MetaSolv Solution ™ 6.0

Network Templates User Guide

Second Edition

June 2007

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Document History

Edition	Date	Reason
First	April 2005	General Availability.
Second	June 2007	Copyrights, About This Guide, customer portal updated for Oracle.

Table of Contents

About this guide

This guide contains the procedures and information you need to configure network templates in MetaSolv Solution.

Audience

This guide is for individuals responsible for the configuration and maintenance of network templates in MetaSolv Solution.

Additional information and help

To get additional information or help for MetaSolv Solution, refer to the following resources:

- Oracle E-Delivery—Provides access to product software and documentation.
    - Visit the E-Delivery Web site at http://edelivery.oracle.com.
    - Software and product documentation are contained in the Oracle Communications MetaSolv Solution 6.0 Media Pack.
    - Developer documentation is contained in the Oracle Communications MetaSolv Solution Developer Documentation Pack. Access to developer documentation requires a password.
- Oracle MetaLink—Provides access to software patches and a searchable Knowledge Base.
    - Visit the MetaLink Web site at https://metalink.oracle.com/, and log on using your User Name and Password.
    - Click the Patches & Updates tab to search for patches (efixes).
    - Click the Knowledge tab to search for technical bulletins, fixed issues, and additional product information. To narrow your search, click the Communication Apps link under Product Categories on the left side of the page.

Oracle Support

The preferred method of reporting service requests (SRs) is through MetaLink. MetaLink is available 24 hours a day, 7 days a week.

Although it is Oracle's preference that you use MetaLink to log SRs electronically, you can also contact Support by telephone. If you choose to contact Support by phone, a support engineer will gather all the information regarding your technical issue into a new SR. After the SR is assigned to a technical engineer, that person will contact you.

For urgent, Severity 1 technical issues, you can either use MetaLink or you can call Support. Oracle Support can be reached locally in each country. To find the contact information for your country, go to http://www.oracle.com/support/contact.html.

Network template overview

Network templates play a vital role within MetaSolv Solution. They are part of what is commonly referred to as the "template-based platform." This platform was created to simplify the design of networks, the ordering of products, and the provisioning of services within MetaSolv Solution. Network templates serve as a guideline or a blueprint, containing predefined rules that specify how to design networks, order products, and provision services.

Template-based network design provides a flexible platform that helps you design and configure any type of network, from simple to complex. It is based on the concept that technologies, products, and services are rapidly changing. By creating a design platform that can grow and change along with your business, MetaSolv can ensure that your Operations Support System will continue to meet your network design and management requirements. In addition, by providing a common platform that you can use regardless of the technology, you can create repeatable, transferable business processes that ultimately help you configure new products and services more easily, and design and deliver them more consistently.

Downstream effects

How you configure your network templates affects three major processes in MetaSolv Solution:

- Network design
- Ordering
- Provisioning

The rules defined in the network templates govern the design of internal and external networks, the specifications of products and services that you use to build the product catalog for customer orders, and the provisioning of those products and services. Network design involves creating internal networks, while service provisioning can involve creating customer networks and connections.

Network design

The component and connection relationships you use to design a network inherit the properties you defined for those component and connection relationships in the template.

For example, assume in the MetaSolv TM Frame Relay Core Network template, you customize a bandwidth connection between two frame switches to have a transmission rate of OC-3. If you later use that template to design a network, you will only be able to design bandwidth connections with a rate code of OC-3 between frame relay switches.

You can also select which components can be ordered, and determine if equipment from multiple locations can be associated with a component. When you design a network using a template, you don't need to redefine properties each time you add a component or connection to a system, and you cannot break any rules that underlie how your networks are to be designed.

Ordering

Network templates determine which network systems, components, and connections you can order on a Product Service Request (PSR) in MetaSolv Solution. When you build product offerings, you associate them with network templates, and those templates drive what you can order.

For example, assume an order has been placed for a virtual private network (VPN), and you are the ordering specialist. You select the VPN product from the product catalog. The template previously associated with the product determines the types of components and connections you can add to the PSR from that point forward. As you add items to the PSR, the properties defined for those items in the template may prompt you for additional information.

Provisioning

The rules, properties, and custom attributes of a template associated with an ordered item (system, component, or connection) control how you provision that item.

For example, assume you are the engineer of the VPN that was ordered in the preceding example. When you execute the NETDSGN task from your work queue, you see the network canvas. As you design each connection for the ordered VPN, the assignments you make will be driven by and will depend on the connection specs and equipment associated with the component types to which you are making the assignment.

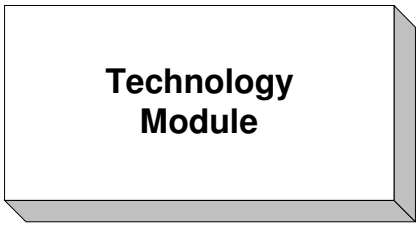
Helpful terms

To understand the functionality behind network templates, you must first understand the terms used in MetaSolv Solution. Some of these terms are well known in the communications industry, and some are unique to MetaSolv.

The easiest way to understand network template terminology is to examine it in hierarchical form, from the top level down. The top level in network templates is the Technology Module.

Technology modules

Technology modules are software options that map to technology types. Technology modules were developed for the most common technology types used by service providers. As an owner of MetaSolv Solution, you need only those technology modules that comprise the technologies of your networks.

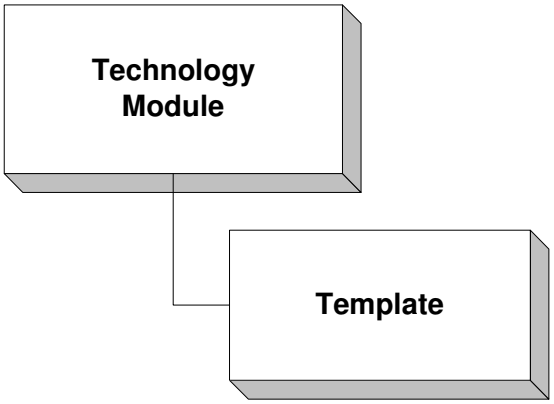


At the present time, you can license the following technology modules:

- ATM/Frame Relay—Used for ATM/Frame Relay transport networks and Layer 2 VPN networks.
- DLC—Used for DLC transport networks.
- DSL—Used for DSL transport networks.
- Ethernet—Used for Ethernet transport networks.
- IP—Used for IP transport and IP VPN networks.
- MPLS—Used for MPLS transport and MPLS VPN networks.
- Optical/TDM—Used for Optical/TDM networks.
- SONET/SDH—Used for SONET/SDH networks.
- Wireless—Used for wireless networks.
- Unclassified—Used for templates that do not fit into other technology types.

When you license a specific technology, you receive a technology module that includes predefined templates and documentation about the contents of those templates.

Network templates

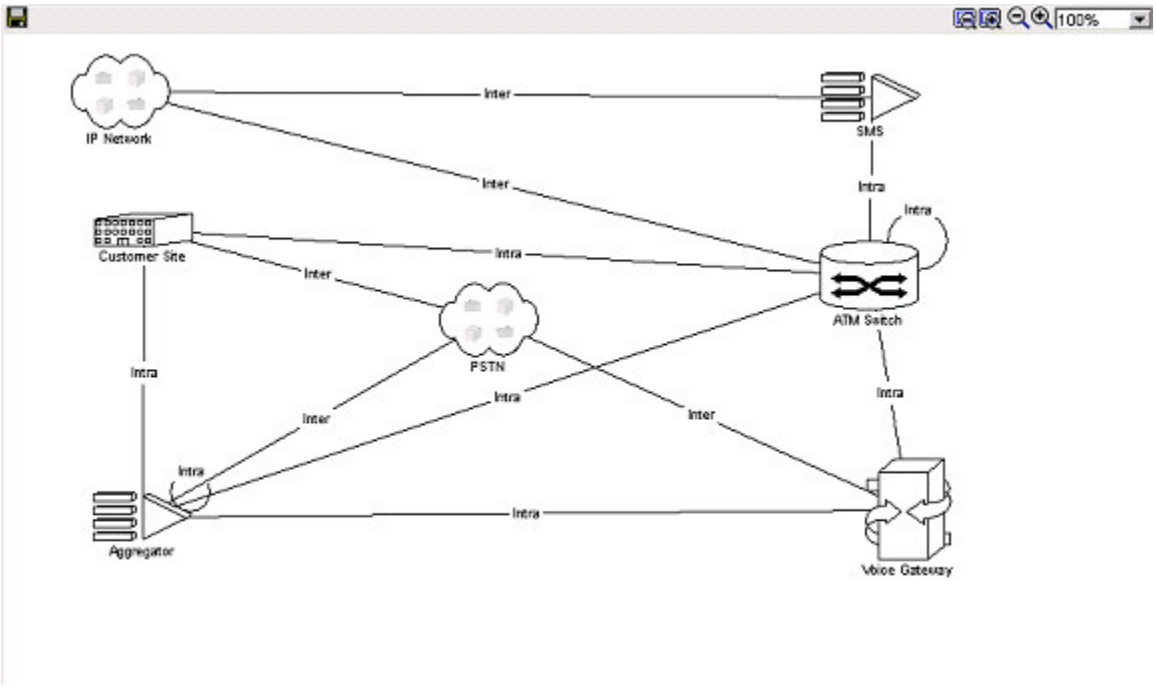


Think of a template as a blueprint or stencil. Each template contains the rules and building blocks needed to design your network systems, order products, and accurately provision services. MetaSolv examined the components and connections most commonly used by providers, and built the templates accordingly. Network templates include components, connections, graphics, and rules for a specific technology. If you do not have the technology module or network system type, you will not be able to create templates based on that particular technology. You might not need all of the components or connections provided by the delivered templates, or you might find that you need something that is not delivered. To accommodate these situations, you modify the network templates. For more information, refer to “Modifying existing templates” in Chapter 4.

A technology module can have multiple templates. Most of the technology modules include core and access network templates. For example, the ATM/FR technology module includes six templates:

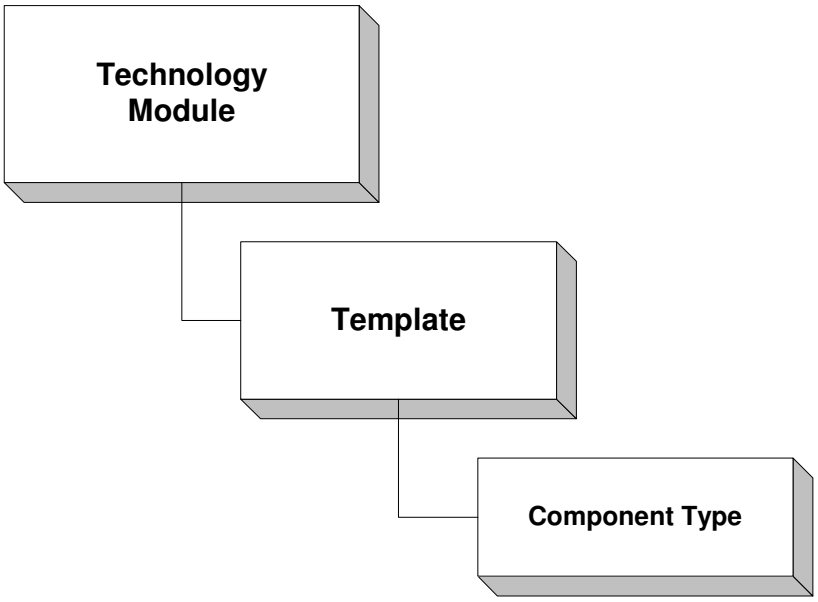
- The ATM Core Network and Frame Relay Core Network templates are used to build provider networks.
- The ATM Access Network and Frame Relay Access Network templates are generally used to build networks that connect the customer to the provider network.
- The ATM/Frame Relay Network template is used to create a large network that includes both access and core networks.
- The Layer 2 VPN Network template is used to build customer-ordered virtual private networks.

Templates provide a graphical view that you can customize to reflect the components and types of connections that make up your network systems. Below is the ATM Access Network template, as delivered with the ATM/FR technology module.



Component types

Technology modules provide sets of templates that contain the most common combinations and configurations of component types, relationships, and connection specs. The first of these is the component type.

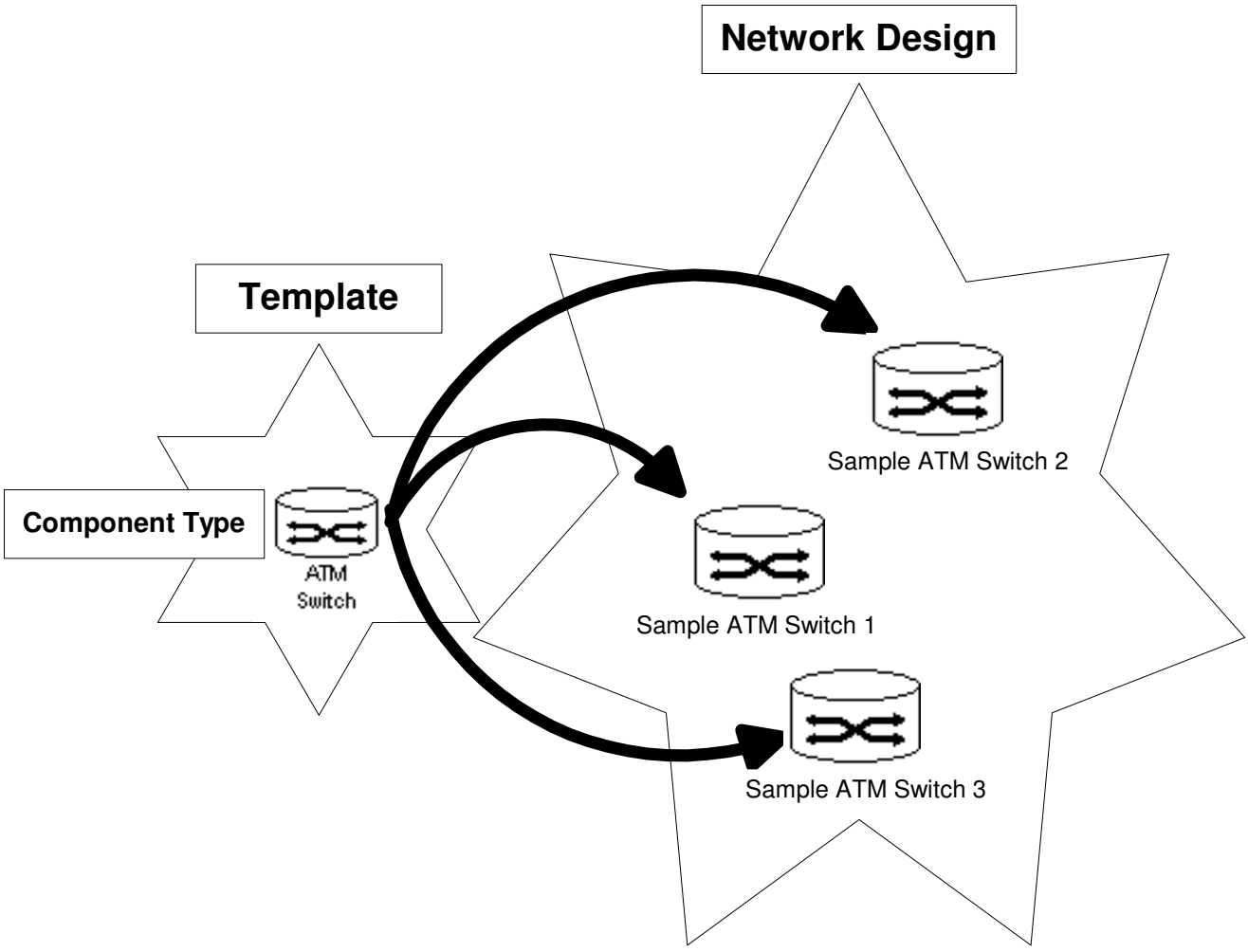


Component types are representations of nodes that can exist in a network system. Component types are represented on the graphical canvas by images or graphics. Some examples of component types include:

The delivered network templates contain preloaded component types with preloaded images. You can add new component types and customize existing component types.

Each component type is represented only once in a template, establishing it as a possible component when designing your network system. For example, if your network has three ATM switches, the ATM Switch component type must exist in the template for you to build ATM switches in your network. If the component type is not part of the template used to build the network, it will not be available to add to the network design. Because you have three ATM switches, you will reuse the ATM Switch component type in the template three times during network design.

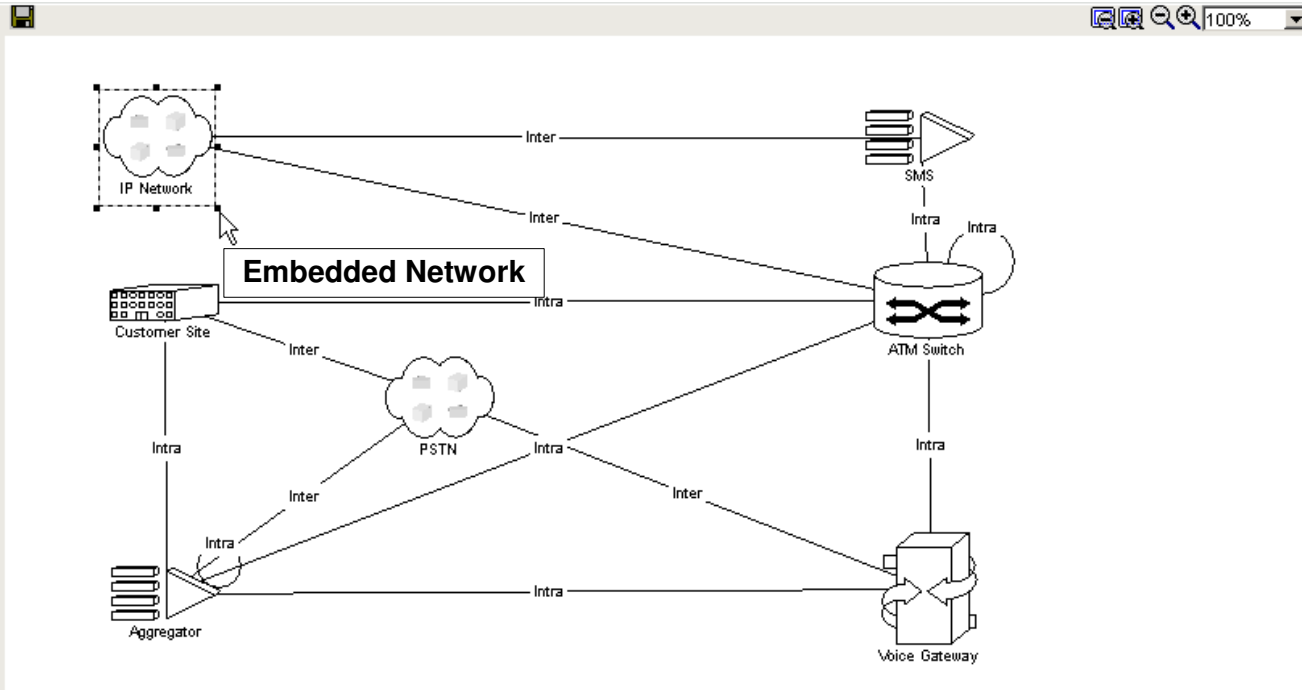
The following figure shows the relationship between component types in a template and components in a network system built using that template.



EMBEDDED NETWORKS

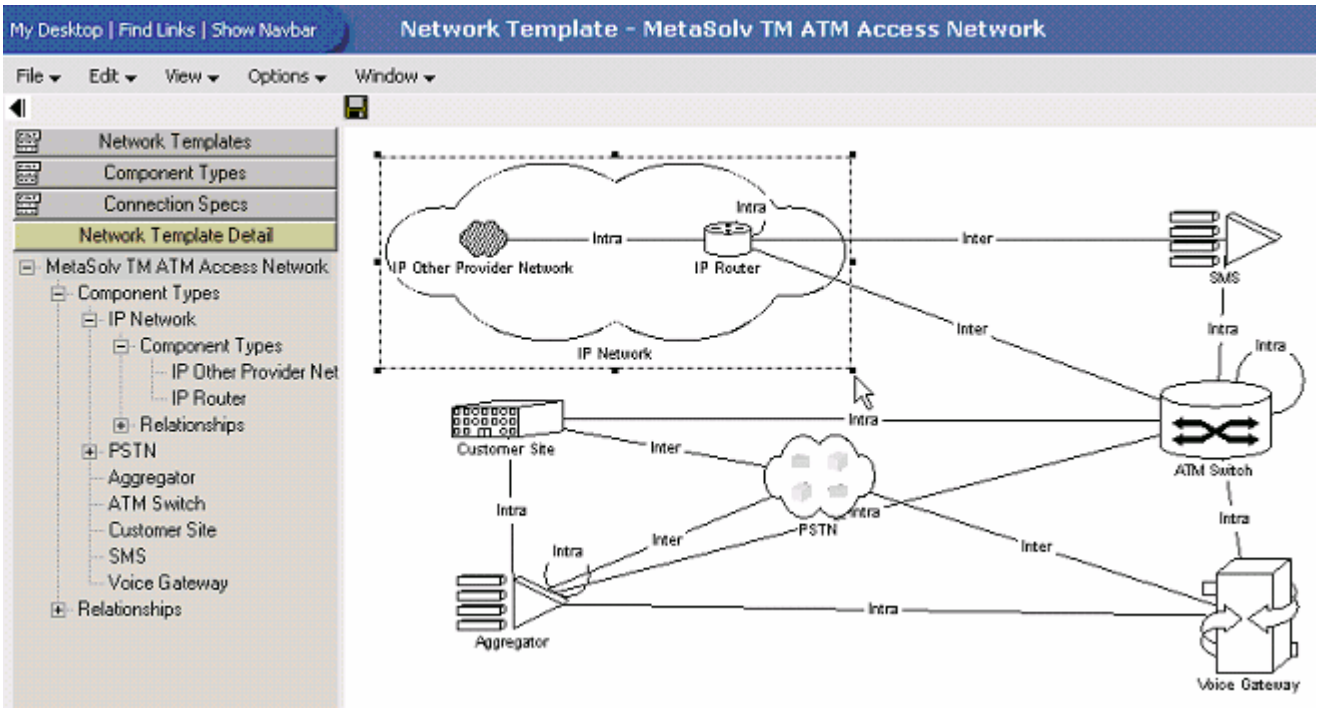
Embedded networks are component types that represent smaller groupings of network components within a larger network. They are represented as clouds in a template because they exist as a separate network template. Remember that component types are only represented once in a template, which is also true for embedded network component types. Embedded network component types represent the networks that are created with other templates.

For example, the ATM Access Network template contains an IP Network component type. When building a network using the ATM Access Network template, you are able to connect your SMS and ATM Switch component types to a component type in an IP network you created using a different template. The IP network exists separately, but is part of this larger ATM network, as shown in the following figure.

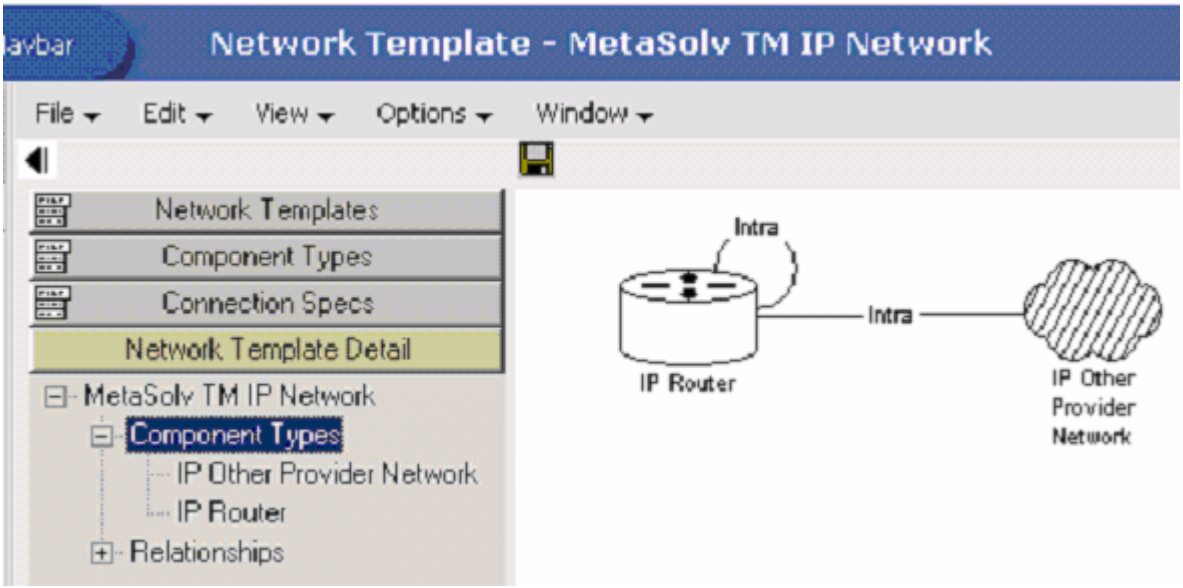


Tip

To view the component types within an embedded network on the graphical canvas, double-click the embedded network. You can also view the component types by expanding the Component Types treeview on the Network Template Detail panel list.



In the example above, the embedded IP Network is comprised of IP Router and IP Other Provider Network component types. The IP Network also exists as a separate network template, as seen below.



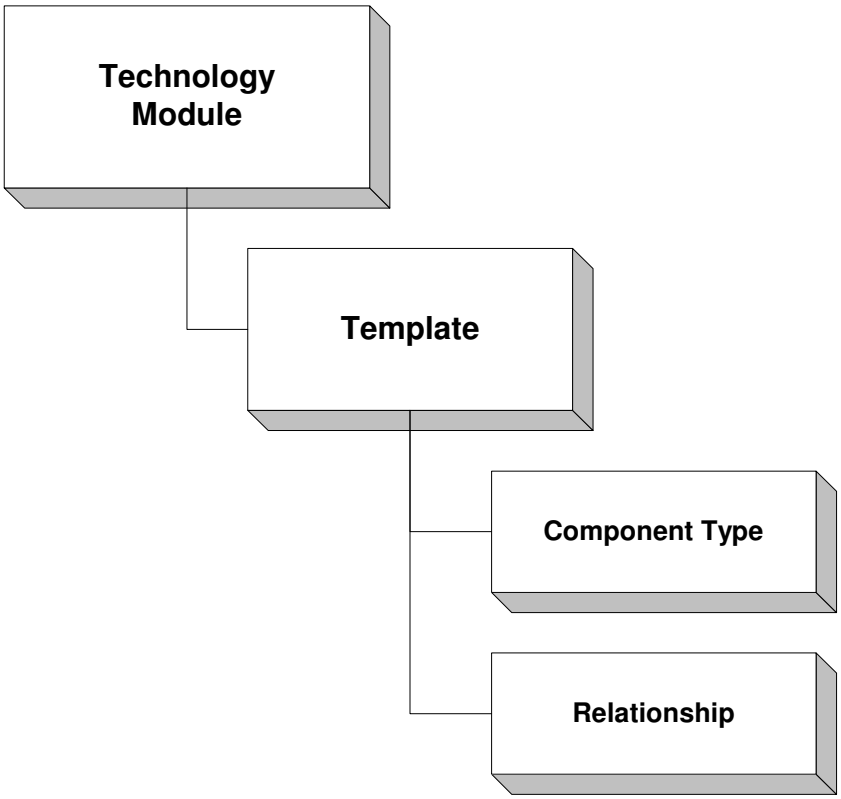
Tip

If you expand an embedded network component type and then save and close the template, it will be expanded the next time the template is viewed. This is not contingent on your user ID, but will be the view of any user who opens the template as it is saved.

Other Provider Network component types

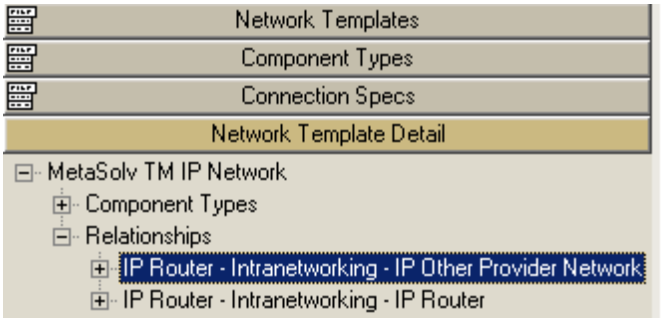
The one embedded network component type that you cannot open and view is the Other Provider Network component type. This component type represents another provider's network that you do not inventory in the application, and is represented by a striped cloud as seen in the previous example.

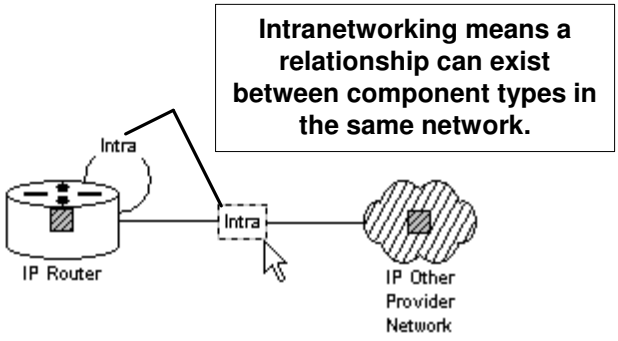
Relationships



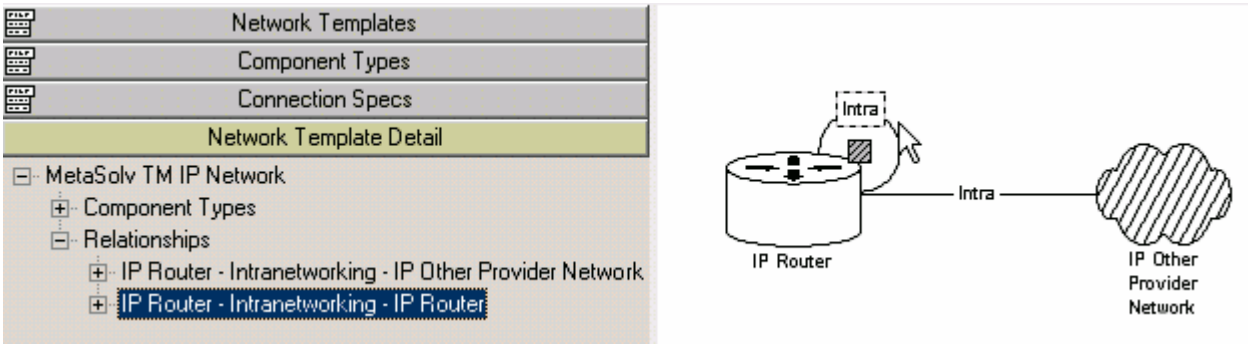
Relationships in network templates represent a future connection that may exist between two component types. Relationships are shown on the graphical canvas as a solid line between component types. There can be multiple relationships in a template, but only one relationship can exist between two component types. Similar to component types, relationships exist only once in a template.

