# MetaSolv Solution ™ M6

## Migration Guide

Second Edition
June 2007

# Copyright and Trademark Information

Copyright © 2007, Oracle. All rights reserved.

The Programs (which include both the software and documentation) contain proprietary information; they are provided under a license agreement containing restrictions on use and disclosure and are also protected by copyright, patent, and other intellectual and industrial property laws. Reverse engineering, disassembly, or decompilation of the Programs, except to the extent required to obtain interoperability with other independently created software or as specified by law, is prohibited.

The information contained in this document is subject to change without notice. If you find any problems in the documentation, please report them to us in writing. This document is not warranted to be error-free. Except as may be expressly permitted in your license agreement for these Programs, no part of these Programs may be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose.

If the programs are delivered to the United States Government or anyone licensing or using the Programs on behalf of the United States Government, the following notice is applicable:

U.S. GOVERNMENT RIGHTS Programs, software, databases, and related documentation and technical data delivered to U.S. Government customers are "commerical computer software" or "commercial technical data" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, use, duplication, disclosure, modification, and adaptation of the Programs, including documentation and technical data, shall be subject to the licensing restrictions set forth in the applicable Oracle license agreement, and, to the extent applicable, the additional rights set forth in FAR 52.227-19, Commercial Computer Software--Restricted Rights (June 1987). Oracle USA, Inc., 500 Oracle Parkway, Redwood City, CA 94065.

The Programs are not intended for use in any nuclear, aviation, mass transit, medical, or other inherently dangerous applications. It shall be the licensee’s responsibility to take all appropriate fail-safe, backup, redundancy and other measures to ensure the safe use of such applications if the Programs are used for such purposes, and we disclaim liability for any damages caused by such use of the Programs.

Oracle and MetaSolv are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.

The Programs may provide links to Web sites and access to content, products, and services from third parties. Oracle is not responsible for the availability of, or any content provided on, third-party Web sites. You bear all risks associated with the use of such content. If you choose to purchase any products or services from a third party, the relationship is directly between you and the third party. Oracle is not responsible for: (a) the quality of third-party products or services; or (b) fulfilling any of the terms of the agreement with the third party, including delivery of products or services and warranty obligations related to purchased products or services. Oracle is not responsible for any loss or damage of any sort that you may incur from dealing with any third party.

## Document History

| Edition | Date | Reason |
|---|---|---|
| First | April 2005 | Original document. |
| Second | June 2007 | Updated Copyrights, About this Guide chapter, and customer portal references with Oracle. |

# Contents

**About this guide ..... v**
Audience ..... v
Additional information and help ..... v
Oracle Support ..... v
MetaSolv Solution documentation set ..... vi

**1. Next Generation Migration overview ..... 1**
Why migrate? ..... 1
Migration process ..... 2
What steps do I need to perform? ..... 4
What data migrates? ..... 5
SONET ..... 5
How long will it take? ..... 6
Pre-Migration analysis ..... 6
Helpful terms and naming conventions ..... 6
Roles ..... 7
Database administrator ..... 7
MetaSolv Solution subject matter expert ..... 7
Environments ..... 8
Migration processing ..... 10
First migration pass ..... 10
Subsequent passes ..... 12
Final Conversion ..... 13

**2. Creating network templates ..... 15**
Plan network templates ..... 15
Create network templates ..... 20
Complete network template step ..... 23

**3. Migrating network element data ..... 27**
What does the network element migration do? ..... 27
Helpful terms ..... 27
When does a component become a network element? ..... 30
Start the Network Element Migration tool ..... 30
View summary data ..... 32
View a detailed status ..... 33
Export a detailed status ..... 34
Basic network element migration steps ..... 34
Review network element types ..... 35
Default network element types ..... 35
View network element types in the system ..... 37
Create a network element type ..... 39
Perform the Network Element Migration ..... 41
What each section of the migration does ..... 42
Window Tools ..... 43

Equipment Specs ..... 43
Complete the section ..... 43
Tips for completing the section ..... 47
Network Component Types ..... 50
Association rules ..... 50
Complete the section ..... 50
Equipment ..... 53
Association rules ..... 53
Complete the section ..... 53
Network Components ..... 59
Association rules ..... 59
Complete the section ..... 59
Network Elements w/o Equipment ..... 62
Re-opening preceding steps ..... 64
Default system values ..... 66

**4. Creating network systems ..... 69**

Create network properties and add elements ..... 69
Add neighboring elements ..... 76
Embed networks ..... 76
Complete network systems ..... 78

**5. Saving data, running validations and conversions ..... 79**

Save migration data ..... 79
Export tables and create backup ..... 80
Confirm export ..... 80
Run validations ..... 82
Run conversions ..... 85
Review migration error report ..... 86
Conversion Errors ..... 88
Custom user exits ..... 94
Resolve connection errors ..... 100

**6. Rerunning the migration ..... 107**

Refresh from production ..... 107
Push data ..... 109
Resolve push errors ..... 110
Processing new data ..... 113
Save migrated data ..... 120
Confirm export ..... 121
Upload files ..... 122
When should I synchronize? ..... 125
Re-run validations and conversions ..... 126
Cutover weekend ..... 126

**7. Performing post migration tasks ..... 127**

Search for converted facility circuits ..... 127
Create service applications ..... 127

**8. Performing database tasks ..... 131**
Database administrator role ..... 131
Support migration processing ..... 132
Copy production database and upgrade to M6 ..... 132
Save migration data ..... 133
Refresh from production ..... 134
Refresh from backup ..... 136
Support cutover weekend ..... 136
**9. Appendix A: Pre Migration Analysis Tool ..... 141**
Run the Pre-Migration Analysis Tool (PMAT) ..... 141

# About this guide

This guide contains the procedures and information you need to migrate MetaSolv Solution data from a prior version to M6.

## Audience

This guide is for individuals who are MetaSolv Solution subject matter experts, and for database administrators who maintain database environments.

## 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.

# MetaSolv Solution documentation set

This guide is one book in a set of documents that helps you understand and use MetaSolv Solution. Figure 1 shows the complete documentation set.

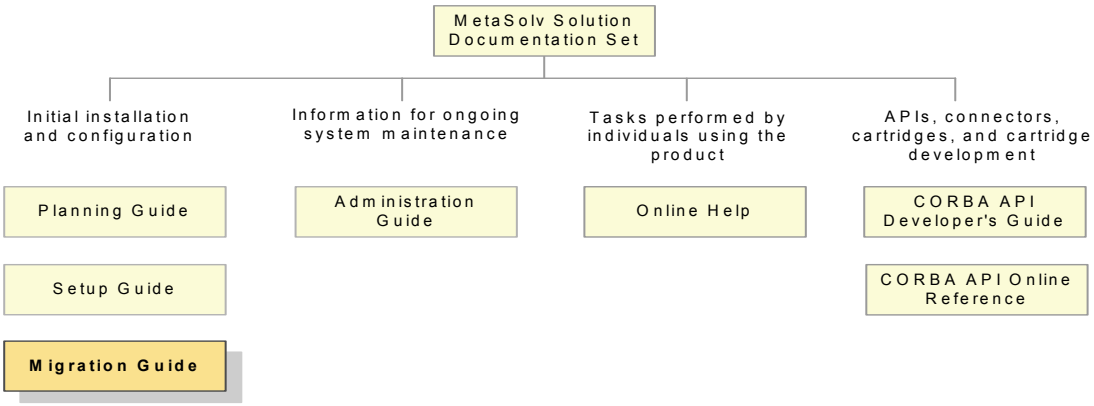



**Figure 1: MetaSolv Solution documentation set**

MetaSolv Solution books are delivered in Portable Document Format (PDF). You can view a book online using Adobe Acrobat Reader.

**To view a document**

Locate the document on the Oracle E-Delivery or Oracle MetaLink Web site and do one of the following:

- Right-click the PDF file and select **Open** from the pop-up menu.
- Double-click the PDF file.

This action starts Acrobat Reader and opens the PDF document you selected. The following figure shows how a document appears in Acrobat Reader:

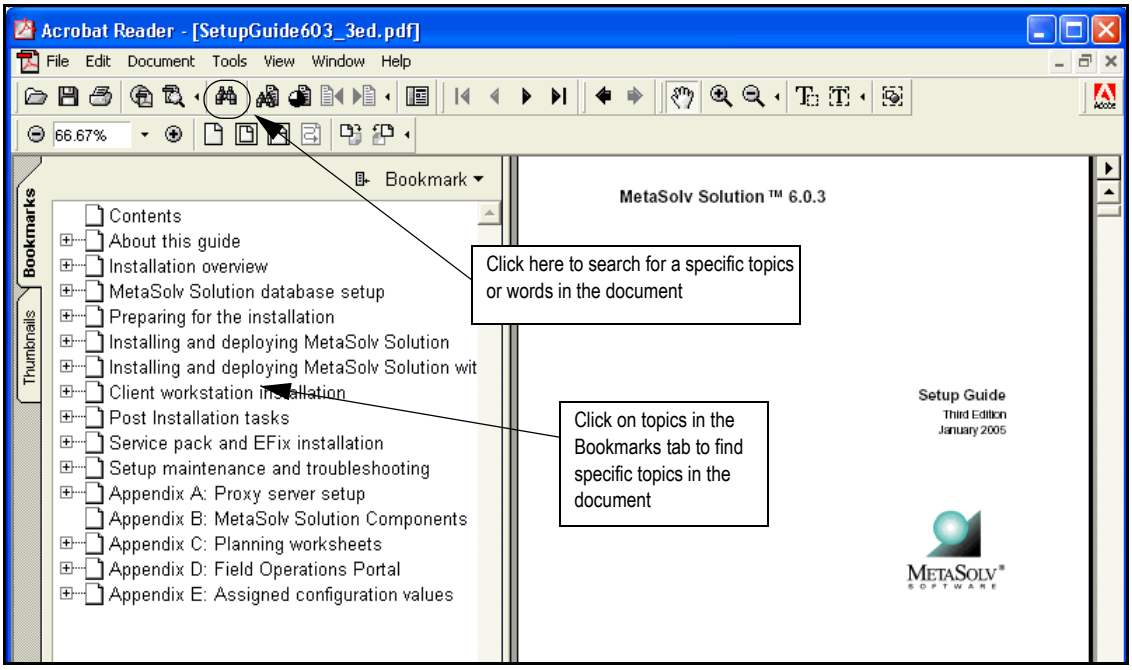



**Figure 2: Finding information in a PDF document**

# Next Generation Migration overview

The migration process allows you to convert data from older versions of MetaSolv Solution to 6.0. This enables you to use the network element functionality introduced with 6.0, and to convert items from the Broadband Module to network template functionality.

The M6 release includes two new tools to help you with the migration process. One tool helps you analyze your existing data, and one tool helps you with the migration process.

If you are not currently using network templates, review the *Network Templates User Guide*. It is critical to understand network templates and how they are used in relation with network systems, the product catalog, and provisioning before migrating data.

## Why migrate?

The Broadband Module was retired with the M6 release so customers who used it in prior versions need to convert existing elements, broadband circuits, equipment, ordering data (service items), and product catalog items to work with the template-based functionality.

All customers should migrate network elements so they can take advantage of functionality introduced with M6 as well as future functionality.

The network element functionality allows you to:

- View all network elements in one central location, and quickly click a link to open the network element's associated network systems
- Differentiate between non-intelligent and intelligent equipment
- Associate multiple pieces of equipment with a SONET network element
- More accurately associate equipment with network elements through software validation processes

In future releases, more functionality will be added using the network element features.

# Migration process

Below are the high-level steps you will perform to complete the Next Generation Migration.

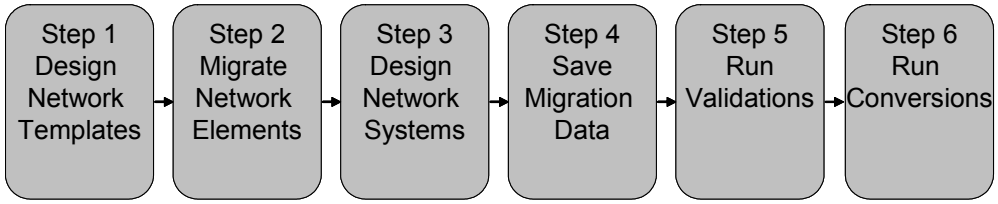



**Figure 3: High level migration steps**

1. Design your network templates. Templates define the rules for creating your network systems. This step is performed in the MetaSolv Solution core application.

   If you are upgrading from the Broadband Module, you will need to create new network templates. If you already use network templates, you are not required to create new ones, but you can if needed.

2. Create network elements and associate them with installed equipment. This step is performed in the Next Generation Migration tool.
3. Based on the network templates, design your network systems and add network elements to them. This step is performed in the MetaSolv Solution core application.
4. Save the network templates, migrated network elements, and network systems created in the previous steps. This data is saved so that it can be applied to a newer copy of your production data. The act of merging this migration data with a new copy of production is referred to in this guide as the “push”.
5. Select facility and special circuits that you want to convert to template-based bandwidth connections.

   While this step is labeled “Run Validations”, the system is not performing validations. The purpose of this step is to allow you to validate the facility and special circuits that you want to be converted.

6. Run conversions to convert your broadband circuit and ordering data to template-based connections and orders.

Each high-level step is further detailed in a chapter of this document. These chapters explain how to use the Next Generation Migration (NGM) tool to manage the steps in the migration process. This tool is available in MetaSolv Solution Utilities. It guides you through the entire process and allows you to monitor the progress of your conversions.

Some conversion errors will require you to go back to a previous step to make modifications to your network templates, network elements, or network systems. Other errors require you to enter data that will allow the conversion to get past the error when it is re-run. Chapter 5, "Saving data, running validations and conversions" explains how to save this data so that you don't have to enter it again when you run the conversions against a newer copy of production data.

The migration is an iterative process for which you'll need several environments. Each environment is explained in more detail in this chapter.

# What steps do I need to perform?

Depending on how you use MetaSolv Solution, you may or may not need to perform every high-level step in the process. The table below identifies the steps you need to perform, based on your current situation.

**Table 1: High-level Migration Steps**

| Current situation | High-level migration steps to perform (See Figure 2) |
|---|---|
| Pre-M6 customers that use Broadband Module | Next Generation Migration<br>Step 1: Design network templates<br>Step 2: Migrate network elements<br>Step 3: Design network systems<br>Step 4: Save migration data<br>Step 5: Run validations<br>Step 6: Run conversions |
| Pre-M6 customers that do not use Broadband Module | Next Generation Migration<br>Step 2: Migrate network elements<br>Step 4: Save migration data<br>Step 5: Run validations<br>Step 6: Run conversions |
| Customers on a version prior to M6 that do not use the Broadband Module or standalone elements, but do use SONET | Run SQL script to convert SONET nodes to network elements. See the following topic for additional information. |
| Customers on a version prior to M6 that use SONET and use standalone network elements | Next Generation Migration<br>Step 2: Migrate network elements<br>Step 4: Save migration data<br>Step 5: Run validations<br>Step 6: Run conversions |

Customers who only have SONET networks and do not use standalone network elements do not need to run the Next Generation Migration. Instead, you should run a SQL script that will migrate the SONET networks. The name of the file is CR140525.sql and it's in the SQL folder where you installed the software. For example: \\MSS60x_xx\60xbxx\bbm\sql\CR140525.sql.

# What data migrates?

Based on how you use the software, some or all of the items in the list below will be migrated:

- Components (known as elements in pre-M6 versions of MetaSolv Solution) are converted to network elements.
- Facilities and special circuits associated with network elements, that have no circuit positions or riders, can be selected and converted to template-based bandwidth connections.
- Bandwidth circuits used in the Broadband Module are converted to template-based connections. These include customer extensions and network connections.
- Virtual Layout Records (VLRs) are converted to Graphical Layout Records (GLRs).
- A new item type called PRDBUNDLE (product bundle) is created to replace the CKTPROD item type.
- If you choose to convert facilities and specials to bandwidth connections, product catalog items with VIRTCKT, BWCKT, and BWVOICE item types are converted to a new item type called CONNECTOR.
- Product levels also change as shown below:

- Converted product catalog items keep the same product item alias as before. Old products are named to start with the letter "Z" and are expired when all conversions are completed. If circuits are not converted, the product catalog will be renamed, but will not be expired.
- PSR orders with converted service item types are converted to the new product catalog and the circuits are converted to template-based connections.

## SONET

For customers who only have SONET networks and do not use standalone network elements, running the CR140525.sql script accomplishes the following:

- Associates the SONET ADM element type with equipment specifications for all equipment associated with SONET nodes. If you edit the SONET equipment specifications before running the script and set the element type to something other than SONET ADM, those changes are overridden.
- Associates the SONET ADM element type with all SONET nodes.
- Updates the new Name field in M6 on all SONET nodes with the Default Name that is set on the SONET ADM element type. If you do not populate the Default Name field before

running the script, the name defaults to 'TID/network location'. If any of the node's name source fields are empty, it defaults to network location.

- Ensures that all SONET node names are unique and, if not, makes them unique by numbering duplicates from 1 to n.

# How long will it take?

How long the migration process takes depends on the complexity and number of templates and network systems you need to build as well as the amount and quality of the data you will be converting.

If you anticipate a significant amount of time will be required to build out your network systems and work through conversion issues, you will want to plan your migration in iterations. During each iteration, you will refresh your migration environment with an updated copy of your production data. The NGM tool provides a means to do this, so there is minimal rework in each iteration of the migration process. How many iterations you will need depends on how much new data is being added or changed in production during each iteration. The bulk of the work should be completed in the first iteration, so subsequent iterations take less time.

When you have finished your network build-out and are able to successfully complete the conversions in your migration environment, you are ready to save the migration data to your upgraded production environment and run the conversions.

# Pre-Migration analysis

In preparation for the migration, you should analyze the volume and content of your production data. This assessment will help you develop a plan for the migration effort. A Pre-Migration Analysis Tool (PMAT) is available to assist you with the data assessment. You should run this tool against a pre-M6 version of your production data. It queries your data to reveal the data that will be targeted by the migration. You can use it to determine if there are any issues that need to be addressed prior to the migration. Refer to “Appendix A: Pre Migration Analysis Tool” to learn how to use the PMAT and interpret the query results.

# Helpful terms and naming conventions

The terms below are used throughout this guide:

### *Cutover weekend*

This refers to the final weekend in which the Final Production environment is upgraded to M6 and you will run the conversions one last time in that environment.

### *Push*

This refers to pushing previously exported migration data to a new version of the migration environment. The "push" data includes network elements, new network templates, and new

network systems that were created during the migration process in a non-production environment. The push merges and synchronizes previously exported data with current data.

### *Template-based*

This refers to items such as networks, connection types, component types, and product catalog items that are created using network template functionality.

In this guide, specific naming conventions are used for files and data exports. These are used to provide consistency throughout the guide. You can create naming conventions that fit your business structure.

# Roles

Because the Next Generation Migration requires the expertise of both a database administrator (DBA) and MetaSolv Solution subject matter expert (SME), proper planning is required to involve as both roles. The responsibilities of both roles are outlined in this section. You will see more detailed information as you follow this guide to run the Next Generation Migration. DBAs should read Chapter 8, "Performing database tasks" for more detailed instructions. It is up to the SME to inform the DBA when these tasks should be performed, and the DBA to inform the SME when the tasks are completed.

## Database administrator

The database administrator will perform the following duties iteratively throughout the migration process. Chapter 8, "Performing database tasks", documents these processes more fully.

- Copy databases (full export and/or create cold backups)
- Restore databases (import or recreate from cold backups)
- Export and import tables to be used between environments using parameter files (PARFILES) supplied by MetaSolv
- Upgrade databases

## MetaSolv Solution subject matter expert

The subject matter expert must understand the MetaSolv Solution core application as well as your company's business processes. This includes understanding the networks and products offered by your company, and how to model them in MetaSolv Solution. Below are the SME responsibilities:

- Assess your company's data and help plan for the migration
- Oversee the migration and keep track of the progress of each step through the NGM tool
- Work with engineers to design templates, create network elements, and build network systems
- Resolve any issues or errors resulting from the conversions

- Work with the DBA to ensure that functions such as database backups, imports and exports are run at appropriate times

As mentioned before, you should read Chapter 9, "Appendix A: Pre Migration Analysis Tool" and run the PMAT so you can analyze your data before beginning the migration process.

