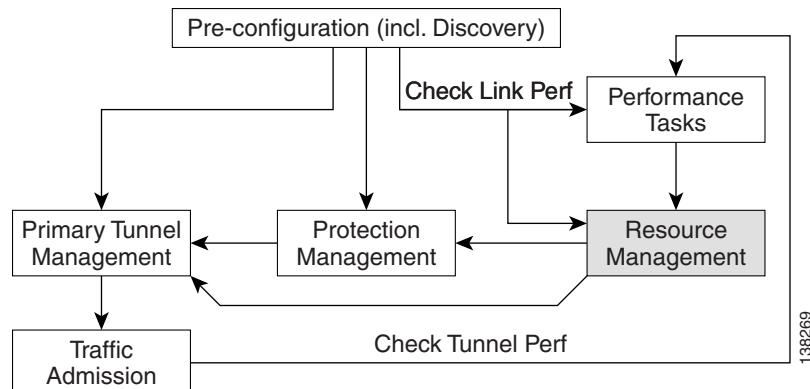




TE Resource Management



TE resource management is defined as the tuning of certain properties on the TE interfaces to optimize the tunnel placement.

This chapter contains the following sections:

- [Overview, page 4-1](#)
- [Modifying Network Resources, page 4-2](#)
- [Change Link Status, page 4-6](#)

Overview

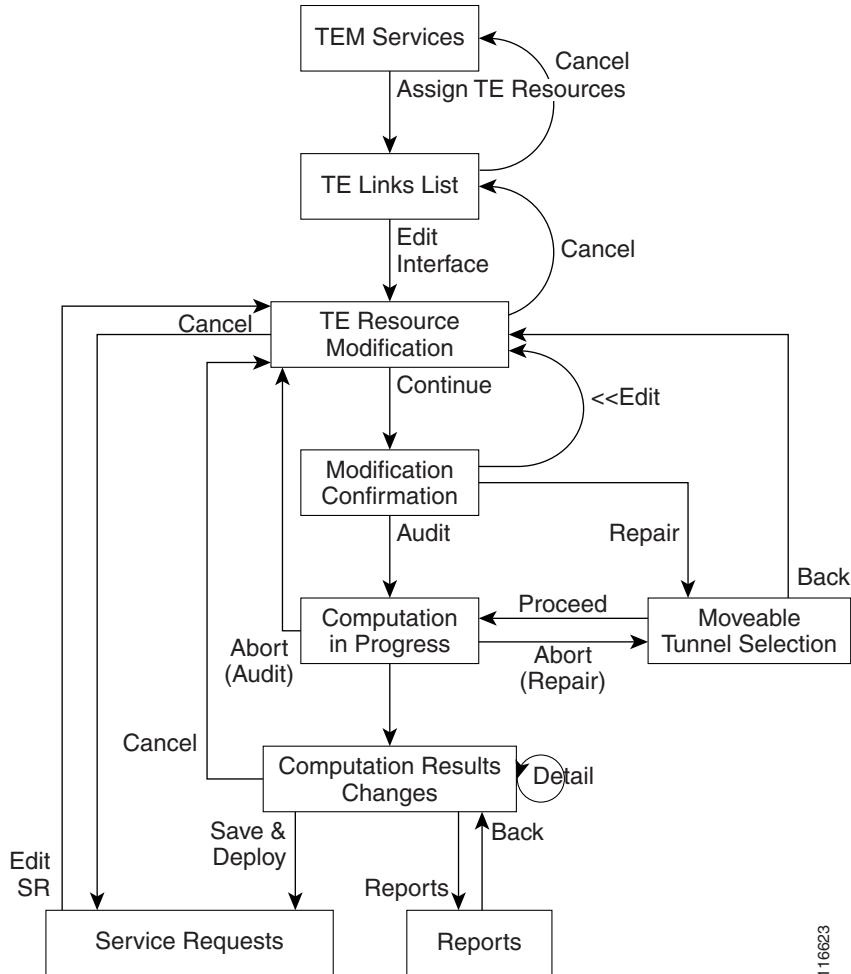
When a tunnel placement is attempted and there is insufficient bandwidth, sometimes the resources on the TE links can be changed and the tunnel placement retried.

Network resources in this context are understood to be routers in the TE network, the interfaces that connect them, and the RSVP bandwidths and other properties configured on the links. Since ISC TEM relies on the discovery process to add the network elements to the repository, the resources must be discovered before resource management can be performed.