Following is an example of relationships in a template. In this template, two relationships exist. The first is between the IP Router component type and the IP Other Provider Network. This means that when you use this template to build a network system, you can build a connection between any IP router and other provider IP network.

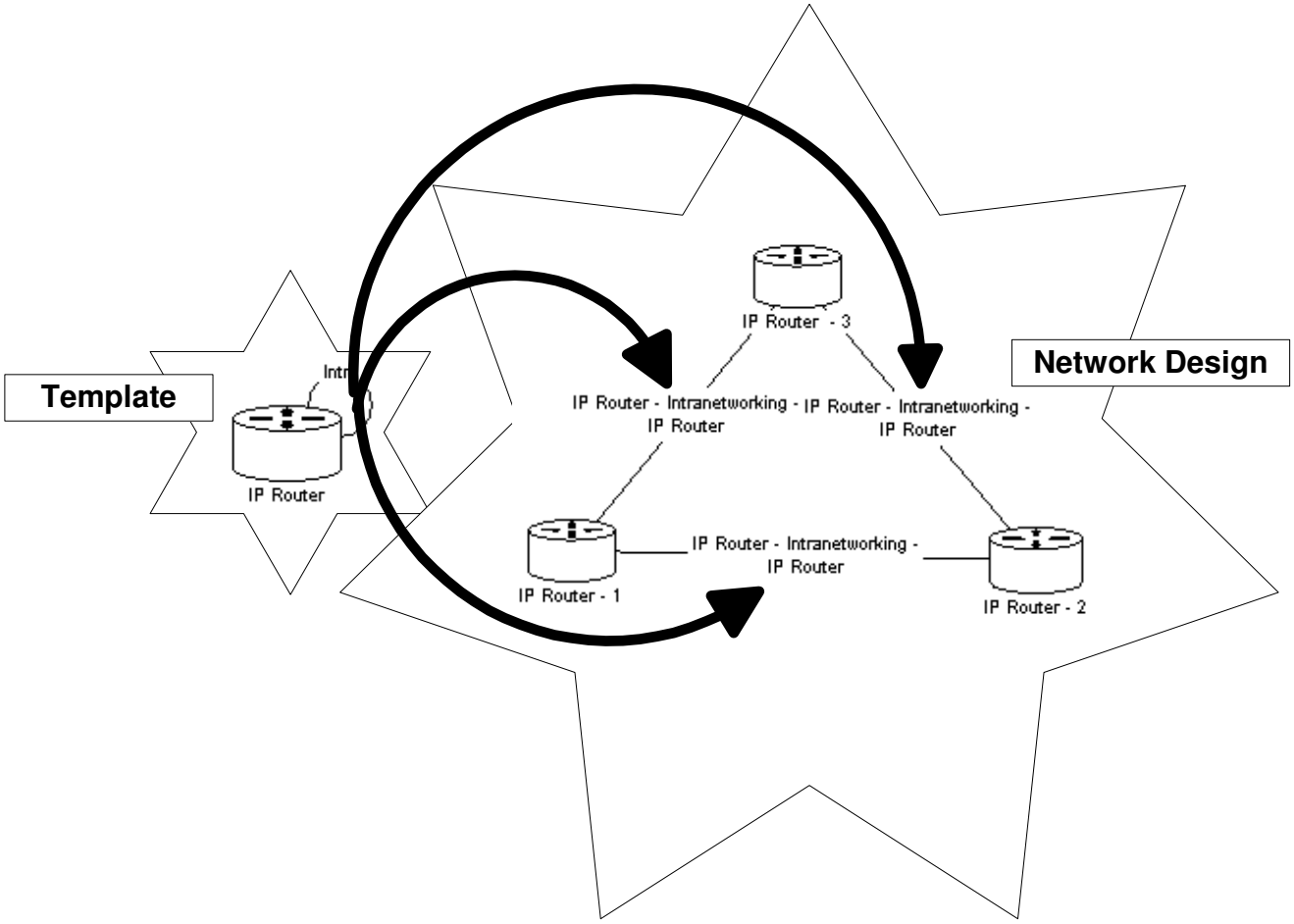




The second relationship is between the IP Router component type and itself.

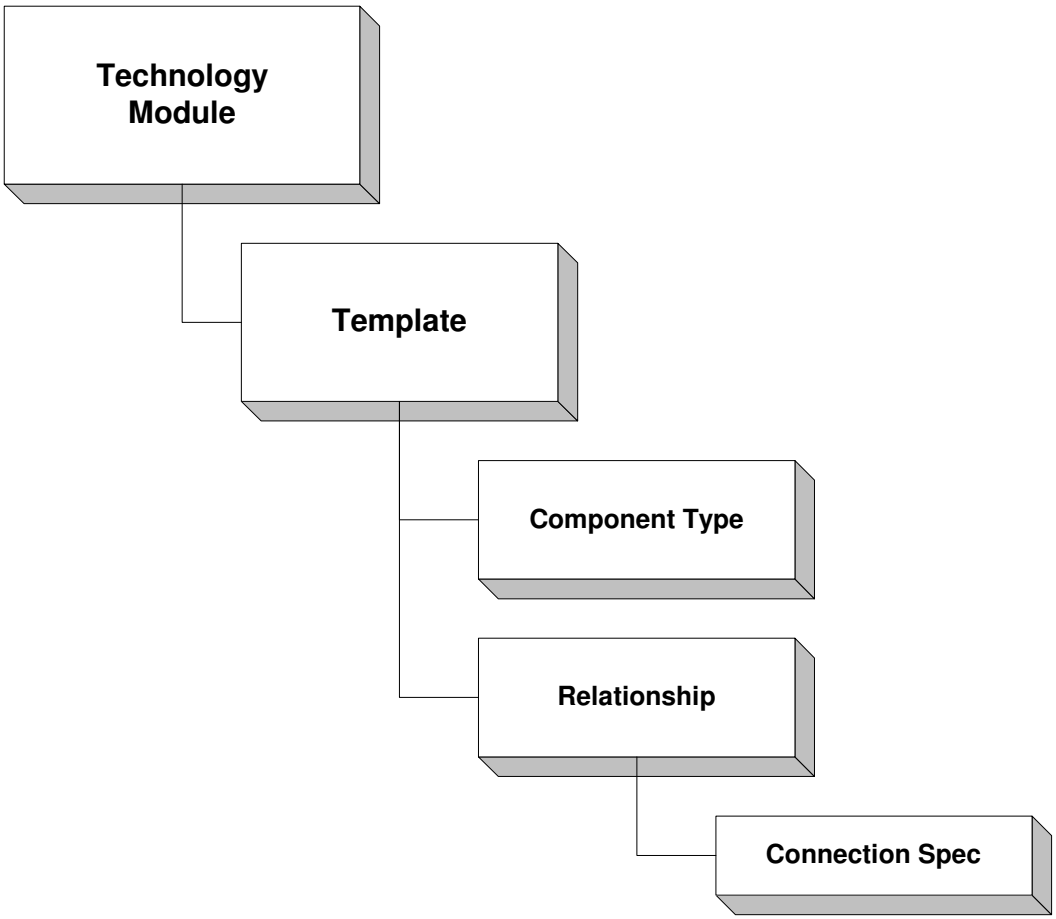


This means that when you use this template to build a network system, you can build a connection between any two IP Routers. The following figure illustrates the IP Router – Intranetworking – IP Router relationship as built out in a three-node IP network.

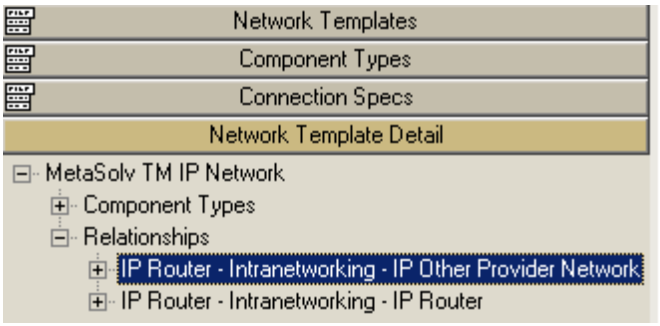


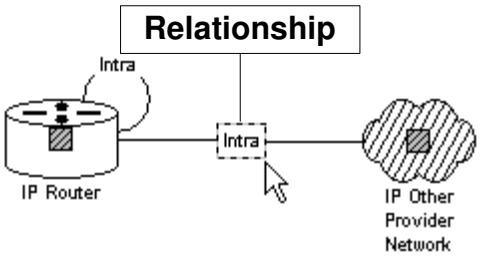
As with component types, if a relationship does not exist in a template, it is not available when building network systems using that template.

Connection specs

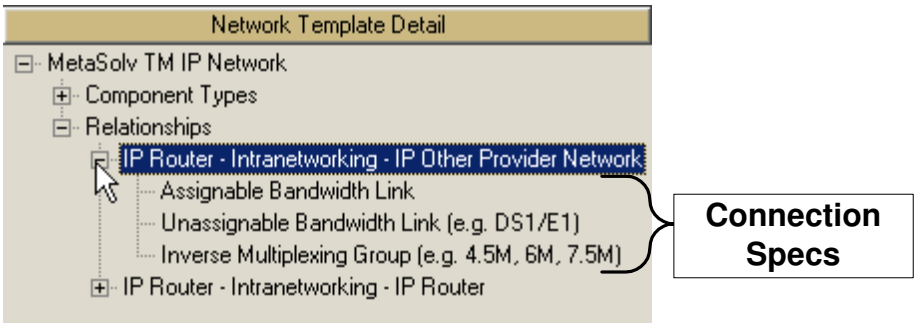


A relationship signifies some type of connection can exist between two component types. To identify the type of connection it is, you use connection specs. As noted earlier, there is a relationship between the IP Router and IP Other Provider Network component types in the IP Network template.





The different types of connections that can be used to build this relationship in an IP network are the connection specs specified in the template, as shown below.



If a connection spec is not in the template, it is not available for you to use when you build your network. Each delivered template contains preloaded connection specs. You can create new connection specs and modify existing connection specs, if needed.

Navigating templates

This chapter walks you through the template interface, so you have a feel for the basic navigation prior to creating or modifying templates.

Opening templates

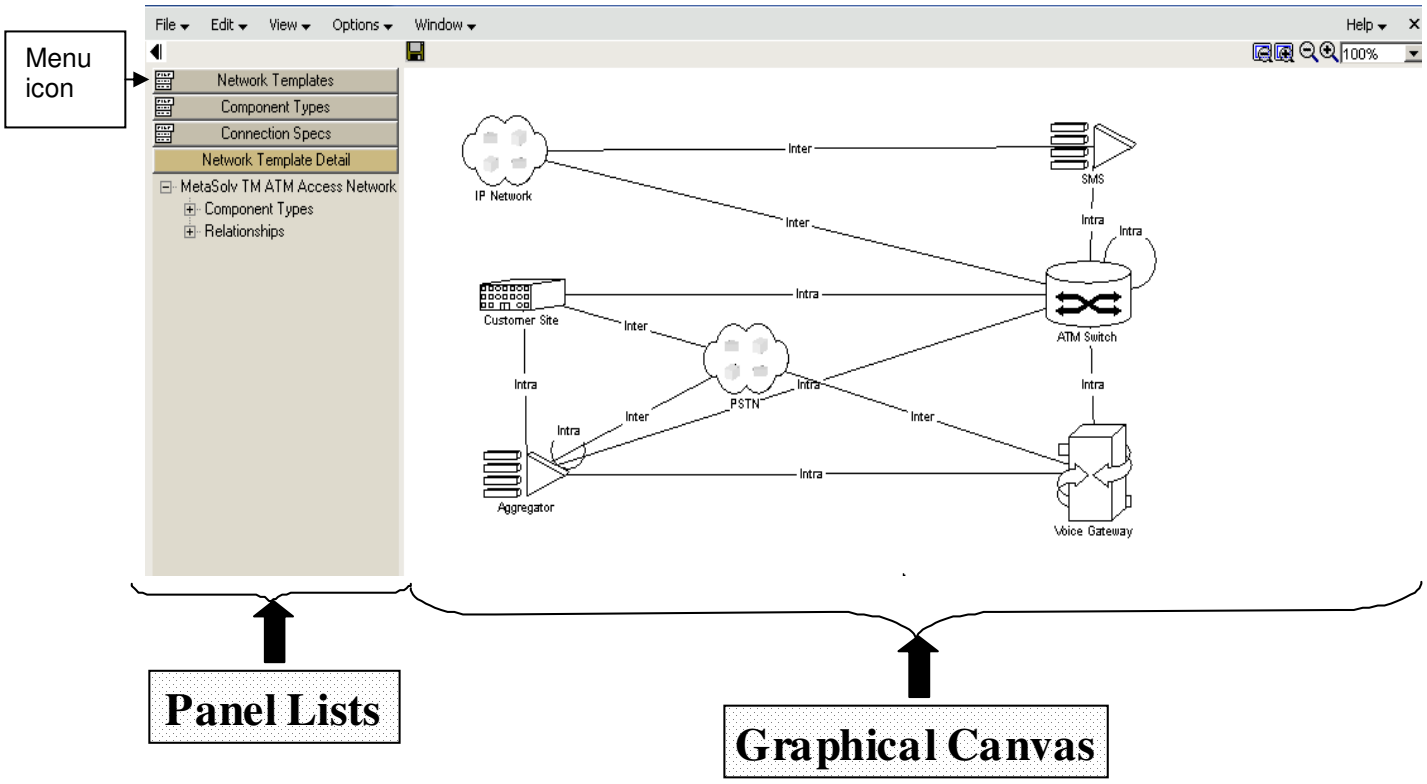
1. Select the **Inventory Management** group on the navigation bar, and click **Inventory Management Setup**.

2. Under Network/Equipment, click the **Network Templates** link.

3. Double-click the technology module that contains the appropriate template.

4. Double-click the template name to open it.

The Network Templates window appears. Two primary sections comprise the window—the panel lists and graphical canvas. These sections are shown in the following graphic.



Graphical canvas

The graphical canvas displays graphical representations of the templates. When you open a template, this area of the window provides a view of each component type, as well as relationships between the component types. The previous figure shows the graphical canvas as viewed when you open the MetaSolv TM ATM Access Network template.

Panel lists

On the left side of the Network Templates window are four panel lists—Network Templates, Component Types, Connection Specs, and Network Template Detail.

On the far left side of the top three panel lists is the menu  icon. Clicking this icon provides a selection of options and tasks you can perform. These menu selections differ for each panel list.

Tip

The menu icon is easily forgotten and contains links to network template functionality. If you are using network templates and are not able to locate the functionality you need, try clicking the menu icon.

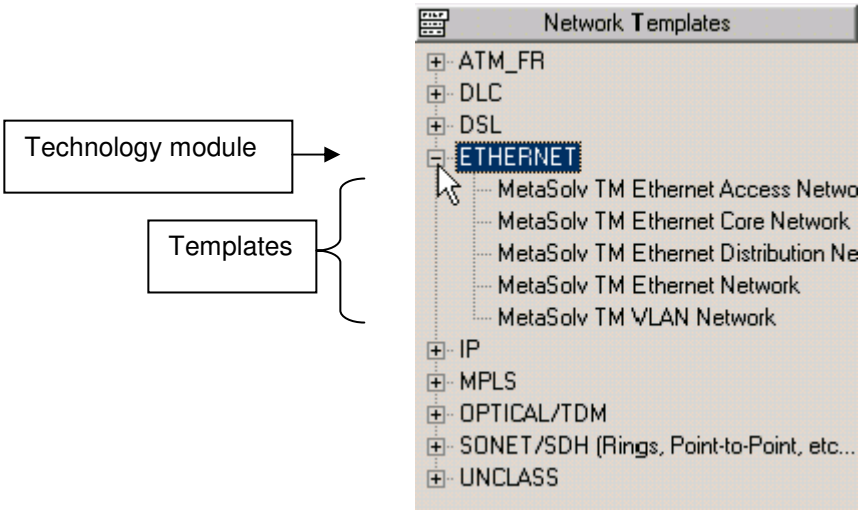
Tip

The view of the panel lists does not reset to a default each time you log on to the application. Instead, the panel lists appear as they were when you last logged out.

NETWORK TEMPLATES PANEL LIST

The Network Templates panel list contains all of the technology modules and corresponding templates that you licensed. When you open this panel list, the technology modules appear. If you don't have a license for a particular technology module, it is not listed.

To view the templates contained in each technology module, click the plus sign ("+") to the left of the technology module name.



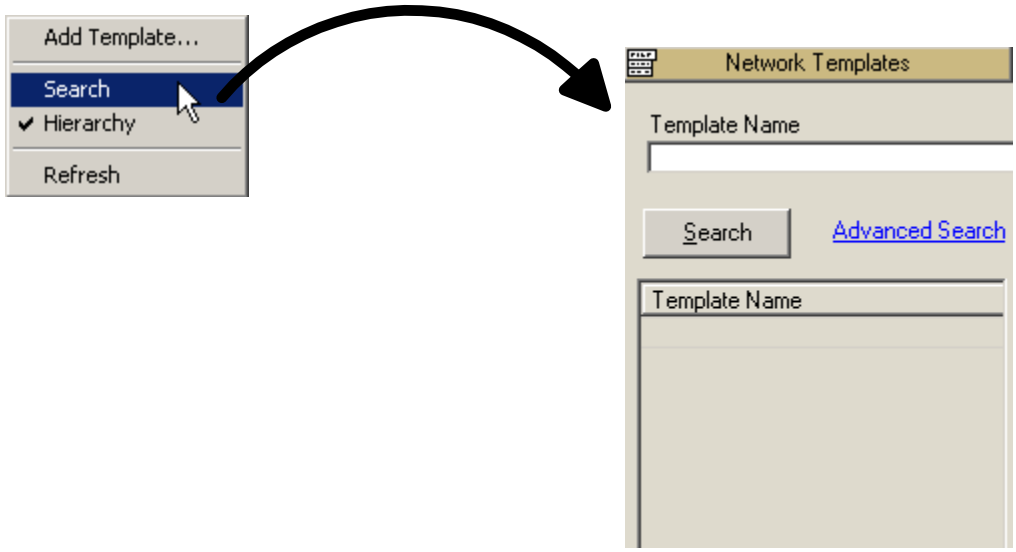
Click the menu icon on the Network Templates panel to view other options for using the panel list.

Add Template... menu option

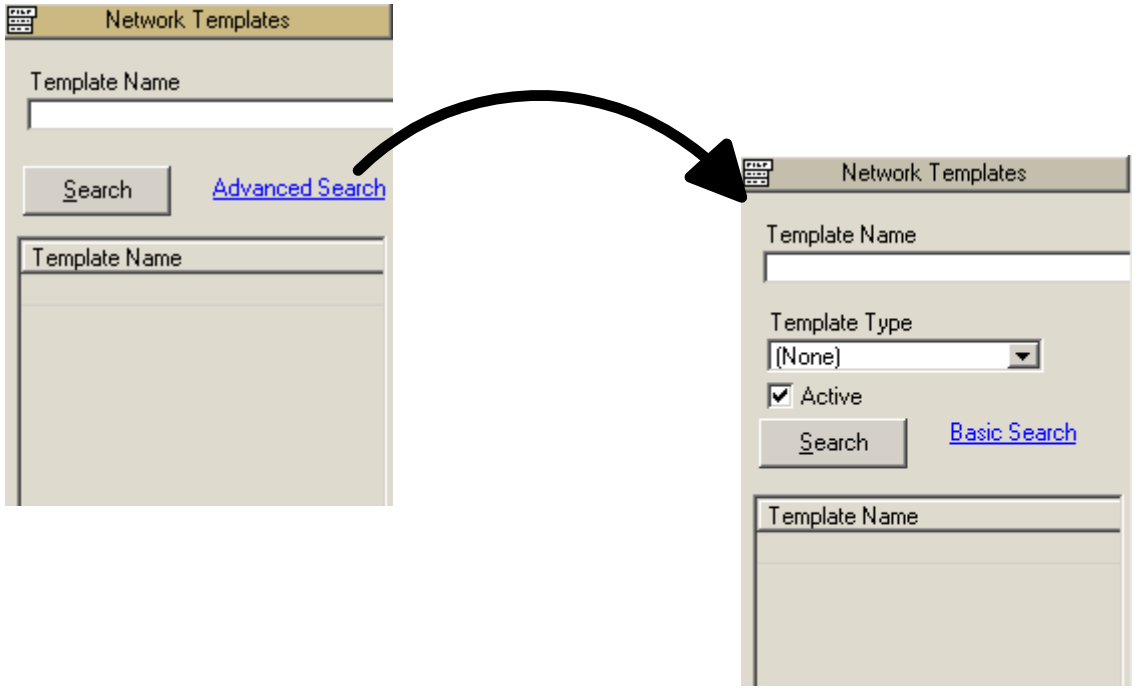
Select **Add Template** to create a new template for a technology module.

Search menu option

Select **Search** to search for a specific template on the Network Templates panel list. When you click Search, the view of the panel list changes. Enter any part of a network template name as search criteria in the **Template Name** field, and click the **Search** button.

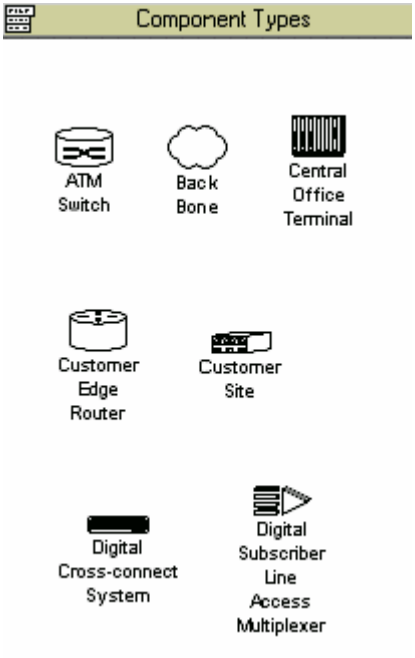


To narrow your search using the template type and status, click the **Advanced Search** link.



COMPONENT TYPES PANEL LIST

The Component Types panel list contains all of the component types contained in a network template. When you open this panel list, the images and labels for each component type appears.



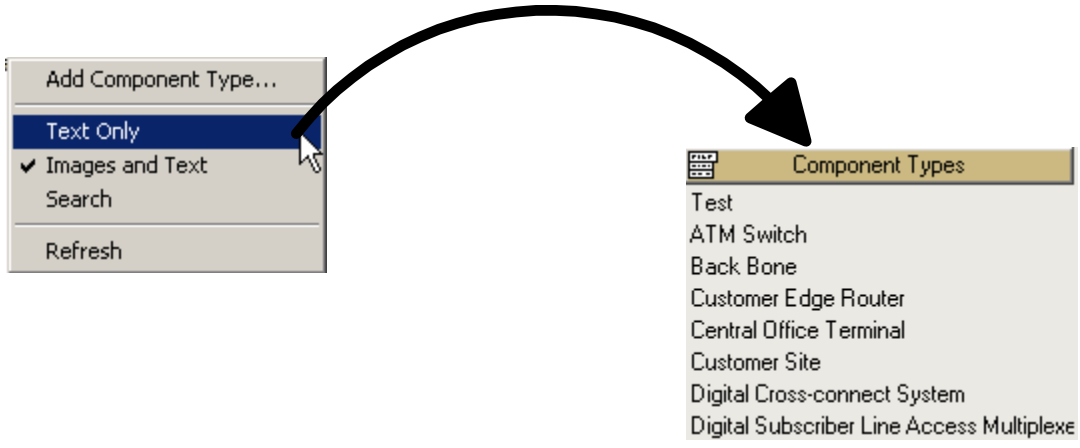
Click the menu icon on the Component Types panel to view other options for using the panel list.

Add Component Type... menu option

Select **Add Component Type** to create a new component type for the template.

Text Only menu option

Select **Text Only** to view component type labels, without the images.



Search menu option

Select **Search** to search for a specific component type on the Component Types panel list. When you click Search, the view of the panel list changes. Enter any part of a component type as search criteria in the **Element Name** field, and click the **Search** button.

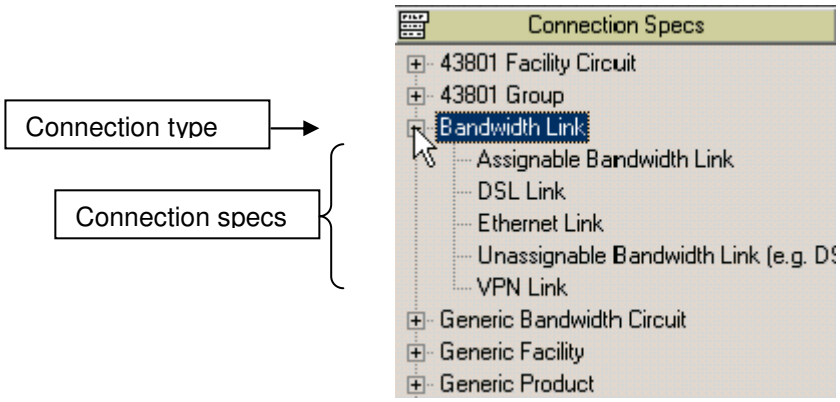
> **Tip**
>
> Don't be confused by the **Element Name** field label. Enter the name of the component type in this field.

To narrow your search using the component type status, click the **Advanced Search** link.

CONNECTION SPECS PANEL LIST

The Connection Specs panel list contains all of the connection types and connection specs contained in a network template. When you open this panel list, the connection types appear.

To view the connection specs for each connection type, click the plus sign ("+") to the left of the connection type.



Click the menu icon on the Connection Specs panel list to view other options for using the panel list.

Add Connection Type... menu option

Select **Add Connection Type** to create a new connection type for the template.

Add Connection Spec... menu option

Select **Add Connection Spec** to create a new connection spec for a connection type.

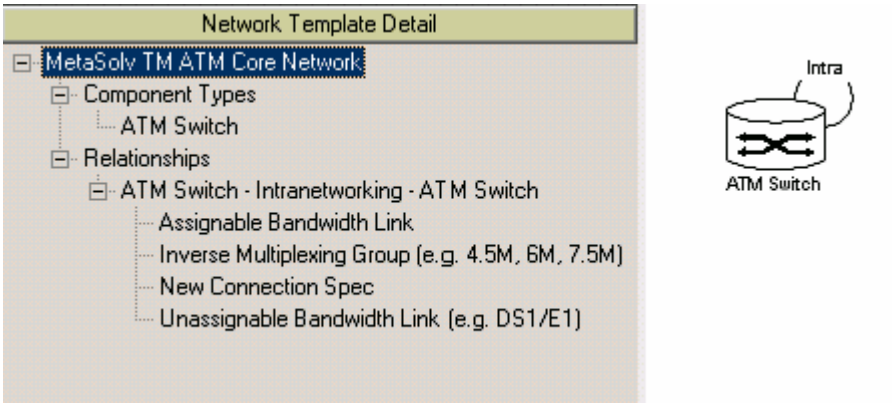
Search menu option

Select **Search** to search for a specific connection spec on the Connection Specs panel list. When you click Search, the view of the panel list changes. Enter any part of a connection spec as search criteria in the **Connection Spec** field, and click the **Search** button.

To narrow your search using the connection type or status, click the **Advanced Search** link.

NETWORK TEMPLATE DETAIL PANEL LIST

The Network Template Detail panel list provides a view of the component types and relationships that comprise an opened template. This panel list is blank until you open a template in the Network Template window. The following figure shows the Network Template Detail panel list as it appears with the MetaSolv TM ATM Core Network template opened. The ATM Switch component type is listed and the connection specs for the relationship also appear.



Buttons and zoom features

Save button


Click this button to save changes made to a template. When you click the button, the application performs validations on the work you've already completed. If you forgot to populate a required field, the system prompts you to provide the missing information.

Tip

MetaSolv recommends that you save often while working with templates. Save each time you add or delete a component type or relationship.

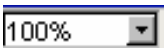
Select Zoom In and Select Zoom Out buttons

 Click the minus or plus button and highlight the area on which you want to zoom in or out by dragging the cursor across the canvas to create a stretch box.

Zoom In and Zoom Out buttons

 Click these buttons to increase or decrease the size of all images on the canvas in preset increments.

Zoom Percentage drop-down



Select a percentage from the drop-down to set the size of all images on the canvas. The default value is 100 percent.

Tip

When you change the size of an image and then save and close the template, the new size of the image is retained when that template is reopened.

Printing graphics

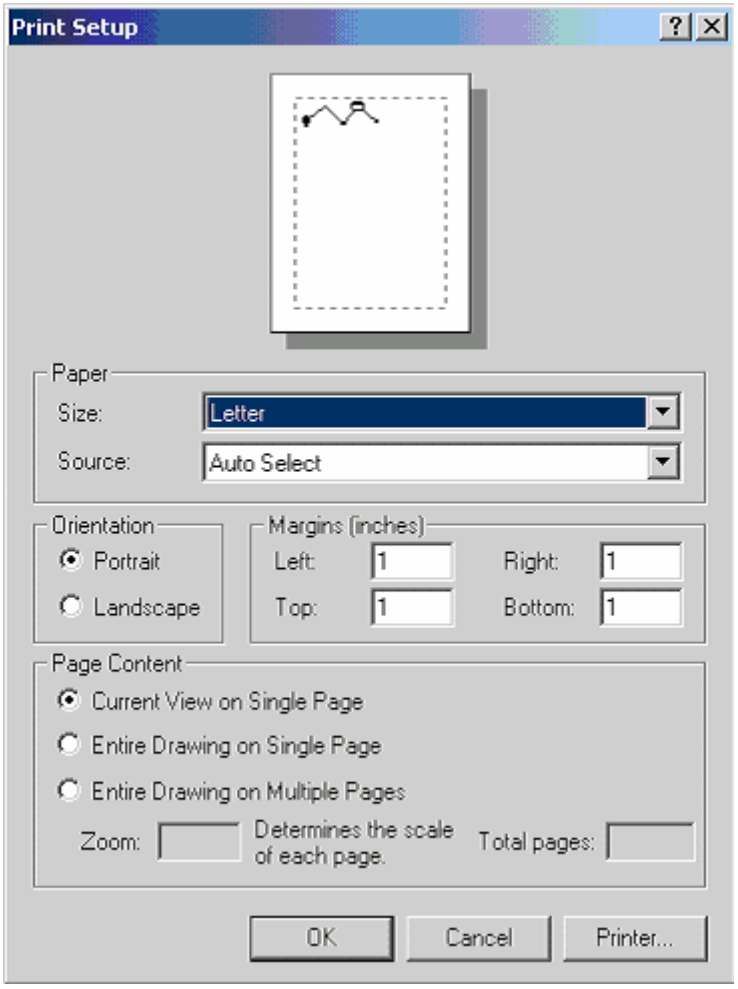
You can print the graphical canvas of any network template.