# Environments

To perform the steps in the migration, multiple environments need to be set up. For most software upgrades, an environment is set up for regression testing. In addition to the normal regression testing environment, the NGM process requires a separate migration environment.

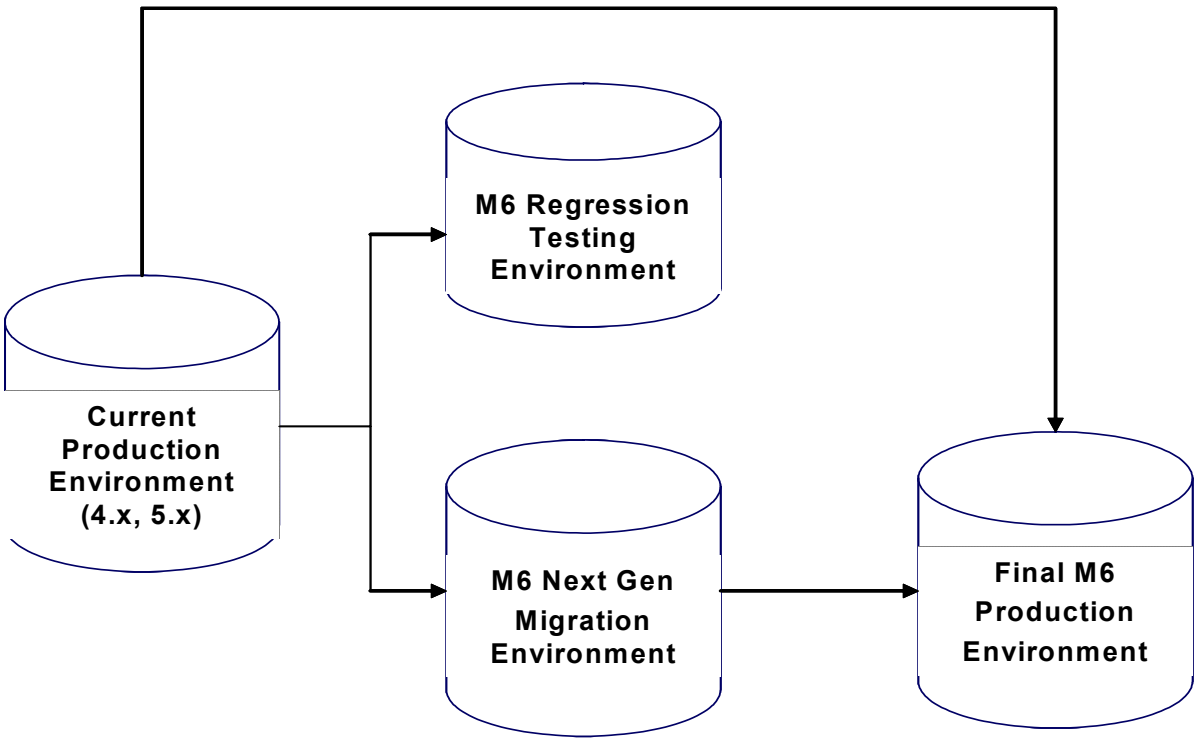



**Figure 4: Environment**

Your current production environment will remain the same while you perform regression testing and test the migration processes. Following is a description of the other environment you will need.

### *Regression test environment*

This environment is typically used for regression testing only. Prior to the migration, MetaSolv suggests you also use this environment to build and test your new network templates. See Chapter 2, "Creating network templates" for more detail.

### Migration environment

You will use this environment as a pristine environment to perform the migration process.The data in this environment will eventually be pushed to your production environment, so it is critical that you only add data that you want imported into production. All new network templates, migrated network elements, and network systems are exported to the final production environment.

After the conversions run correctly, and you saved the migration and conversion data, you can test the migrated data in the migration environment. Before doing so, however, you must save your pristine migration data and backup this environment. If you need to return to the migration process after you begin testing, you will likely need to restore from this backup to prevent introducing data from your testing to your production data.

### Final production environment

The final production environment is your upgraded final environment.

# Migration processing

There are several steps to the migration process. The process to create network templates, migrate network elements, and create network systems can take some time. During this time, new data is continually being added and updated in the current production environment. In most cases, you will want to run through the migration once, get a more recent copy of production, and run through it again. There are steps that you can take so that work does not have to be repeated in the new environment.

## First migration pass

To get an understanding of how you perform your first pass through the migration using the different environments, see the diagram below.

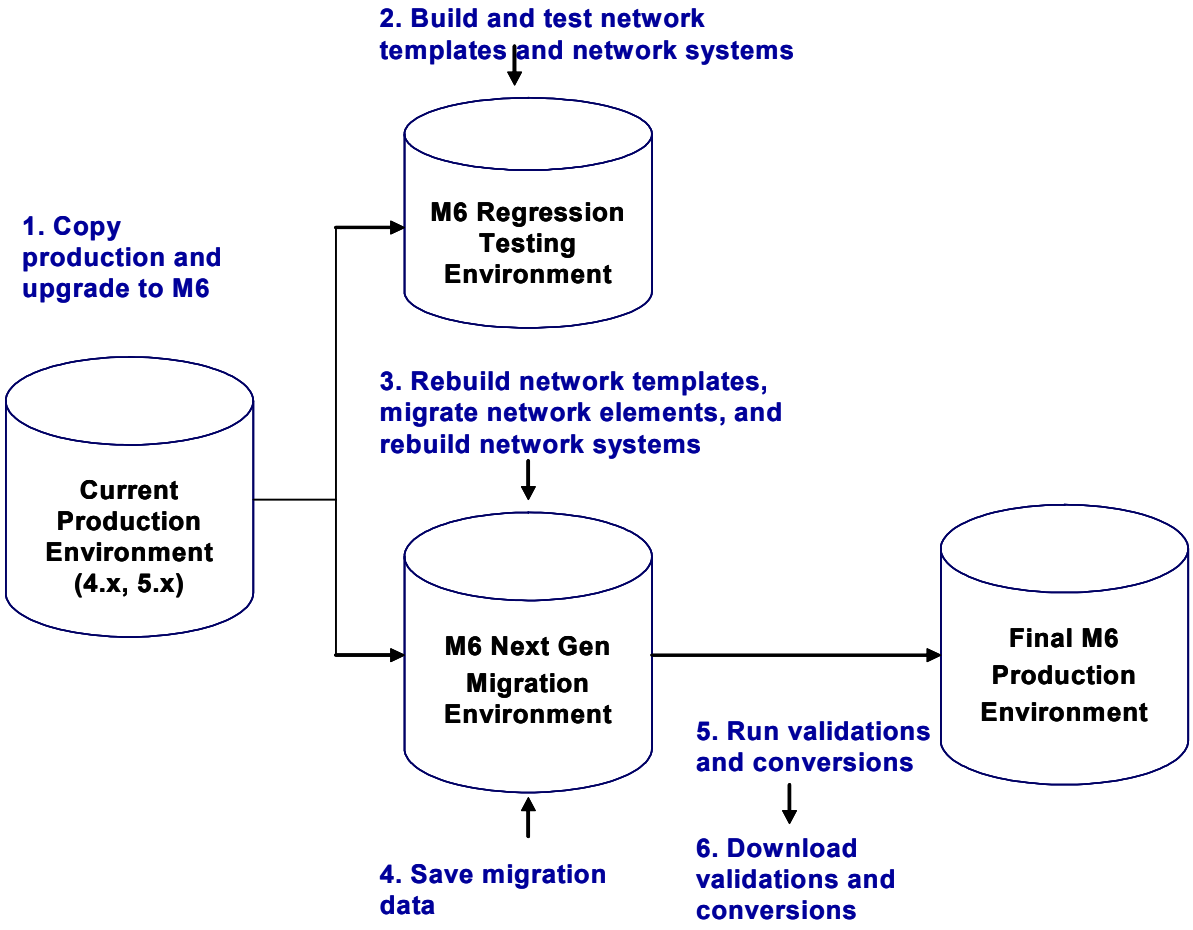



**Figure 5: First Migration Pass**

1. DBA—Make a copy of the current production environment, upgrade it to M6, and make a backup. The copied environment is your migration environment.
2. SME—Create and test new network templates and network systems in the regression test environment.
3. SME—Rebuild network templates, migrate network elements, and rebuild network systems in the migration environment.
4. DBA—Save the migration data by exporting tables and creating a backup. The exported tables will be imported into other environments later in the process.
5. SME—Run validations and conversions in the migration environment.
6. SME—If you selected any facilities and specials to be converted, download those to a file using the tool. If you resolve any conversion errors, you should also download those corrections to a file.

# Subsequent passes

After your first pass through the migration, you should take a new copy of production and upgrade it to M6 and re-run the migration process again. Depending on length of the migration process, you might do this multiple times. Making subsequent passes through the migration enables you to migrate any data that was added to production after your initial copy was made. The following diagram shows the steps involved in re-running the migration on a new copy of production.

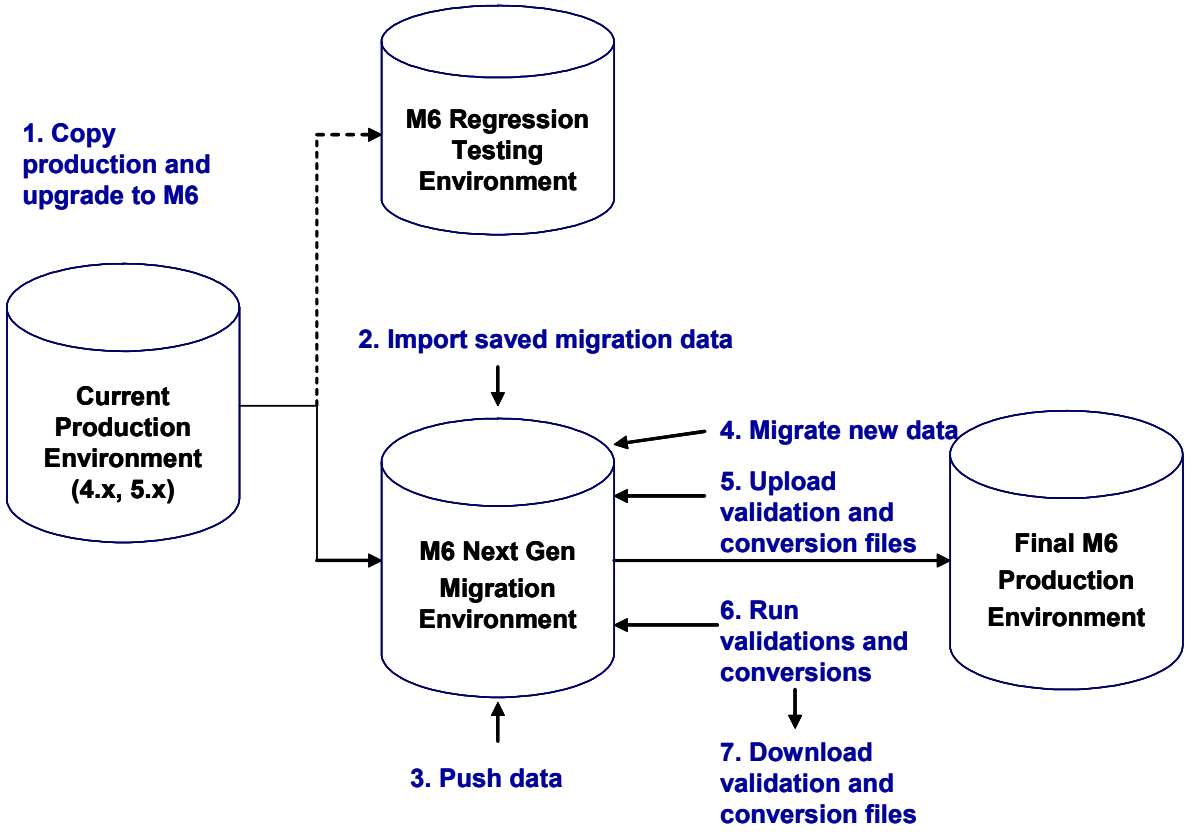



**Figure 6: Subsequent passes**

1. DBA—Make a copy of the current production environment, upgrade it to M6, and make a backup. The copied environment is your new migration environment.
2. DBA—Import the saved migration data that includes new network templates, data processed in the migrate network elements step, and new network systems into the migration environment.
3. SME—Run a Push action in the tool to merge the imported data into the new migration environment.
4. SME—Migrate any new network element data in the migration environment.

5. SME—Upload any validation or conversion files you previously downloaded to the migration environment.
6. SME—Run validations and conversions in the migration environment. If any new facilities and specials are selected for conversion, download those to a file using the tool. If you resolve any new conversion errors, the SME should also download those to a file using the tool.

You can repeat the process of refreshing from production as many times as needed. To do this, you need to save migration data and any validation or conversion files prior to each refresh.

## Final Conversion

1. DBA—Upgrade the production environment to M6 and make a backup.
2. DBA—Import the saved migration data that includes new network templates, data processed in the migrate network elements step, and new network systems into the migration environment.
3. SME—Run a Push action in the tool to merge the imported data into the production environment.
4. SME—Migrate any new network element data in the production environment.
5. SME—Upload any validation or conversion files you previously downloaded to the production environment.
6. SME—Run validations and conversions in the production environment. Select facilities and specials for conversion and resolve any new conversion errors.

This guide instructs you to create backups at certain points in the migration process. In addition to these points, you can choose to create backups at any time and can restore from a backup at any time. It is very important that the DBA and the SME understand what data is contained in all the backups.

# Creating network templates

Customers who currently use network templates are not required to create new network templates, but can do so if business processes have changed and new templates are required. Changes made to existing network templates during the migration process will not be pushed to the final production environment. Those changes should be made in the production environment. Customers who are not creating new network templates should skip to the section titled **"Complete network template step"** on page 23.

Customers who do not currently use network templates and who are migrating broadband data will need to create network templates to model their existing networks and should read the entire chapter.

## Plan network templates

Network templates are technology-specific rules used to build networks, build products, and provision across networks. If you are using the Broadband Module, you will receive the ATM/FR and DSL technology modules.

If you need additional technology modules, call your sales representative. The following additional modules are available:

- DLC
- Ethernet
- IP
- MPLS
- Optical/TDM
- Unclassified

Technology modules can contain multiple network templates. For example, the ATM/FR technology module contains two main network templates: ATM/FR Network and Layer 2 VPN. These two templates contain several other embedded templates, such as ATM Access and Frame Relay Access.

Most of the template types include core and access network templates. The core network template is generally used to represent the provider network to which customers do not directly connect. The access network template is generally used to represent the network that directly connects the customer to the provider network.

Network templates include component types, connections, graphics, and rules for specific technologies.

The ATM/FR network template is shown below. As you can see from the graphic, it contains multiple embedded networks.

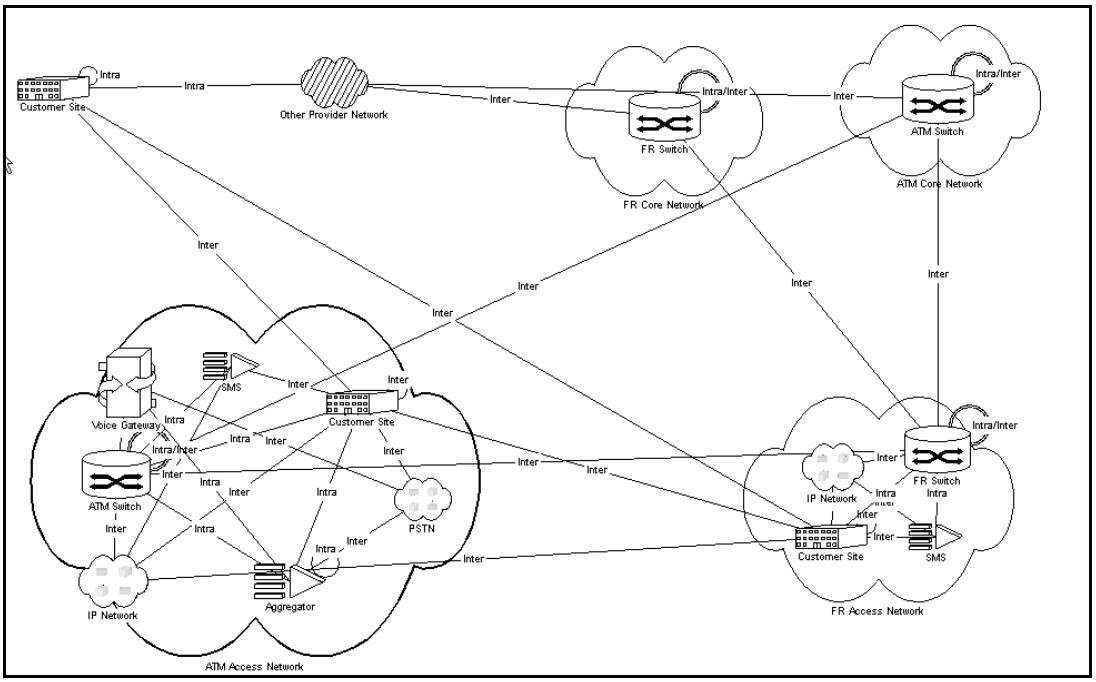



**Figure 7: ATM/FR Network Template**

The DSL network template is shown below. The ATM/FR network templates are embedded within this template.

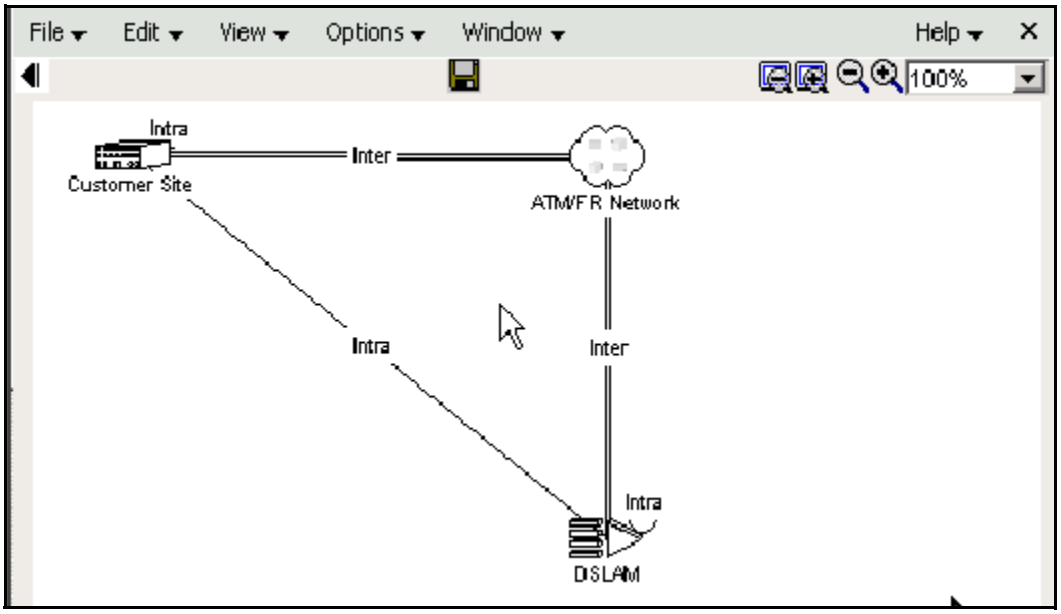



**Figure 8: DSL Network Template**

To learn more about templates, see the *Network Templates User Guide* located on the Oracle E-Delivery Web site.

Gather your network diagrams to use as a guide for building your network templates.

Tip: If you choose to build new network templates, you should only use one connection specification type for bandwidth connections. If you select multiple connection specifications, you will be forced to select the correct connection specification for each connection during the conversion or write a user exit to select the correct connection specifications.

