

Telco events provide information about telephony events and errors. Telco events include:

- **Alarm Change**—Associated with **Delayed Alarm**; indicates the Alarm has changed and remained in the new state during the period set for telco delay.
- **Bipolar Violation**—The error threshold was exceeded for bipolar violations. (Data sent was corrupt/not translated properly.)
- **Bit/CRC Error**—The error threshold was exceeded for Cyclic Redundancy Check. (Data sent was corrupt/not translated properly.)
- **D Channel Down**—The D channel is currently inoperative on the specified PRI Span.
- **D Channel Up**—A D channel that was previously inoperative is now functioning.
- **Delayed Alarm**—T1/E1 delayed alarm timeout has expired and alarm will be reported.
- **Delayed Alarm Cleared**—Previous T1/E1 delayed alarm is cleared.
- **Frame Bit Error**—Frame bit error threshold exceeded.
- **Frame Slip RX+**—Positive frame slip threshold was exceeded during receive.
- **Frame Slip RX-**—Negative frame slip error was exceeded during receive.
- **Frame Slip TX+**—Positive frame slip threshold was exceeded during transmit.

Frame, Bipolar, Bit/CRC, and Jitter errors are timing issues; if the problem persists, check the PBX or trunk for errors.

See "ETM[®] Commands" in the *ETM[®] System Technical Reference* for a complete list and explanation of the ETM Commands.

- **Frame Slip TX-**—Negative frame slip error was exceeded during transmit.
- **Immediate Alarm**—T1/E1 alarm has occurred on the specified Span.
- **Immediate Alarm Cleared**—T1/E1 alarm has been cleared on the specified Span.
- **Jitter Over RX**—Jitter overrun threshold was exceeded during receive.
- **Jitter Over TX**—Jitter overrun threshold was exceeded during transmit.
- **Jitter Under RX**—Jitter underrun threshold was exceeded during receive.
- **Jitter Under TX**—Jitter underrun threshold was exceeded during transmit.
- **Loopback Passthrough Mode Active**—The Span is currently in loopback passthrough mode.
- **Loopback Passthrough Mode Inactive**—The Span was in loopback passthrough mode but no longer is.
- **Out of Frame**—Out-of-frame threshold was exceeded.
- **SS7 Signaling Link Down**—The SS7 Signaling Link is down.
- **SS7 Signaling Link Up**—The previously inoperative SS7 Signaling Link is up.
- **Span Set Inline**—The specified Span was set inline via an ETM Command. The Span was previously set offline. The Span does not immediately go inline; requires restart.
- **Span Set Offline**—The specified Span was set offline via an ETM Command and is no longer monitoring calls or enforcing Voice Firewall Policy; it is acting as a passive pass-through device for call traffic.
- **Statistics Counters Reset**—A user reset the cumulative statistics counters on the **Health and Status** dialog box.

VoIP Events

VoIP events occur in response to such events as signaling anomalies and exceeded call thresholds. VoIP events include:

- **Interface Down**—An Ethernet interface is down.
- **Interface Up**—An Ethernet interface is up after having been down.
- **QoS Violation**—Codec limits for jitter or packet loss were exceeded.
- **Secondary Proxy in Use**—The secondary proxy is in use.

- **SIP Proxy Inline**—The SIP Proxy came inline after having been offline.
- **SIP Proxy Offline**—the SIP Proxy went offline after having been inline.
- **Span Call Threshold Exceeded**—Maximum concurrent VoIP calls exceeded for the Span.
- **Trunk Down**—A SIP trunk is down.
- **Trunk Up**—A SIP trunk came up after having been down.
- **VoIP Signaling Anomaly**—VoIP signaling anomaly occurred.
- **VoIP Signaling Rate Exceeded**—VoIP signaling rate exceeded.

Warning Events

Warning events occur in response to such events as unavailable expected files, lost Card/Management Server communication, or fail-safe mode. Warning events include:

- **Call Recording Threshold Violation**—The user-defined threshold of expected call recordings was not met. This can indicate the calls have stopped being recorded due to a Call Recorder issue. (*This threshold is defined in the CRC configuration.*)
- **Card Connected to Server in Fail-Safe Mode**—The specified Card is in fail-safe mode.
- **Cooling Fan OK**—The fan in the Appliance had previously failed but is now working.
- **Extended ETM Application Disconnect Detected**—A Card or Span has been disconnected from the Management Server in excess of a set threshold. This threshold is set in the **twms.properties** file. See "Variables in the twms.properties File" in the *ETM[®] System Technical Reference* for instructions for changing this threshold.
- **IPS Poller Failed due to Oracle Resource Busy**—IPS Poller Failed multiple times consecutively due to the Oracle resource being busy. See "IPS Detection Engine Polling Interval" on page 52.
- **Low Battery**—The specified Card has a low battery. Contact SecureLogix Customer Support. Note that Cards have very long life batteries that should last a minimum of 10 years.
- **MS-Requested Time Change Prompted Card Reboot**—The time on the Management Server differs from the time on a Span by more than 60 seconds, causing all Spans on the Card to reboot. This value is not configurable. At each Span heartbeat, if the Span's time differs from that of the Management Server by more than 3 seconds, the Management Server requests a Span time change. If the amount of change requested exceeds 60 seconds, the Spans reboot and a diagnostic message is generated.

See “ETM® Server Properties Tool” on page 42 for instructions for changing these thresholds.

- **MS-Requested Time Zone Change Prompted Card Reboot**—The time zone on the Management Server differs from the time zone on a Span, causing the Card to reboot.
- **Power Supply OK**—A power supply in the Appliance had previously failed but is now functioning.
- **Sequential Unresolved Outbound SMDR Resolutions**—More than 100 sequentially parsed SMDR records have failed to match a call. Sequential failed SMDR resolutions may indicate a problem with the SMDR parse file installed on the Span, or with the SMDR serial port. You can change this threshold in the **ETM Server Properties Tool**. The property is named **smdr.FailedResolvesWarningCount**.
- **Sequential Unresolved Inbound SMDR Requests**—The threshold for sequential inbound SMDR requests for which no match is found has been exceeded. You can change this threshold in the **ETM Server Properties Tool**. The property is named **smdr.UnresolvedInbountRequestsWarningCount**.

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