1. Open the network template you want to print.
2. Right-click the graphical canvas, and select **Print Graphics**.
3. Select the target printer in the **Name** field.
4. Define the print properties if necessary, and click **OK**.

PRINT GRAPHICS SETUP

Before printing, you can check your setup so the graphics print correctly.

1. Open the network template you want to print.
2. Right-click the graphical canvas, and select **Print Graphics Setup…**.
3. Define the print graphics setup as desired, and click **OK**.

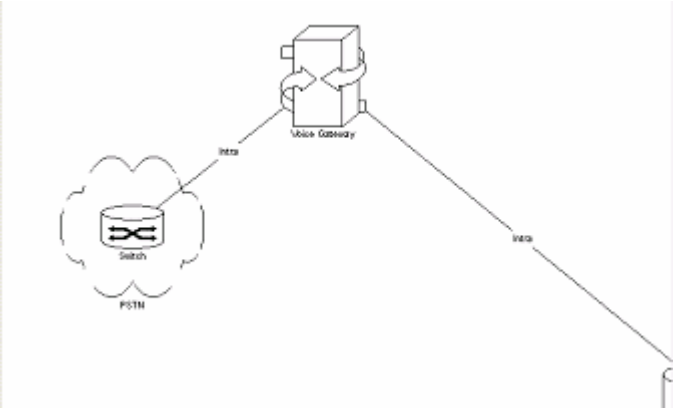

Print Setup
Paper
Size:
Letter
Source:
Auto Select
Orientation
Portrait
Landscape
Margins (inches)
Left:
1
Right:
1
Top:
1
Bottom:
1
Page Content
Current View on Single Page
Entire Drawing on Single Page
Entire Drawing on Multiple Pages
Zoom:
Determines the scale of each page.
Total pages:
OK
Cancel
Printer...

Exporting graphics

You can also export graphics from a network template to your workstation. The graphics can be exported in either Windows Enhanced Metafile (*.emf) or Windows Bitmap (*.bmp) format.

EXPORT VISIBLE GRAPHICS

Use this option to export only those network template graphics that are visible on the graphical canvas. For example, the graphical canvas below shows only two of five network component types in a network template. The other three component types don't fit on the window.



The .emf file that is exported using this option will contain the above graphic and won't contain all the graphics in the network template. To export visible graphics, do the following:

1. Open the network template you want to export the graphics from.
2. Right-click the graphical canvas, and select **Export Visible Graphics…**.
3. Select the target location, name the file, and click **Save**.

EXPORT ALL GRAPHICS

Use this option to export all network template graphics, regardless if they are visible on the graphical canvas. In the example above, the graphical canvas only shows two of five network component types, but the .emf file that is exported using this option will include all five component types. To export all graphics, do the following:

1. Open the network template you want to print.
2. Right-click the graphical canvas, and select **Export All Graphics…**.
3. Select the target location, name the file, and click **Save**.

Tip

If you export all graphics and they are not visible on the graphical canvas, you will have to manipulate the file before you can print it. It is easier to make all graphics visible on the graphical canvas, and then use the **Export Visible Graphics…** option.

Closing templates

There are two ways to close a network template. One method is to click the  , located at the top right corner of the Network Template window. The second is to right-click the graphical canvas, and select **Close Template**.

If you made any changes to the template since it was opened, the application prompts you to save your work when you close the Network Template window.

Creating a new template

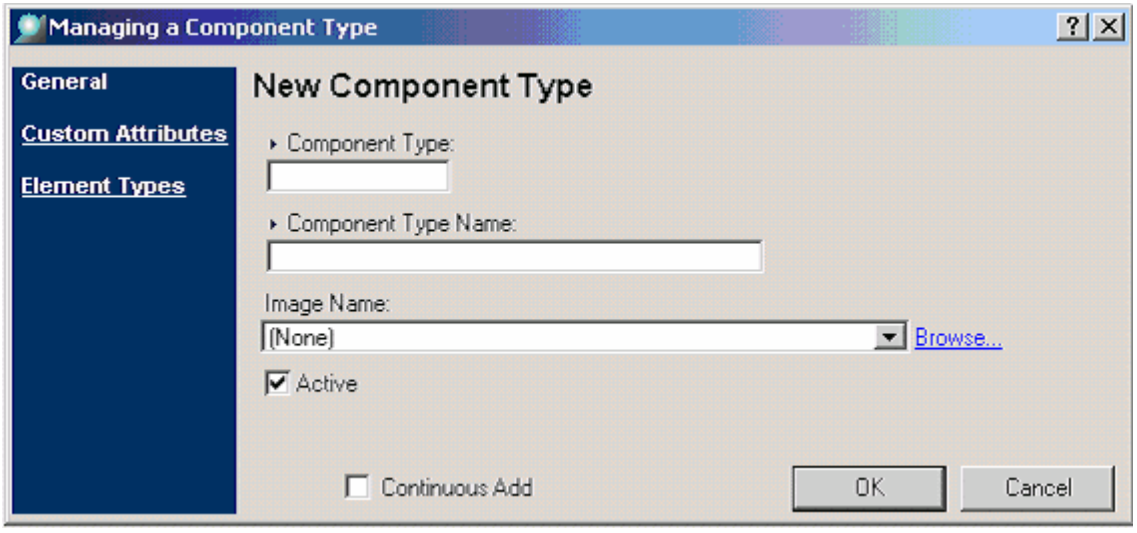
When you create a new template, you should first identify the component types and connection specs that will make up your template. If you need to create new component types or connection specs, do that prior to starting the creation of your template.

If you are using component types and connection specs already defined in the application, you can skip ahead to the *Create a new template* section of this chapter.

Creating new component types

If you need component types that do not exist in the application, perform the following steps:

1. Select the Inventory Management group on the navigation bar, and click **Inventory Management Setup**.
2. Under Network/Equipment, click the **Network Templates** link.
3. Select the **Component Types** panel list, and click the menu  icon.
4. Select **Add Component Type…** from the menu list.
5. Complete the General view of the Managing a Component Type window.



REQUIRED FIELDS—GENERAL VIEW

Component Type: A user-defined abbreviation for the component type. This abbreviation must be unique and is limited to 10 alphanumeric characters. This abbreviation appears in other areas of the application, and should be easily recognizable by other users, for example, ATM_SW for ATM Switch and CE_RTR for Customer Edge Router.

Warning

When you click **OK,** you exit the window. You cannot change the **Component Type** field when you reopen the window. Instead, you must delete the component type and create a new one with the correct entry in this field.

Component Type Name: A user-defined name for the component type. The name must be unique and is limited to 41 alphanumeric characters. This name appears in the Component Types panel list.

OTHER FIELDS—GENERAL VIEW

Image Name: You can select one of the pre-loaded images from the drop-down list or use one of your own images. Any image you want to use must be in .emf format. For instructions on how to attach your image, refer to the steps at the end of this chapter.

Active: Indicates that this component type can be added to any template and then used to build network systems, be placed on an order, and provisioned against.

Tip

If this checkbox is not checked on the Managing a Component Type window, the component type can still be added to a network template. However, the component type will not be active in the template and cannot be used to build a network system. To activate the component in the network system, you must first activate the component type in the Component Types panel list. Then, you must activate the component type in the network template.

6. Click the **Custom Attributes** link.

   This view lists the custom attributes that are attached to the component type. If you are creating a new component type, this view is blank until you use MetaSolv Solution Utilities to attach custom attributes. After you attach custom attributes to the component type, they are visible when you re-open the component type.

   Tip

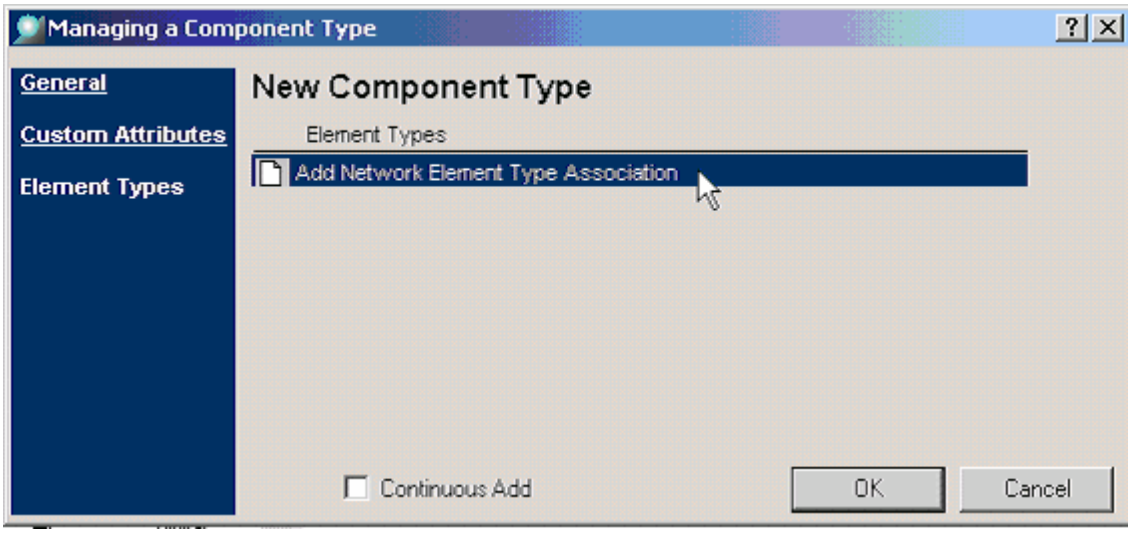
   When associating custom attributes in MetaSolv Solution Utilities, the building block term used is "Element" instead of "Component."

7. Click the **Element Types** link.

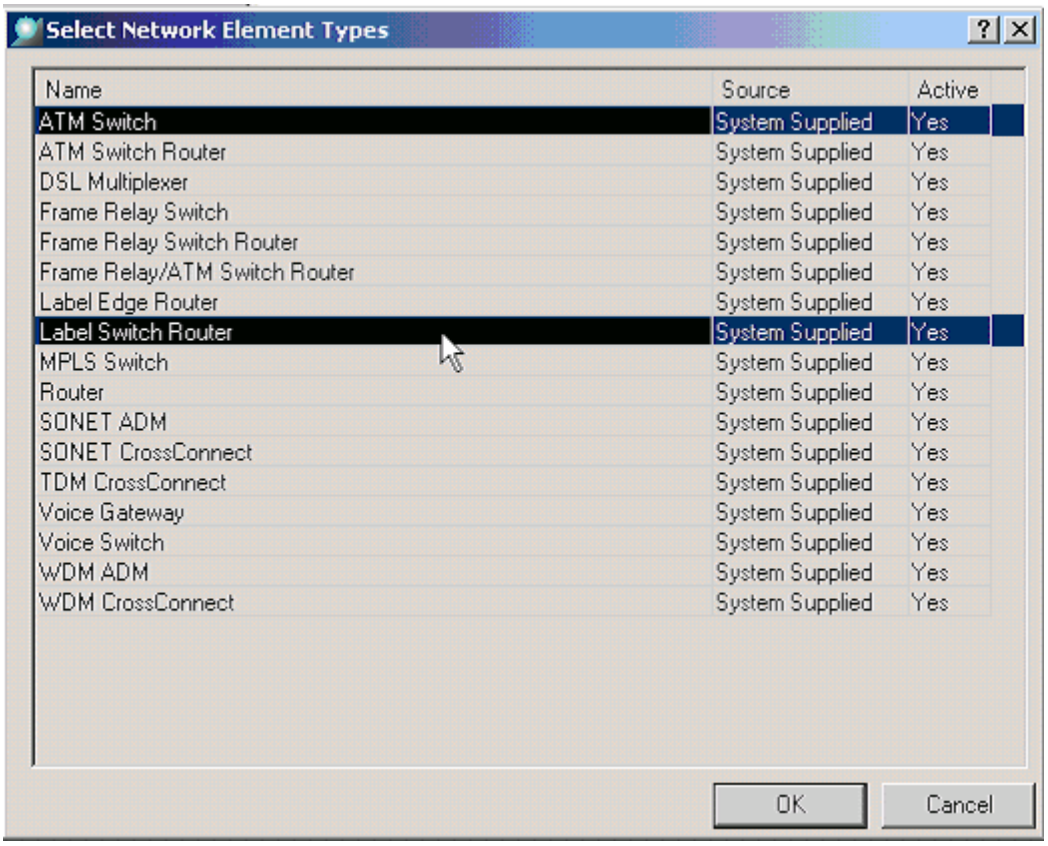
   Network elements are logical groupings of equipment resources that work together as a single logical unit in the network. They can be passive groups of equipment such as repeaters, or active groups of equipment such as digital cross-connects. MetaSolv Solution categorizes network elements into types based on the technology the equipment supports and the role the equipment takes. For example, an IP Router has a technology type of IP, and plays the equipment role of a router.

   To create network elements in network design using a component, the template component type must be associated with a network element type. When you associate a template component type with a network element type, you are indicating that the component type should be a network element when used in network design. Associating a network element type is not a requirement in MetaSolv Solution.

8. Double-click **Add Network Element Type Association**.



9. Select the desired network element type(s) on the Select Network Elements Types window.

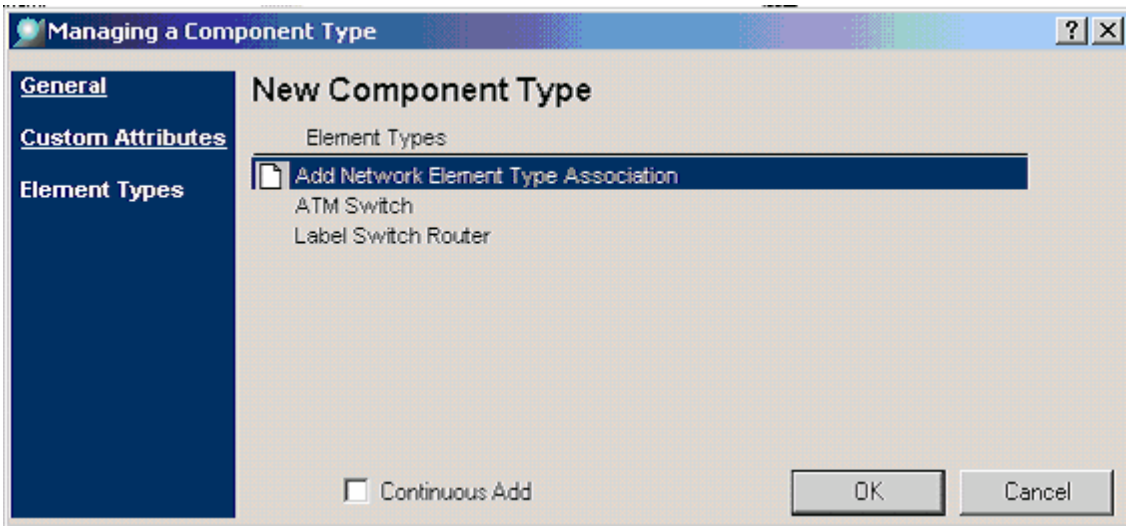


Tip

On the Select Network Element Types window, you can use **Ctrl+left+click** and **Shift+left+click** to select multiple network element types to associate with the component type.

10. Click **OK**.

    The selected network element types are associated with the component type.



11. Click **OK** to close the Managing a Component Type window.

12. On the Component Types panel list, click the menu icon and select **Refresh** from the menu list.

    The new component type appears under the Component Types panel list in alphabetical order by Component Type Name.

Viewing connection types and connection specs

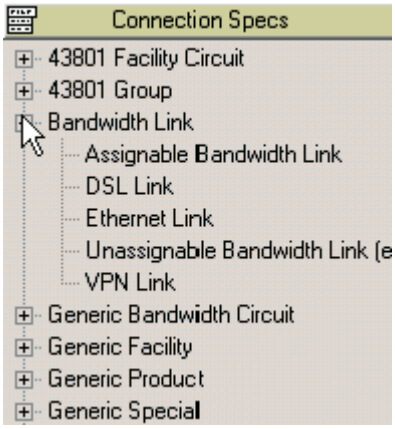
To view the available connection types and specs, perform the following steps:

1. Select the Inventory Management group on the navigation bar, and click **Inventory Management Setup**.

2. Under Network/Equipment, click the **Network Templates** link.

3. Select the Connection Specs panel list.
   A list of connection types appears.

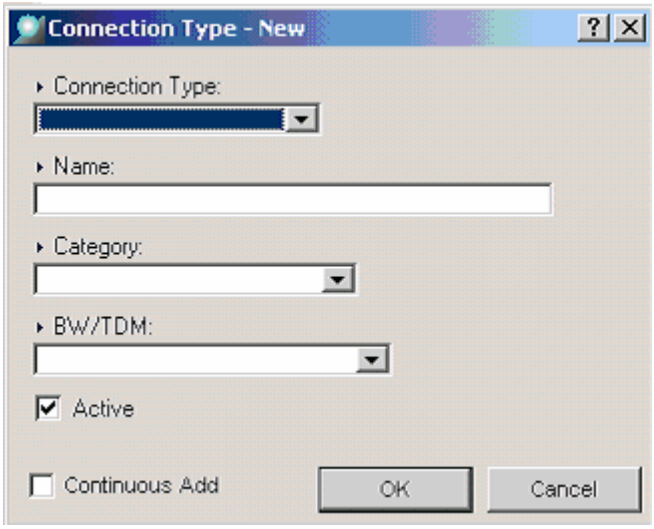
4. Expand a connection type to view the connection specs available for use.



Creating a new connection type

If you need connection types that do not exist in the application, perform the following steps:

1. Click the menu  icon on the Connection Specs panel list.
2. Select **Add Connection Type…** from the menu.
3. Complete the Connection Type – New window.



REQUIRED FIELDS

Connection Type: All connections within MetaSolv Solution are designated as one of three pre-loaded types: Physical, Virtual, and Group. The connection type selected will restrict the connection specs that can be associated with it. For example, if Physical is selected, the system will default all new connection specs under that connection type to Physical.

Name: The user-defined name of the connection type that will appear in the Connection Specs panel list. The name must be unique and is limited to 43 alphanumeric characters.

Category: MetaSolv uses this field to further classify connections. Any connection spec added to this connection type will default to the same category selected here. The category field selected here determines how you classify and search for a connection created in network and connection design. For more information on how to create a new category and where that new category appears in the application, see the *Creating a valid value for the Category field* section at the end of this chapter.

BW/TDM: Selecting Bandwidth allows you to use bandwidth allocation instead of channels for the connection. Selecting Time Division Multiplexing assumes that the connection can have channels.

OTHER FIELDS

Active: Indicates that connection specs under this connection type can be activated and used to build network systems, be placed on an order, and provisioned against.

Tip

If this box is unchecked, all the connection specs listed under this connection type are inactive and cannot be used when designing networks. Activating the connection type does not automatically activate all connection specs under it, however. You must manually activate each connection spec. So, you can have an active connection type and only some of the connection specs under it in an active state.

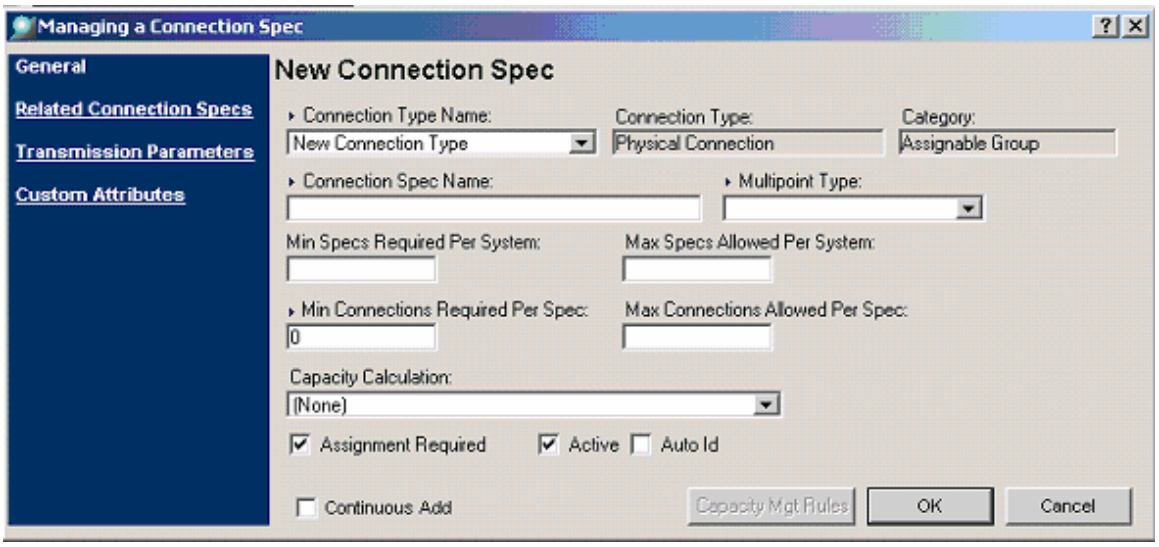
4. Click **OK**.

Creating a new connection spec

If you need connection specs that do not exist in the application, perform the following steps:

1. Select the menu icon on the Connection Spec panel list, and select **Add Connection Spec…**.

2. Complete the General view of the Managing a Connection Spec window.



REQUIRED FIELDS

Connection Type Name: This drop-down contains a list of all connection types that currently exist. The connection spec you are creating will be located under the connection type chosen here.

Connection Spec Name: A user-defined name for the connection spec. The name must be unique and is limited to 42 alphanumeric characters. This name appears under the connection type selected in the Connection Type Name field.

Multipoint Type: At the present time, all connections function as Point-to-Point and this field does not drive anything in the application. MetaSolv plans future functionality for multi-point connections.

Min Connections Required Per Spec: Indicates the minimum number of connections that are required for the connection spec when designing network systems. The application validates this value when you later use this connection spec to build a network system.

For example, you set this value to "2" and later use this connection spec to build a network system. If you only add one connection to your network using this connection spec, you receive an error message informing you to add another connection.

OTHER FIELDS

Min/Max Specs Required Per System: The minimum and maximum number of connection specifications required in a network system.

Capacity Calculation: Used for a Digital Loop Carrier system, this field specifies how to handle the transmission rate for segments of a multi-point connection. You can add the transmission parameter for each segment, or use the transmission parameters of the connection.

Assignment Required: Always check this box if you want to be able to assign a virtual to a physical connection. An example of when you might not want to check it is for an Unassignable Bandwidth Link, since the assignments should be against the group and not the individual connection.

Active: Indicates this connection spec can be used to build network systems, be placed on an order, and provisioned against.

Tip

If this box is not checked, you can still associate the connection spec on the Connection Specs view of the Managing a Template Relationship window. However, it will not be available to add to your network design on the Managing a Connection window.

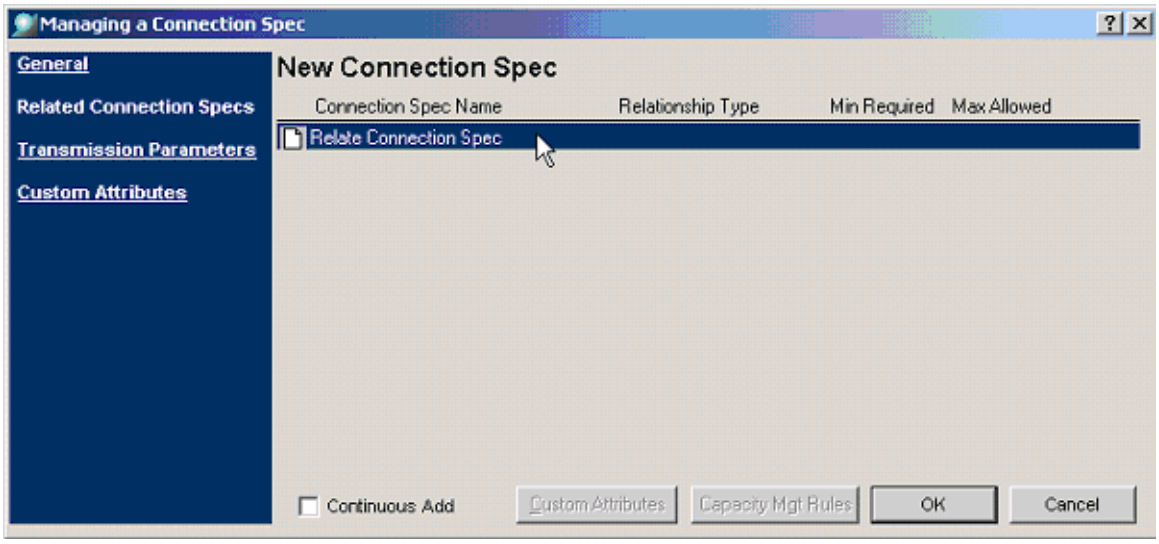
Auto ID: If checked and a connection is placed on an order using this connection spec, the system generates a unique connection ID when the CKTID task is opened. Refer to **Automation in templates**, later in this chapter.

Capacity Mgmt Rules: Used for Digital Loop Carrier systems, capacity management specifies which ports get counted when calculating capacity on the Capacity Management Report. MetaSolv Solution separates the transport provided by a facility from the service provided by equipment ports. The division of transport and service maintains inventory and provides accurate capacity reports.

3. Click the **Related Connection Specs** link.

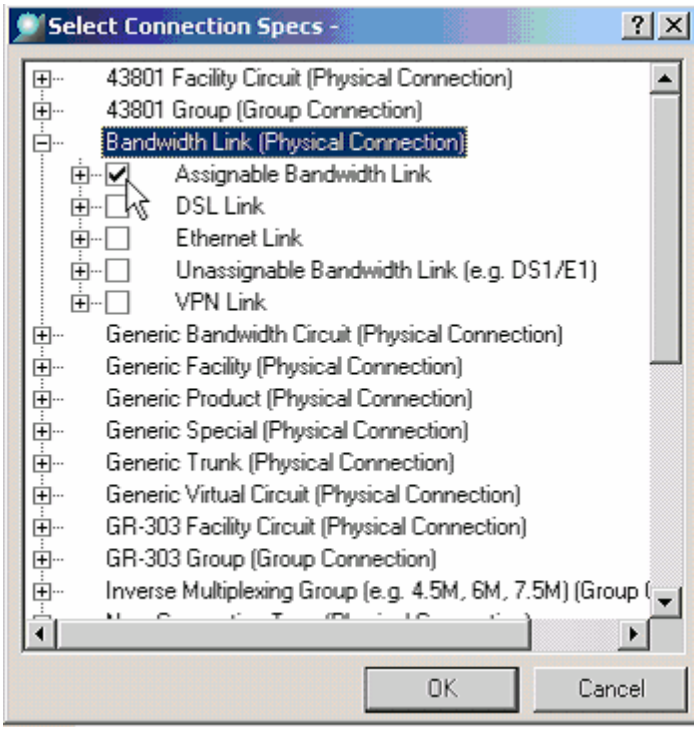
   This view allows you to relate existing connection specs to the new connection spec. You do this to identify what connection specs can be provisioned over the connection spec you are creating.

4. Double-click **Relate Connection Spec**.

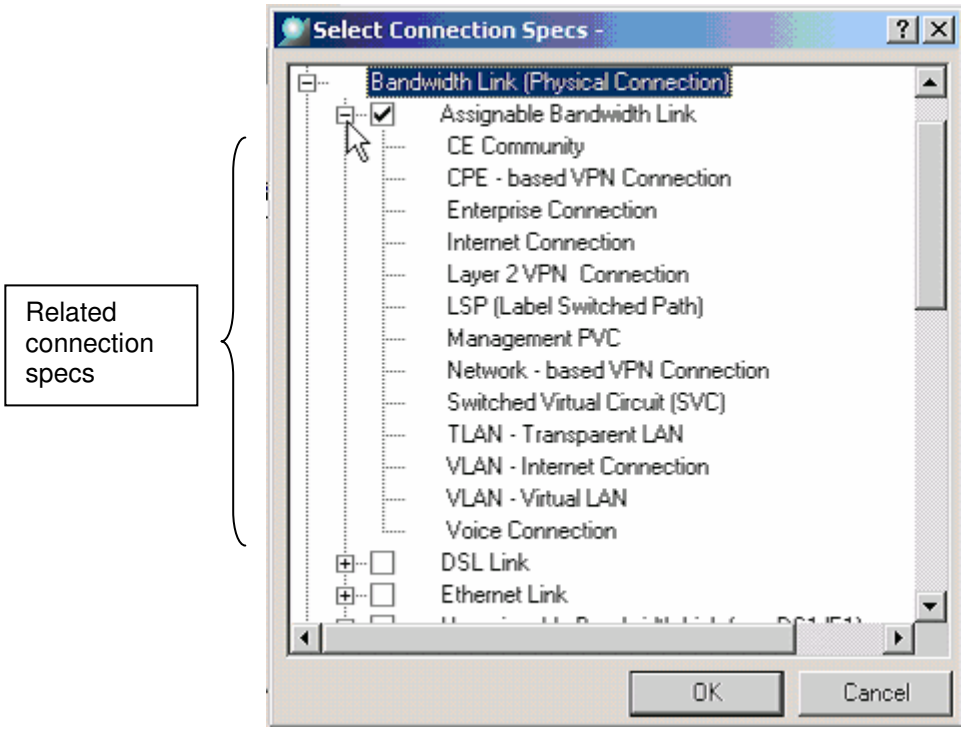


5. Expand the appropriate connection type to locate the connection spec you want to relate.

6. Check the box to the left of the connection spec you want to relate.



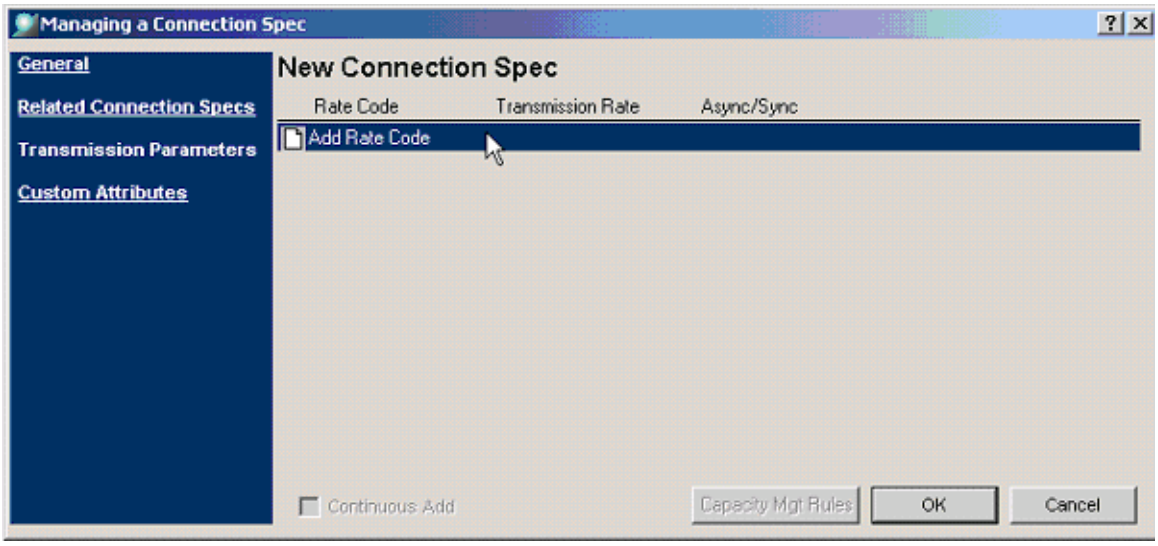
To view the connection specs that are already related to the selected connection spec, expand it. (Note: You can also view and change related specs by opening the connection spec properties, and selecting the Related Connection Specs view.)