Consider the following questions when planning your network templates:

- What is the primary technology of the network? For example:
  - ATM/Frame Relay
  - MPLS
  - IP
- What types of equipment are used in the network? For example:
  - Aggregators
  - Switches
  - IP Routers
- What connection types connect the equipment or sites? For example:
  - Links
  - Virtual
  - Group
- Are there rules as to what type of components can be connected to other components? For example:
  - A switch can connect to an aggregator
  - A voice gateway can connect to a PSTN or switch
  - A switch can connect to another switch
- Is the network a backbone network, or is it used to provision customer services? For example:
  - A backbone network does not require a customer site and may be a core network
  - Customer-provisioned services need a customer site component and will be part of an access network
- What types of products will you offer over the network? For example:
  - Virtual Private Networks
  - Connections (virtuals, bandwidths, etc.)
- Is the entire network company-owned? Consider that networks that connect to non-company owned networks need a component type of Other Provider.
- Do you want to embed smaller network into larger networks? If network diagrams are hierarchical in structure, you may want to embed networks.
- Do you want to create prioritized paths for virtual connections?
- Do you want to modify custom attributes?

## Template-based network design

The component and connection relationships you use to design a network inherit the properties you defined for that component and connection relationship in the template. With templates,

you can also select which components can be ordered, and determine if equipment from multiple locations can be associated with a component.

This means you do not need to redefine properties every 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.

## Template-based ordering

### *Product Specs*

Template-based item types include system, element, connector, and prdbundle. They have the following hierarchical relationships:

- SYSTEM - Network System (MPLS VPN, for example)
  - ELEMENT - Network Element (Home Office or Branch Office, for example)
  - CONNECTOR - Network Connection (A virtual connection between a home office and a branch office, for example)
- PRDBUNDLE - Product Bundle (DSL product bundle, for example)
  - CONNECTOR - Standalone Connection (An access connection from the IAD at the customer site to your DSLAM, for example)

The System and Prdbundle item types are known as top-level or level 1 products in the hierarchy; subordinate items are known as child, or level 2, item types.

You can use these relationships to create product hierarchies in the software. Most products that a service provider offers have subordinate items or options associated with them. To build the specifications for an entire product hierarchy, you need to identify which items are subordinate to other items.

### *PSR Orders*

Network templates determine which systems, components, and connections you can order on a product service request (PSR).

When you build product offerings, you associate them with network templates. 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 a 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.

The custom attributes associated with the network component types, connection spec types, and the network template types define what these prompts control.

The ordering dialog is a browser-based interface invoked during the ordering process that enables streamlined service configuration. The steps and questions are driven by the

configuration of the product catalog and the associated templates. The ordering dialog interface is configured to know what information to request or require from the user.

You can access the ordering dialog when you enter orders for products that use the four template-based item types of System, Product Bundle, Element, and Connector.

### Template-based provisioning

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

For example, assume you are the engineer designing the VPN that was ordered in the preceding example. When you execute the NET DSGN task from your work queue, you will 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.

# Create network templates

M6 is preloaded with network templates based on the technology modules you purchase based on your business needs, you can use the preloaded templates, modify them, or create new ones.

If you create new templates, create them in the regression environment and test them thoroughly. Your test should include associating a product with the network template, building a network using the template, ordering the template-based product, and provisioning the order. You should ensure that the templates are built correctly before rebuilding them in the migration environment.

New templates built in the migration environment are saved and later imported into your testing and production environments. Because they are all saved, and imported make sure that, in your migration environment, you only enter templates that you will use in production.

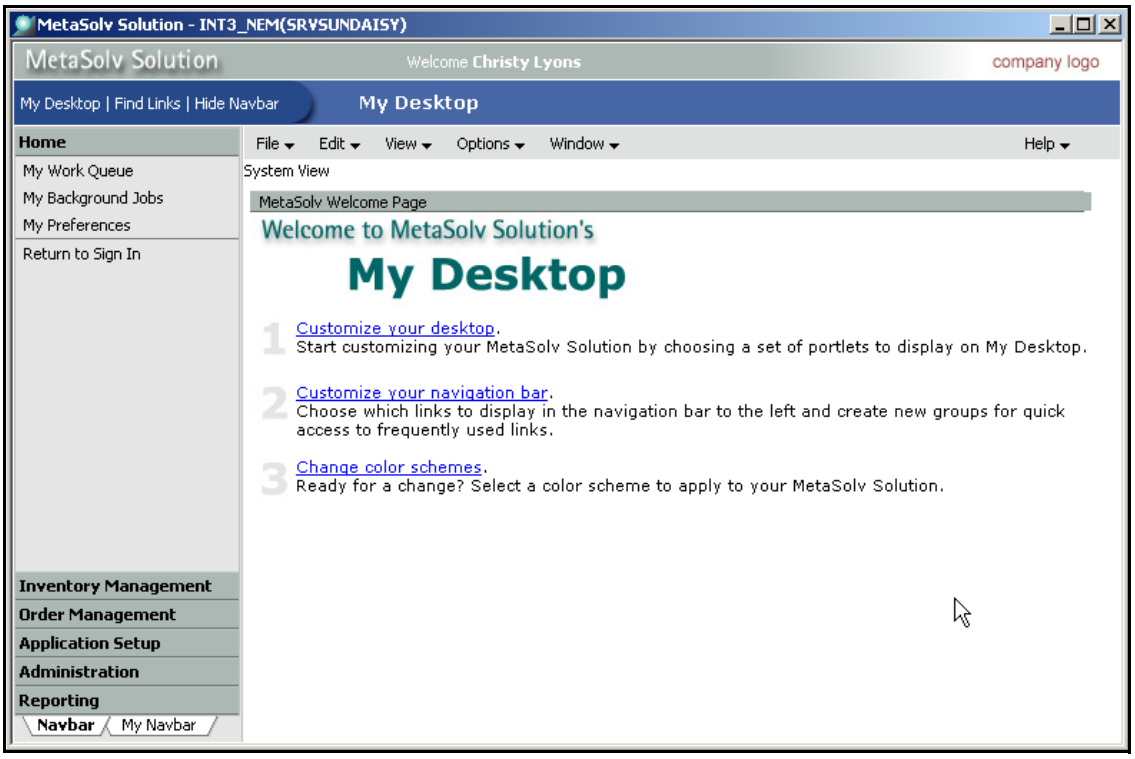
Once data has been associated with a network template, that template cannot easily be deleted.

You might want to use a naming convention for templates in the regression testing environment so you know which templates you will reproduce in the migration environment. When you have tested your templates, create them in the migration environment by following the steps below.

**To create network templates**

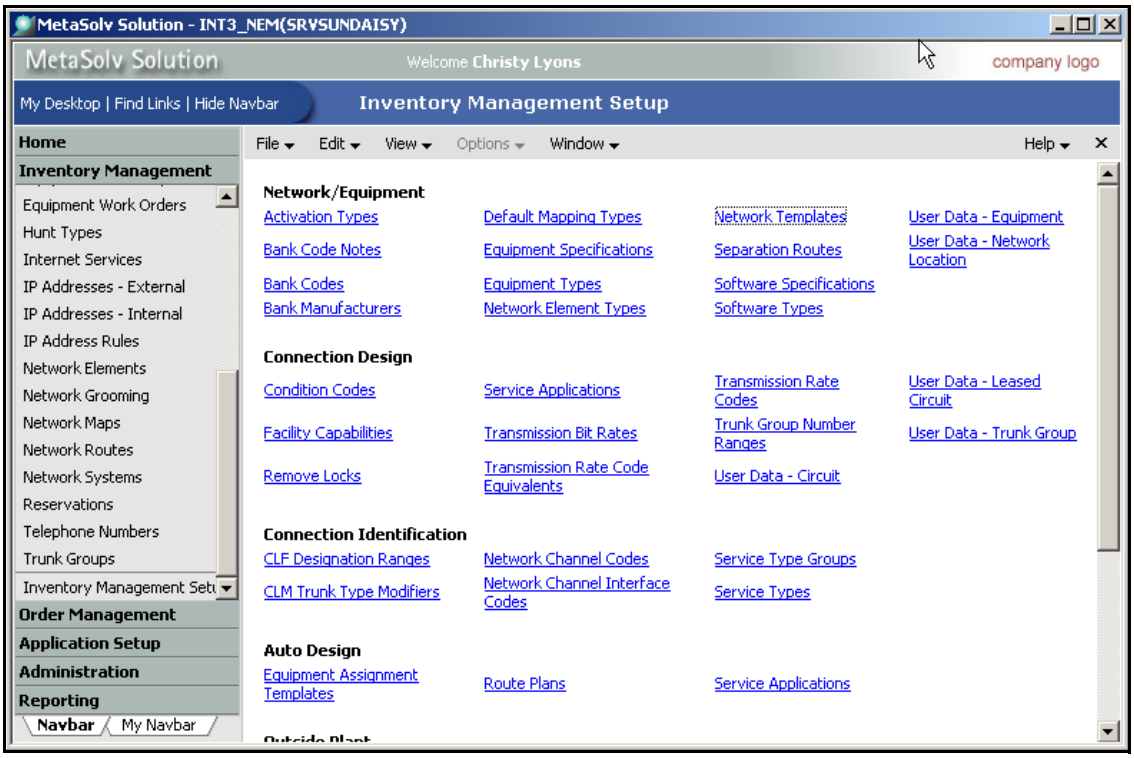
1. Log on to your M6 migration environment.

The following window appears.



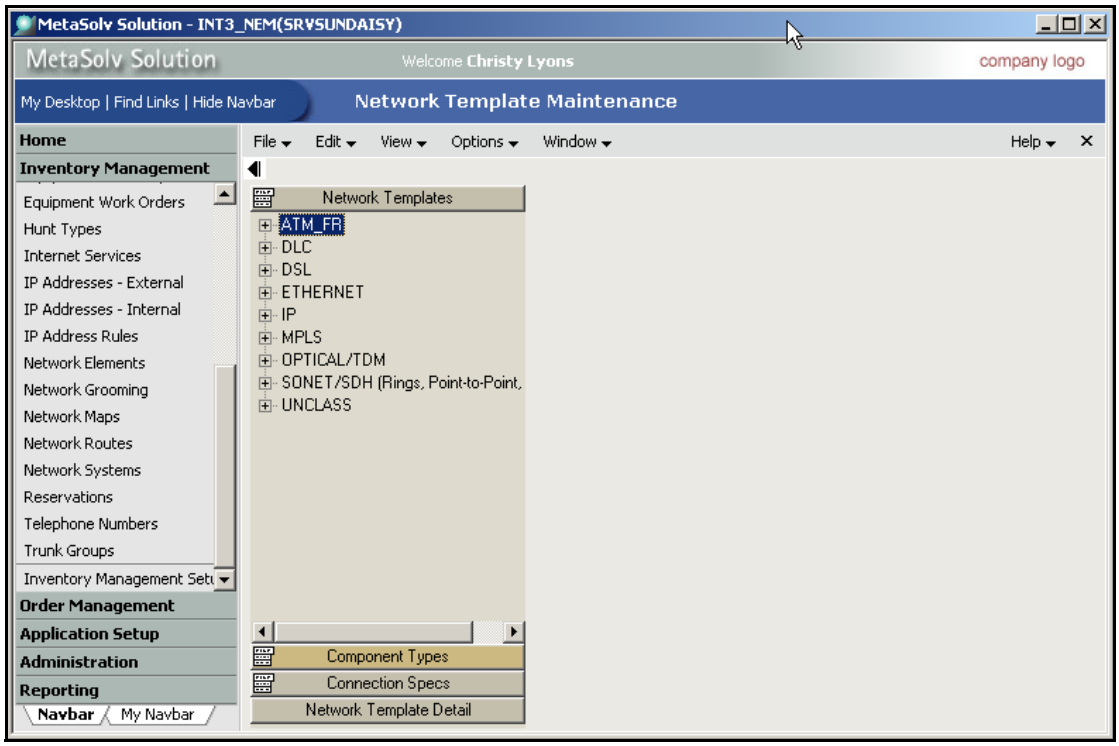

2. Click I**nventory Management** on the navigation bar, and click **Inventory Management Setup**.

The following window appears.




3. Click the **Network Templates** link.

The following window appears.




4. Create your network templates.

   To learn how to create Network Templates, see the *Network Template User Guide* located on the Oracle E-Delivery Web site.

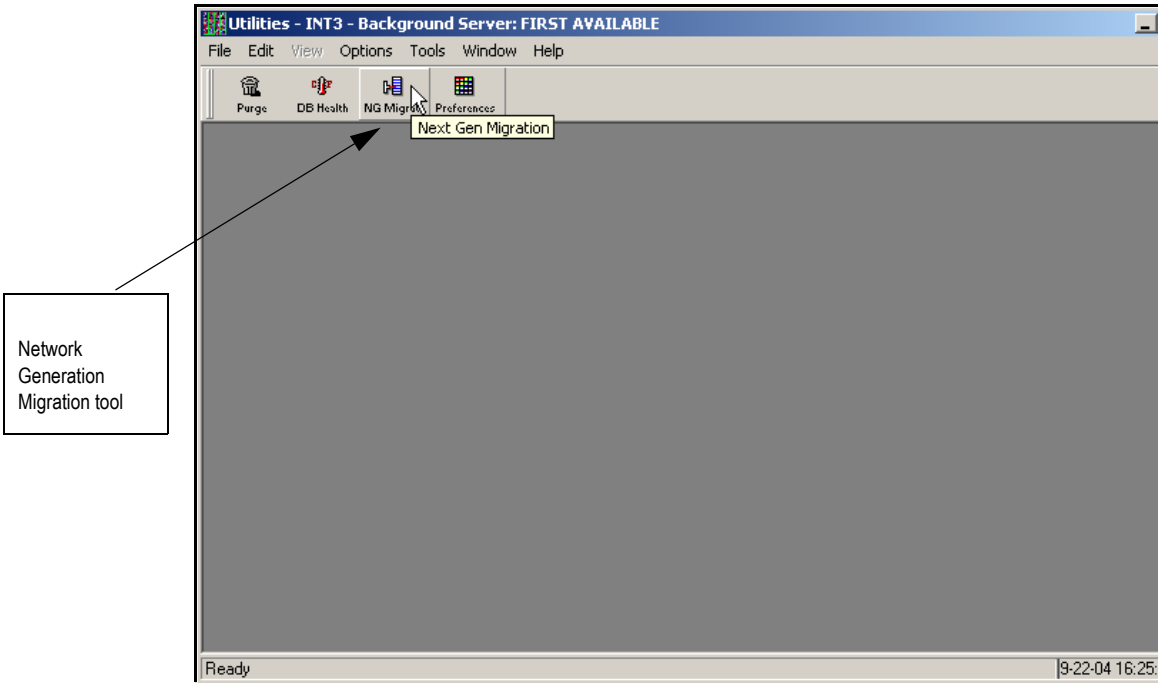
# Complete network template step

Building your templates in the migration environment is the first step in the overall migration process. When they are built, you must mark this step as Complete in the Next Generation Migration tool.

**To complete network template step**

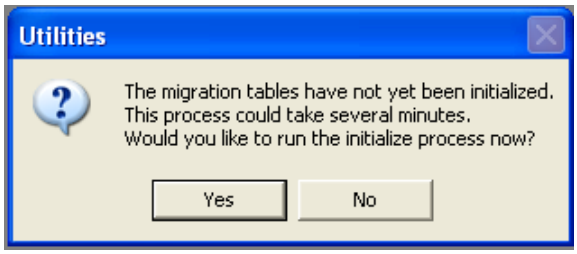
1. From the directory where MetaSolv Solution Utilities is installed, start MetaSolv Solution Utilities by double-clicking *tbs_util.exe.*

The following window appears.




2. Click the **NG Migrate** button.

   The following window appears.

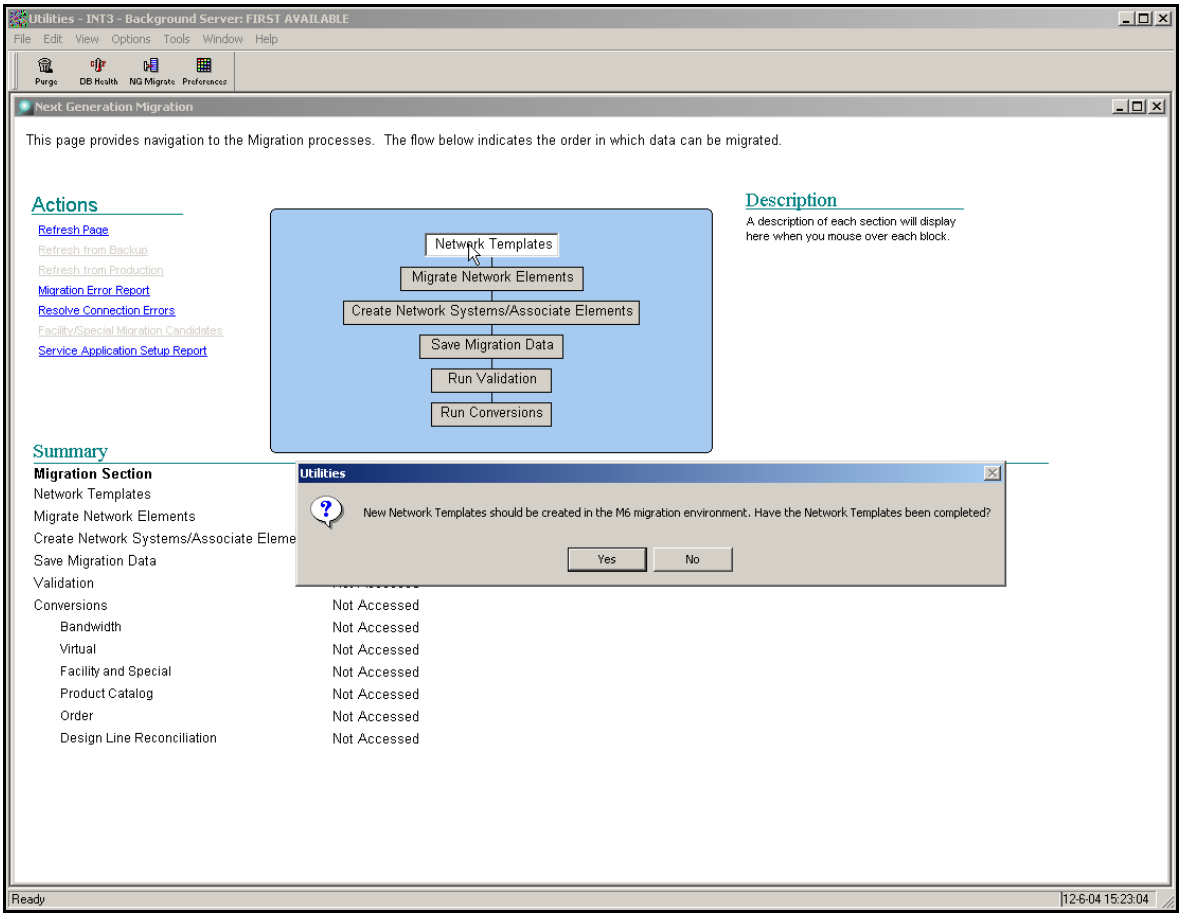



3. Click **Yes**.

   When you click Yes, the system populates new BBM (Broadband Migration) tables that will store the data to be migrated. You can only initialize one time, and you should clean up data in the application before you initialize. Read more about analyzing and cleaning up your data in Chapter 9, “Appendix A: Pre Migration Analysis Tool” of this guide.

4. Click the **Network Templates** button.

The following window appears.




The boxes in the middle section of this window represent a flow diagram of the main steps of the migration. The boxes are color coded to indicate whether the step has been initiated and if it has been completed. The steps must be completed in order. As each step is in progress, certain actions can be performed. These actions can be initiated by clicking the links that appear on the left side of the flow diagram.

Details of the available actions are provided in later chapters covering each step. As you hover over a step in the flow diagram or one of the action links, a description of that step or action appears on the right side of the flow diagram.

5. Click the **Yes** button.

You now have completed the network templates step in the Next Generation Migration process. The Network Templates button should now be disabled. Next, you will migrate your network elements.