TE resource management is a manual process that should be performed on an as needed basis. If the original configuration is already optimal, there is no need for the user to do any resource management tasks. If subsequent discovery unveils any discrepancy, or if you experience difficulty achieving desired results in protection planning or placing primary tunnels, adjustments on the resources may be warranted.

An overview of the resource management process is provided in [Figure 4-1](#).

Figure 4-1 Resource Management Processes



Modifying Network Resources

The resource management tasks are first of all carried out from the TE Links List window.



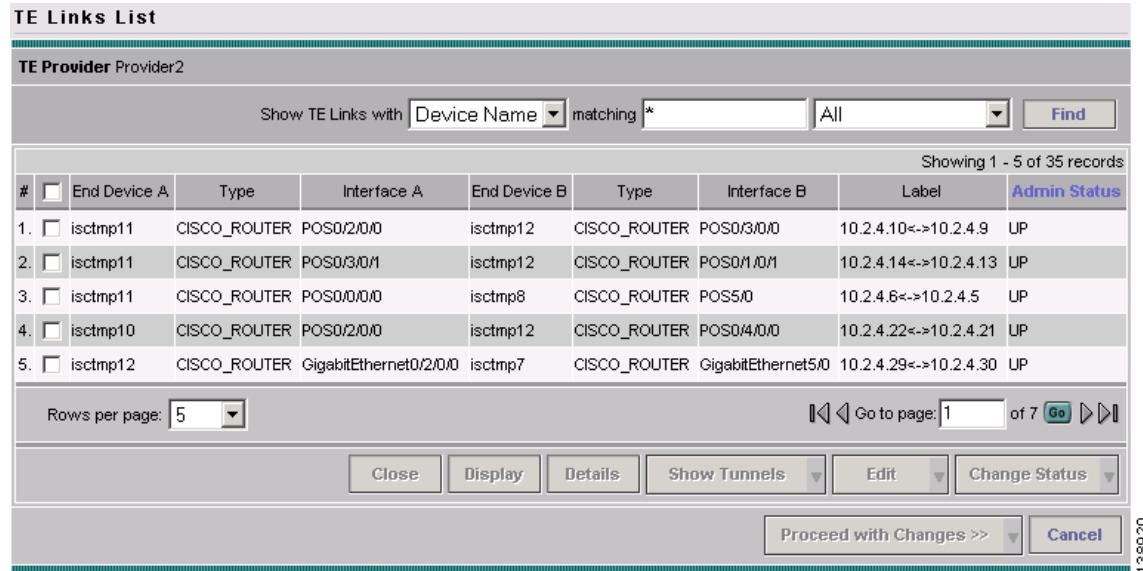
Note Certain attributes, such as Description, that do not impact the computation carried out by these tools and updates to these are, therefore, not displayed in the Computation Result Window.

To modify a TE link, use the following steps:

-
- Step 1** Navigate Service Inventory > Inventory and Connection Manager > Traffic Engineering Management > Assign TE Resources.

The TE Links List window shown in [Figure 4-2](#) appears.

Figure 4-2 TE Links List



The screenshot shows the 'TE Links List' window. At the top, it says 'TE Provider Provider2'. Below that is a search bar with 'Show TE Links with Device Name matching *' and a 'Find' button. The main area displays a table of 35 records, showing columns for #, End Device A, Type, Interface A, End Device B, Type, Interface B, Label, and Admin Status. The first five rows of data are:

| # | End Device A | Type | Interface A | End Device B | Type | Interface B | Label | Admin Status |
|----|--------------|--------------|-------------|--------------|--------------|-------------|-----------------------|--------------|
| 1. | isctmp11 | CISCO_ROUTER | POS0/2/0/0 | isctmp12 | CISCO_ROUTER | POS0/3/0/0 | 10.2.4.10<->10.2.4.9 | UP |
| 2. | isctmp11 | CISCO_ROUTER | POS0/3/0/1 | isctmp12 | CISCO_ROUTER | POS0/1/0/1 | 10.2.4.14<->10.2.4.13 | UP |
| 3. | isctmp11 | CISCO_ROUTER | POS0/0/0/0 | isctmp8 | CISCO_ROUTER | POS5/0 | 10.2.4.6<->10.2.4.5 | UP |
| 4. | isctmp10 | CISCO_ROUTER | POS0/2/0/0 | isctmp12 | CISCO_ROUTER | POS0/4/0/0 | 10.2.4.22<->10.2.4.21 | UP |

Below the table are buttons for 'Rows per page' (set to 5), 'Go to page' (set to 1), and navigation arrows. At the bottom are buttons for 'Close', 'Display', 'Details', 'Show Tunnels', 'Edit', 'Change Status', 'Proceed with Changes >>', and 'Cancel'.