7. With this window open, relate any other applicable connection specs.
8. Click **OK**.
9. Make a selection from the **Relation Type** drop-down list.
   - **Assignment**—Indicates you can assign the child connection type to the parent connection.
   - **Aggregation**—Indicates the child connection type is a member of a group whose aggregated bit rate defines the bit rate of the parent group.
   - **Assembly**—Indicates a grouping that does not aggregate bit rates, such as a GR303 interface group.
10. Complete the **Min Required** and **Max Allow** fields as appropriate.
11. Click the **Transmission Parameters** link.

    This view allows you to attach rate codes to a connection spec.

12. Double-click **Add Rate Code**.



13. Select the appropriate transmission rates on the Select Rate Codes window.
    Transmission rate codes are entered through **Inventory Management Setup>Connection Design – Transmission Rate Codes**.

> **Tip**
>
> On the Select Rate Codes window, you can use **Ctrl+left-click** and **Shift+left-click** to select multiple rate codes at one time.

14. Click **OK**.

15. Click the **Custom Attributes** link.

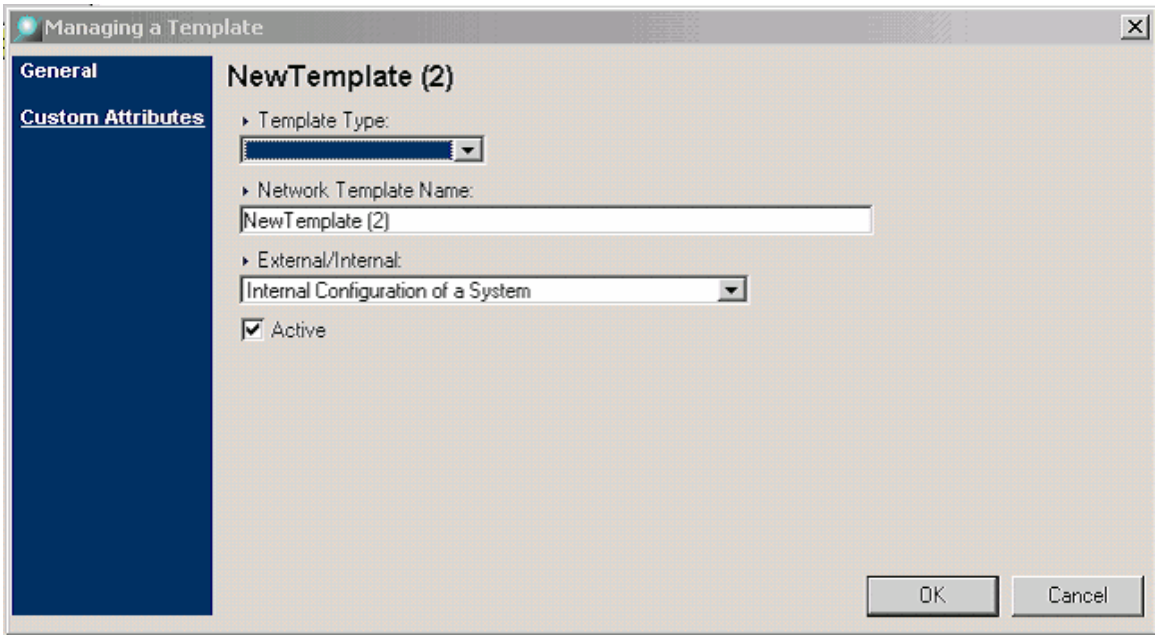
    This view lists the custom attributes that are associated with this connection spec. If you are creating a new connection spec, this view is blank until you use MetaSolv Solution Utilities to attach custom attributes. After you attach custom attributes to this connection spec, you must reopen the connection spec to see the custom attributes.

16. Click **OK**.

Creating a new template

Establishing the basics

1. Select the Inventory Management group on the navigation bar, and click **Inventory Management Setup**.
2. Under Network/Equipment, click the **Network Templates** link.
3. On the Network Templates panel list, click the menu  icon, and select **Add Template…** from the menu list.
4. Right-click the graphical canvas, and select **Properties**.
5. Complete the General view of the Managing a Template window.



REQUIRED FIELDS

Template Type: This drop-down list contains all of the technology modules. The template you are creating will be grouped under the technology module that you select.

Network Template Name: The application automatically generates a unique name for the template. The number that appears in the parentheses indicates the number of templates that have been added in this database. To change the name of the template, type a new name in the Network Template Name field. The name is limited to 50 alphanumeric characters.

External/Internal: Select *Internal Configuration of a System* if you plan to use this template to create provider (backbone) networks. Select *External Configuration of a System* if you plan to use this template to create customer (ordered) networks.

Note: If you will use the template for customer networks and it is not marked as *External*, you will not be able to associate it with product specifications when creating the product catalog.

OTHER FIELDS

Active: Select this checkbox to indicate that this template can be used for designing a network system.

Tip

MetaSolv recommends that you do not select the Active checkbox until you have completed creating your template. This prevents others from using the template before it is finished.

6. Click the **Custom Attributes** link.

   This view lists the custom attributes associated with this template. If you are creating a new template, this view is blank until you use MetaSolv Solution Utilities to associate custom attributes. After you attach custom attributes to the template, you must reopen the template to see the custom attributes.

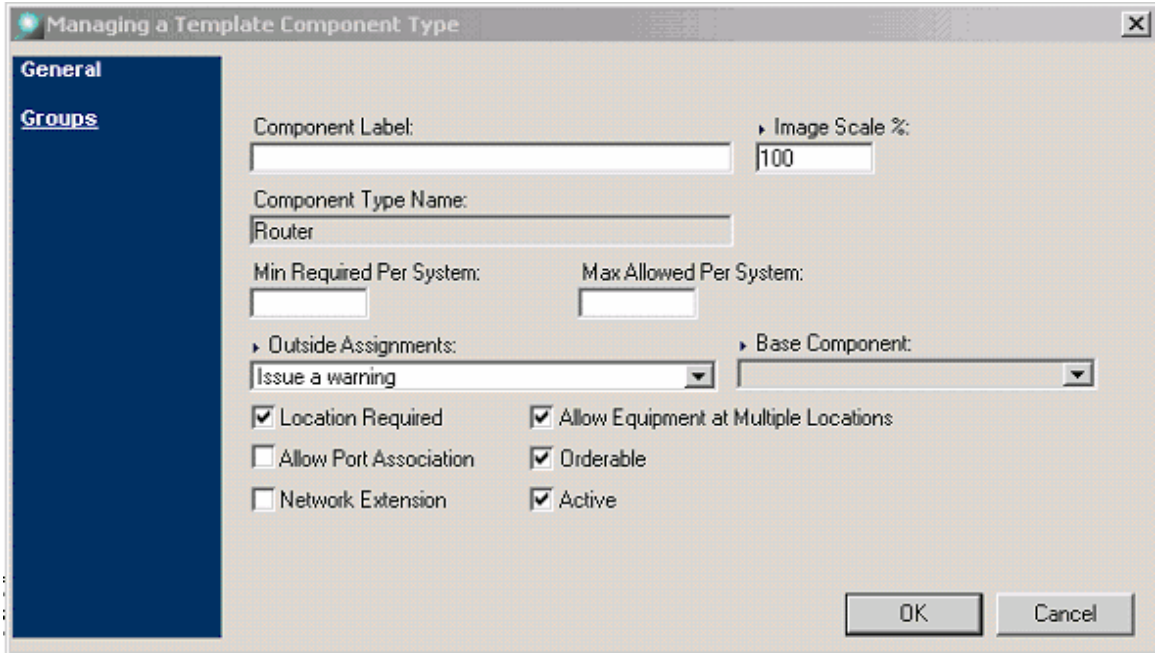
7. Click **Save**.

At this point, you have named your new template, designated its associated technology module and whether it will be used for internal or external configuration, as well as whether it is available to be used to design network systems.

The top of your screen now reads “Network Template – “, followed by the name you designated. On the left side of the window, the Network Template Detail panel list is expanded. Next, you must add component types and relationships to the template.

Adding component types

1. Click the **Components Types** panel list.
2. Select the component type you want to add to your template.
3. Left-click, hold, and drag the component type to the graphical canvas.
4. Right-click the added component type on the graphical canvas, select **Properties**.
5. Complete the General view of the Managing a Template Component Type window.



REQUIRED FIELDS

Image Scale %: Indicates the size of the component's graphical image expressed as a percentage of the canvas default. Although you set the image scale percentage in the network template, you only see its effect in network design.

Outside Assignments: Identifies whether this component type can have connections assigned to it from a foreign origin.

- **Allow**—Assignments can be made from a foreign origin, and the reduction of available capacity due to such assignments cannot be computed by the application.
- **Do not allow**—Assignment cannot be made from a foreign origin.
- **Issue a warning**—Assignments can be made from a foreign origin but a popup message will appear warning the user.

Base Component: This field is enabled specifically for component types used in a DLC network template. This field indicates the component type is the one to which a service item is connected last.

- **Primary Base Component**—The last component type to which service is connected. For example, a Local Digital Switch (LDS) is the last component type to which a connection "riding" a DS0 connects.
- **Secondary Base Component**—For example, the component type is the Digital Cross-Connect System (DCS).
- **Not a Base Component**—Intermediate component types, for example, the Central Office Terminals (COTs) and Remote Digital Terminals (RDTs).

OTHER FIELDS

Component Label: A user-defined label for the component type, limited to 43 alphanumeric characters. The label entered here appears on the graphical canvas underneath the component type graphic, but does not replace the name of the component type in the Component Types panel list.

Tip

The component label does not need to be unique. You can use the same label for other component types added to your template. Because the system only allows you to add one component type to a template, there's no way to duplicate. The component type and label can also be used in multiple templates without being unique in each one.

Component Type Name: The name of the component type as it appears in the Component Type panel list. This field is disabled and cannot be changed on the Managing a Template Component Type window.

Min Required Per System: Indicates the minimum number of similar system components that must exist in a network system when this component type is used. For example, in the ATM Core Network template, this field is set to "1" for the ATM Switch component type. This means that each time this template is used to build a network system, you must add at least one ATM Switch.

Max Allowed Per System: Indicates the maximum number of similar system components that can exist in a network system when this component type is used. For example, if in the DSL Network template this field is set to "4" for the DSLAM component type, you can only add four DSLAMs to the DSL network system. The application performs validations based on the value entered in this field.

Location Required: Indicates the Network Location field will be required on the Managing an Element window when you use this component type in a network system. This field is checked, by default.

Allow Port Association: Indicates you can associate port addresses with a specified component.

Network Extension: Indicates this component type is an extension of the provider's network. For example, in the DSL Network template, the Customer Site component type is a network extension. Selecting this checkbox allows you to design orderable connections out to this component. When you use this template to design a network system, this component type is not visible. Design of each of the ordered network extensions is done during connection design.

Allow Equipment at Multiple Locations: Indicates you can associate equipment from multiple locations with a component. This field is checked, by default.

Orderable: Indicates this component can be placed on an order for a customer. This field is checked, by default.

Active: Indicates this component type can be used to design a network system. This field is checked, by default.

6. Click **OK**.

7. Repeat steps 1 – 6 to add other component types to the template.

Adding relationships and associating connection specs

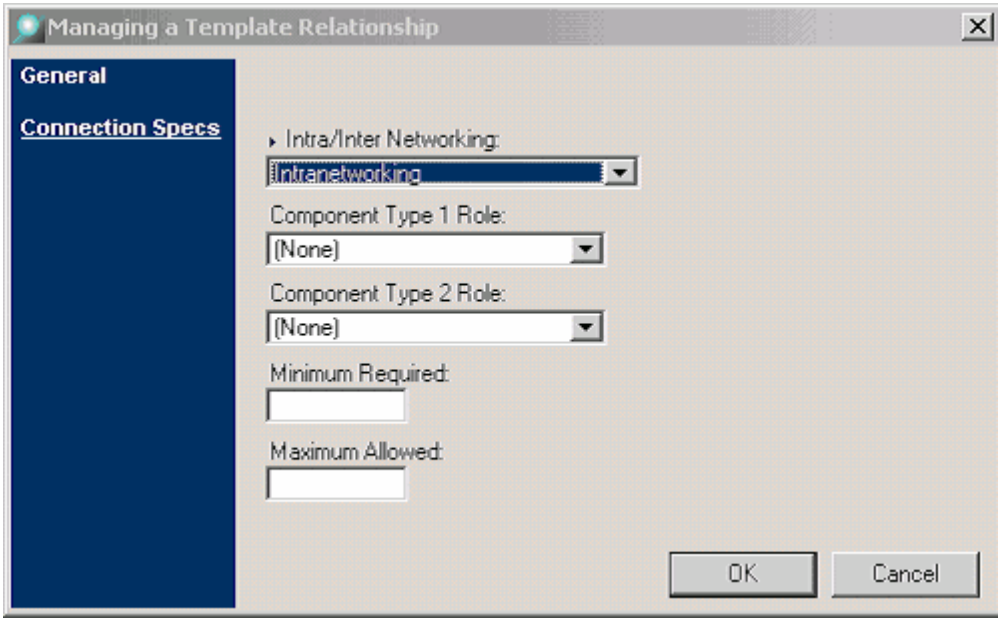
After you add component types that represent the possible components that make up your network, you establish the relationships that can exist between those components in your network. After you establish relationships between component types, you associate connection specs with those relationships.

1. On the graphical canvas, right-click one of the two component types you want to create a relationship between, and select **Connect**.

2. Drag the cursor to the other component type you want to create the relationship between, and left-click.

3. Right-click the relationship just added between the component types, and select **Properties**.

4. Complete the General view of the Managing a Template Relationship window.



REQUIRED FIELDS

Intra/Inter Networking: Identifies whether the relationship between two component types is within the same network or between two different networks.

- **Intranetworking**—The relationship exists between component types in the same network.
- **Internetworking**—The relationship exists between component types in two different networks.

OTHER FIELDS

<Component Type 1> Role: This field name is automatically populated with the first Component Label you selected on the graphical canvas to create the relationship between.

<Component Type 2> Role: This field name is automatically populated with the second Component Label you selected on the graphical canvas to create the relationship between.

- **Authentication**—Select only if the component type is a server with this role in a management network.
- **LSR**—Supports Label Switch Routers. Select only if the component type is an ATM switch enhanced to support MPLS.
- **None**—Select if the component type does not serve one of the other two roles specified.

Minimum Required: The minimum number of secondary components you can connect to each primary component.

Maximum Allowed: The maximum number of secondary components you can connect to each primary component. For example, in the relationship between a local digital switch (LDS) and a central office terminal (COT) in the DLC Network template, this field is populated with "1" because only one COT should be connected to a single LDS.

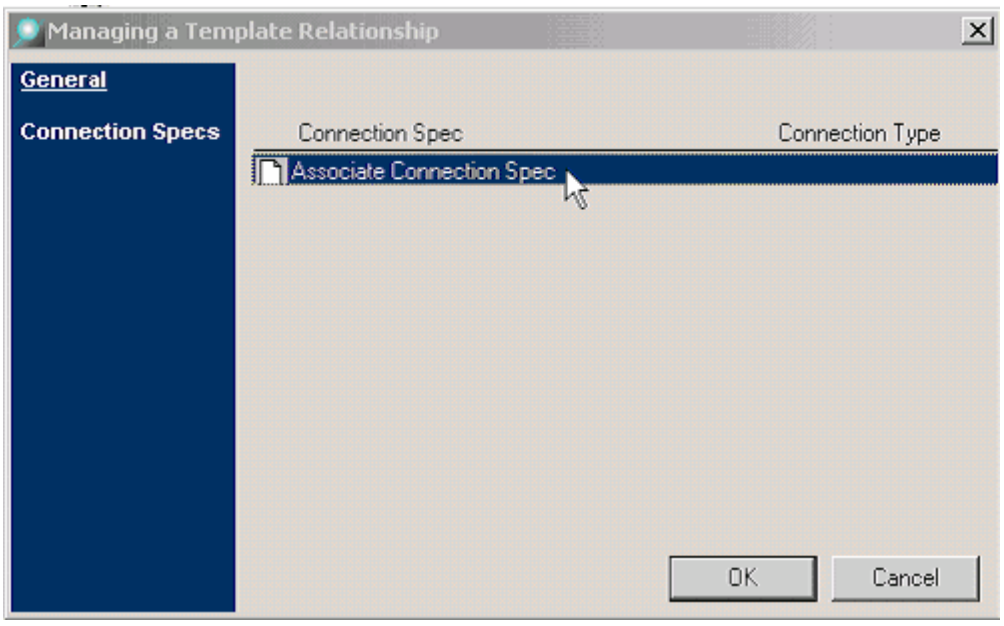
Tip

As mentioned earlier, the template can restrict the number of components that can be added to a network system. This is done with the **Min Required Per System** and **Max Required Per System** fields on the Managing a Template Component Type window. If you set these fields to restrict the number of components to one, you don't need to enter anything in the **Minimum Required** and **Maximum Allowed** fields on the Managing a Template Relationship window.

5. Click the **Connection Specs** link.

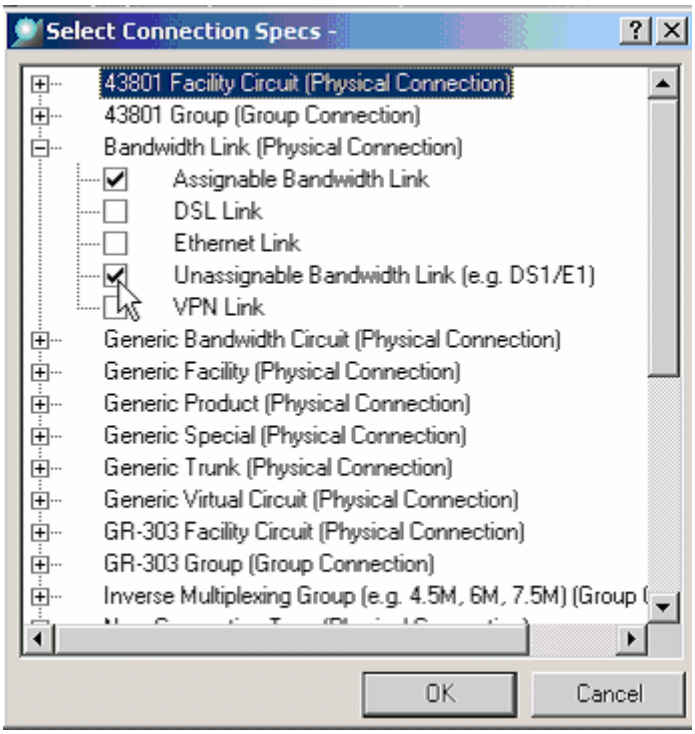
   This view allows you associate connection specs with the relationship you created between two component types. When you later build a network system using this template, the only types of connections that will be available to be built between these two components are the ones associated here.

6. Double-click **Associate Connection Spec**.



7. Expand the appropriate connection type to locate the connection spec you want to associate.

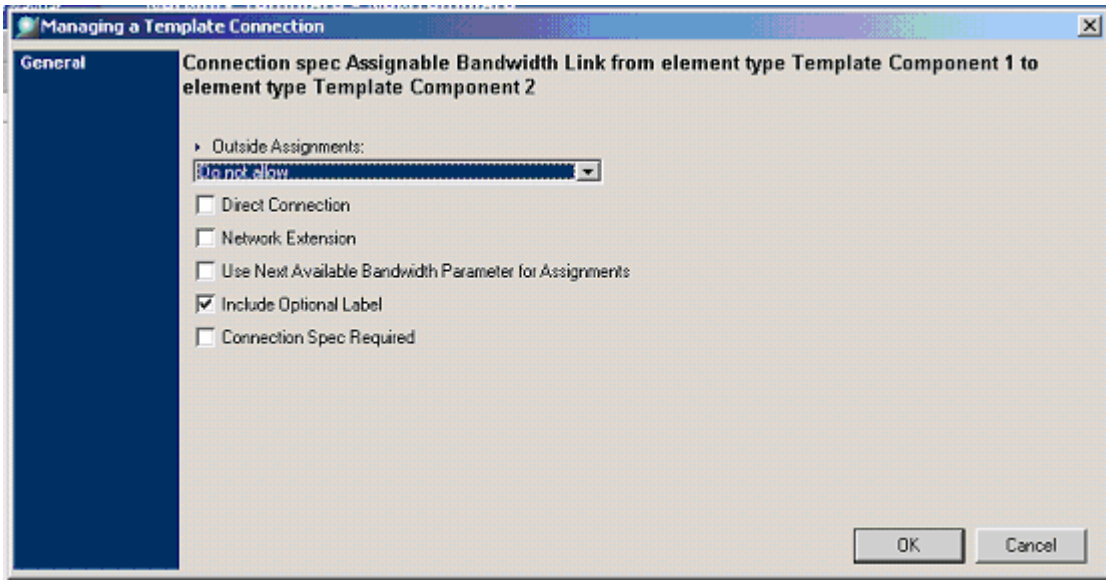
8. Select the box to the left of the appropriate connection spec.



9. With the window open, associate other applicable connection specs.

10. Click **OK**.
    The associated connection specs appear below the Associate Connection Spec title.

11. Double-click a connection spec and complete the appropriate information on the General view of the Managing a Template Connection window.



REQUIRED FIELD

Outside Assignments: Identifies how the application responds when an assignment is made outside of itself.

- **Do not allow**—The application will not let you make an outside assignment.
- **Allow**—The application will allow you make an outside assignment at any time.
- **Issue a warning**—The application will notify you that an outside assignment is being made, but will allow you to proceed.

OTHER FIELDS

Direct Connection: Indicates if this is a connection between two components only. Do not check this field if the connection passes through multiple elements. This field is informational only and does not have functionality associated with it.

Network Extension: Indicates the connection is an extension of the provider network and not part of a backbone network. If checked, design will occur during the connection design process instead of the network system design process. This checkbox is not available for the Optical technology module.

Use Next Available Bandwidth Parameter for Assignments: Indicates the next available parameter (for example, DLCI, VPI/VCI) is the default in the provisioning dialogue. You can then use this value or overwrite it during the provisioning process. If left unchecked, there is no default value. You must enter the value. This checkbox is not available for the Optical technology module.

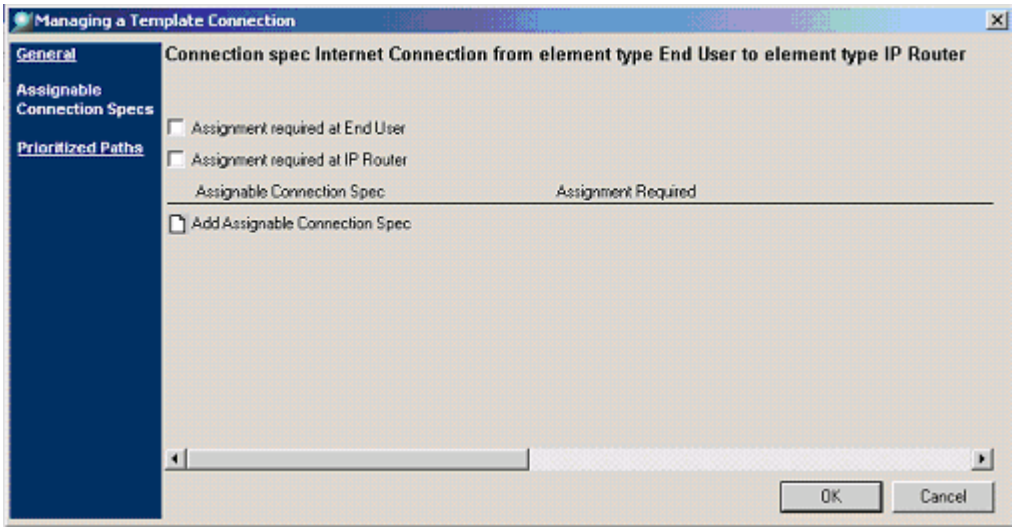
Include Optional Label: Indicates the use of the connection spec is optional in any network that connects two components as defined by the template. Applies only to optional connections. If unchecked, the application does not create optional connections when the parent network system is created. This allows you to associate connections "as you go."

Connection Spec Required: Indicates the connection spec will be automatically associated with a relationship when the network components are connected during network design. The **Include Optional Label** checkbox is overridden when this checkbox is checked.

12. Click **OK**.

13. Click the **Assignable Connection Specs** link.

This view is only available when you associate a virtual connection spec on the Managing a Template Relationship window.



FIELDS

Assignment required at <Component Type 1>: Checking this checkbox requires the connection designer to make an assignment on the first connected component of the virtual connection.

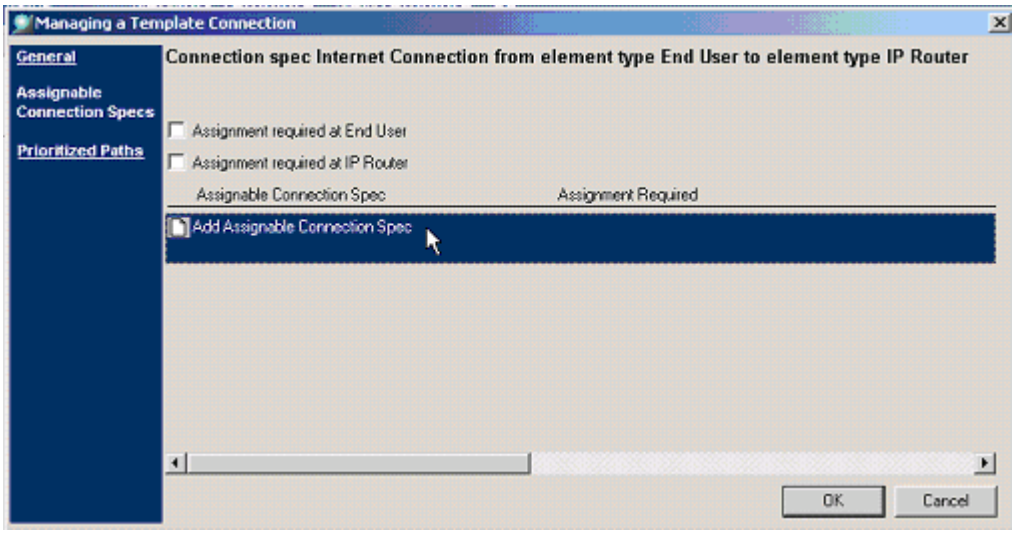
Example: On the Managing a Template Connection window above, you would check the **Assignment required at End User** checkbox if you want to capture the port the customer connects to on the customer premise equipment. Once this port assignment is made, that information is added to the graphical layout record.

Assignment required at <Component Type 2>: Checking this checkbox requires the connection designer to make an assignment on the second connected component of the virtual connection.

Example: On the window above, you would check the **Assignment required at IP Router** if you want to capture the port on the equipment that faces the rest of the provider network. Once this port assignment is made, that information is added to the graphical layout record.

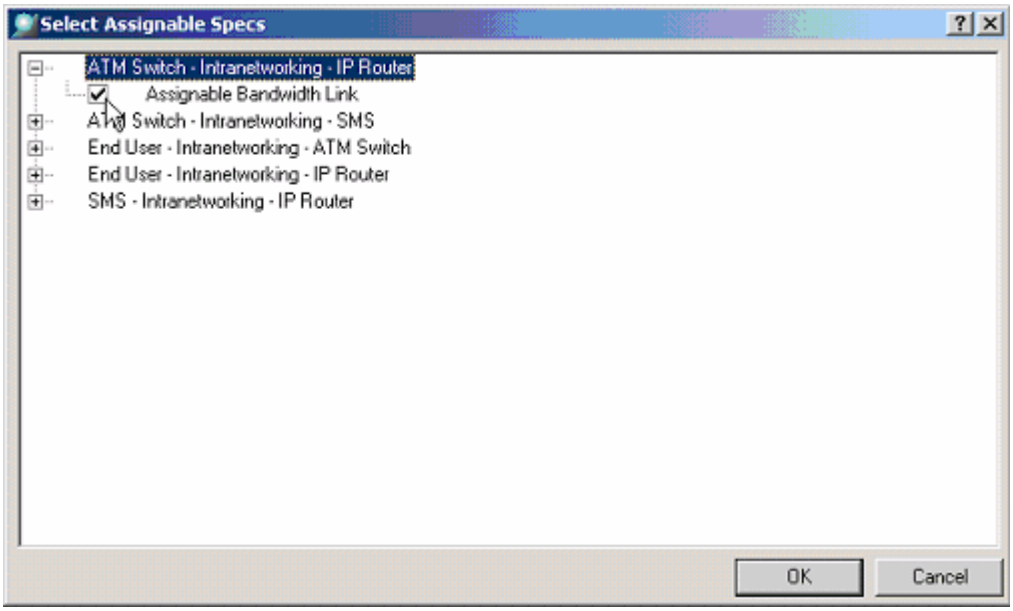
To later design virtual connections, you must identify the assignable connection specs that the virtual can ride between two components. You must provide for every possible path the virtual can take between the components. If you do not add the assignable connection specs, when you go to design this type of virtual connection using this template, you receive an error message stating that no available connections exist.