# Migrating network element data

This chapter describes the network element migration, the second step in the overall Next Generation Migration process.

⚠ Although M6 will still work if you do not perform the network element migration, skipping it is not recommended. The migration introduces associations that provide a necessary foundation for future functionality. If you skip this migration, you might not be able to take full advantage of future enhancements.

## What does the network element migration do?

The migration introduces the *network element type* category to data in MetaSolv Solution. Network element type is a name for a combination of system-defined technology types and associated roles. A network element represents a group of equipment that provides a logical representation of network data. Being able to categorize both the equipment used in a network and the network elements that represent the equipment as the same network element type provides benefits in validation and opens the door to future enhancements that improve the ease of use of MetaSolv Solution.

For example, currently if you want to find a port on an ATM switch for a connection, you must go to the location, open the relay rack, find the switch, then search for an open port. With the ability to group switches logically using a network element type of *ATM switch*, a future release of MetaSolv Solution could allow you to query for ATM switches that have open ports and to view the first open port.

## Helpful terms

Understanding the terms in this section can help you make appropriate choices as you plan and execute your migration.

### *Equipment type*

An equipment type is a broad categorization of each of the different pieces of equipment, such as the type RELAY RACK, used in a telecommunications network. All relay racks are categorized as type RELAY RACK, regardless of the manufacturer or part number.

Before you can install a specific piece of equipment at a network location, you must associate the equipment with an equipment type. For example, before you can install an Alcatel D448

channel bank at a network location, you must associate the channel bank with the equipment type CHANNEL BANK on the equipment specification.

### Equipment specification

An equipment specification is a reusable definition of a specific equipment type that identifies the basic characteristics of equipment. The equipment spec includes information such as equipment type, manufacturer, and number of physical mounting positions.

### Component type

A component type, which can be considered a specification for a component, is the generic representation of equipment used in a network template. It can represent any type of equipment. In prior versions of MetaSolv Solution, component types were called element types.

The following figure shows some default component types provided in Network Templates.

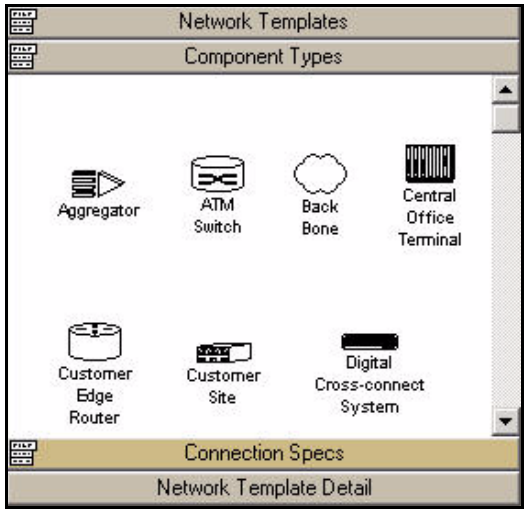



**Figure 9: Component types in Network Templates**

### Component

A component is an instance of a component type. When a component type is dragged from the panel and added to a template or network system, it becomes a component. The following figure shows a component in a network template.

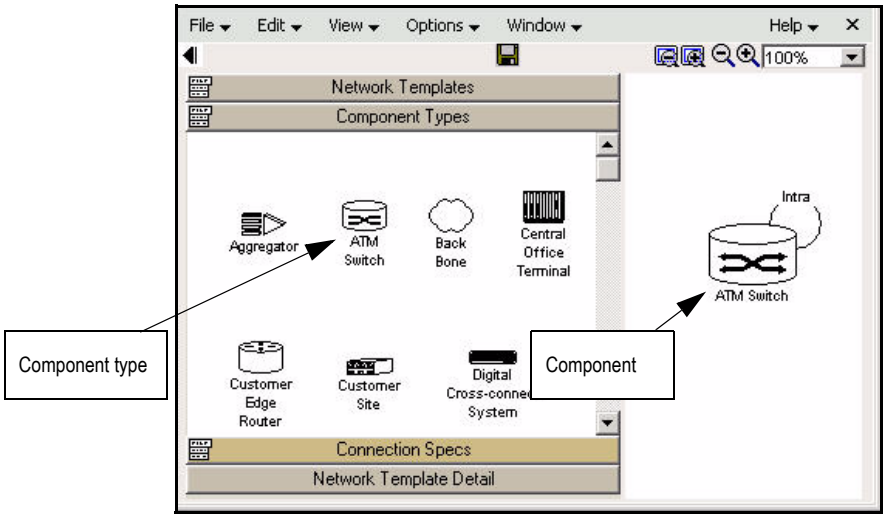



**Figure 10: Component in a network template**

### Network element type

A network element type is a preloaded or user-defined name for a combination of system-defined technology types and roles.

You can think of it as a specification for a network element. It represents a group of equipment or devices that perform the same functional network activity, for example, switching or routing.

### Network element

A network element is a component (from Network Templates) whose component type is associated with a network element type. The association between the component type and the network element type makes the component a network element that can be used in a network system design to represent equipment. The equipment represented by a network element is intelligent and can be configured locally or remotely. In the case where a network element is composed of multiple pieces of equipment, the individual pieces work together to address the functional and capacity aspects expected of a single piece of equipment.

A router is an example of a single piece of equipment that can be identified as a network element. A digital cross-connect system (DCS) or a central office switch is an example of a network element that contains more than one piece of equipment.

## When does a component become a network element?

A component type can be used as a network element if it is associated with a network element type. If both components and network elements can represent equipment in a network design, what is the difference?

A component is associated only with a component type. It can appear in a template or in a network design. If you associate the component type for a component with a network element type, that component becomes a network element when used in a network system. The following figure shows the relationship.

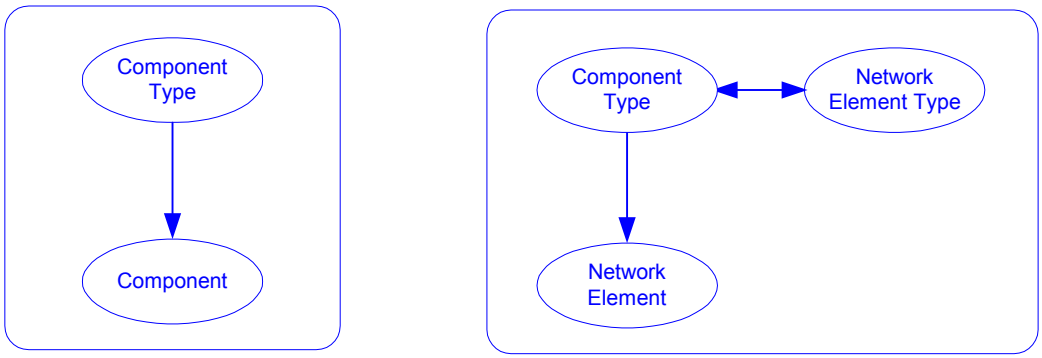



**Figure 11: Network elements and components**

In M6, you can search for a network element by name in Equipment Inventory. You cannot search for a component. Future development will include additions to what you can search for or manipulate in the system based on network element types and network elements.

# Start the Network Element Migration tool

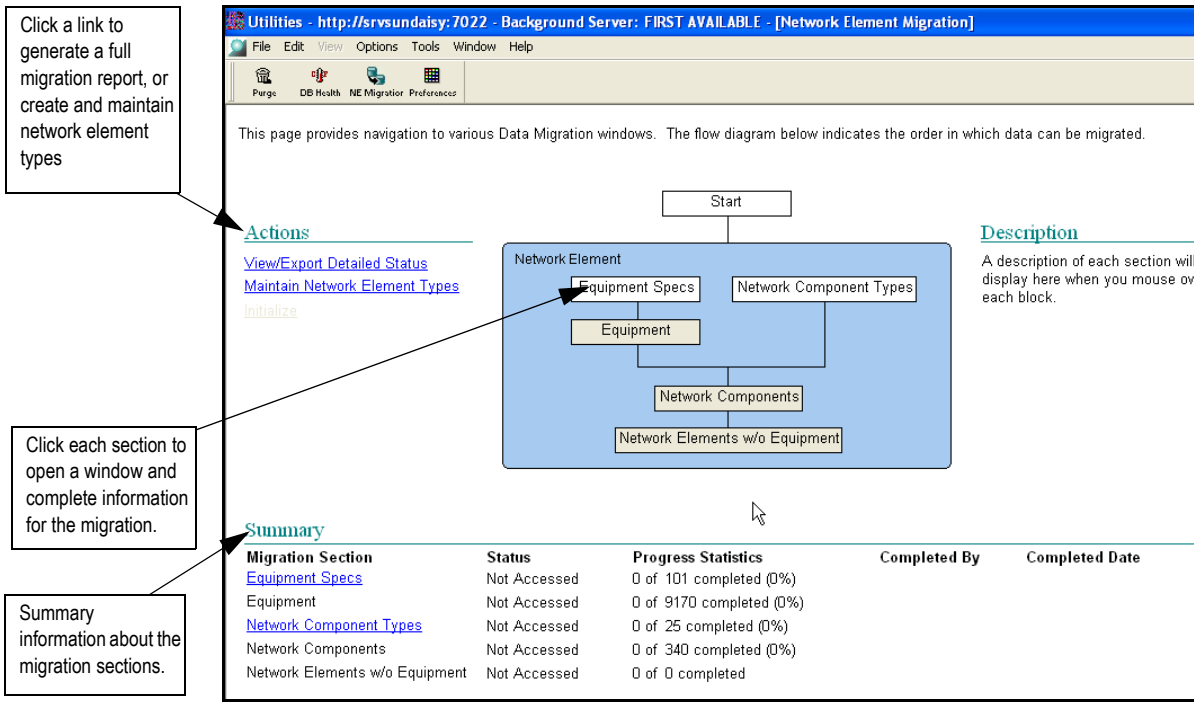
The Network Element Migration tool is embedded in the Next Generation Migration tool.

**To start the Network Element Migration tool**

1. From the Next Generation Migration window, click the **Migrate Network Elements** button.

The Network Element Migration tool opens as shown in the following window.

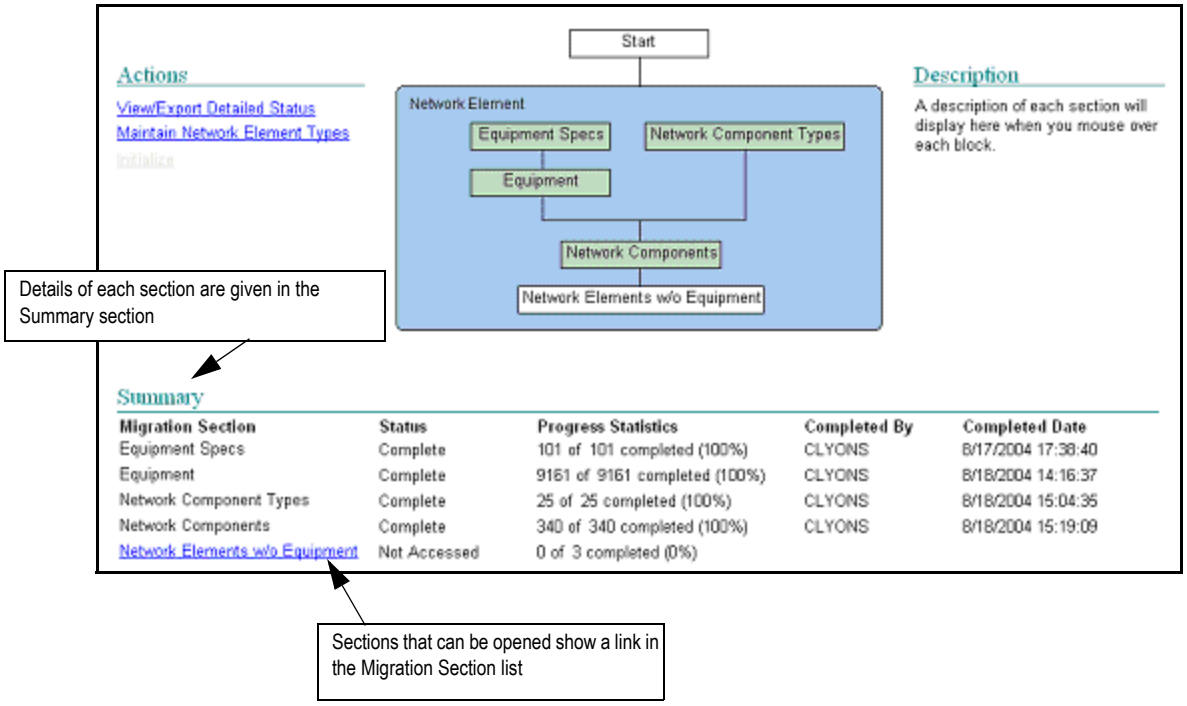
The following window appears.




The boxes in the center of the window indicate the flow of the steps in the migration process. Each box represents a section of the migration process that you will complete.

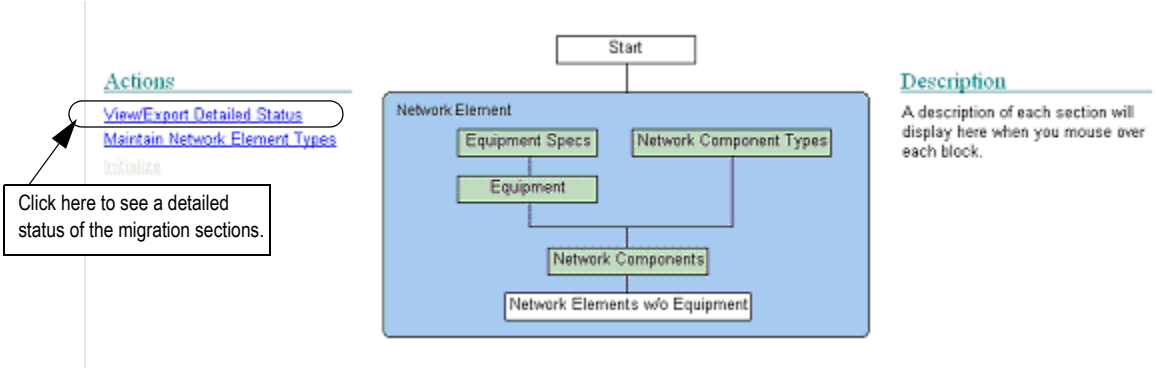
# View summary data

The Summary gives the status of each section of the migration and indicates the percentage of completed associations.

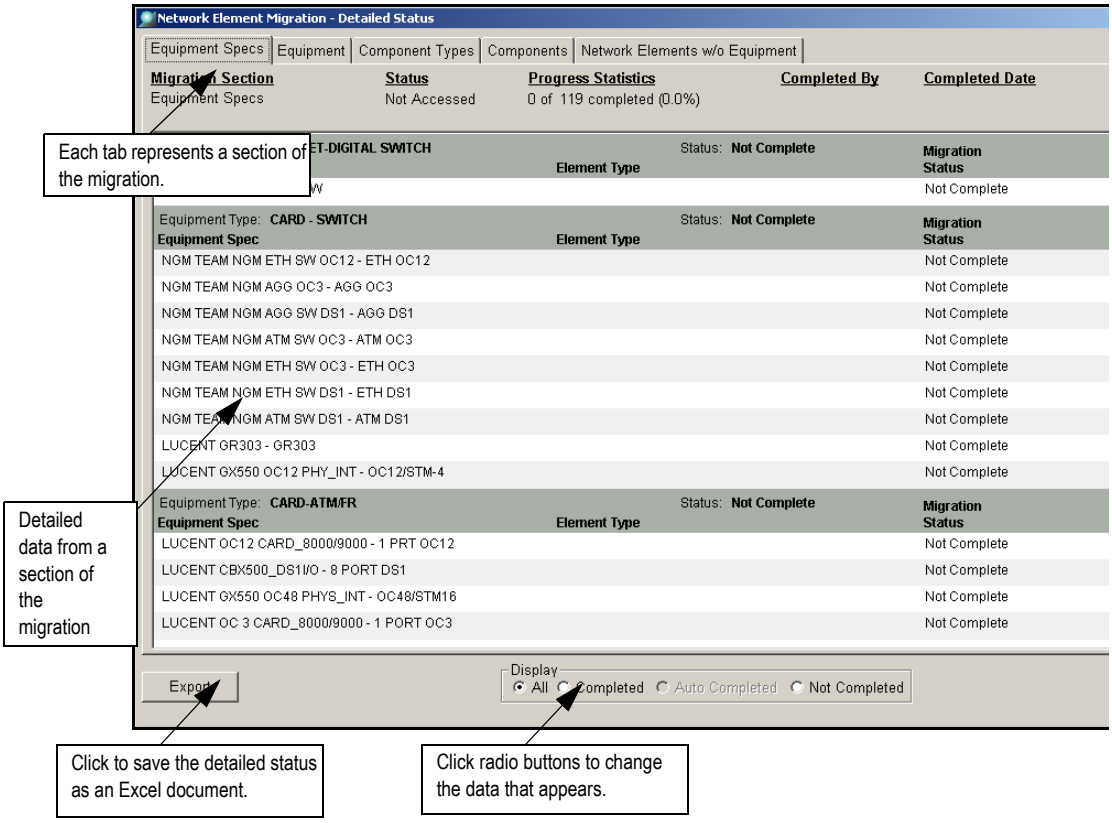


# View a detailed status

To see a detailed status of the migration, click **View/Export Detailed Status** on the Network Element Migration tool's main window.




The following figure shows an example of a detailed status.



## Export a detailed status

**To export a detailed status of the migration**

1. Click the **Export** button.

   The Save As dialog box appears.

2. Select the file type and type a file name for the detailed status.

   The default file type is *Excel5 with headers*.

3. Click **OK**.

# Basic network element migration steps

The following steps indicate at a high level what you must do to set up network element data using the Network Element Migration tool.

1. Review your network element types to determine:
   - Whether additional network element types are needed for your business processes. If so, create the new network element types.
   - Which equipment specs and component types will be associated with network element types. Doing this step can save time during the migration and increase the accuracy of your selections when using the migration tool.
2. Run the Network Element Migration tool to associate network element types with data in MetaSolv Solution and store the information in the migration database.

# Review network element types

The following section lists the default network element types and explains how to create a new network element type if the defaults do not contain every type you need.

## Default network element types

The following table contains the M6 default network element types.