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For an explanation of the various window elements, see [TE Links, page A-21](#).

The links list shows the current active links in the TE network. Use the arrows to page forward as needed.

Step 2 Select the desired link in the links list.

Step 3 Click **Edit > Interface A** or **Edit > Interface B** to edit one of interfaces on the link.



Note If a non-Cisco interface is selected for editing, changes made in the Edit window will be saved in the ISC repository but they will not be deployed.

Step 4 The TE Resource Modification window appears as shown in [Figure 4-3](#).

Figure 4-3 TE Resource Modification

TE Resource Modification

| | | |
|--|--|-------------------|
| SR Job ID: New | Provider: Provider2 | SR ID: New |
| SR State: REQUESTED | Creator: | Type: ADD |
| Device/Interface: | isctmp11 : POS0/2/0/0 | |
| Peer Device/Interface: | isctmp12 : POS0/3/0/0 | |
| Description: | <input type="text"/> ▲ ▼ | |
| Link Bandwidth (Kbps): | 2488320 | |
| Max Global (BC0) Reservable (Kbps) *: | 45000 | |
| Max Sub Pool (BC1) Bandwidth (Kbps) *: | 30000 | |
| Attribute Bits (0x0-0xFFFFFFFF) *: | 0x0 | |
| TE Metric *: | 2000 | |
| Propagation Delay *: | 0 | |
| Max Delay Increase *: | 0 | |
| Link Speed Factor *: | 1.0 | |
| <input type="button" value="Continue >>"/> <input type="button" value="Cancel"/> | | |

Note: * - Required Field

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For an explanation of the various fields, see [TE Links, page A-21](#).

- Step 5** Make the desired modifications and click **Continue >>** to proceed to the confirmation page as shown in [Figure 4-4](#) to verify the changes or click **Cancel** to quit without saving.

Figure 4-4 TE Resource Modification (Confirmation Page)

TE Resource Modification

| | | |
|--|-----------------------|------------|
| SR Job ID: New | Provider: Provider2 | SR ID: New |
| SR State: REQUESTED | Creator: | Type: ADD |
| Device/Interface: | isctmp11 : POS0/2/0/0 | |
| Peer Device/Interface: | isctmp12 : POS0/3/0/0 | |
| Description | | |
| Link Bandwidth (Kbps): | 2488320 | |
| Max Global (BC0) Reservable (Kbps) *: | 45000 | |
| Max Sub Pool (BC1) Bandwidth (Kbps) *: | 30000 | |
| Attribute Bits (0x0-0xFFFFFFFF) *: | 0x0 | |
| TE Metric *: | 2000 | |
| Propagation Delay *: | 0 | |
| Max Delay Increase *: | 0 | |
| Link Speed Factor *: | 1.0 | |

<< Edit Proceed with Changes >> Save & Deploy

Note: * - Required Field

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Step 6 Click << Edit to return to the editable window or proceed in one of the following ways:

- **Proceed with Changes >>** (Figure 4-5)—Perform Tunnel Audit or Tunnel Repair.

For a detailed explanation of Tunnel Audit and Tunnel Repair, see [Chapter 6, “Advanced Primary Tunnel Management.”](#)

If a non-Cisco device is edited, **Proceed with Changes >>** will be disabled. Instead, **Save & Deploy** is enabled and the changes can be saved (not deployed).

- **Save & Deploy** (Figure 4-6)—If the changes made do not affect tunnel placement, click **Save & Deploy** to proceed. In this case, there is no need for performing Tunnel Audit or Tunnel Repair.



Note

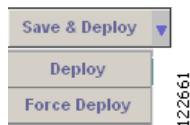
When you click **Save & Deploy**, a background process is started. To avoid a potential conflict with another deployment, wait until the SR has completed the Requested and Pending states before deploying another SR with **Save & Deploy**. To see the state of deployment, go to the Service Requests window under **Inventory and Connection Manager > Service Requests** or open **Monitoring > Task Manager**.

Figure 4-5 TE Links List - Proceed with Changes

Proceed with Changes >>

| |
|---------------|
| Tunnel Audit |
| Tunnel Repair |

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Change Link Status**Figure 4-6 Save & Deploy Tunnels**

For an explanation of the options available under **Proceed with Changes >>** and **Save & Deploy**, see [Edit Interface, page A-27](#).