14. Double-click **Add Assignable Connection Spec**.



15. On the Select Assignable Specs window, expand the template relationships to locate assignable connection specs for the virtual connection.

16. Select the checkbox to the left of the appropriate connection spec.

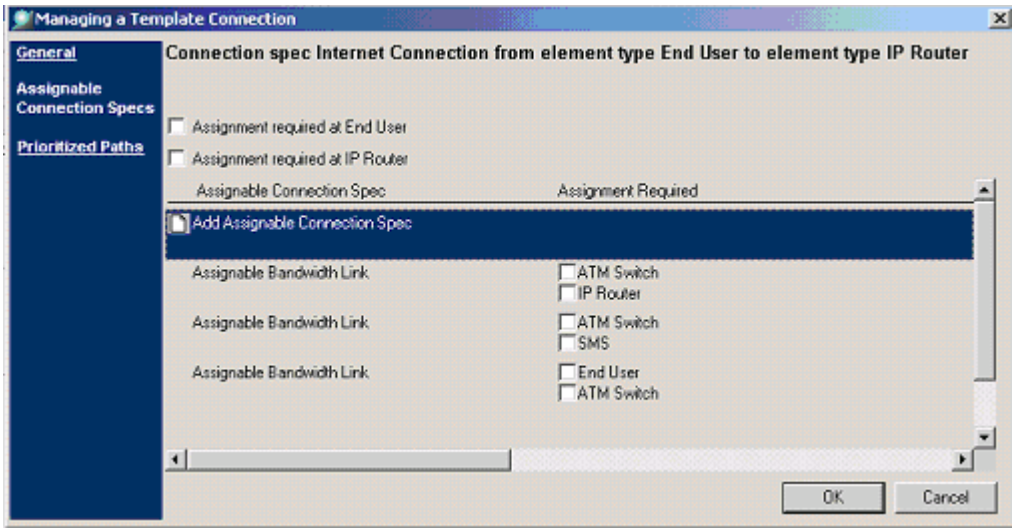


17. With this window open, select other assignable connection specs as applicable.

Tip

The Select Assignable Specs window lists all relationships that exist in the template. Only the physical type connection specs have checkboxes available for you to add. If you do not see a relationship with a connection spec you need to design your virtual connection, check to ensure the relationship and connection spec exist in the template.

18. Click **OK**.



FIELD

Assignment Required: Check any of these checkboxes to require the connection designer to capture the port assignment for the virtual connection as it passes through each piece of equipment.

19. Click **OK**.

20. Click **OK**.

21. Click Save .

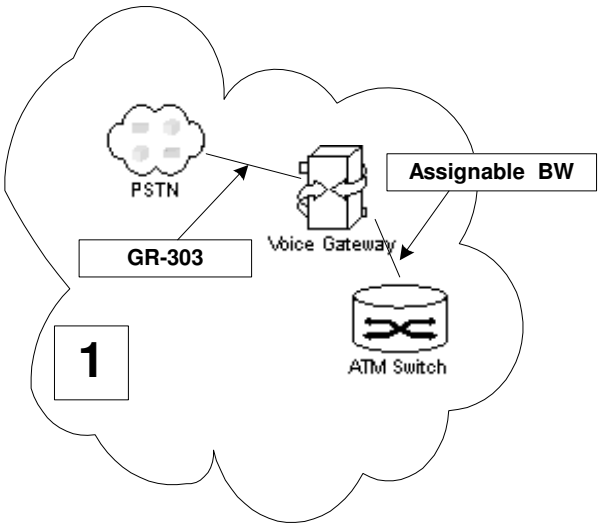
Example scenario

Following is an example of network templates created to support two ATM Access networks, and one larger network containing the two ATM Access networks.

Provider networks built

Following are illustrations of the provider's three networks.

ATM ACCESS NETWORK 1



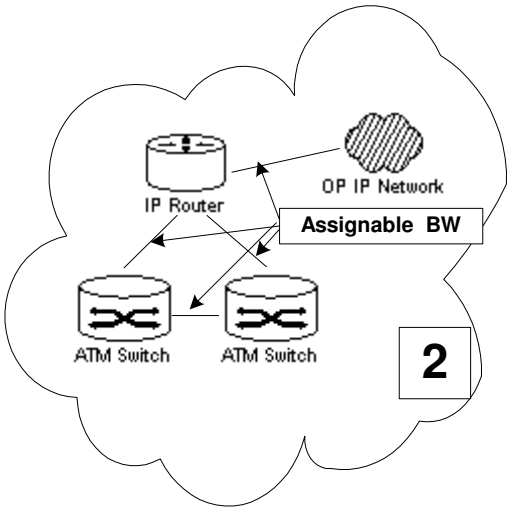
Component types

Network 1 was built using three component types—ATM Switch, Voice Gateway, and Public Switched Telephone Network (PSTN). In this network there is only one instance of each component type.

Connections

Two physical connections exist in this network—an assignable bandwidth connection between the ATM Switch and the Voice Gateway and a GR-303 facility connection between the Voice Gateway and a voice switch in the PSTN.

ATM ACCESS NETWORK 2



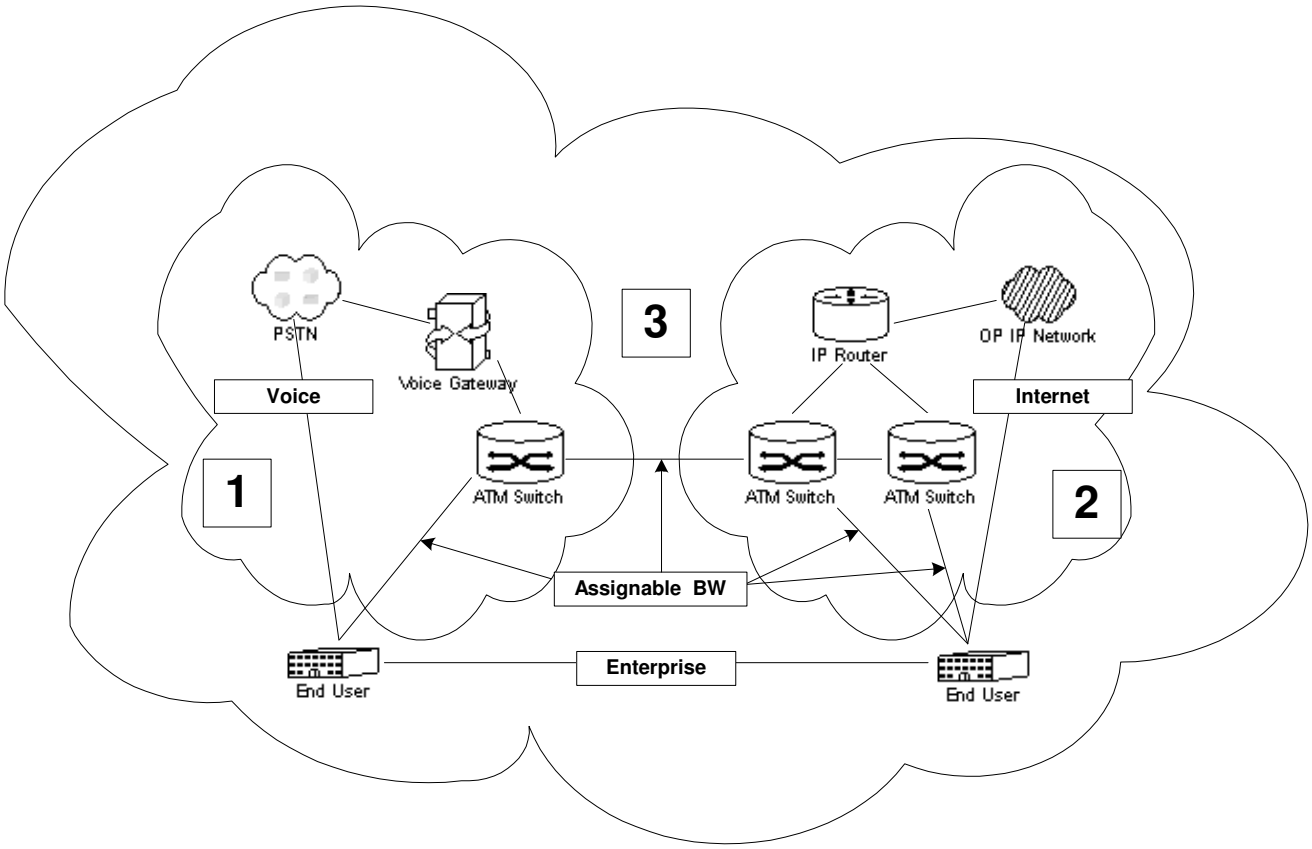
Component types

Network 2 was built using three component types—ATM Switch, IP Router, and the Other Provider (OP) IP Network. In this network, there are two ATM Switches and only one instance of the IP Router and the OP IP Network.

Connections

Four physical connections exist in this network—an assignable bandwidth connection between the two ATM Switches; assignable bandwidth connections between each of the ATM Switches and the IP Router; and an assignable bandwidth connection between the IP Router and the OP IP Network.

NETWORK 3



Component types

Network 3 was built using three component types—embedded ATM Access Network 1, embedded ATM Access network 2, and End User. The End User represents the provider's customers and their access into the provider network for service.

Connections

Seven connections exist in this network, four of which are physical and three virtual:

- An assignable bandwidth connection between the End User and the ATM Switch in Network 1
- An assignable bandwidth connection between the End User and both ATM Switches in Network 2
- An assignable bandwidth connection between the ATM Switch in Network 1 and ATM Switch in Network 2
- A voice connection between the End User and the PSTN in Network 1

- An Internet connection between the End User and the OP IP Network in Network 2
- An enterprise connection between End Users in Network 3

Templates created

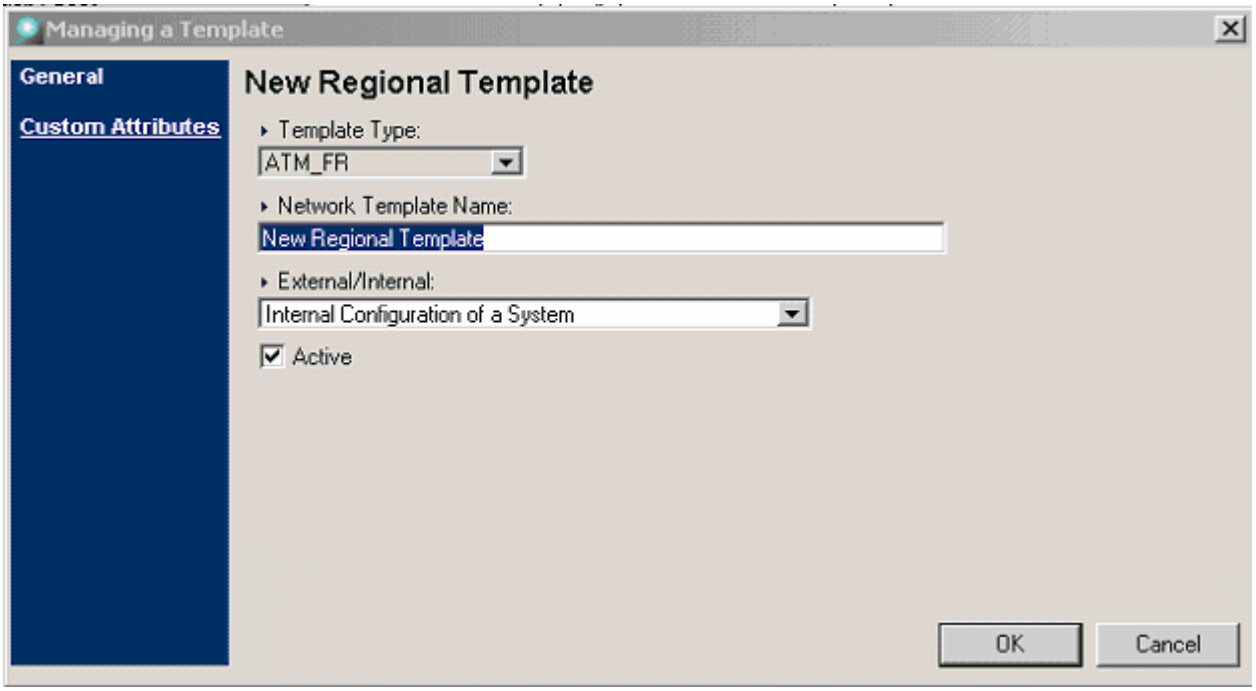
To build networks 1, 2, and 3 in MetaSolv Solution, two templates were created. The first template (New Regional Template) was used to create both ATM access networks. The second template (New Global Template) was used to create Network 3.

NEW REGIONAL TEMPLATE

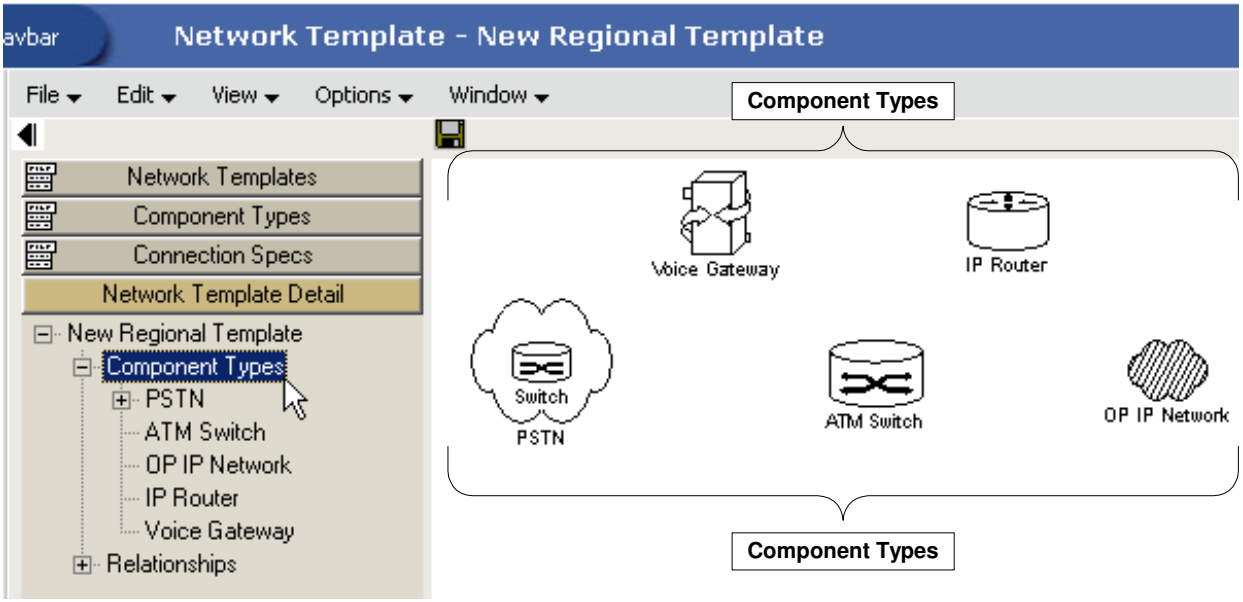
Network 1 and 2 are both ATM access networks, so one template was created to build both. Because one template was used to build two networks, all the component types of both networks must be represented in the template. Remember that when creating templates, you only add one instance of each component type.

The following figures illustrate the information entered for the New Regional Template.

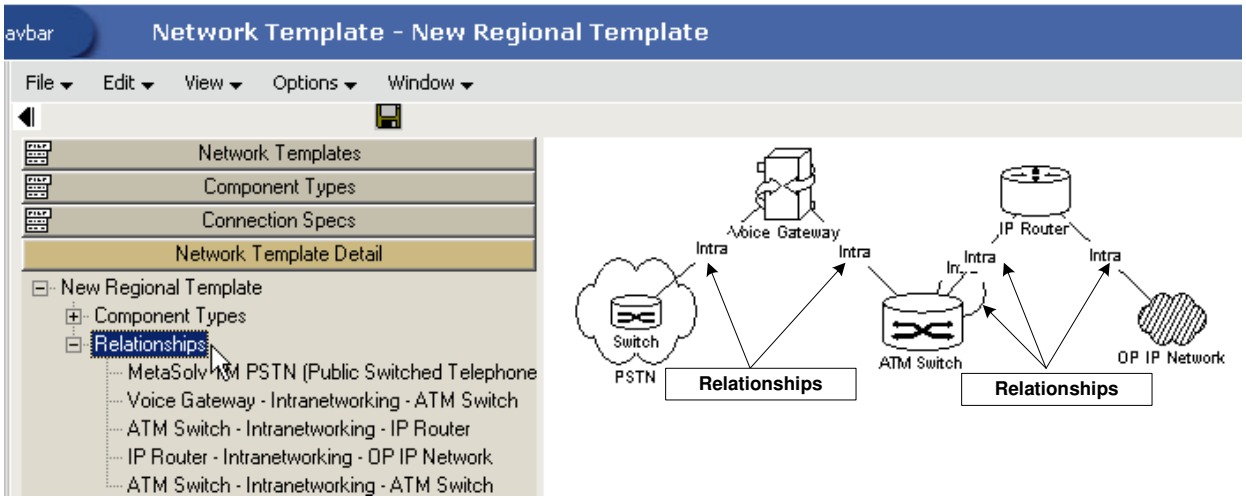
Template Properties



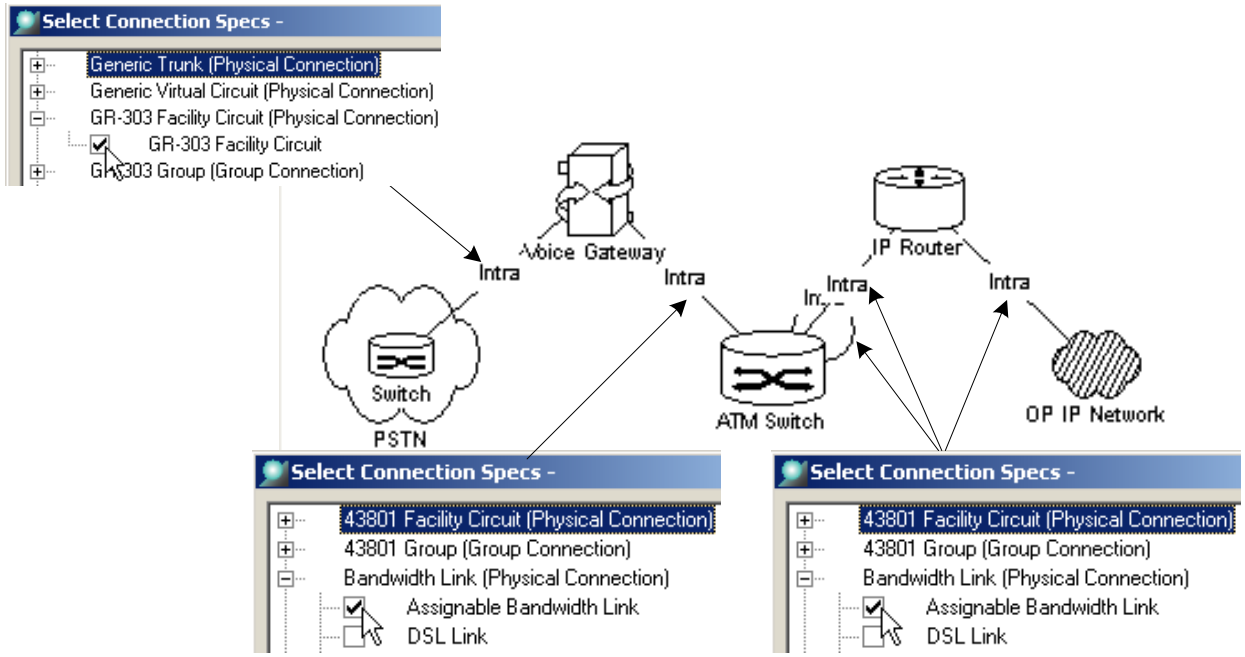
Component types



Relationships



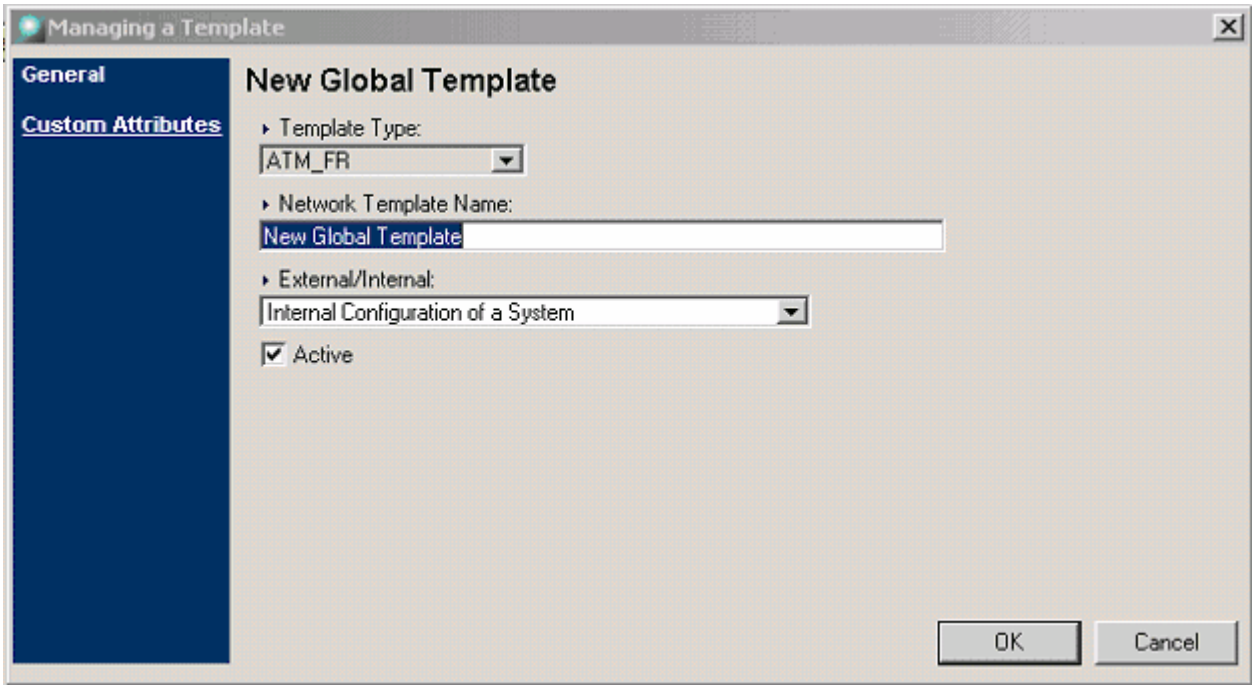
Connection Specs



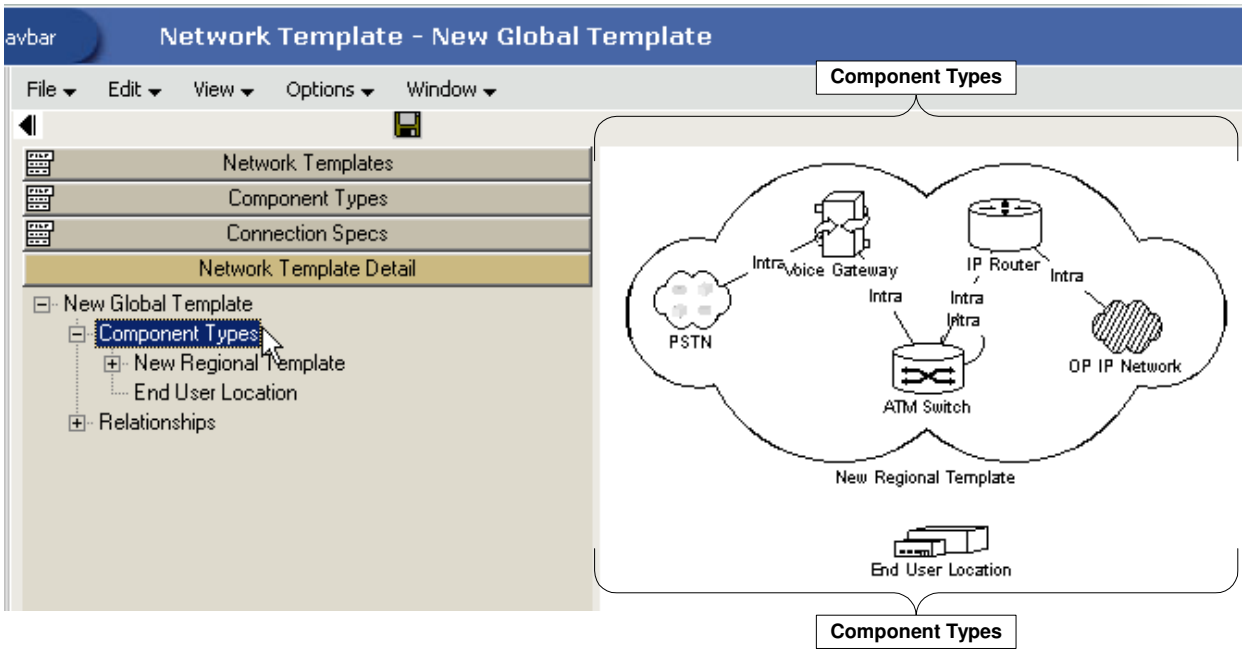
NEW GLOBAL TEMPLATE

This template was used to create Network 3. The following figures illustrate the information entered for the New Global Template.

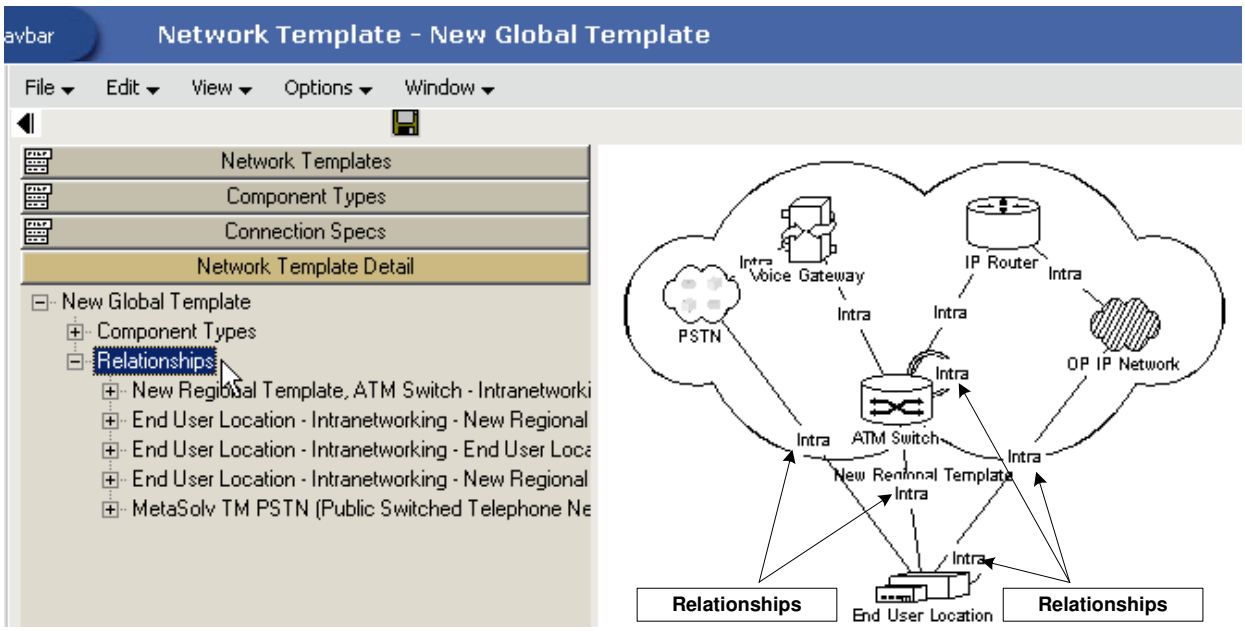
Template Properties



Component types



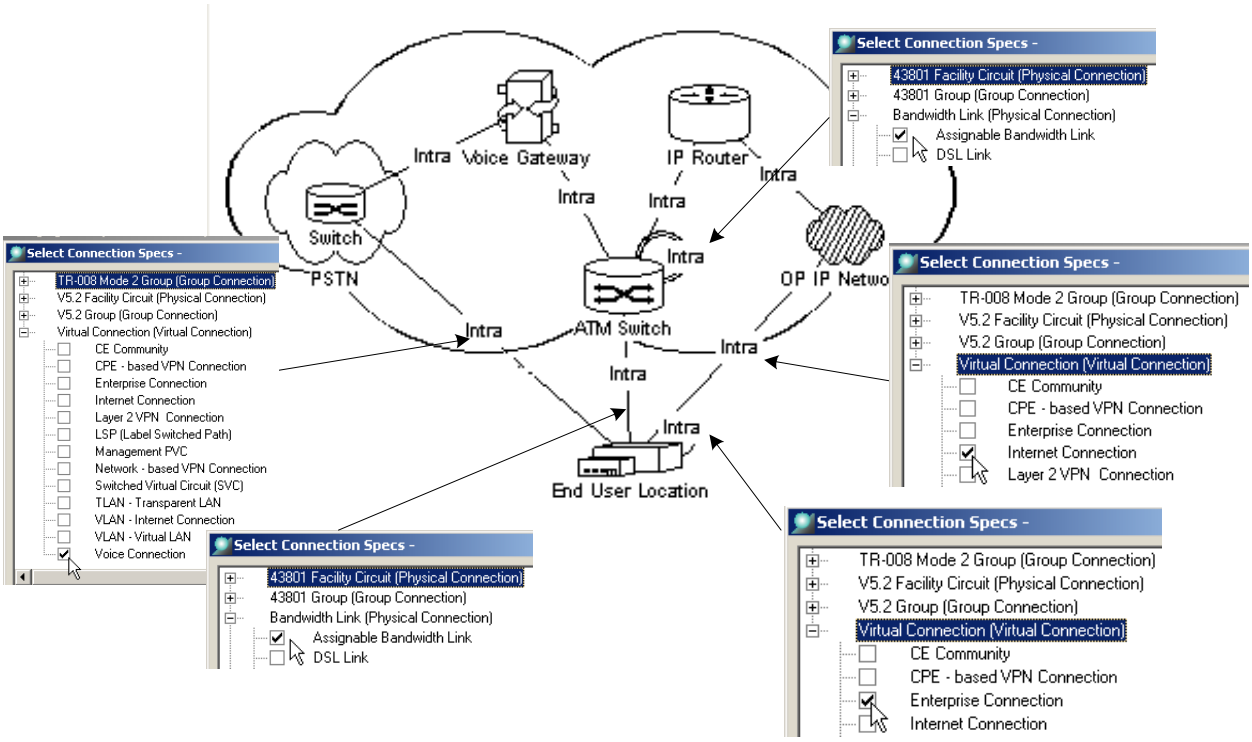
Relationships



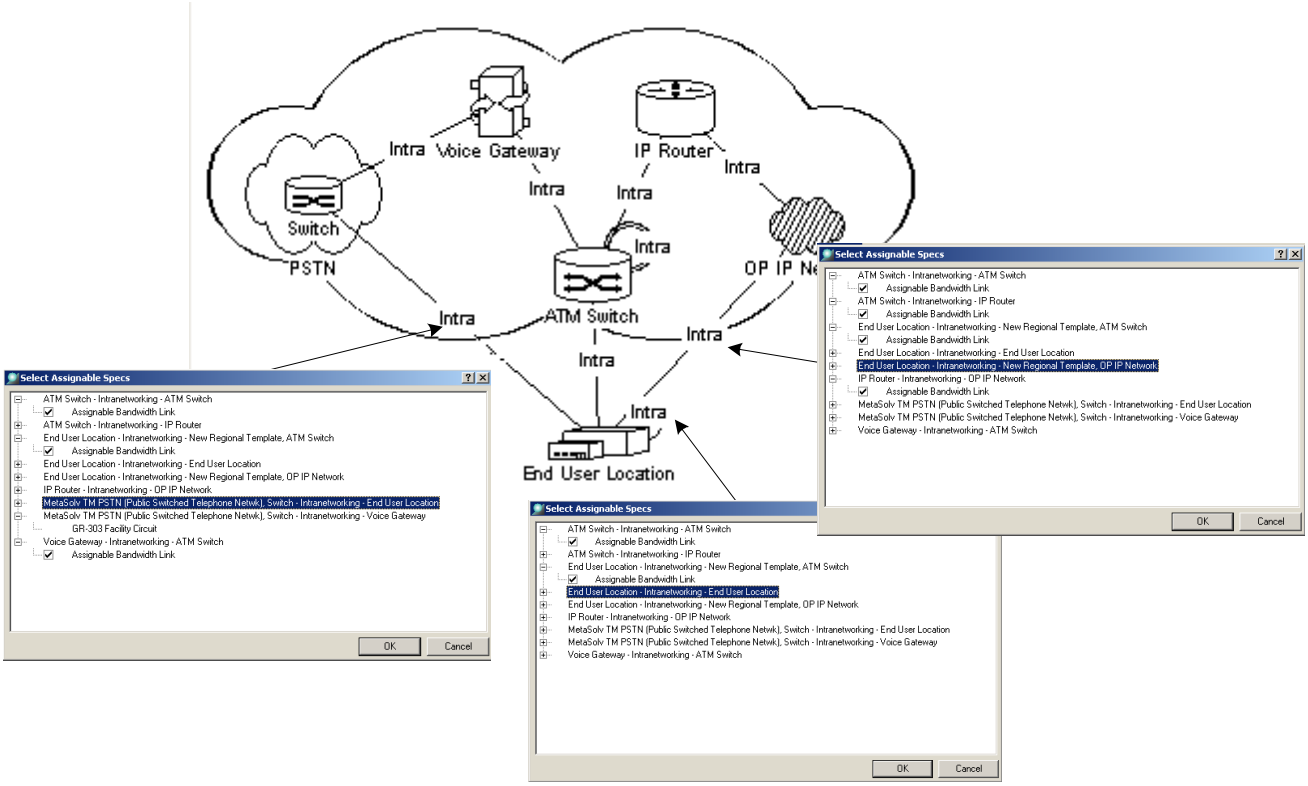
Tip

A relationship was added to the New Global Template between the ATM Switches. This allows for a connection between ATM Switches in different access networks (Networks 1 and 2). Since a relationship already existed in the New Regional Template between ATM Switches in the same network, a double ring represents the relationship on the graphical canvas.