**Table 2: Default MetaSolv Solution network element types**

| Network element type | Description |
|---|---|
| 3G HLR | 3G home location register (server) |
| 3G VLR | 3G visitor location register (server) |
| ATM Gateway | ATM gateway |
| ATM Switch | ATM switch |
| ATM Switch Router | ATM switch router |
| CDMA HLR | CDMA home location register (server) |
| CDMA VLR | CDMA visitor location register (server) |
| DSL Multiplexer | Digital subscriber line access multiplexer |
| Ethernet Bridge | Ethernet bridge |
| Ethernet Bridge Router | Ethernet bridge router |
| Ethernet Switch Router | Ethernet switch or switch router |
| Frame Relay Switch | Frame relay switch |
| Frame Relay Switch Router | Frame relay switch router |
| Frame Relay/ATM Switch Router | Frame relay/ATM switch router |
| GSM HLR | GSM home location register (server) |
| GSM VLR | GSM visitor location register (server) |
| IP Gateway | Router acting as gateway |
| Label Edge Router | MPLS edge router |
| Label Switch Router | MPLS core router |

**Table 2: Default MetaSolv Solution network element types**

| Network element type | Description |
|---|---|
| MPLS Switch | MPLS switch |
| Router | IP router |
| Signalling Gateway | Signalling gateway |
| SONET ADM | SONET add/drop multiplexer |
| SONET Cross Connect | SONET cross-connect |
| TDM Cross Connect | DACS or digital cross-connect system |
| Token Ring Bridge | Token ring bridge |
| Voice Gateway | Voice gateway |
| Voice Switch | Voice switch |
| Voice Terminal | Voice gateway |
| WDM ADM | Optical add/drop multiplexer |
| WDM Cross Connect | Optical cross connect and optical switch |

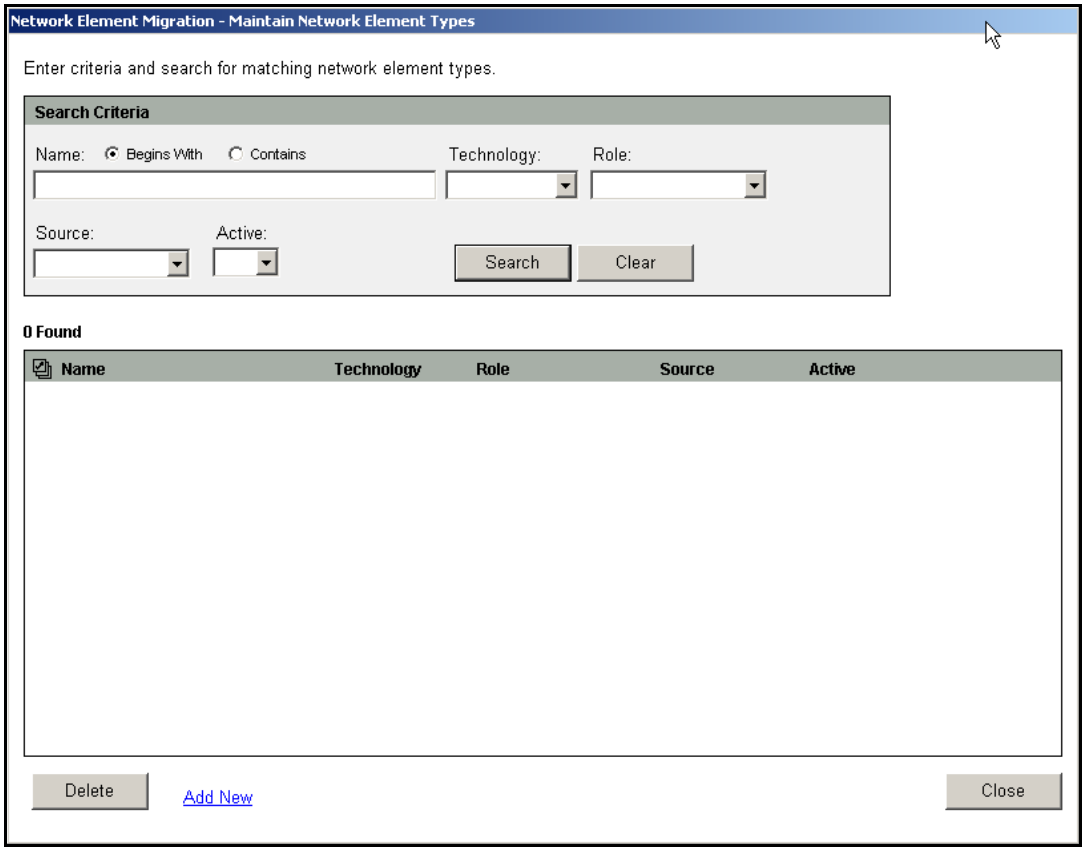
# View network element types in the system

You can view network element types using the Network Element Migration tool, or if you are on a M6 version, you can view them in the core application under Inventory Management Setup.

**To view network element types**

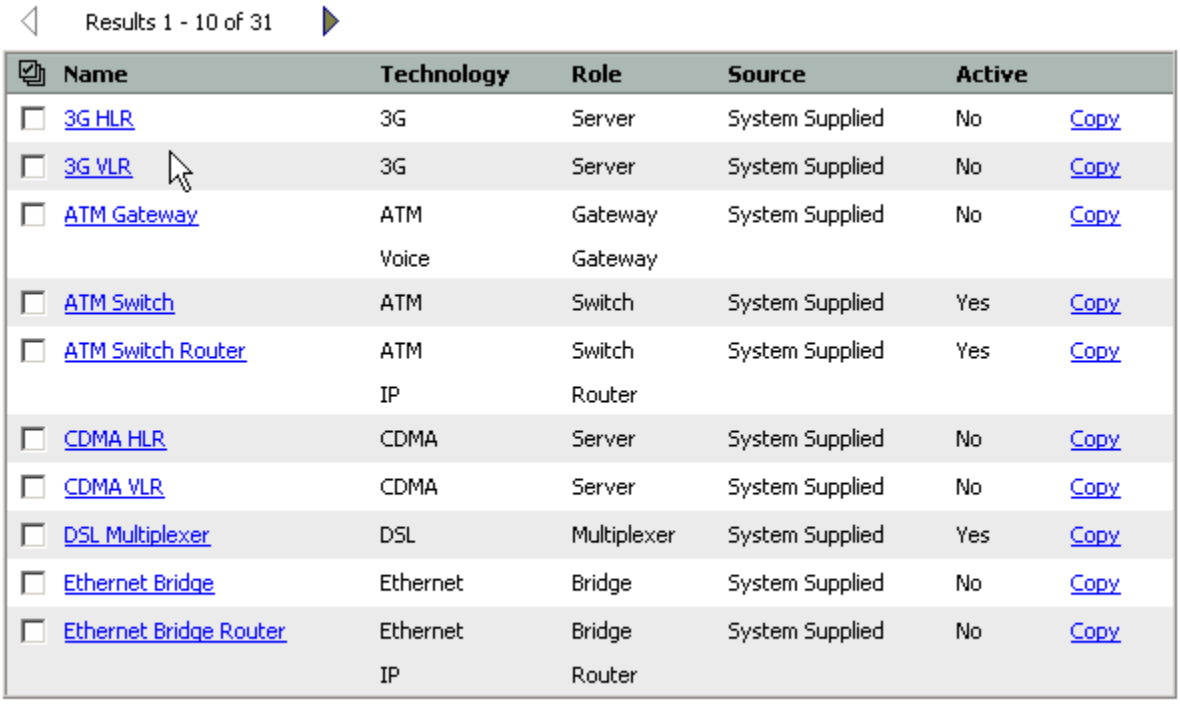
1. Under Actions on the Network Element Migration main window, click the **Maintain Network Element Types** link.

   The following window appears.




2. Enter search criteria to narrow the search or leave all fields blank to retrieve all data, and click the **Search** button.

The following figure shows the results of a full search with no criteria entered.




| Name | Technology | Role | Source | Active | |
|---|---|---|---|---|---|
| 3G HLR | 3G | Server | System Supplied | No | Copy |
| 3G VLR | 3G | Server | System Supplied | No | Copy |
| ATM Gateway | ATM Voice | Gateway Gateway | System Supplied | No | Copy |
| ATM Switch | ATM | Switch | System Supplied | Yes | Copy |
| ATM Switch Router | ATM IP | Switch Router | System Supplied | Yes | Copy |
| CDMA HLR | CDMA | Server | System Supplied | No | Copy |
| CDMA VLR | CDMA | Server | System Supplied | No | Copy |
| DSL Multiplexer | DSL | Multiplexer | System Supplied | Yes | Copy |
| Ethernet Bridge | Ethernet | Bridge | System Supplied | No | Copy |
| Ethernet Bridge Router | Ethernet IP | Bridge Router | System Supplied | No | Copy |

The Source field indicates whether the network element type is System Supplied (part of M6 base data) or Custom. Any network element types you create will automatically be labelled Custom.

If a network element type is set to inactive, it can be associated with existing equipment specifications, but cannot be associated with new equipment specifications or network template components.

You can delete a custom network element type by selecting the check box next to it and clicking the **Delete** button. Only custom network element types that have no associations with equipment specs or component types can be deleted.

To add a new network element type, click the **Add New** link. To copy a network element type, click the **Copy** link. If you use the Copy link, you must change the name of the network element type in the copy window. Each network element type must have a unique name.

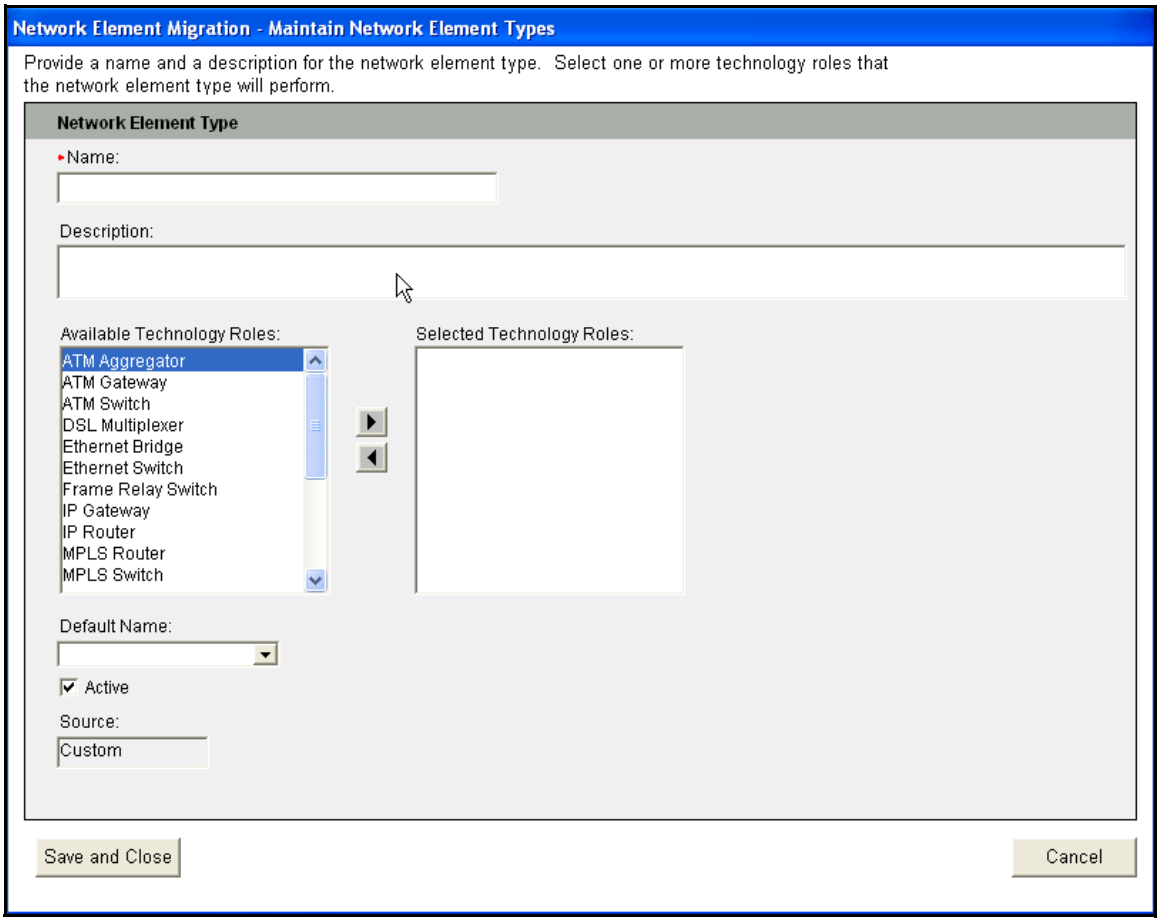
# Create a network element type

If you did not find all of the network element types needed by your business in the preceding table, you can create a network element type.

**To create a network element type**

1. Under Actions on the Network Element Migration main window, click the **Maintain Network Element Types** link.
2. Click **Add New**.

   The Network Element Type window appears.




3. Complete the following information on the Network Element Type window:

   **Name**—Type the name of the new network element type. This information appears in the user interface in selection boxes on the Equipment Specification and Component Type windows.

**Description**—Type a description of the network element type. Include the component types and equipment specs you intend to associate with the network element type for reference.

**Technology Role**—Select the applicable technology role from the Available Technology Roles list box and click the right arrow to place your selection in the Selected Technology Roles list box.

**Default Name**—A system-provided, default name that appears for a network element if no specific name is provided. You can select the system-provided name you would like the default to be, for example, TID or network location.

The default network element name appears on the canvas in Network System Design and on the equipment in Equipment inventory. Previously in Equipment Inventory, the equipment CLLI code appeared in parentheses next to the equipment, but now the network element name appears in parentheses.

When new connections are designed after the migration, the network element name will appear on the Design Notes Maintenance window from the CLR/DLR.

**Active**—When selected, this check box indicates that the network element type is active and can be used in the application.

4. Click **Save and Close**.

# Perform the Network Element Migration

The following figure appears on the Network Element Migration tool's main window. It shows an outline of the migration process.

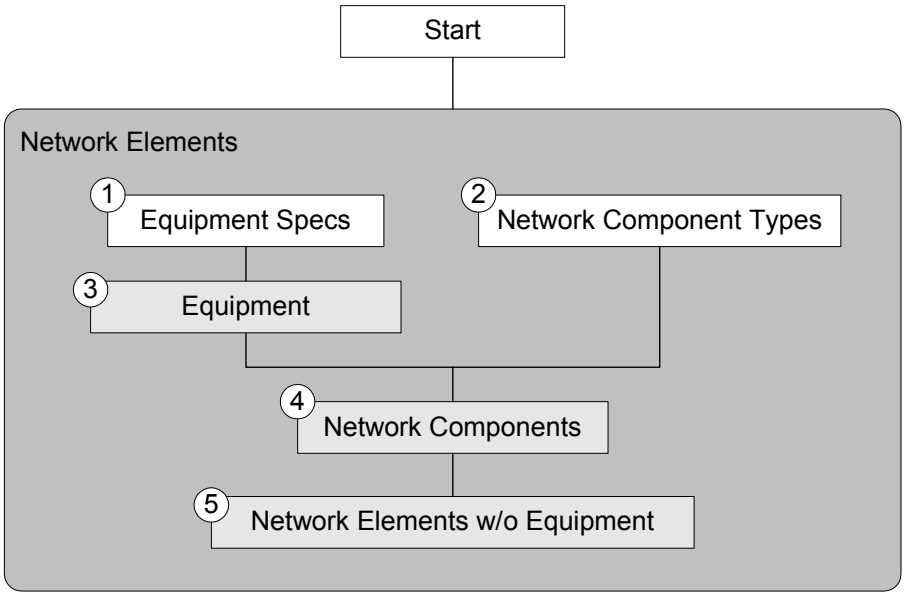



**Figure 12: Network Element Migration tool sections**

The migration is completed in sections. Clicking on a section shown in the figure brings up a window on which associations with network element types can be made.

You must complete the migration sections in a specific order because each section you complete has downstream effects on the data you are migrating. You can begin with Equipment Specs or Network Component Types, but each section in the sequence must be completed before you can open and work on the section that follows it. The numbers shown in the figure indicate the best order for completing sections of the migration. For best results, complete the sections in the following order:

1. Equipment Specs
2. Network Component Types
3. Equipment
4. Network Components
5. Network Elements w/o Equipment

# What each section of the migration does

The following table shows how each section works in the migration process.

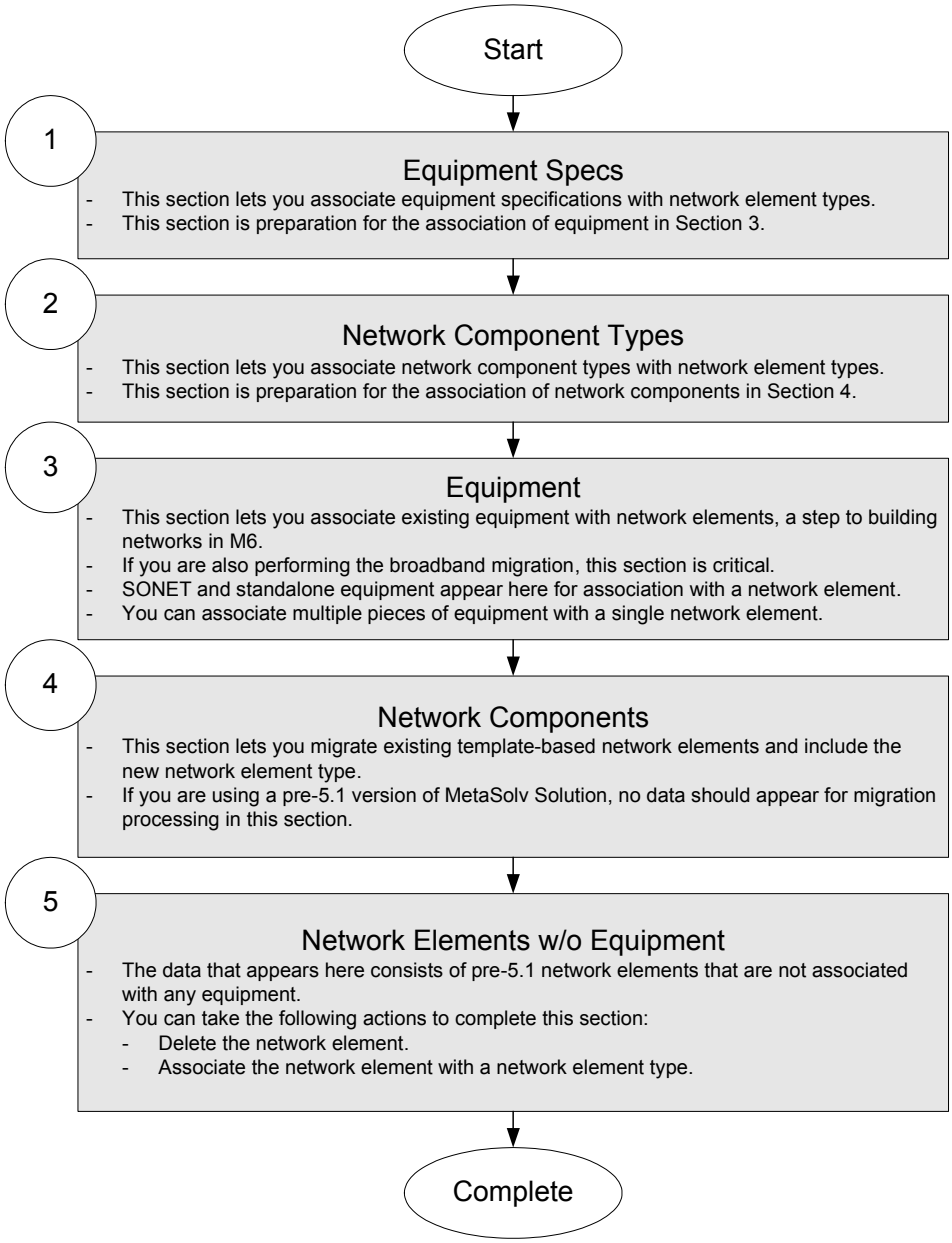



**Figure 13: The Network Element Migration sections**

## Window Tools

The following features appear on windows in each section of the tool. The features are related and each is used to indicate what is to be processed.

**Check box—**Selecting a check box indicates that the information on a row is to be updated with the default information provided by the system or with information that you enter. In some cases, when you enter information in a row, the check box is automatically selected.

**Save button—**When you click this button, rows with selected check boxes are saved, but the tool does not complete the section.

**Complete button—**When you select this button, the tool updates all rows and closes the section. If the check box for a row is not selected, or if the appropriate associations have not been made for the items on the row, an error message appears. The tool updates all rows possible in this case, but you must rework any rows that do not update and provide the appropriate associations, then click **Complete** again to close the section.

# Equipment Specs

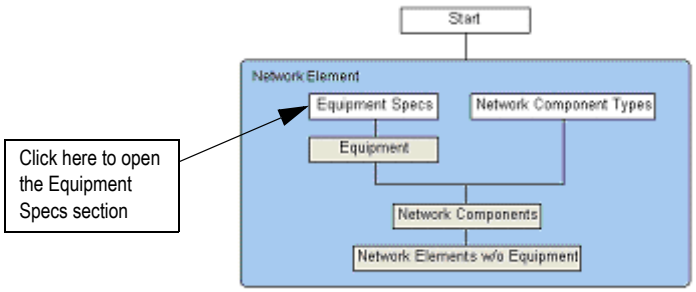
This section allows you to associate equipment specs with network element types.