Note In ISC TEM, service requests (SRs) are generally deployed from each TE service, not from the **Service Requests** page in **Inventory and Connection Manager** with the exception of the TE Traffic Admission SR.

After deployment, the SR status can be viewed from the SR window at **Service Inventory > Inventory and Connection Manager > Service Requests**.

For more information on working with service requests, see [Appendix B, “Managing Service Requests.”](#)

If the SR does not go to the **Deployed** state, go to the Task Log to see the deployment log (**Monitoring > Task Manager > Logs**). Task logs are further described in [TE Task Logs, page 10-1](#).

Change Link Status

From the TE Links List window ([Figure 4-2](#)), you can also find out what effect it will have if a link is taken offline. This approach can be used to move tunnels off a link before actually shutting down the interface.



Note Link status in ISC TEM is of local significance. Changing link status as described in this section is not provisioned down to the network.

To change the link status, use the following steps:

-
- Step 1** Navigate **Service Inventory > Inventory and Connection Manager > Traffic Engineering Management > Assign TE Resources**.
The TE Links List window appears.
- Step 2** Select one or more links and click the **Change Status** button as shown in [Figure 4-7](#).

Figure 4-7 Change Link Status

TE Links List

TE Provider Provider2

Show TE Links with Device Name matching * All Find

Showing 1 - 5 of 35 records

| # | <input type="checkbox"/> | End Device A | Type | Interface A | End Device B | Type | Interface B | Label | Admin Status |
|----|-------------------------------------|--------------|--------------|------------------------|--------------|--------------|--------------------|-----------------------|--------------|
| 1. | <input checked="" type="checkbox"/> | isctmp11 | CISCO_ROUTER | POS0/2/0/0 | isctmp12 | CISCO_ROUTER | POS0/3/0/0 | 10.2.4.10<->10.2.4.9 | UP |
| 2. | <input type="checkbox"/> | isctmp11 | CISCO_ROUTER | POS0/3/0/1 | isctmp12 | CISCO_ROUTER | POS0/1/0/1 | 10.2.4.14<->10.2.4.13 | UP |
| 3. | <input type="checkbox"/> | isctmp11 | CISCO_ROUTER | POS0/0/0/0 | isctmp8 | CISCO_ROUTER | POS5/0 | 10.2.4.6<->10.2.4.5 | UP |
| 4. | <input type="checkbox"/> | isctmp10 | CISCO_ROUTER | POS0/2/0/0 | isctmp12 | CISCO_ROUTER | POS0/4/0/0 | 10.2.4.22<->10.2.4.21 | UP |
| 5. | <input type="checkbox"/> | isctmp12 | CISCO_ROUTER | GigabitEthernet0/2/0/0 | isctmp7 | CISCO_ROUTER | GigabitEthernet5/0 | 10.2.4.29<->10.2.4.30 | UP |

Rows per page: 5 Go to page: 1 of 7 **Go** ►►

Buttons: Close, Display, Details, Show Tunnels, Edit, Change Status, Proceed with Changes, Enable, Disable, Cancel.

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For an explanation of the various window elements, see [TE Links, page A-21](#).

Step 3 Select **Enable** or **Disable** to enable or disable the selected link.

Step 4 As an example, selecting **Disable** will change the link status to **DOWN** as shown in [Figure 4-8](#).

Figure 4-8 Link Status Down

| | | | | | | | | |
|--|----------|--------------|------------|----------|--------------|------------|----------------------|------|
| 1. <input checked="" type="checkbox"/> | isctmp11 | CISCO_ROUTER | POS0/2/0/0 | isctmp12 | CISCO_ROUTER | POS0/3/0/0 | 10.2.4.10<->10.2.4.9 | DOWN |
|--|----------|--------------|------------|----------|--------------|------------|----------------------|------|

Similarly, use **Enable** to change the status back to **UP**.

Step 5 Click **Proceed with Changes >>** to assess any impact on tunnel placement using Tunnel Audit or Tunnel Repair and deploy the changes (see [Figure 4-9](#)).

Figure 4-9 TE Links List - Proceed with Changes

Proceed with Changes >>

Tunnel Audit

Tunnel Repair

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For a detailed explanation of Tunnel Audit and Tunnel Repair, see [Chapter 6, “Advanced Primary Tunnel Management.”](#)

■ Change Link Status