Connection Specs



Assignable connection specs



Tip

Remember that assignable connection specs are only necessary for virtual connections.

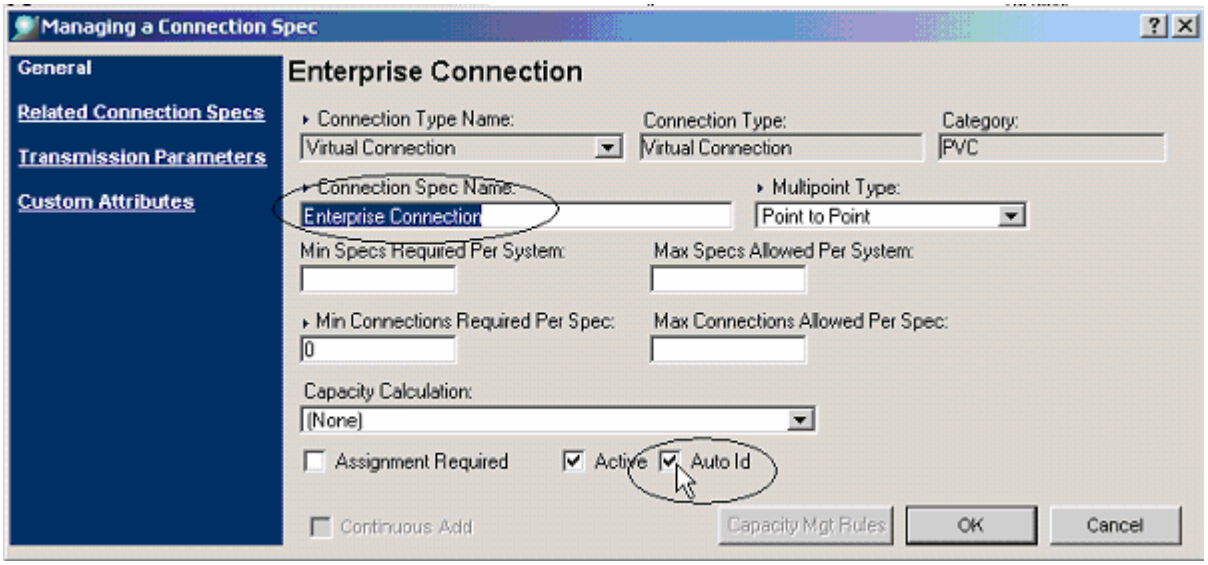
Automation in templates

Auto-identifying connections

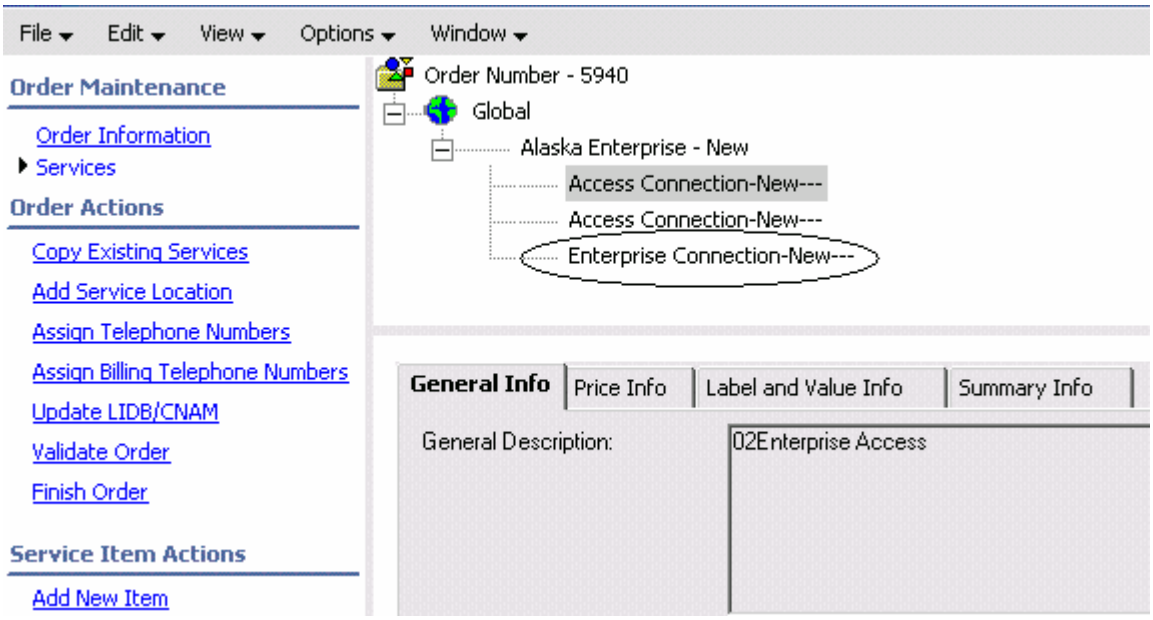
When the **Auto Id** checkbox is selected on the Managing a Connection Spec window, the system generates a unique connection ID for an ordered connection. To assign this connection ID automatically, you must include either the CKTID task or NETDSGN task in your provisioning plan.

USING THE CKTID TASK

1. Select the **Auto Id** checkbox on the General view of the Managing a Connection Spec window.



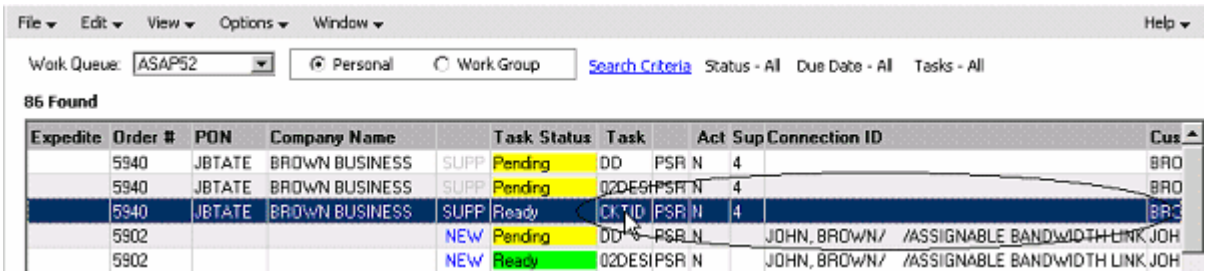
2. Place an order for the connection.



3. Assign a provisioning plan and generate tasks.

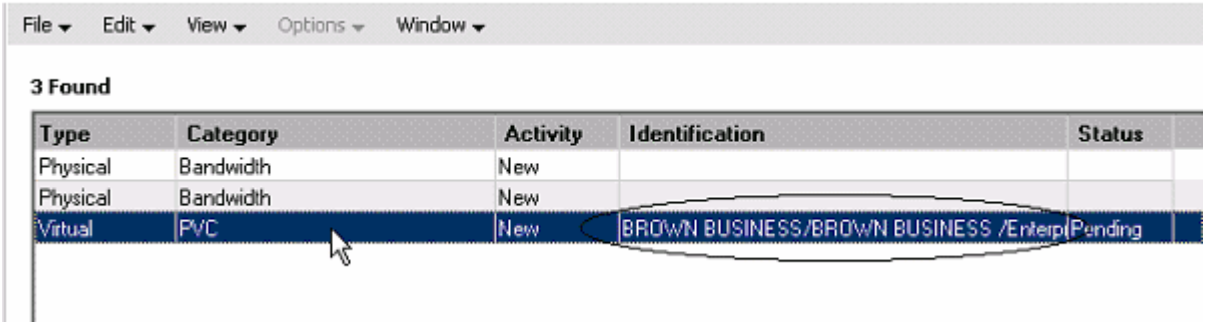
Tip

Before you open the CKTID task for the first time, the **Connection ID** field is blank.



4. In the Work Queue Manager, open the CKTID task.

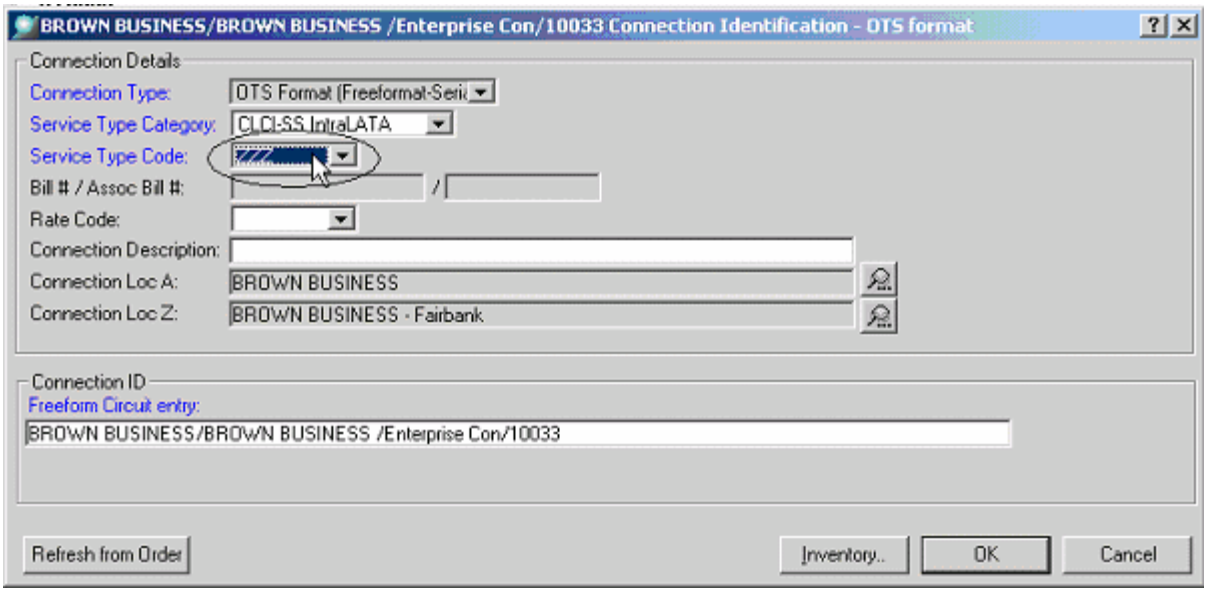
   The system generates a unique connection ID for the virtual connection (the enterprise connection spec). IDs are only generated for those connections that have the **Auto Id** checkbox selected on the Managing a Connection Spec window.



Tip

The format of the automatically generated connection ID is OTS (free-format). For this reason, don't select the **Auto Id** checkbox if you use standard connection ID formats. Once the connection has been named, you cannot open the connection ID and change the **Connection Type** field.

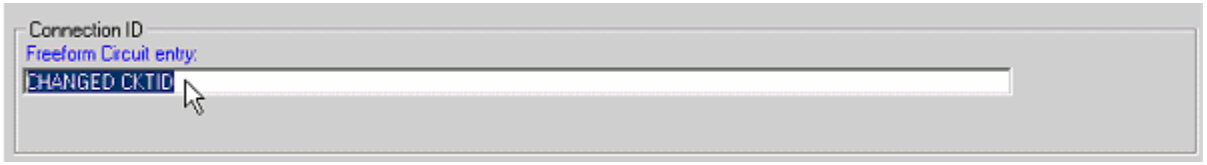
5. Open the assigned connection ID and change the **Service Type Code** field as needed.



Tip

When automatically assigning a connection ID, the **Service Type Code** field defaults to "ZZZZ". If you use the **Service Type Code** field to help identify connections, you should change this field to the correct service type code to prevent any confusion.

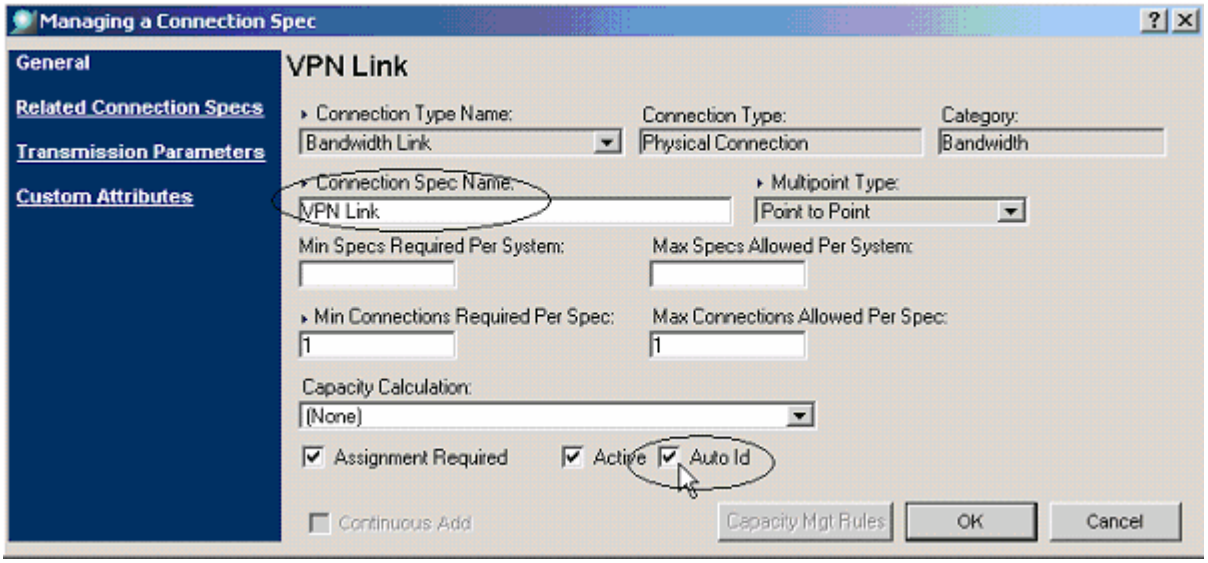
6. Change the assigned connection ID, if needed.

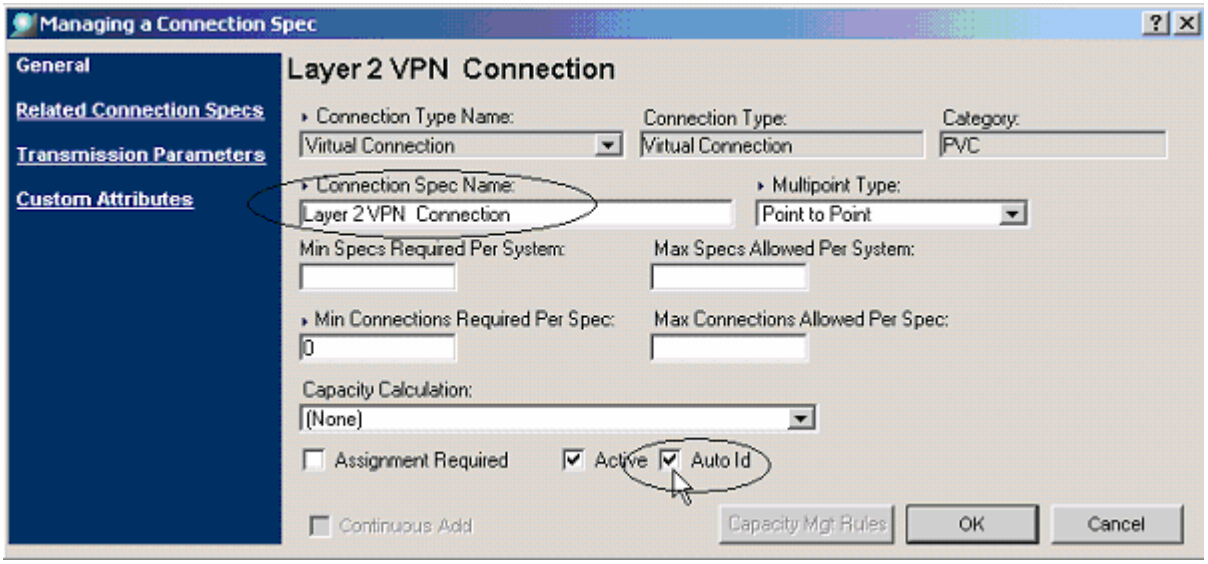


USING THE NETDSGN TASK

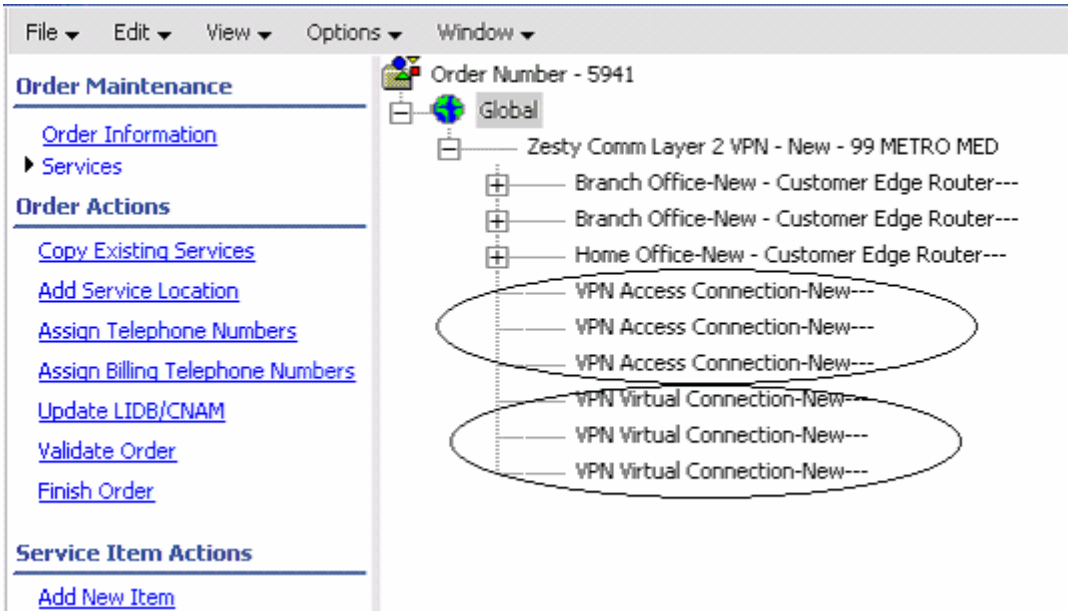
The functionality of the NETDSGN task includes the ability to name your ordered connections without the need for the CKTID task.

1. Select the **Auto Id** checkbox on the General view of the Managing a Connection Spec window.





2. Place an order for the connections.

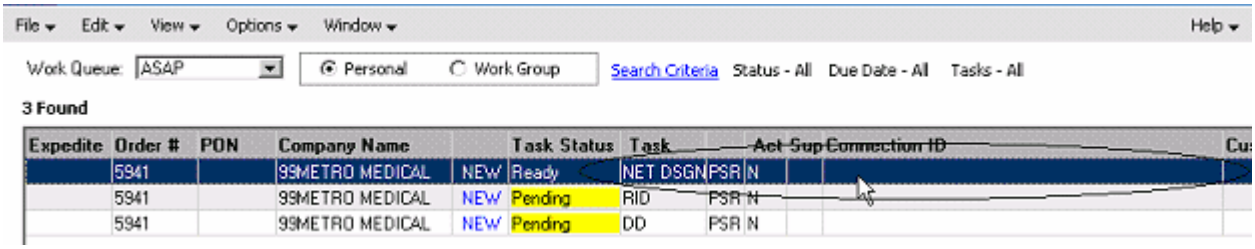


3. Assign a provisioning plan, and generate tasks.

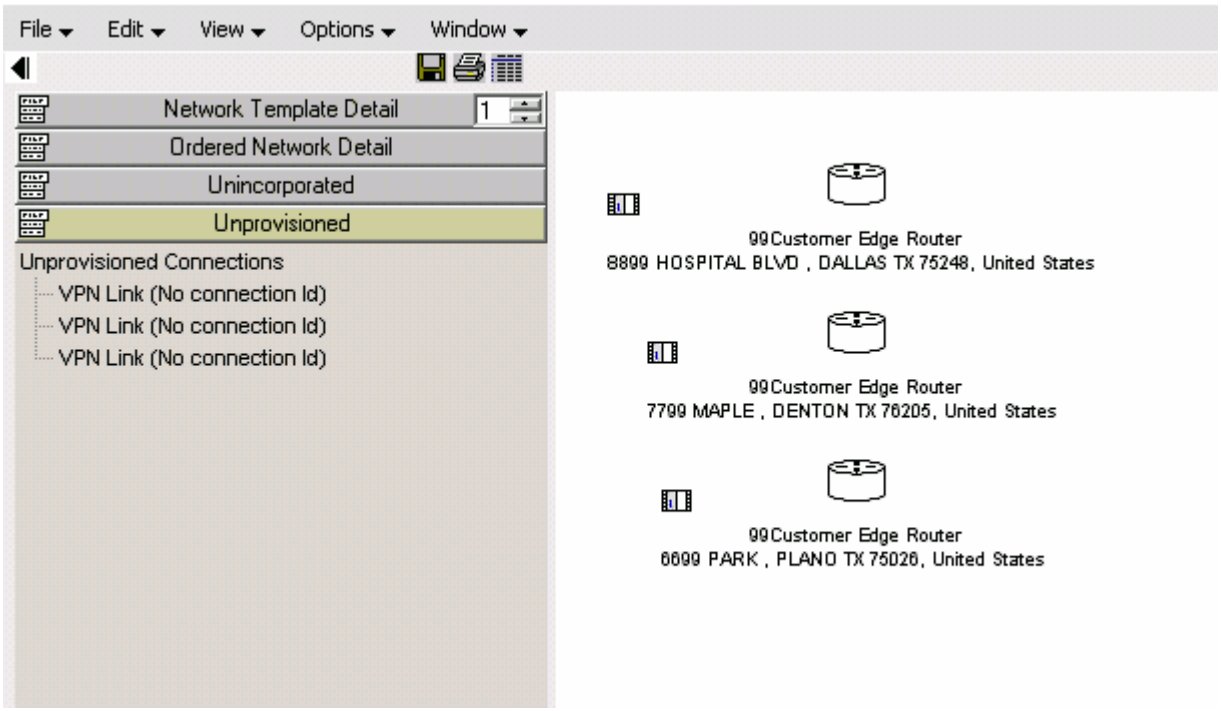
4. In the Work Queue Manager, open the NETDSGN task.

Tip

Before you open the NETDSGN task for the first time, the **Connection ID** field is blank.



5. Select the Unprovisioned panel list, and click the menu icon.

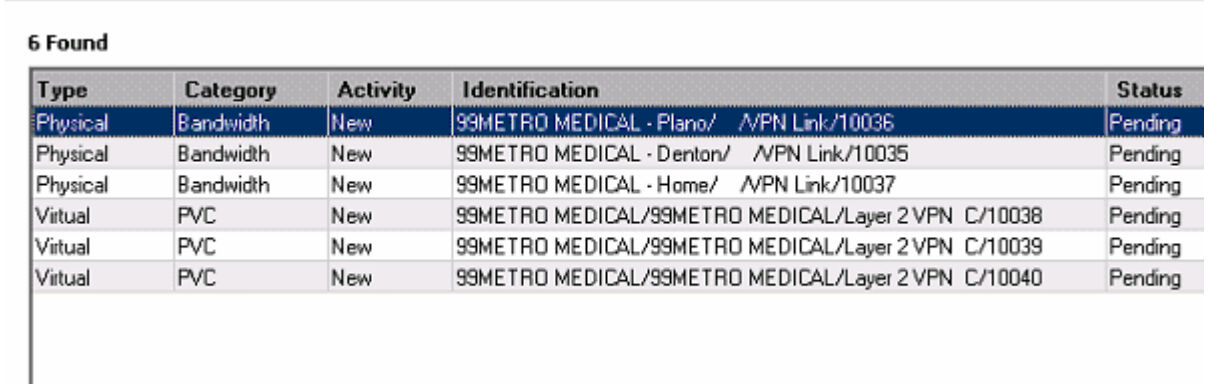


Tip

The NETDSGN task only lists the physical connections (VPN Link) on the Unprovisioned panel list.

6. Select **Connection Identification** from the menu list.

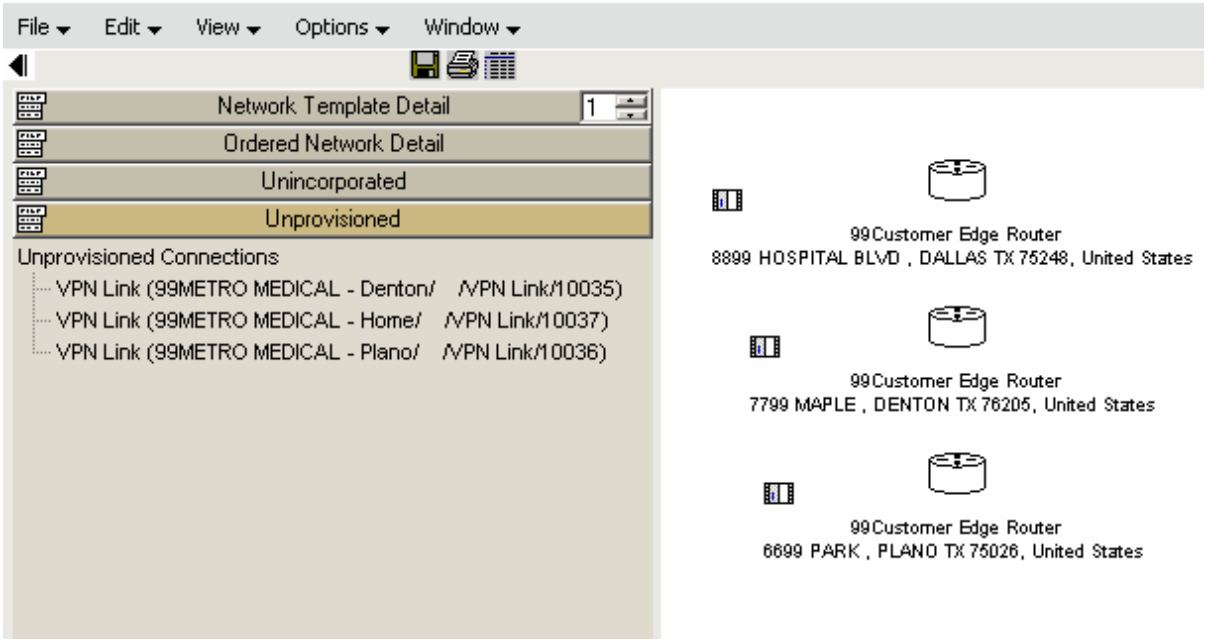
   The system generates a unique connection ID for the physical connections (VPN Link connection spec) and the virtual connections (Layer 2 VPN connection).