## Complete the section

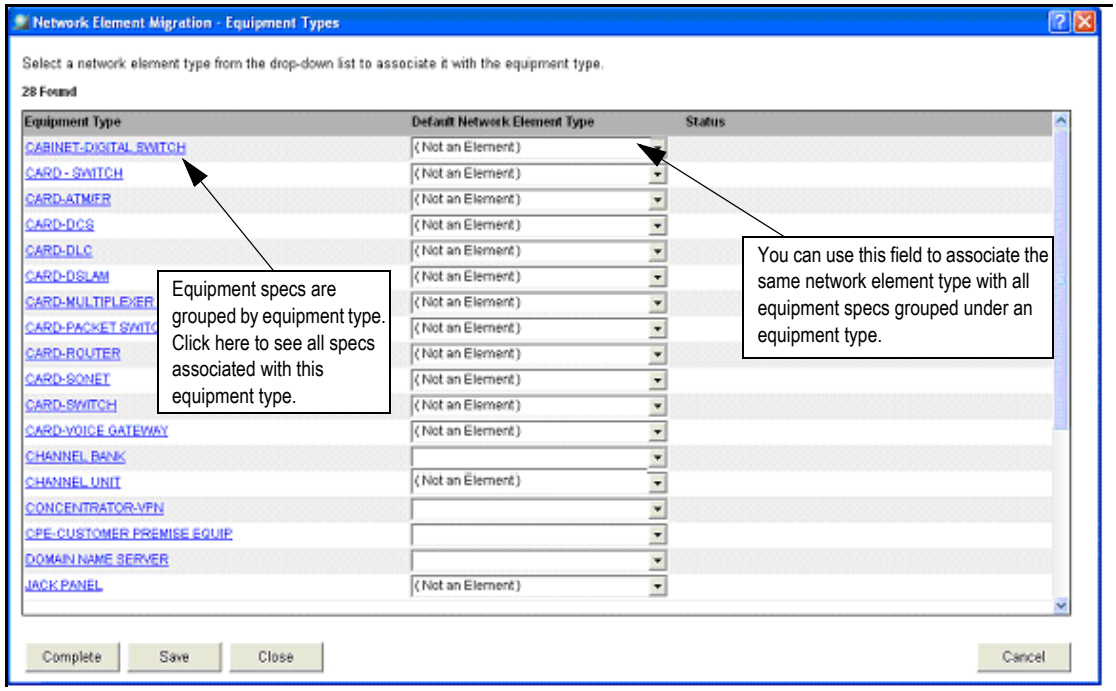
Before you start working with the Network Element Migration tool to complete this section, read this procedure and the section that follows entitled "Tips for completing the section".

**To complete the equipment specifications section**

1. On the Network Element Migration main window, click **Equipment Specs**.



The Equipment Types window appears.



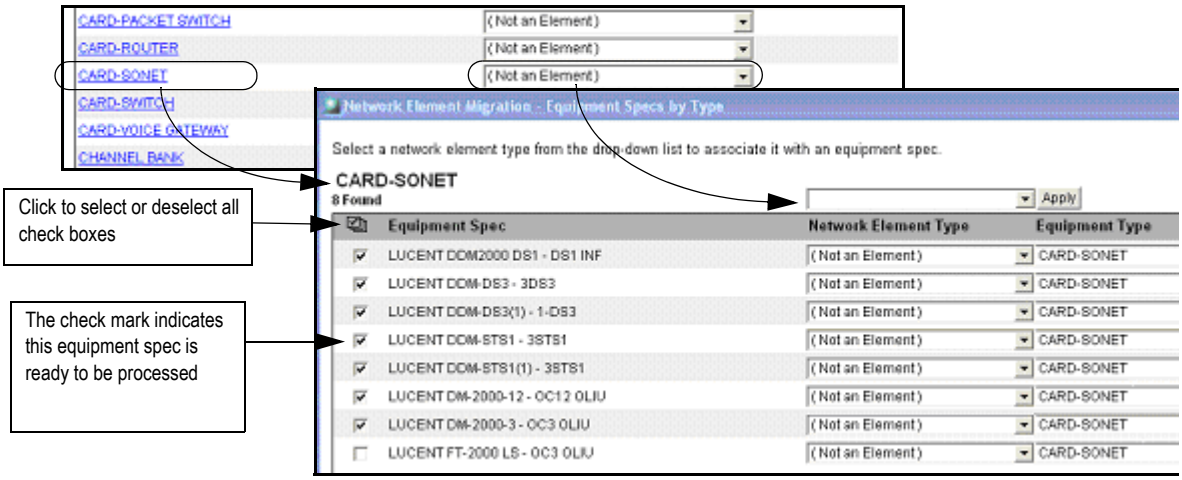

This window groups equipment specifications by equipment type. If an equipment type has no associated equipment specs, it does not appear in the Equipment Type list.

When you open the window for the first time, the **Default Network Element Type** field may have values present for equipment types. These values are taken from base data as an attempt to save keystrokes. If a value is not appropriate for an equipment type, select another value. The default network element type will default to *Not An Element* for the following equipment types:

- Channel unit
- Chassis
- Frame
- Fuse panel
- Jack
- Jack panel
- Multiplexer
- Other
- Relay rack
- Wall board
- Any type that has Card in the name

2. Click an equipment type link in the Equipment Type list.

   The following figure shows the equipment specs associated with CARD-SONET. Clicking the CARD-SONET link causes the Equipment Specs by Type window to appear with the associated equipment specs. Notice that the network element type value *Not an Element* defaulted from the Equipment Types window.




3. Associate equipment specs with network element types by accepting the default value in the **Network Element Type** field or selecting another value.

   Here is how the window works:

   - Any values that appear in the Network Element Type field are defaulted from the Equipment Types window and you can change the value in the field for any equipment spec.
   - A value of *Not an Element* can be selected for some equipment types that are not intelligent, such as a jack panel or a relay rack. If this is a default value and you want to change it, click the drop-down arrow and select another value.
   - A check mark at the beginning of a row indicates the equipment spec is ready to be processed. Rows that have default values in the **Network Element Type** field are automatically selected when the window opens.
   - You select or deselect a row's check box to indicate which rows are to be processed for migration.
   - Use the check mark icon ( ) in the column header to select and deselect all equipment specs on the window.
   - You are not required to process all rows at the same time. You can select and process specific rows, leaving others for a later time.
   - To complete each equipment type, you must associate all equipment specs with a network element type or indicate that it is *Not an Element*.

- To complete the window, you must complete all rows.
- To complete the section, you must complete all rows on all Equipment Specs by Type windows.

4. (Optional) You can change an equipment spec's equipment type by changing the value in the **Equipment Type** field.

   This field allows you to make changes to reorganize your data, if necessary.

5. To process the selected rows, do one of the following:

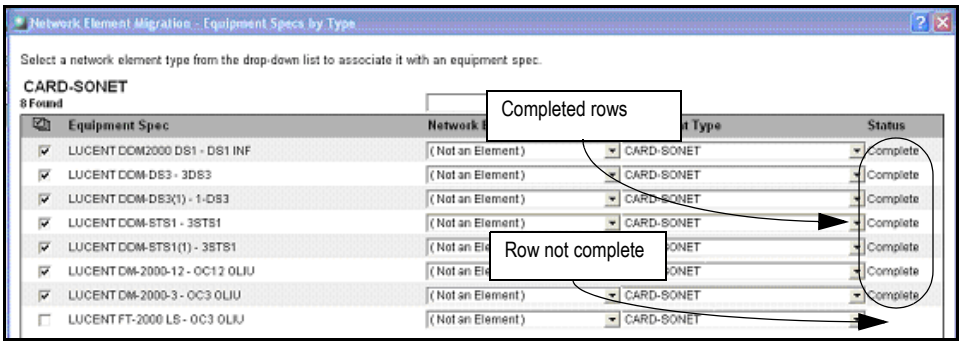
   - Click **Save** if you want to process only selected rows.

     The changes are saved, but the section is not completed.

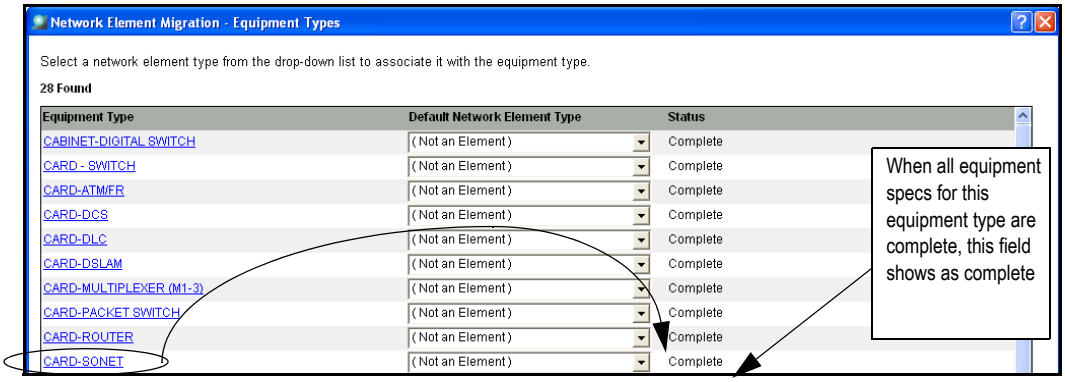
   - Click **Complete** to process all rows.

     Use this command if all rows are selected and ready to process.

   The following figure shows the status for equipment specifications after processing.



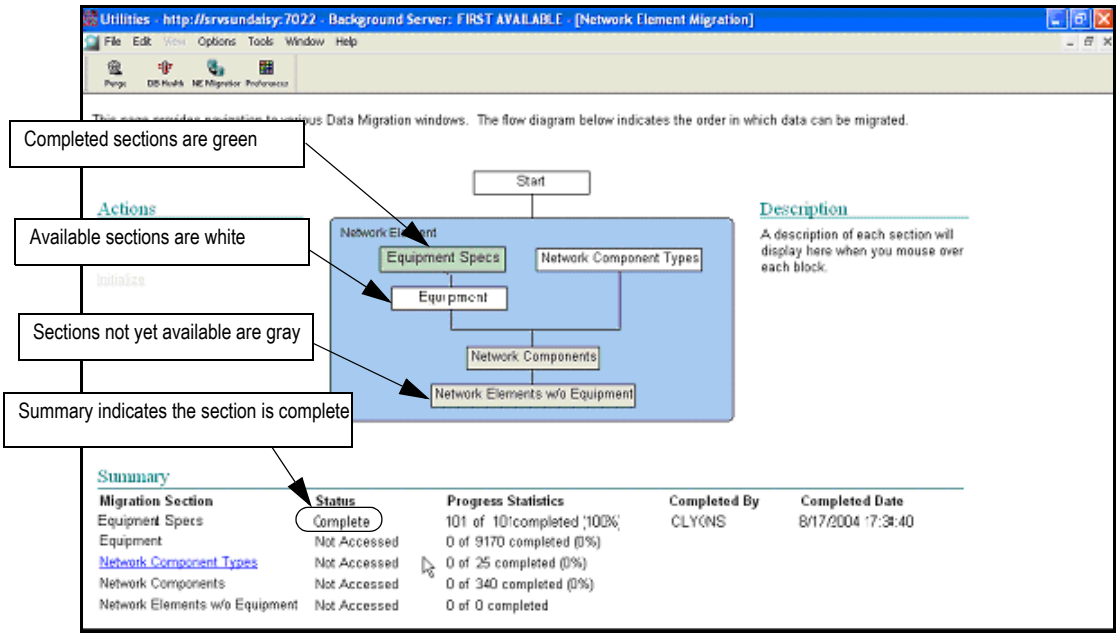

6. Click **Close** to close the window and return to the Equipment Types window.




Each equipment type row shows a "Complete" status when all equipment specs for that type are complete.

7. On the Equipment Types window, complete one of the following actions:
   - Click **Save** if only a portion of the equipment type rows are completed.
   - Click **Complete** if all equipment type rows are completed. This action completes the section. You must process all rows before you can complete the section. An error message appears if all rows are not complete.
8. Click **Close** to return to the Network Element Migration main window.

   The following figure shows how the main window appears after the Equipment Specs section is completed.

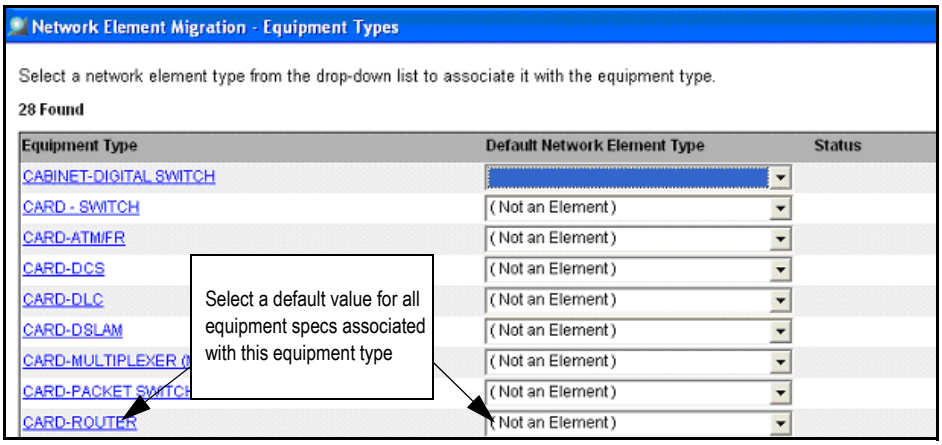



## Tips for completing the section

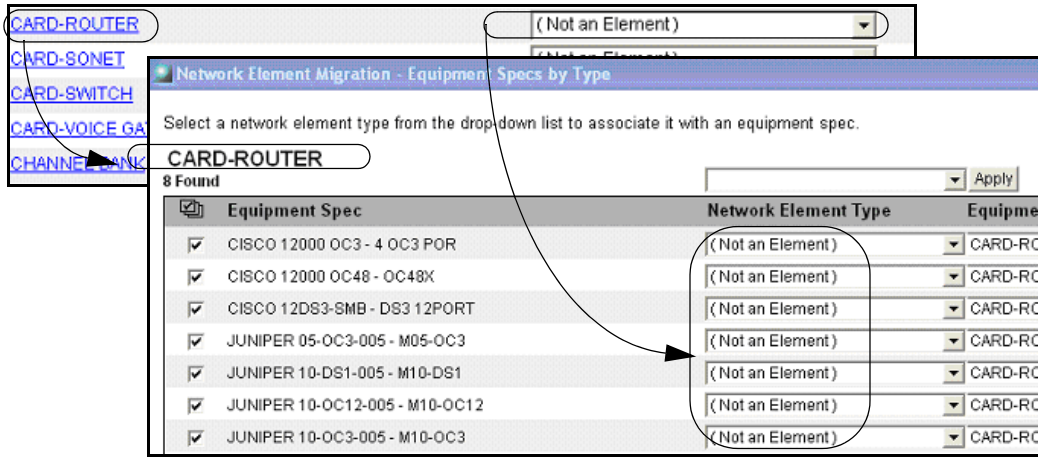
- **Default the network element type**

  On the Equipment Types window, select a value in the **Default Network Element Type** field. This value becomes the default network element type for all associated equipment

specs. The field may contain a default value already. You can accept this value or select another.




When you click the equipment type link, the Equipment Specs by Type window shows the default value copied into the Network Element Type field for all equipment specs.

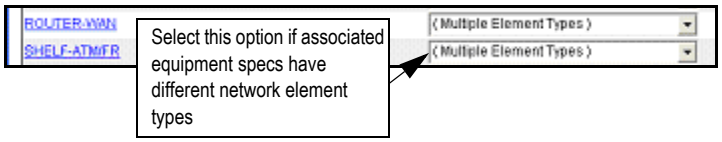



This is a quick way to enter network element types for equipment specs if all or most have the same value.

You can change the defaulted value for an equipment spec by selecting another from the drop-down list.

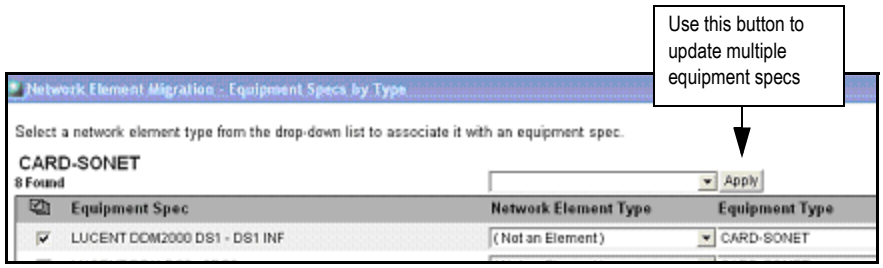
- **Use Multiple Element Types as a default**

  If the equipment specs for an equipment type have a variety of network element types, you can note this on the Equipment Types window by selecting *Multiple Element Types*. This is a simple way to know that more than one network element type is associated with an equipment type's specs without opening the Equipment Specs by Types window.




- **Use the copy function**

  To copy a network element type to selected equipment spec rows, use the **Apply** button.




  Select the check boxes of the equipment specs you want to copy the network element type to, then select the new network element type value in the Apply drop-down list and click **Apply**.

# Network Component Types

This section lets you associate a network element type with a network component type.

## Association rules

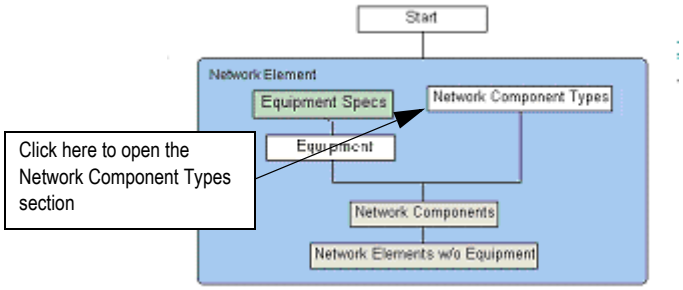
- You can associate a network component type with multiple network element types. When creating a network system using that network component type, you will need to select which network element type to associate with the component.
- You cannot disassociate a network element type and a component type if they are associated with network elements and/or network components that have existing associations with equipment in a network system.

## Complete the section

Before you start making changes to your data, read the entire procedure and make sure you understand what is expected in this section.

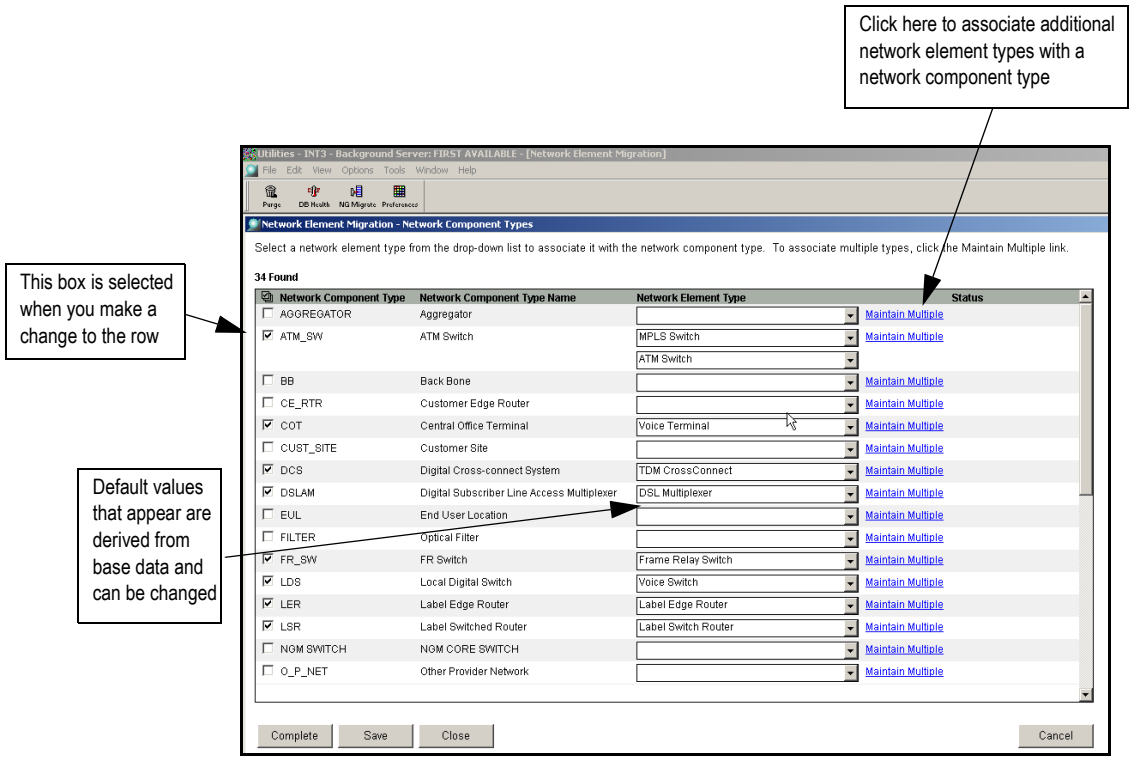
**To complete the Network Component Types section**

1. On the Network Element Migration main window, click **Network Component Types**.




For more information on default component types, refer to Table 4 on page 66.

The Network Component Types window appears.




Here is how the window works:

- In some cases, a default value might appear in the **Network Element Type** field when the window opens.

  The default value is derived from base data and is intended to save you keystrokes. You can change it by clicking the drop-down list in the field and selecting another value.

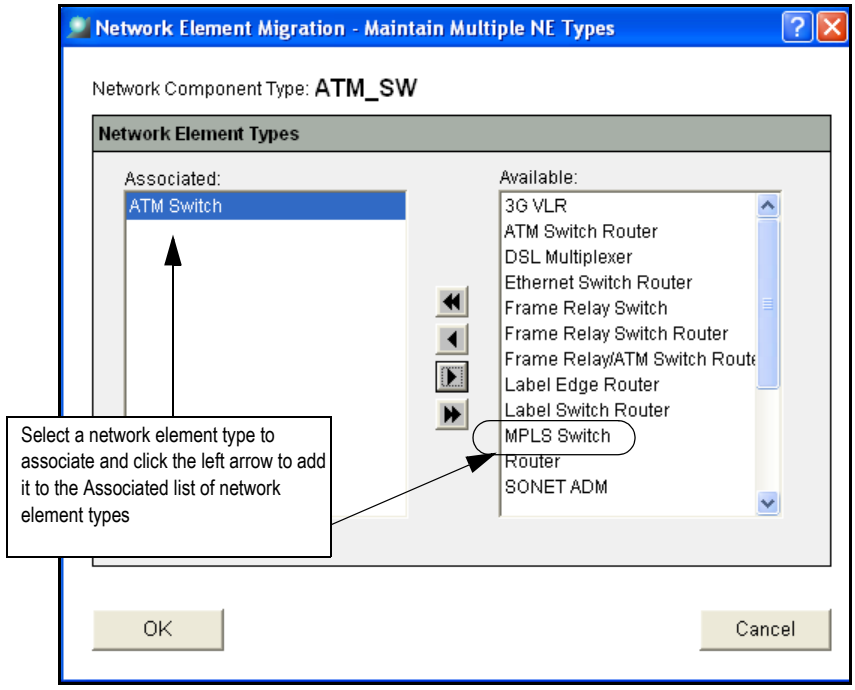
- Rows that contain default values in the **Network Element Type** field are automatically selected when the window opens. You can select or deselect the check box to indicate which rows you want processed.
- When you make any change to a row, the check box is automatically selected to indicate the row is to be processed.
- Use the check mark icon ( ) in the column header to select and deselect all component types on the window.

2. For each network component type listed, select a network element type from the drop-down list, or select *Not an Element*.

3. To associate a network component type with more than one network element type, click the **Maintain Multiple** link.

   You can also use this procedure to remove an association with a network element type when multiple associations exist.

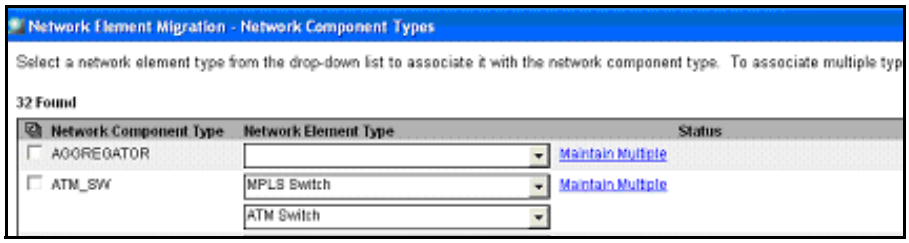
   The following window appears for the multiple selection of network element types.




   a. Select the network element types that apply from the Available list and click the left arrow to move the network element types to the Associated list.

   b. Click **OK**.

      The network element types appear on the Network Component Types window listed under the component type.




4. To process selected rows, do one of the following.

   - Click **Save** if you want to process only selected rows.

The changes are saved, but the section is not completed.

- Click **Complete** to process all rows.

  Use this command if all rows are selected and you are ready to complete the section.

5. Click **Close** to return to the main Network Element Migration tool window.

# Equipment

This section allows you to associate a piece of installed equipment with a network element.

## Association rules

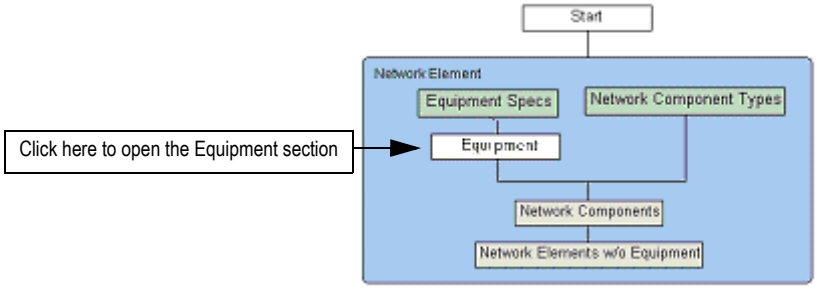
- Each network element name must be unique. That means you cannot add a new network element with the same name as an existing network element.
- You can associate multiple pieces of equipment with a network element.
- If you want to process a piece of equipment without a network element association, you can select the equipment row but leave the Element Name field blank.
- In some cases, the rows will be auto-completed (selected for processing). Auto-completion is an attempt to save you keystrokes.

## Complete the section

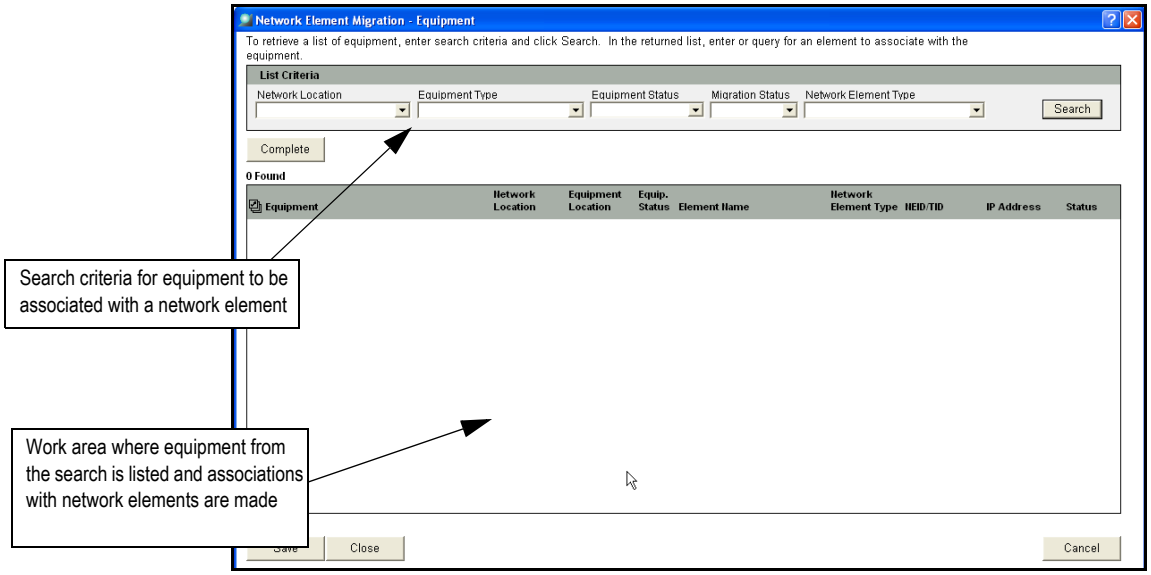
Before you start making changes to your data, read the entire procedure to ensure you understand what you need to do to complete this section.

**To complete the Equipment section**

1. On the Network Element Migration main window, click **Equipment**.



The following window appears.




You can search for all equipment by entering no values or narrow the search for equipment by defining search criteria in the List Criteria section of the window.

The following list defines the fields available for searching:

- **Network Location**—Installed location of the equipment. You can enter an 8-byte or 11-byte CLLI.
- **Equipment Type**—The type of equipment specification associated with the equipment.
- **Equipment Status**—The system status of the equipment: Installed, Under Construction, or Spare.
- **Migration Status**—The migration status of the equipment: Complete, Not Complete, or Auto Complete.

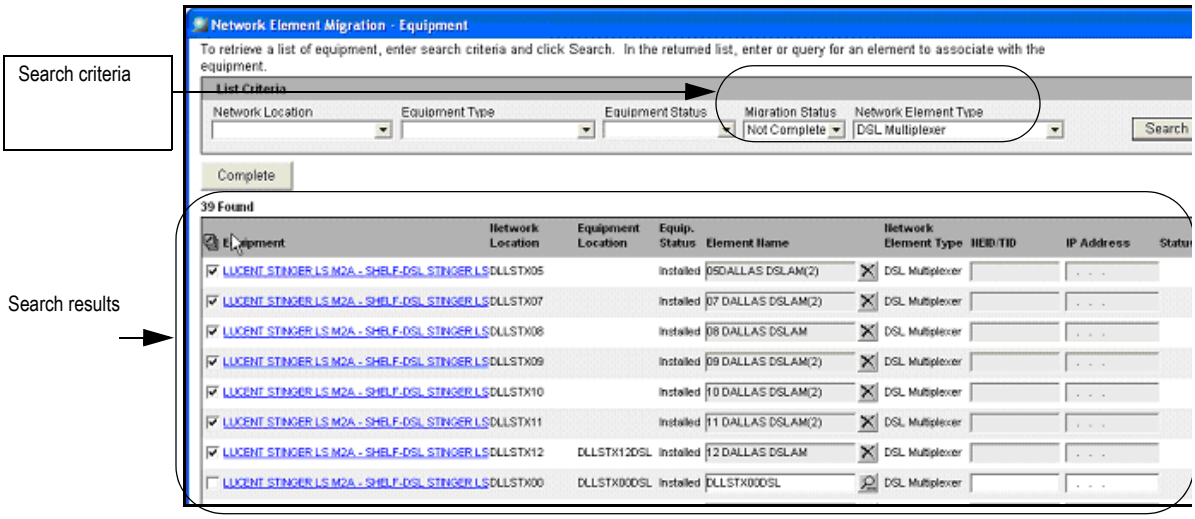
  This status indicates whether a piece of equipment has been processed in the network element migration. In the case of *Auto Complete*, the status refers to equipment that was completed automatically by the Network Element Migration tool. This occurs for installed or spare equipment when there is no association with a network element type in the Equipment Specs section. It is assumed that equipment in this category (for example, a card) does not need to be associated with a network element, and the equipment row is marked as completed with no value in the Network Element field.

  You must complete at least one association between a piece of equipment and a network element before the auto-completion runs for all equipment in this category.

- **Network Element Type**—The network element type associated with the equipment spec. For example, if CARD is selected in the drop-down list, all equipment associated with equipment specs with a network element type of CARD is retrieved.

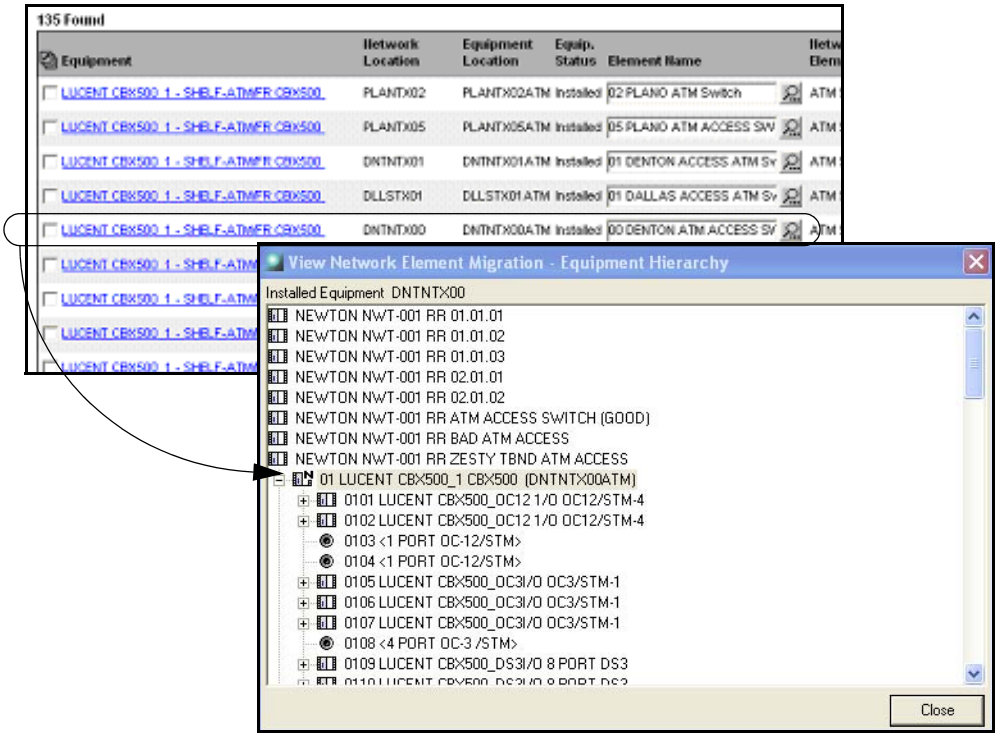
2. Select the appropriate search criteria for equipment and click **Search**.

   The following figure shows how the results of the search appear.




   How the window works:

   - You can click an item in the Equipment list to see the equipment hierarchy for the equipment. This is to help you identify equipment during the migration process. The following figure shows an example of an equipment hierarchy.



- If possible, a default value appears in the **Element Name** field. The default is an attempt to save key strokes, and you can change it by selecting another value in the field. The following table shows how the default value is determined.

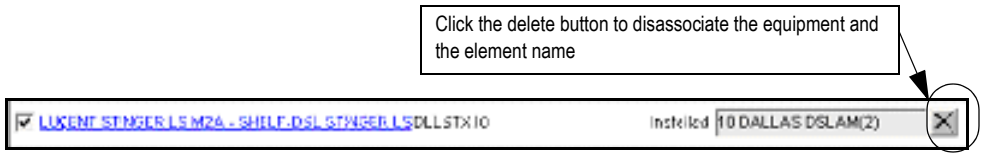
**Table 3: How default Element Names are determined**

| If the equipment is: | The default element name is: | The Element Name field is: |
|---|---|---|
| Associated with a network element in a template-based network system | The name assigned when the network element was defined for the network system | Disabled |
| Associated with a SONET node | 11-byte CLLI code or the default name field on the SONET ADM element type. | Disabled |
| Associated with a standalone network element (previously used as a workaround for associating equipment with a SONET node and for DCS equipment) | 11-byte CLLI code | Disabled |
| Not associated, as in the previous cases, but has an equipment CLLI location | 11-byte CLLI code | Enabled |
| Not associated and does not have an equipment CLLI location | *Blank* | Enabled |

- The information for the following fields is defaulted, and it cannot be changed for existing network elements:
  - Network Location
  - Equipment Location
  - Equipment Status
  - Network Element Type
  - NEID/TID
  - IP Address

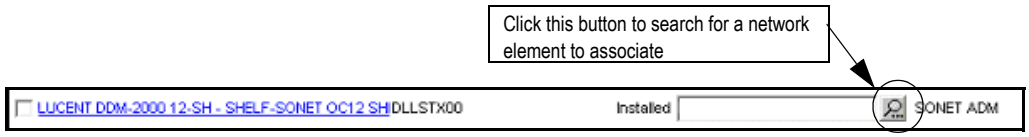
    The **NEID/TID** and **IP Address** fields allow information to be entered for a new network element.

- You can remove an existing association between a piece of equipment and a network element. To break the association, click the Delete button shown in the following figure. This will remove the association.

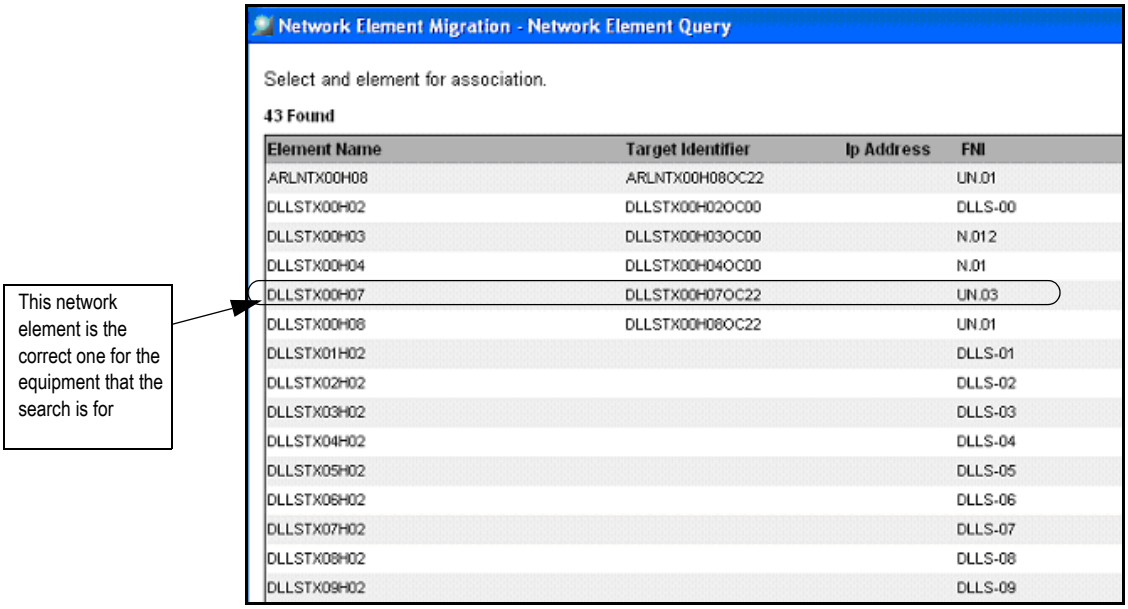



When you break the association, the field goes from disabled to enabled and the **Delete** button is replaced by the **Search** button ( ). You can type in a new network element name or click the **Search** button to select an existing network element.

- To search for an existing network element, click the Search button ( ) next to the Element Name field.

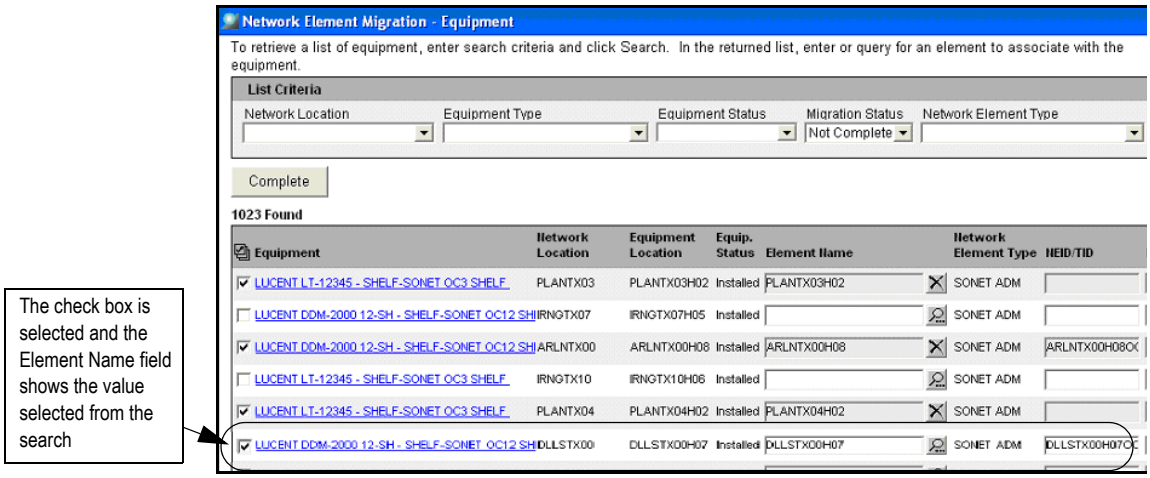



The Network Element Migration tool searches and returns network elements associated with the same equipment and network element type. The following window shows the results of the search.