7. Open the assigned connection ID and change the **Service Type Code** field or **Connection ID** field as needed.

8. Click **OK**.

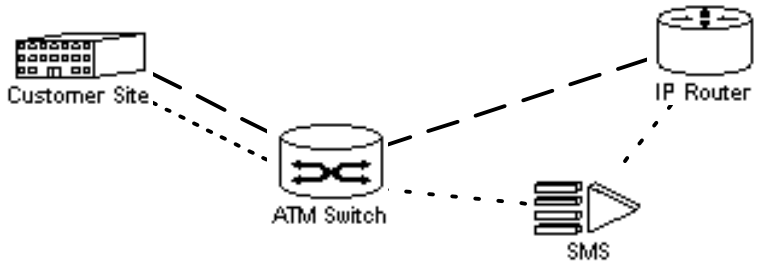
   The automatically assigned connection IDs appear on the Unprovisioned panel list.



Assigning prioritized paths

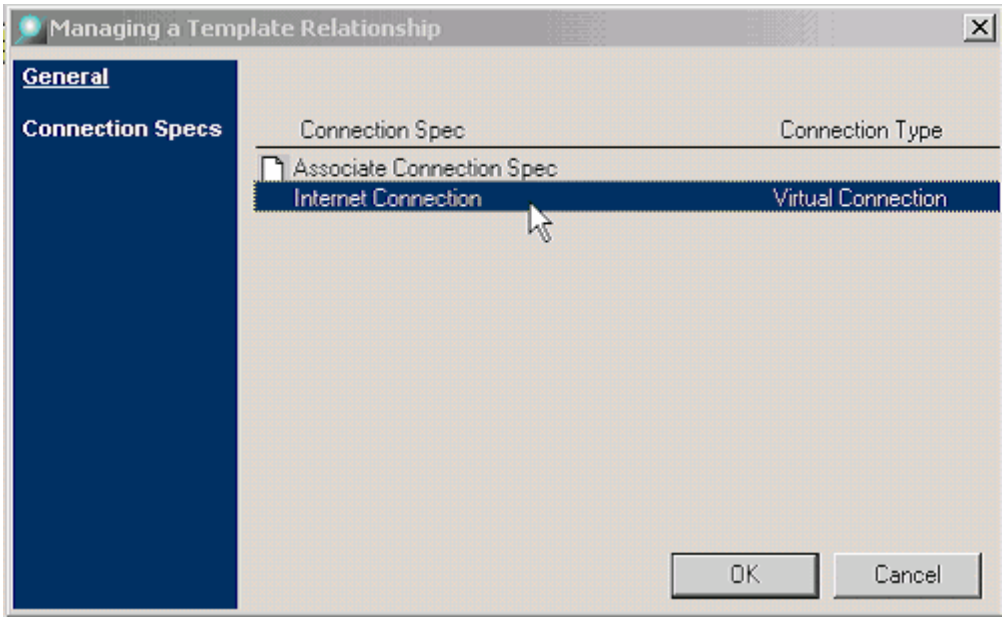
Prioritized paths are the physical paths that a virtual connection can ride through a network. In some networks, there are multiple paths that are available. MetaSolv Solution allows you to assign a priority to those existing paths, for use when designing ordered virtual connections.

The figure below shows two virtual paths between the Customer Site component type and the IP Router component type. The broken lines represent one virtual path (Cust Site – ATM Switch – IP Router) and the dotted lines represent a second possible virtual path (Cust Site – ATM Switch – SMS – IP Router) that exists between the Customer Site component type and the IP Router component type.

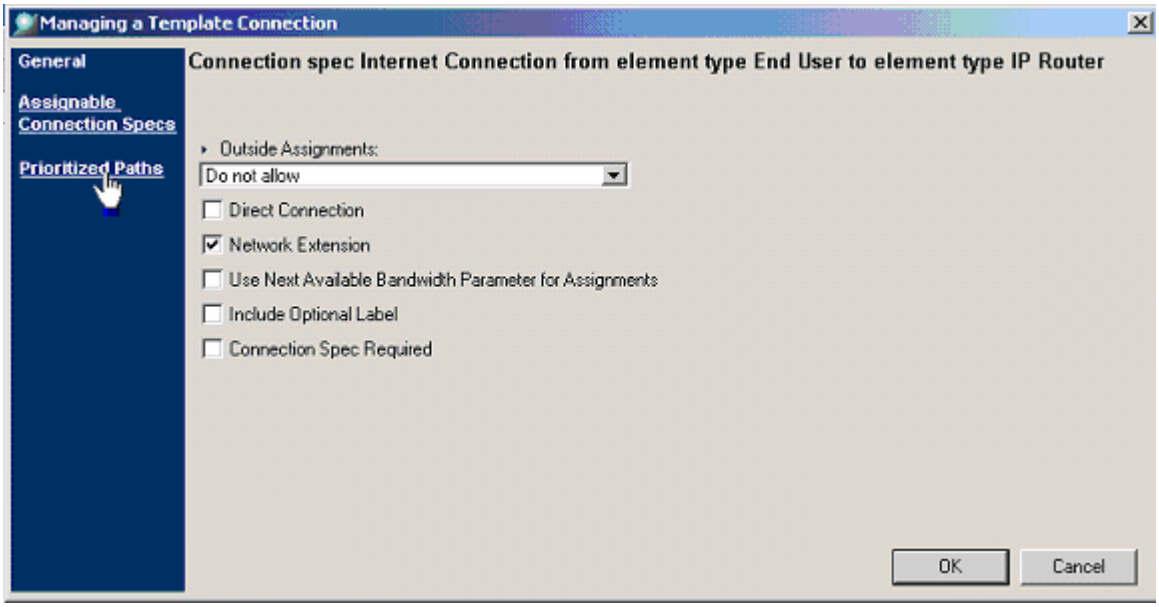


The Prioritized Paths view is located on the Managing a Component Type window for virtual connection specs.

1. Double-click a virtual connection you associated on the Manage a Template Relationship window.



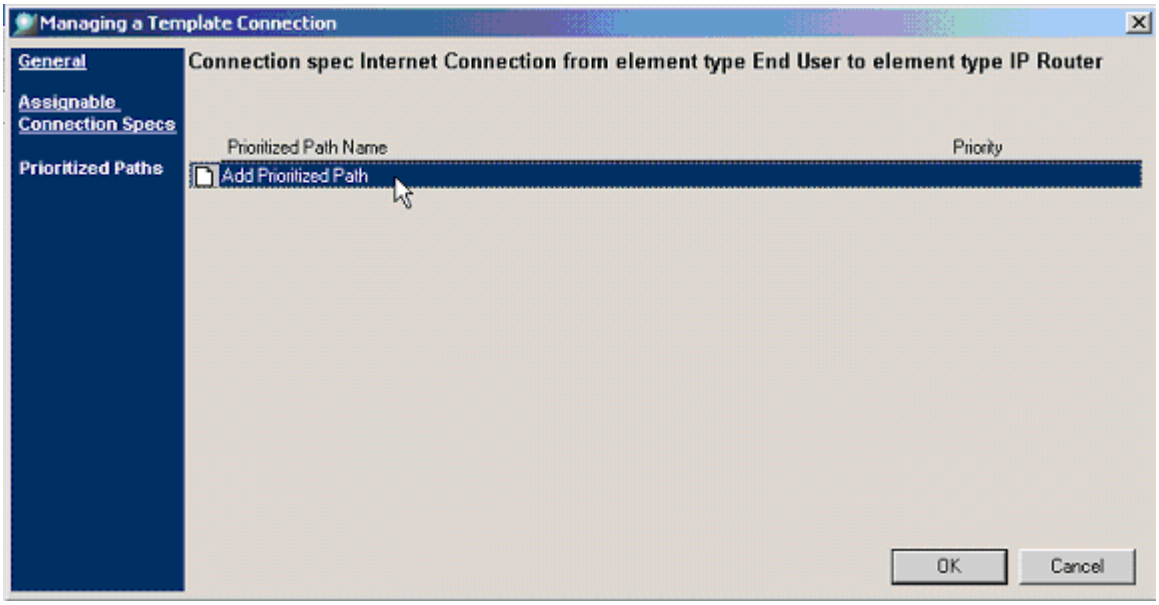
2. Click the **Prioritized Paths** link.



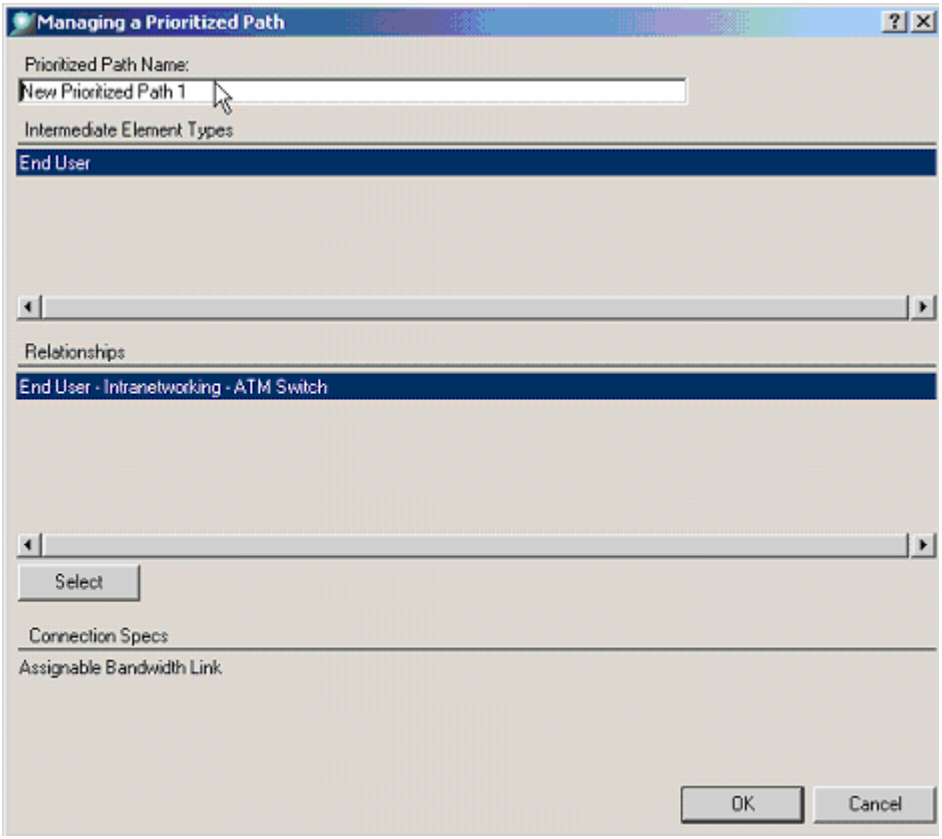
Tip

To establish prioritized paths, you must first complete the Assignable Connection Specs view. Completion of that view establishes all of the possible physical connections that can be used in the prioritized paths for the virtual connection.

3. Double-click **Add Prioritized Path**.



4. Enter a name or accept the default in the **Prioritized Path Name** field.



Tip

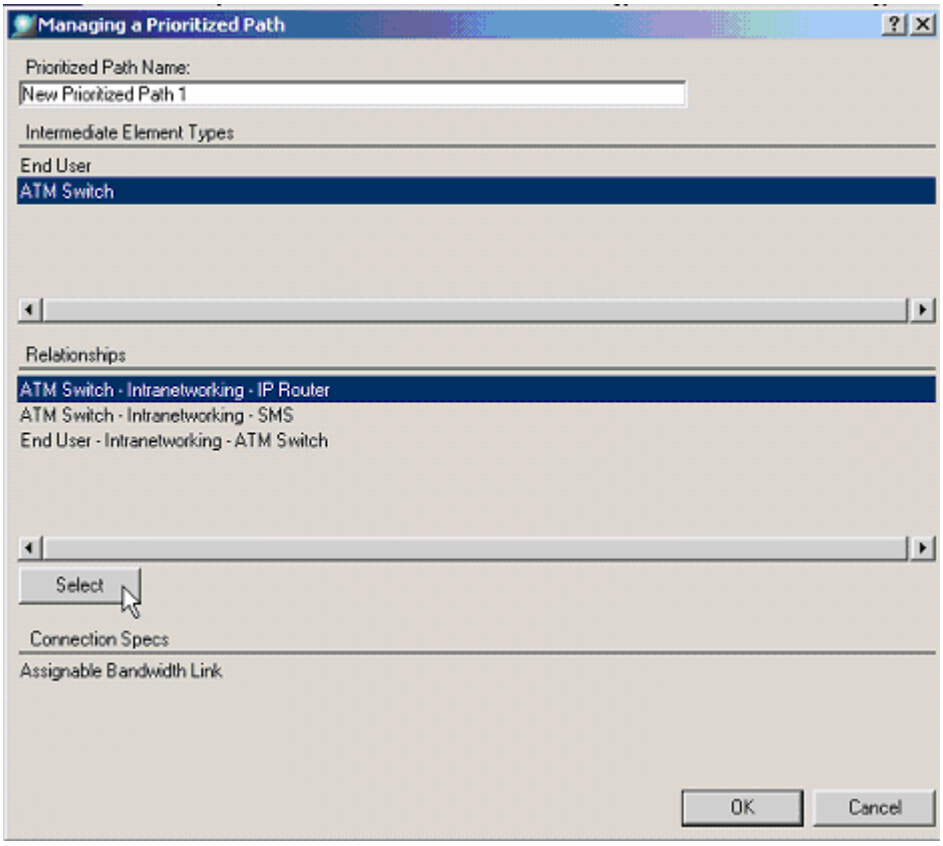
The order in which you create the paths determines their priority. For example, the first path you create will automatically be assigned as first priority and the second path you create will automatically be assigned as second priority. The name defaulted for each path contains the priority number. If you change the defaulted name, MetaSolv suggests that you include the priority number in the new name.

The Intermediate Element Types section indicates the component type the path is starting from.

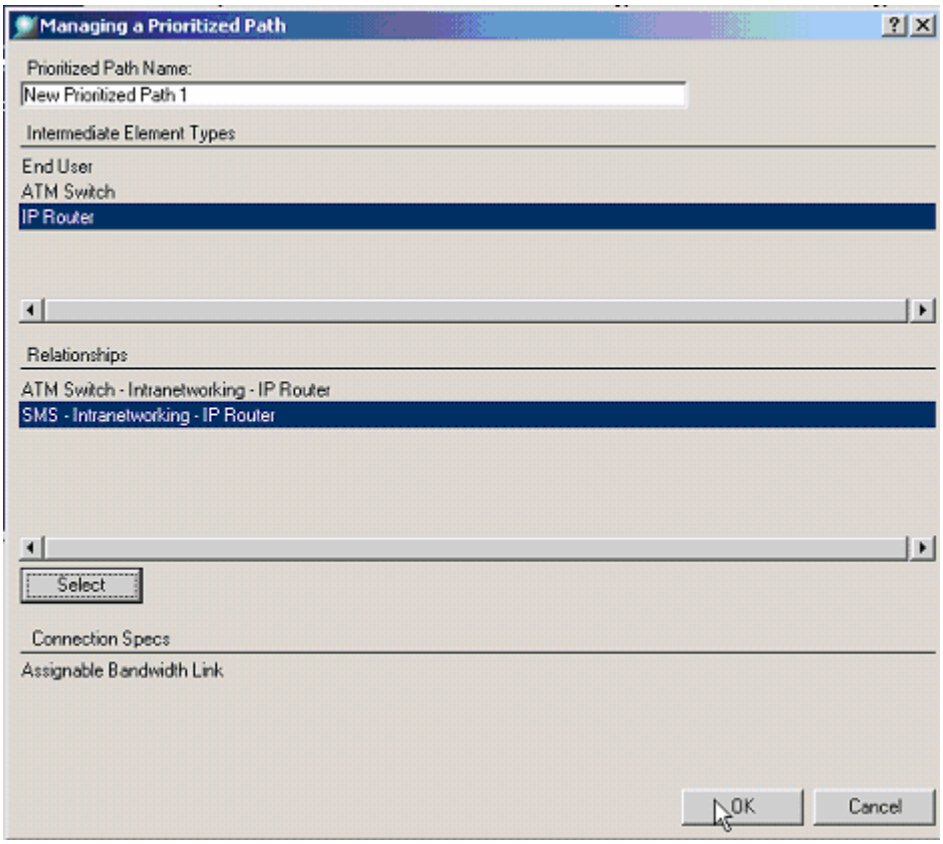
The Relationships section lists all relationships that exist from the starting component type.

The Connection Specs section lists the connection specs for each relationship that is selected in the Relationships section.

5. Select the relationship you want to add from the starting component type, and click **Select**.



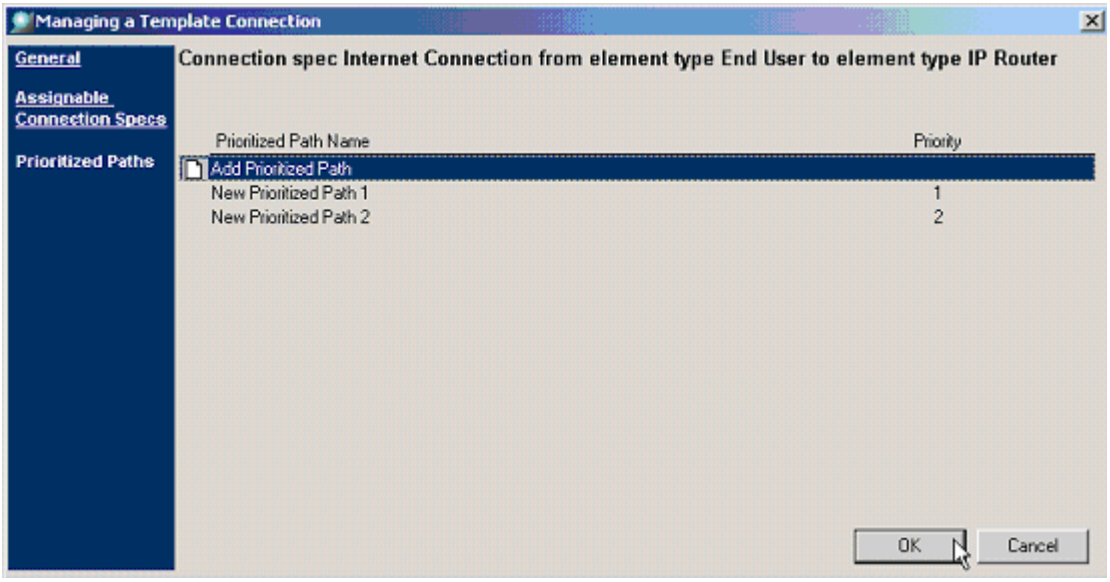
6. Select the component type added to the Intermediate Element Types section, select the next relationship in the path, and click **Select**.



7. Continue adding relationships to your path, until you reach the last component type in the path.

8. Click **OK**.

9. Double-click **Add Prioritized Path**, and create the second prioritized path. The following figure shows the completed Prioritized Paths view with two prioritized paths.

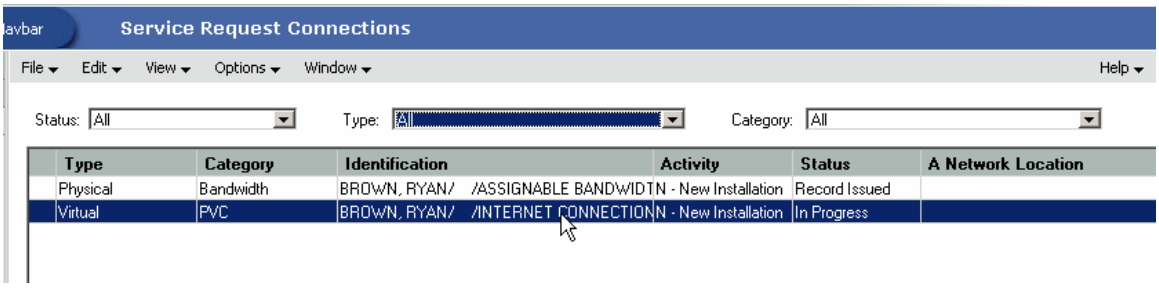


10. Click **OK**.

PATH ANALYSIS

If a virtual connection has been set up with prioritized paths, you can manually design the connection or use path analysis and let the application automatically design it. If you choose path analysis, the system selects the path with the highest priority with available positions and displays it on the Path Analysis Results window.

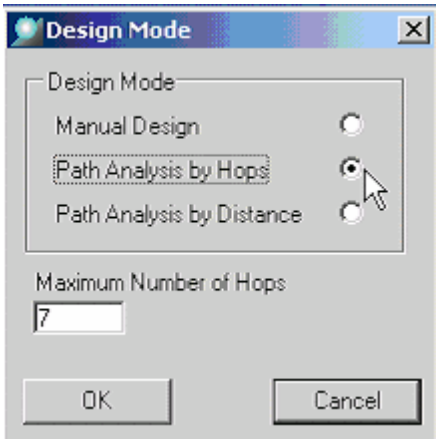
1. On the Service Request Connections window, double-click the virtual connection.



2. Select **Options>Design Mode** from the menu at the top of the window.

3. Select a design mode:

   - Path Analysis by Hops
   - Path Analysis by Distance



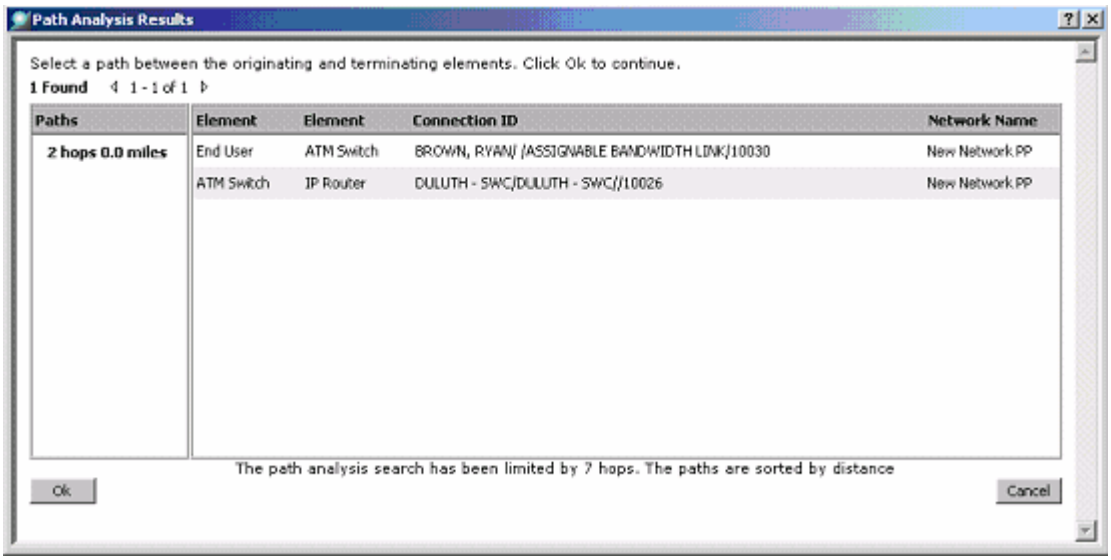
Tip

To limit the number of hops the designed connection can take, enter the maximum number in the Maximum Number of Hops field.

4. Click **OK**.

5. Click the **Schematic Design** link.

   The Path Analysis Results window displays the highest priority path found with available positions.



If there are multiple paths that are available between the components in the prioritized path, all will appear on the window. In the example above, if the network contains multiple ATM Switches and several paths exist between the End User – ATM Switch – IP Router, all of those would appear.

FAQ

If I have more than one prioritized path, how do I design using a path other than the highest priority?
Answer: The application only displays the available path with the highest priority. If you want to design using another path, simply design the connection manually.

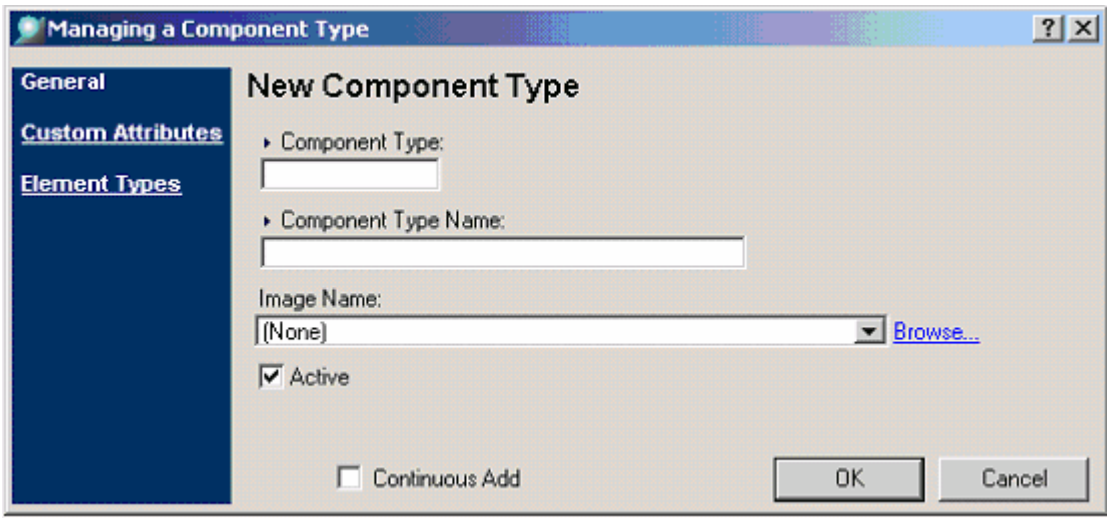
Tip

You must change the design mode before clicking the Schematic Design link to initiate path analysis.

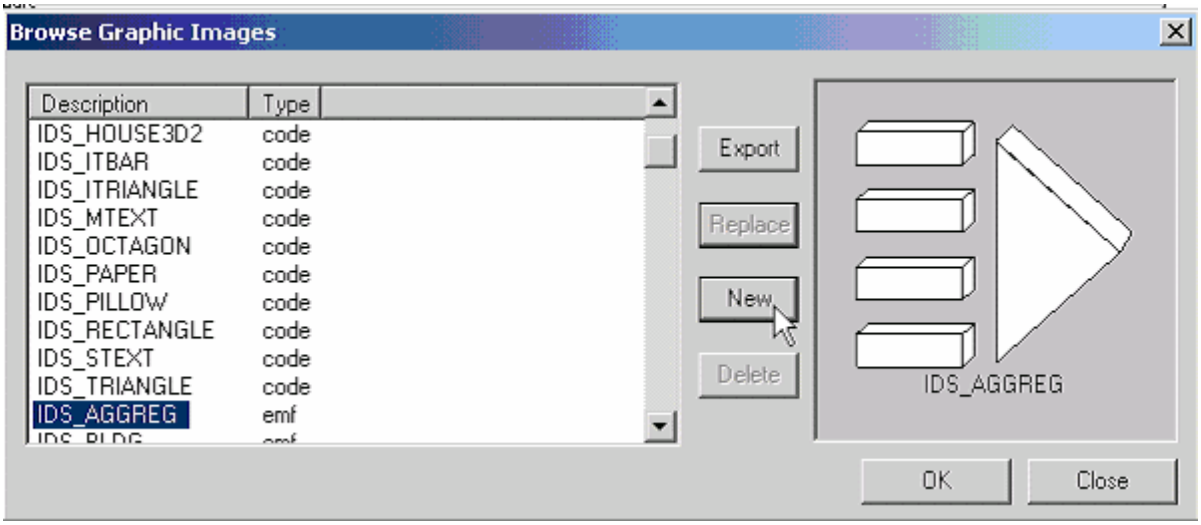
Other related procedures

Attaching an image to a component type

1. On the Managing a Component Type window, click the **Browse…** link next to the **Image Name** field.



2. Click **New** on the Browse Graphic Images window.



3. Locate your .emf file, and click **Open**.

Tip

Only .emf files can be used as images in MetaSolv Solution.

4. Select the .emf file in the left windowpane, click **OK**.

FAQ

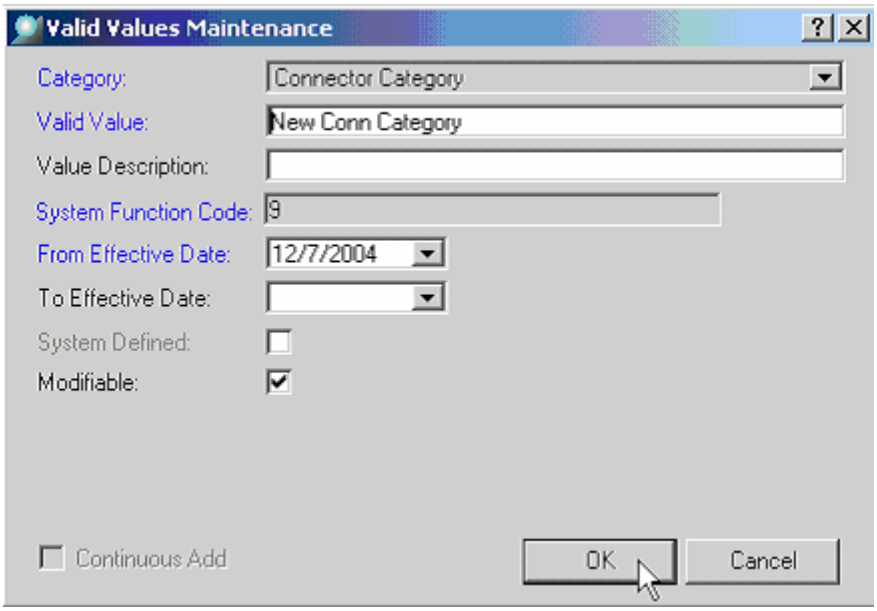
If I want to use that image for a different component type, do I have to repeat this process?
Answer: No, once you have added the image to the database, it will be available in the **Image Name** drop-down field on the Managing a Component Type window.

Tip

You can only delete user created .emf files that have not been associated with a component type. You cannot delete preloaded .emf files.

Creating a valid value for the Category field

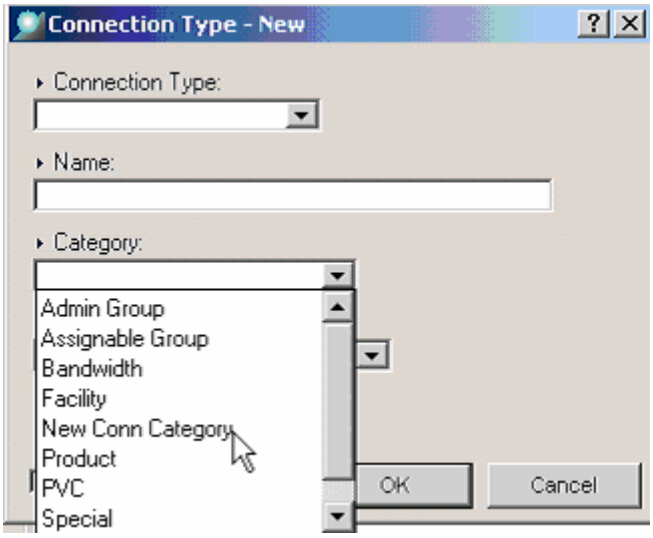
1. Select the **Application Setup** group on the navigation bar, and click **Valid Values**.
2. Click **Add New** on the Valid Values Search window.
3. Complete the Valid Values Maintenance – New window.



4. Click **OK**.

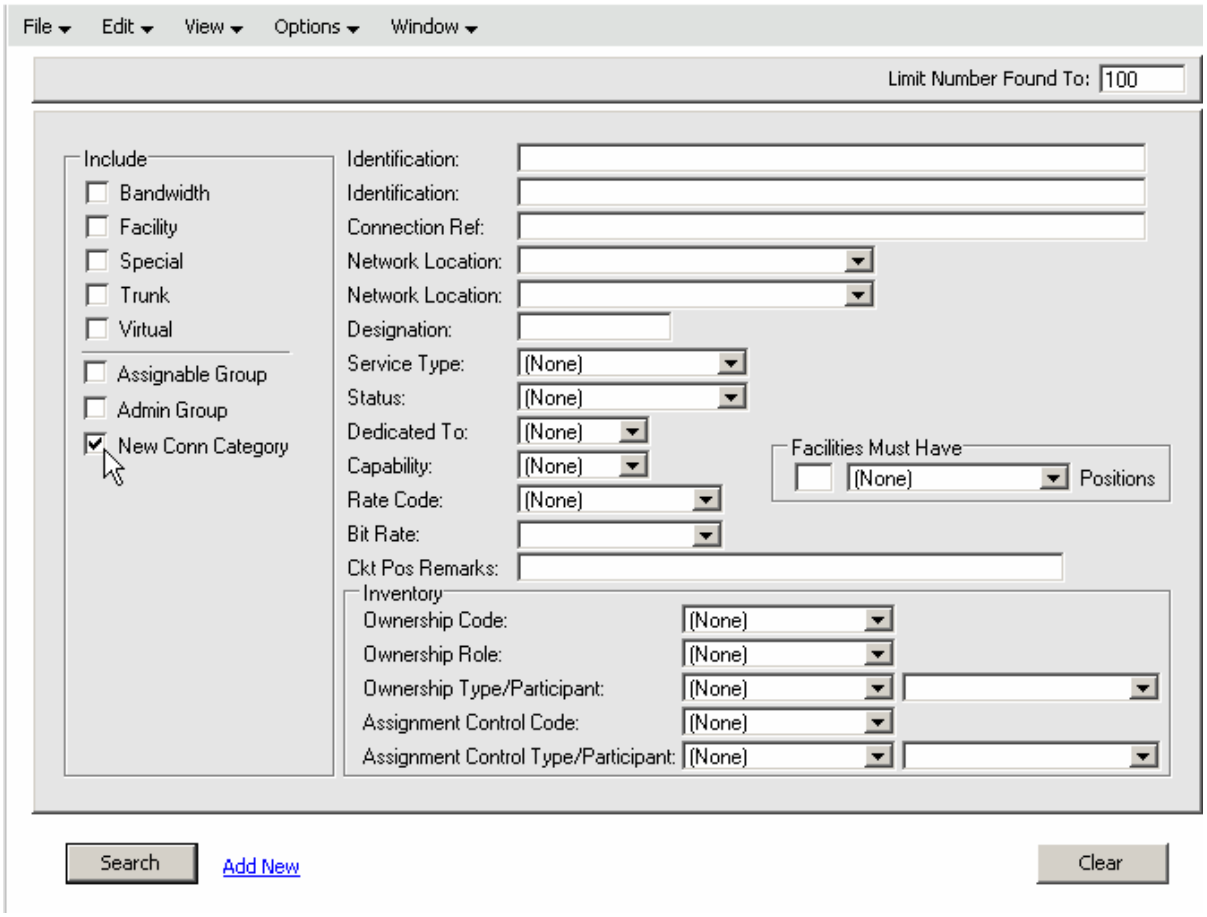
CONNECTION TYPE – NEW WINDOW

This valid value will now appear in the Category field on the Connection Type – New window.



CONNECTION DESIGN SEARCH WINDOW

The New Conn Category checkbox will now appear for you to select when searching for a connection that was created using a connection spec with this type of category.



Modifying and maintaining templates

This chapter explores some of the common tasks associated with modifying and maintaining network templates. It provides suggestions for completing those tasks and insights on the effects of your actions.

With the purchase of a technology module, you receive MetaSolv-created templates. While MetaSolv worked to create templates with all the tools you need, there might be instances when you need to make modifications.

Duplicating and creating reference templates

MetaSolv suggests that if you modify a delivered network template, you make a copy of the delivered template for future reference. There are two methods of doing this—duplicate the template or create a reference copy.

DUPLICATE

Duplicating a template creates a copy of the selected network template. Any embedded templates are reused in the new template, but copies of embedded templates are not made.

To duplicate a network template, right-click the template name and select **Duplicate**.

A pop-up message appears, notifying you that a new template was created and the name of that new template. The name of the new template will be "Duplicate of," followed by the name of the original template. The new template will be listed under the technology module of the original template.

Tip

Once the duplicated template is listed in the panel list, you can change the name of the new template. To do so, open the new template and change the Network Template Name field on the Managing a Template window (Properties).

CREATE REFERENCE

Creating a reference template creates a copy of the selected network template as well as any embedded templates. For example, if you create a reference for the MetaSolv TM ATM Access Network template, you will have three new templates—ATM Access, IP Network, and PSTN.

To create a reference template, right-click the template name and select **Create Reference**.

A pop-up message appears, notifying you that new copies will be created of all embedded templates.

When you click **Yes**, a second pop-up message appears, notifying you that new templates were created. The name of the new templates will be "Reference of," followed by the name of the original templates. The new templates will be listed under the technology modules of the original templates.

FAQ

Should I duplicate a template or create a reference?
Answer: It depends on what you're trying to accomplish. Either method provides you the ability to copy a template. However, if you create a reference template, new reference embedded templates are also created.

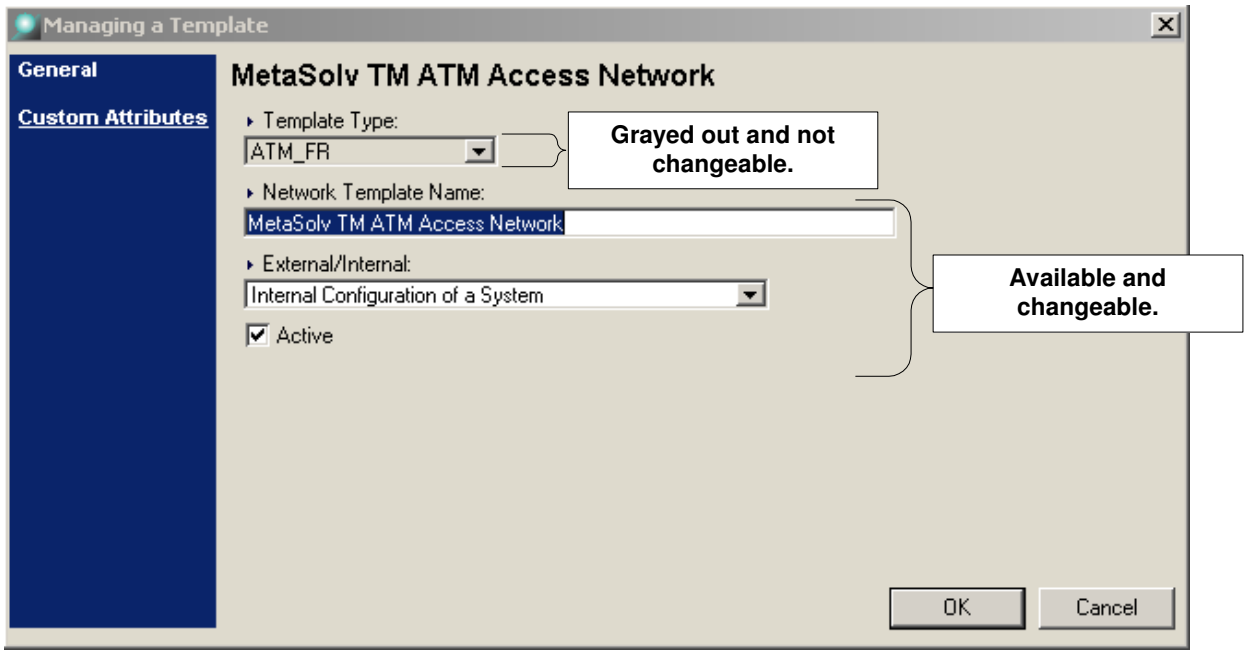
Changing template properties

ACCESSING TEMPLATE PROPERTIES

1. Open a template and right-click a blank area of the graphical canvas.
2. Select **Properties**.

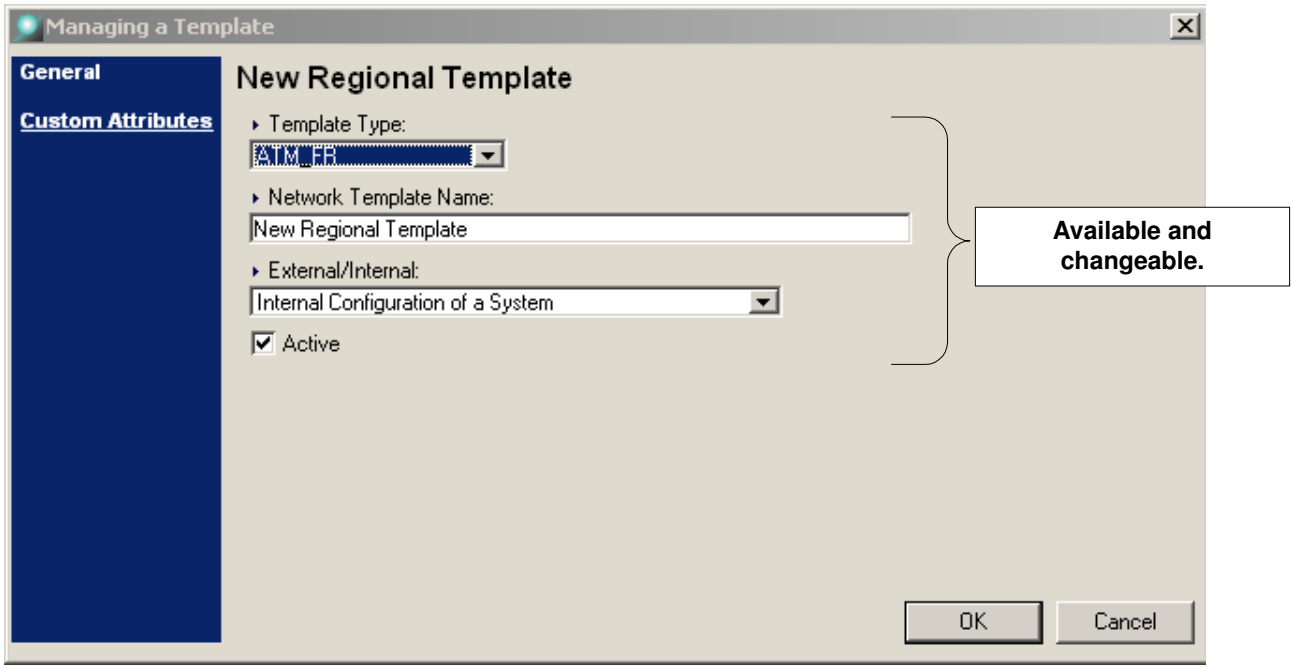
METASOLV DELIVERED TEMPLATES

There are some limitations when changing the properties of MetaSolv delivered templates. On the Managing a Template window, you are able to change all of the fields except the **Template Type** field.

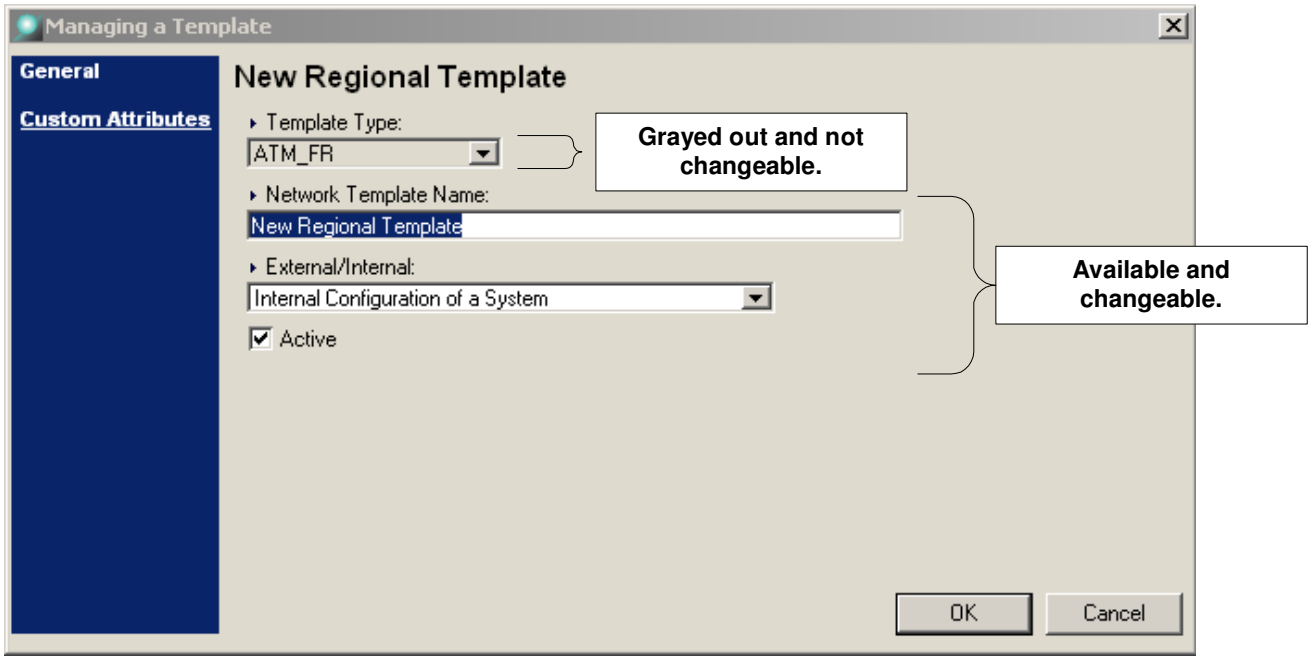


DUPLICATE, REFERENCE, AND USER CREATED TEMPLATES

The ability to change the **Template Type** field on the Managing a Template window varies depending on the status of network systems built using the template. You can change the field if you have not yet put a network system that was built using the template "In Service".



After a network system has been created using the template and is placed "In Service", you cannot change the **Template Type** field.



Adding component types

To add a component type to an existing network template, do the following:

1. Open the network template.
2. Expand the **Component Types** panel list.
3. Left-click, hold, and drag the component type to the graphical canvas.
4. Right-click the added component type on the graphical canvas, and select **Properties**.
5. Complete the Managing a Component Type window.
6. Click **OK**.

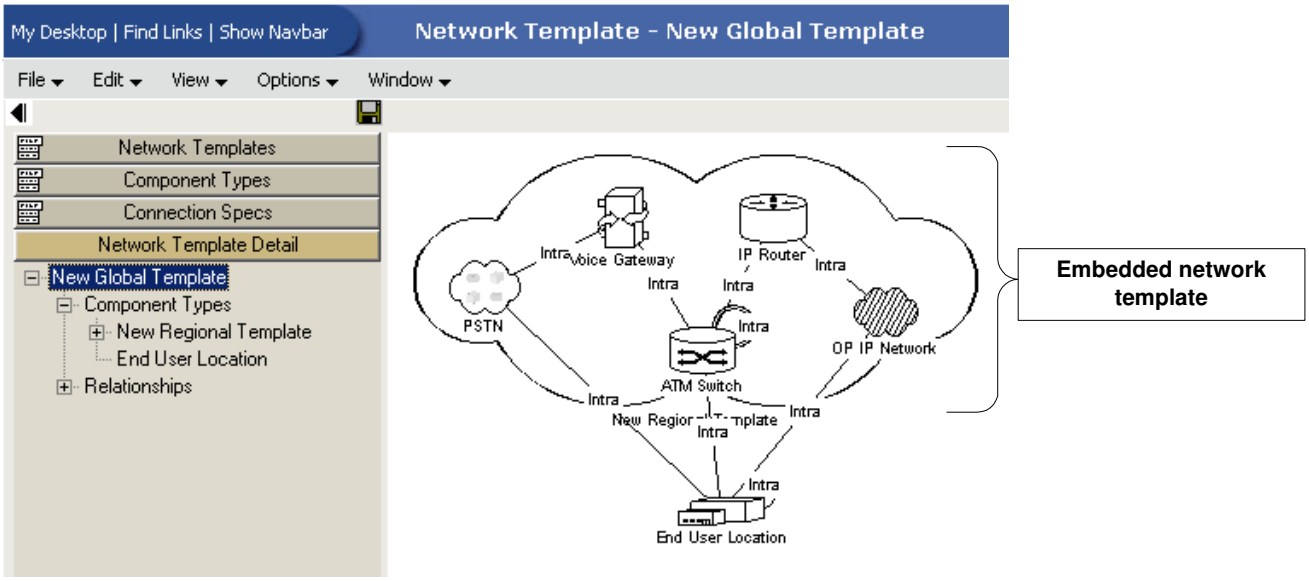
Adding relationships

To add a relationship to an existing network template, do the following:

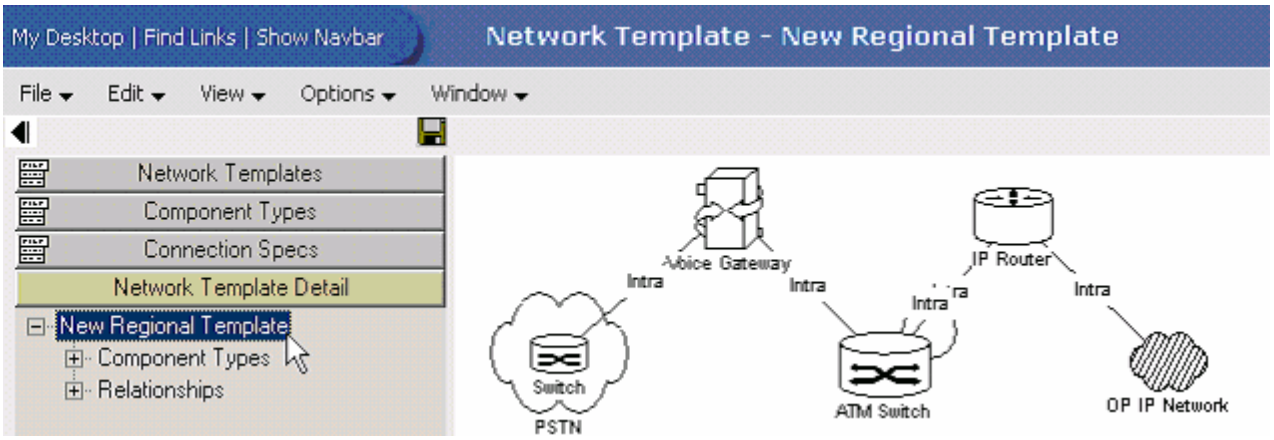
1. Open the network template.
2. Right-click one of the two component types between which you are creating a relationship, and select **Connect**.
3. Drag the cursor to the second component type, and left-click.
4. Right-click the relationship just added, and select **Properties**.
5. Complete the General view of the Managing a Template Relationship window.
6. Click **OK**.

Modifying a template embedded in another template

When a network template is embedded in another network template, you cannot expand the embedded template and modify it. In the figure below, the New Regional Template is embedded in the New Global Template.



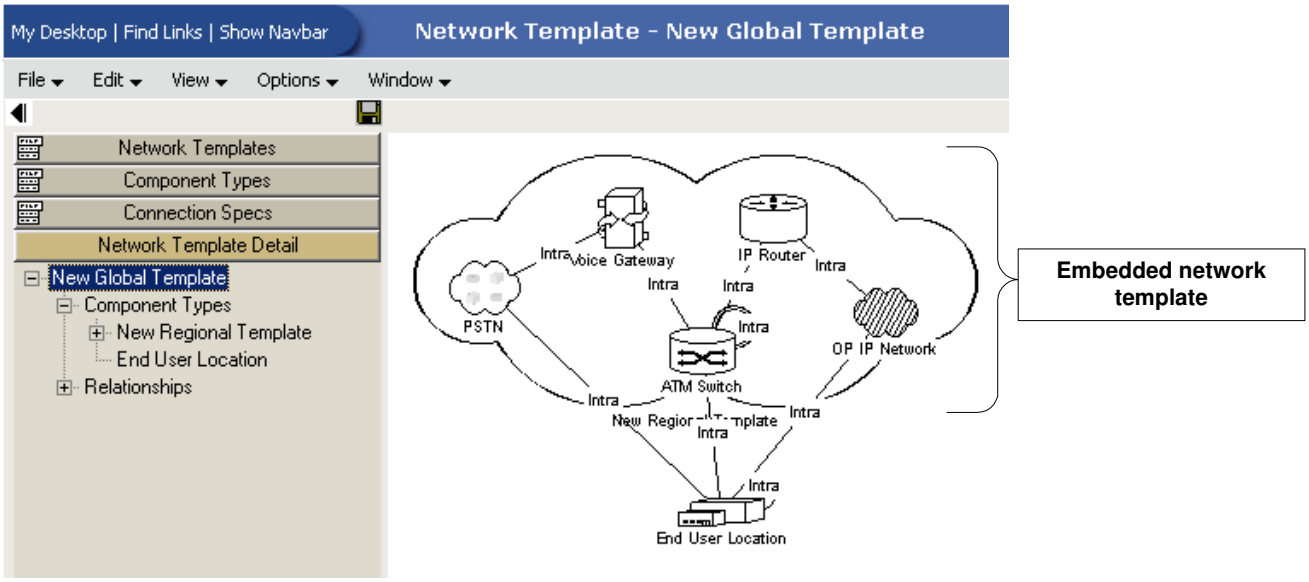
If you want to modify the New Regional Template, you have to close the New Global Template and open the New Regional Template, and then modify it.



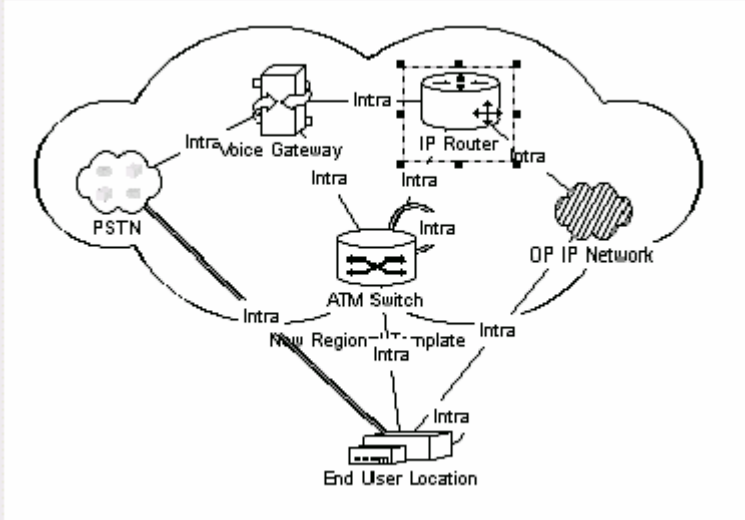
Warning

If you expand an embedded template in another template, it might seem that you are able to add relationships between component types. However, you are not adding relationships to the embedded template, you are actually adding relationships to the larger template.

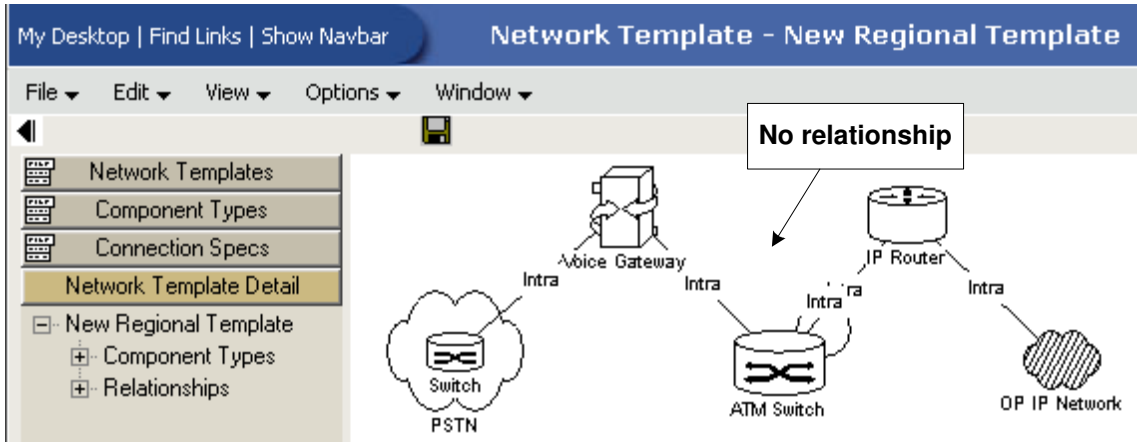
Referring to the previous example, the New Regional Template is embedded in the New Global Template.



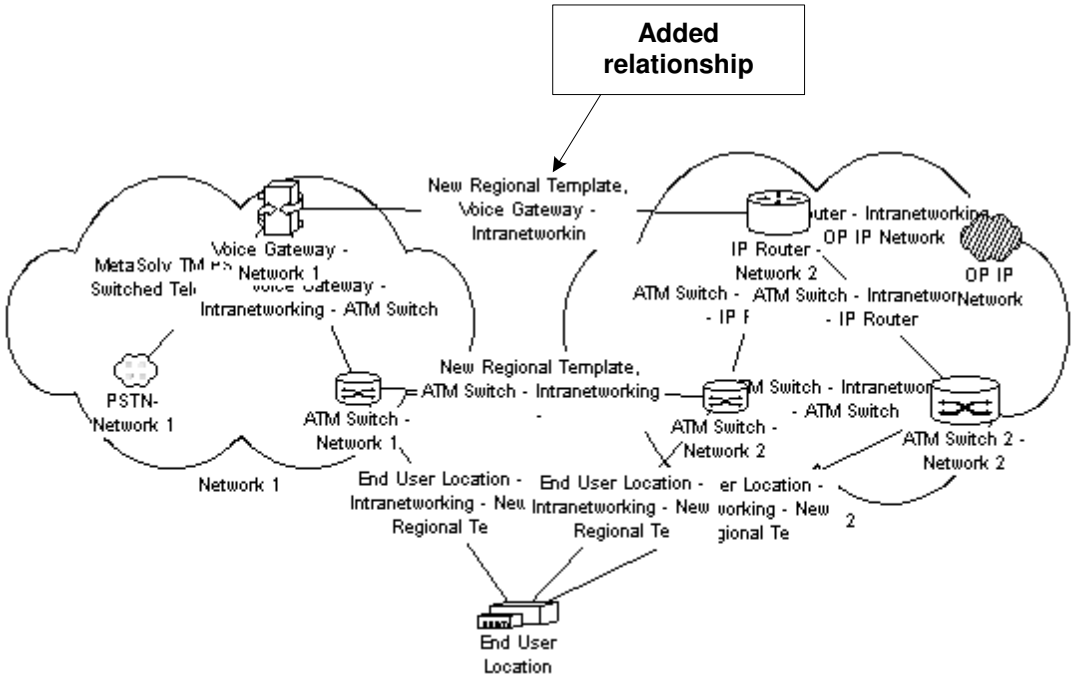
With the New Regional Template expanded in the New Global Template, you can create a relationship between the Voice Gateway and the IP Router.



You can associate a connection spec between the two component types. However, this added relationship and connection spec are part of the New Global Template and not part of the New Regional Template.



The relationship you created allows you to connect a Voice Gateway in one network created using the New Regional Template to an IP Router in a separate network created using the New Regional Template. It does not allow you to create a relationship between a Voice Gateway and an IP Router in the same network.



Deleting network templates

MetaSolv recommends that you do not delete network templates unless absolutely necessary. However, there may be instances when you choose to do so. The application performs validations to determine whether a network template can be deleted. Following are descriptions of some of those validations.

METASOLV-DELIVERED NETWORK TEMPLATES

You cannot delete any template that is delivered as part of a technology module. The delete option is disabled for all preloaded templates.

TEMPLATES USED TO DESIGN A NETWORK SYSTEM

Once you use a network template to design a network system, the application will not allow you to delete it. This is because the template contains the rules for not only network design, but also for ordering and provisioning. If you attempt to delete a network template that has been used to design a network system, you receive an error message.

TEMPLATES EMBEDDED IN ANOTHER TEMPLATE

You cannot delete a network template embedded in another template, until you delete the template in which it's embedded. If you try to delete it before deleting the other template, you receive an error message.

Deleting component types

You cannot delete preloaded component types in MetaSolv Solution. Any user-created component types can be deleted unless that component type has been added to an existing template.

1. Select the Component Types panel list.

2. Right-click the user-created component type you want to delete, and select **Delete**.
   If the component type has been added to a network template, you receive an error message.

   If the component type is not part of a network template and can be deleted, you receive a confirmation message.

3. Click **Yes**.

Tip

If you cannot delete a user-created component type and are having difficulty locating it in existing templates, try viewing the properties of the component type and looking at the Element Types view of the Managing a Component Type window. This does not list the templates specifically, but the element types listed there might give you some indication of the templates you should look at for the existing component types.

Deleting relationships

You can delete relationships from a network template, if they have not been used in a created network system. If you try to delete a relationship that has been used in network design, you receive an error message.

Before you can delete a relationship that is not tied to a network system, you must delete any associated connection specs from the Connection Specs view of the Managing a Template Relationship window.

Deleting connection specs

You cannot delete a connection spec that has been used in a relationship in a created network system. If you try to delete the connection spec from the Managing a Template Relationship window, you receive an error message.

Also, you cannot delete preloaded connection specs in MetaSolv Solution. User-created connection specs can be deleted unless a connection spec is associated with a relationship in an existing template or has been used in network system design. If you attempt to delete a user-created connection spec and one of the two apply, you receive an error message.