To associate the network element, select it and click **OK**.

The following figure shows how the selection now appears on the original row on the Equipment window.




The check box is selected and the Element Name field shows the value selected from the search

3. For each piece of equipment that appears in the list, do one of the following:
   - Accept the name of the network element in the **Element Name** field
   - Type a network element name into the field
   - Leave the field blank to process equipment without making it a network element
   - Click the search button to find an existing network element to associate
   - Remove or break the equipment association of an existing network element from a pre-M6 version (once an association is removed, and the row is saved, the action cannot be undone)
4. Make sure all rows you want to process are selected.
5. To process selected rows, do one of the following.
   - Click **Save** if you want to process only selected rows.

     The changes are saved, but the section is not completed.
   - Click **Complete** to process all rows.

     Use this command if all rows are selected and you are ready to complete the entire section.
6. Click **Close** to return to the main Network Element Migration tool window.

# Network Components

This section of the migration allows you to associate network components used in 5.x network systems with new M6 network elements. If you have not used template-based network design before, you should not have data in this section.

The following network components are targeted by this section:

- Network components not associated with equipment.
- Network components associated with equipment not processed in the Equipment section.

## Association rules

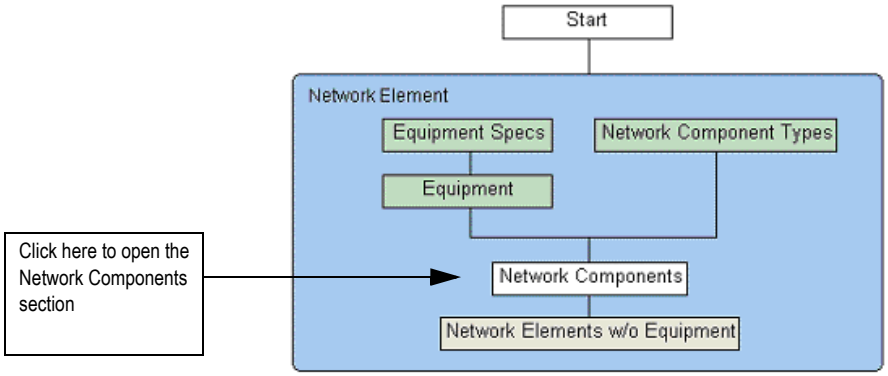
- You cannot associate multiple network components with the same network element.
- A network component with no network element type association cannot be associated with equipment that has no network element type association.

## Complete the section

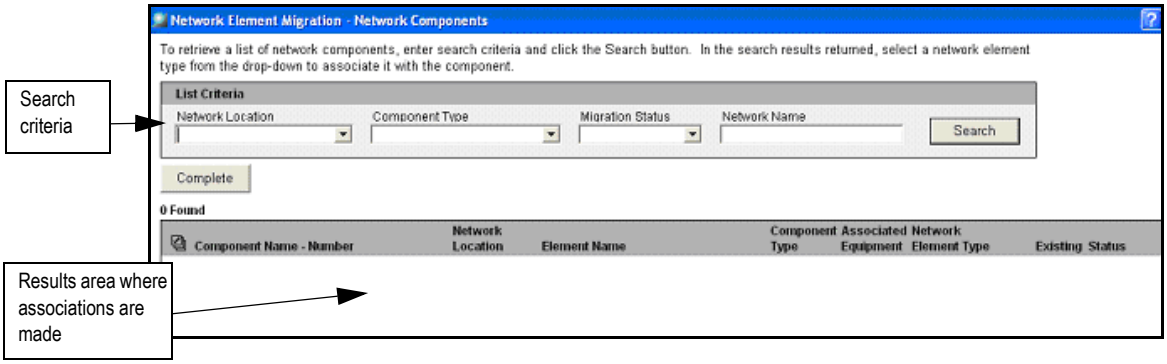
Before you start making changes to your data, read the entire procedure and make sure you understand what is expected in this section.

**To complete the Network Components section**

1. On the Network Element Migration main window, click **Network Components**.



The following window appears.




2. Select the appropriate search criteria for components and click **Search**.

   You can search for all network components by entering no values or narrow the search by defining search criteria in the List Criteria section of the window.

   The following list defines the fields available for searching:

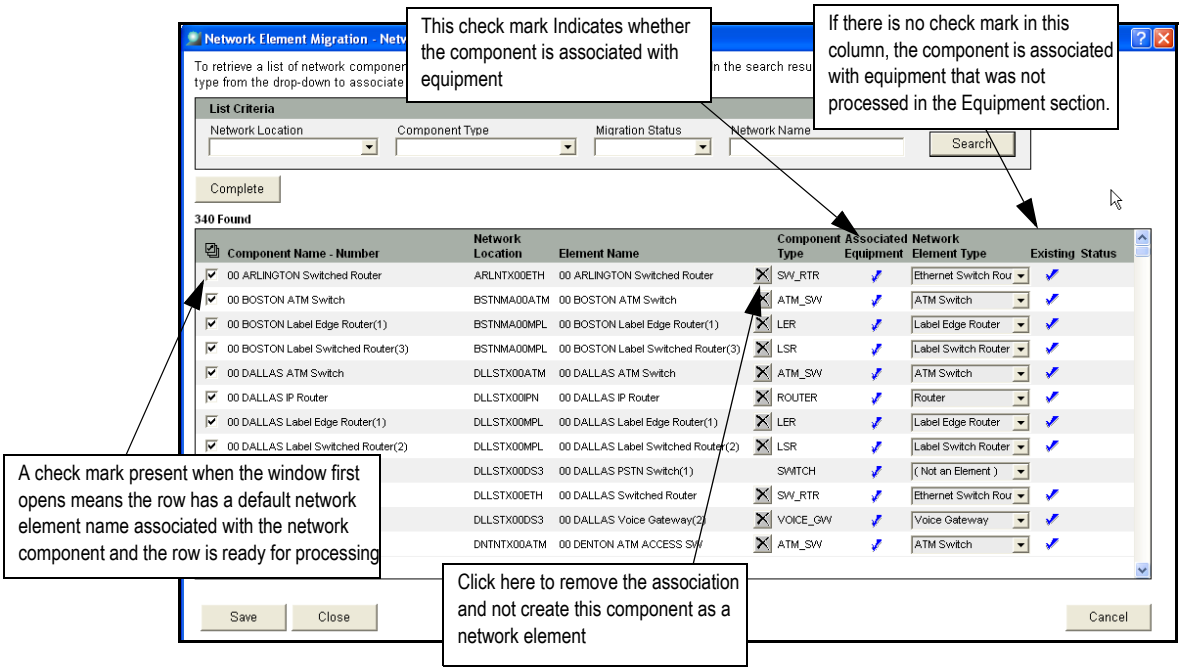
   **Network Location**—Network location of the component. You can enter an 8-byte or 11-byte CLLI.

   **Component Type**—The component type associated with the component.

   **Migration Status**—The migration status of the component: Complete, Not Complete, and Auto Complete.

   **Network Name**—The name or partial name of the parent network system from which components are to be retrieved. Wild cards are accepted for this field. For example, to find the Zesty network, you could search using *Zes%*.

The following figure shows the window with the results of a search displayed.




How the window works:

- Some rows are preselected for processing when you open the window. The element name to be associated has been derived from the element name (in 5.x ) as it currently exists in a network system.
- To remove the association between a network component and a network element, click the Delete button (⊠) next to the element name. If you remove the association and equipment is associated with the network element, the following actions occur:
  - All equipment with the same network element as the component will be disassociated from the network element. This means if you associated three pieces of equipment with the same network element in the Equipment section and you disassociate the component from the network element, the remaining pieces of equipment you associated will be disassociated.
- You can change the network element type for a component if the component is not associated with equipment.
- In some instances, you may have a network component associated with equipment that has no network element type. You should do one of the following:
  - Select *Not an Element* in the **Network Element Type** field.
  - Verify if the equipment specification needs an association with a network element type.

3. Make the appropriate network component to network element associations, then ensure all rows you want to process are selected.
4. To process selected rows, do one of the following.
   - Click **Save** if you want to process only selected rows.

     The changes are saved, but the section is not completed.
   - Click **Complete** to process all rows.

     Use this command if all rows are selected and you are ready to complete the section.
5. Click **Close** to return to the main Network Element Migration window.

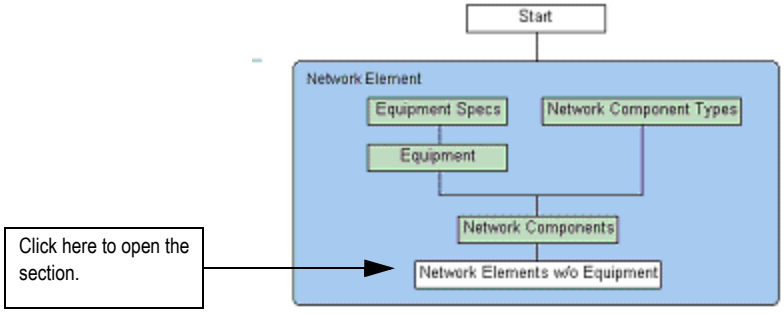
# Network Elements w/o Equipment

This section allows you to process or delete the pre-M6 standalone network elements not associated with a network element type. This happens when the standalone network element has no association with equipment.

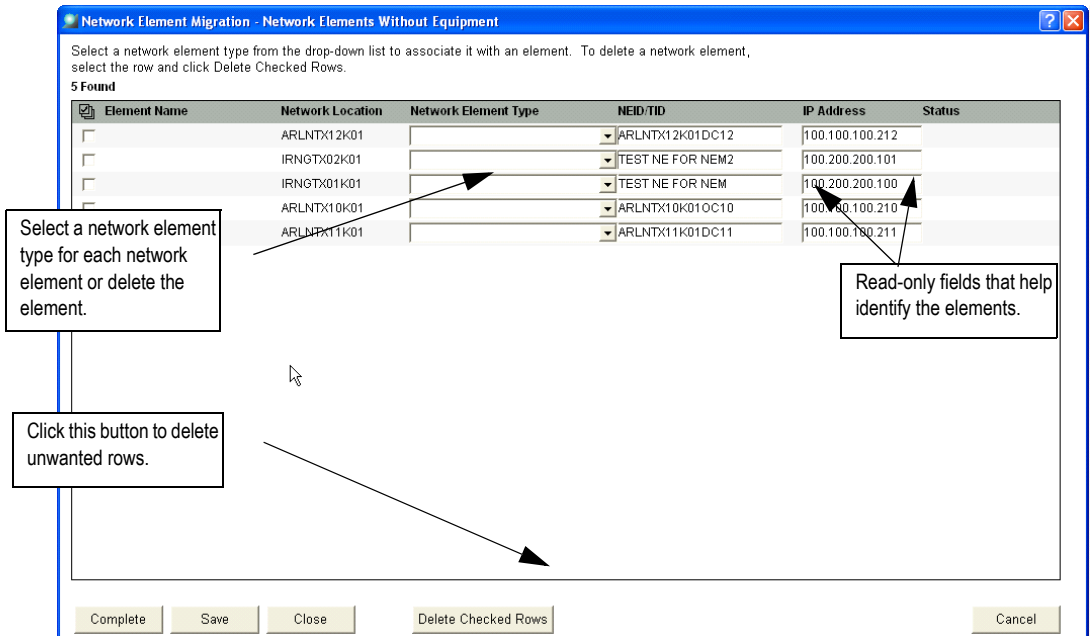
Before you start making changes to your data, read the entire procedure and make sure you understand what is expected in this section.

**To complete the Network Elements w/o Equipment section**

1. On the Network Element Migration main window, click **Network Elements w/o Equipment**.



The following window appears.




2. Delete unused network elements.

   To do this, select the check box of each network element (Element Name) to be deleted and click **Delete Checked Rows**.

   You will not be able to delete network elements without equipment if the network element is associated with something else in the database, such as network areas.

3. For each remaining element name in the list, select a network element type, and select the check box to indicate the row is to be processed.

4. To process selected rows, do one of the following.

   - Click **Save** if you want to process only selected rows.

     The changes are saved, but the section is not completed.

   - Click **Complete** to process all rows.

     Use this command if all rows are selected and you are ready to complete the section.

5. Click **Close** to return to the main Network Element Migration window.

6. Click **Close** to return to the main Next Generation Migration window.

7. Under the Actions section, click the **Refresh Page** link to update the status of the Migrate Network Elements section to complete.

   The following window appears.

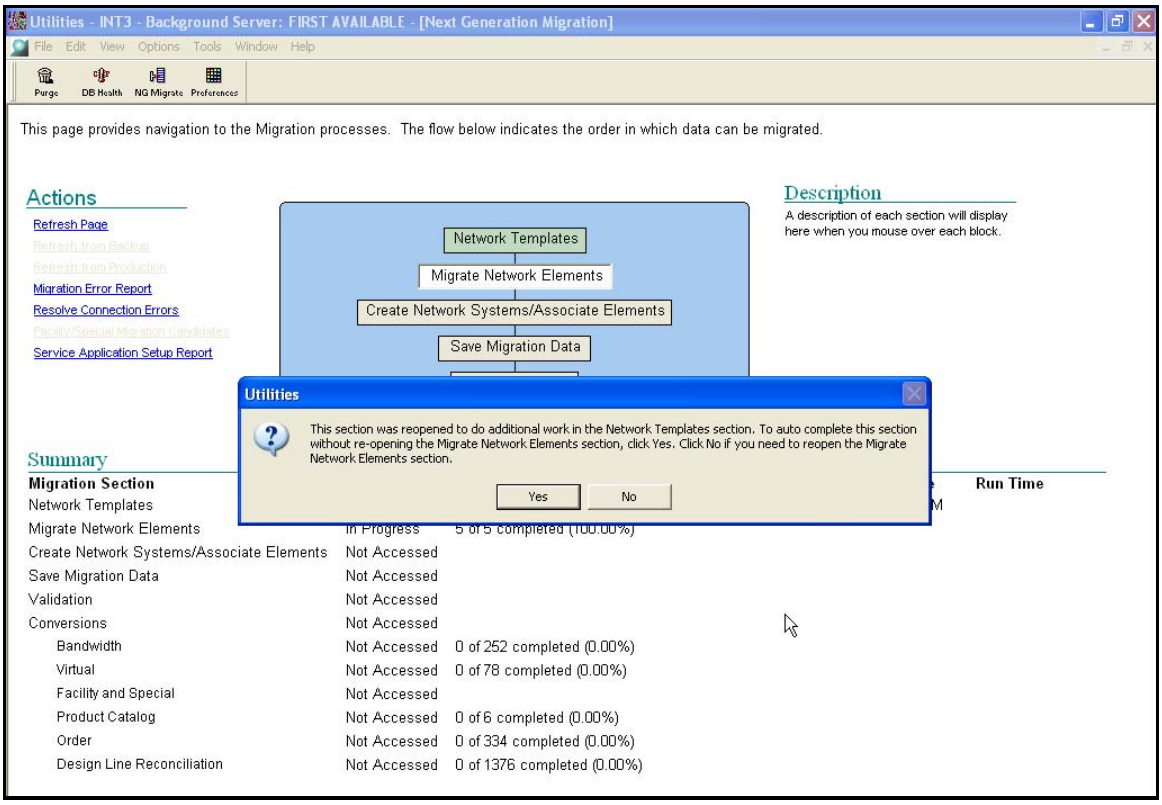
This populates the statistics for the following conversions:

- Bandwidth
- Virtual
- Product Catalog
- Order
- Design Line Reconciliation

# Re-opening preceding steps

If you perform subsequent steps in the Next Generation Migration tool and then need to modify your network templates, you must re-open all preceding steps including the Migrate Network Elements step. This does not mean, however, that you need to perform the network element migration again. You can choose to auto-complete the Migrate Network Elements step.

When you re-open the Migrate Network Elements step, the following window appears.




8. Click the **Yes** button if you do not need to re-open the Network Element Migration tool. The Migrate Network Elements step is auto-completed.

# Default system values

MetaSolv Solution provides the following default component types:

**Table 4: Default MetaSolv Solution component types**

| Component type | Description |
|---|---|
| AGGREGATOR | Aggregator |
| ATM_SW | ATM switch |
| BB | Back bone |
| BSC | Base Station Controller |
| BTS | Base Transceiver Station |
| CE_RTR | Customer edge router |
| COT | Central office terminal |
| CUST_SITE | Customer site |
| DCS | Digital cross-connect system |
| DSLAM | Digital subscriber line access multiplexer |
| EUL | End user location |
| FILTER | Optical filter |
| FR_SW | Frame Relay switch |
| GGSN | Gateway GPRS Support Node |
| LDS | Local digital switch |
| LER | Label edge router |
| LSR | Label switched router |
| MW Tower | Microwave Tower |
| MSC | Mobile Switching Center |
| OWAD | Optical add/drop multiplexer |
| OXC | Optical cross connect |
| O_P_NET | Other provider network |

**Table 4: Default MetaSolv Solution component types**

| Component type | Description |
|---|---|
| RDT | Remote digital terminal |
| ROUTER | Router |
| RU | Remote user |
| SCP | Service Control Point |
| SERVER | Server |
| SGSN | Serving GPRS Support Node |
| SMS | Subscriber management system |
| SSP | Service Switching Point |
| STP | Signal Transfer Point |
| SWITCH | Switch |
| SW_RTR | Switched router |
| VOICE_GW | Voice gateway |

MetaSolv identified the following component types as being associated with an element type:

- ATM switch
- DSL Multiplexer
- Ethernet Switch Router
- Frame Relay Switch
- Label Edge Router
- Label Switch Router
- MPLS Switch
- Router
- SONET ADM
- SONET Cross Connect
- TDM Cross Connect
- Voice Gateway
- Voice Switch
- Voice Terminal
- WDM ADM
- WDM Cross Connect

### *Technology*

Hybrid network elements are supported. For example, some ATM switches support ATM and IP technologies. This model allows you to specify one or more technologies.

The following default technology types are provided:

**Table 5: Network Element Technologies**

| Technology | Description |
|---|---|
| 3G | Third-generation wireless |
| ATM | Asynchronous transfer mode |
| CDMA | Code division multiple access |
| DSL | Digital subscriber line |
| Ethernet | Ethernet |
| Frame Relay | Frame relay |
| GSM | Global System for Mobile Communications (a standard for digital cellular phone service found in Europe and Japan) |
| IP | Internet protocol |
| MPLS | Multi protocol label switching |
| SONET/SDH | Synchronous optical network/synchronous digital hierarchy |
| Signaling | Signaling |
| TDM | Time division multiplexing |
| Token Ring | A type of LAN in which a workstation must receive a token (unique combination of bits) before it can transmit |
| Voice | Voice |
| WDM | Wavelength division multiplexing |

# Creating network systems

If you do not use the Broadband Module, you do not need to create new network systems. If you previously implemented template-based network systems and do not need additional systems to support Broadband Module items, skip to the section entitled "Complete network systems".

If you need to implement template-based network systems, read the entire chapter. Broadband circuits will be converted to template-based bandwidth connections based on associations with network elements or components. You will use these network elements to build out your new network systems based on the network templates you created in Chapter 2.

After the migration is complete, the facility and broadband connections used to build networks are shown graphically on a network system design canvas. Also, existing VLRs (Virtual Layout Records) will be converted to GLRs (Graphical Layout Records), and have a different look and feel.

This chapter guides you through creating network systems. In the migration environment, you should have already created network templates and performed the network element migration. These topics were covered in preceding chapters.You will use the migrated network elements to build out your network systems.

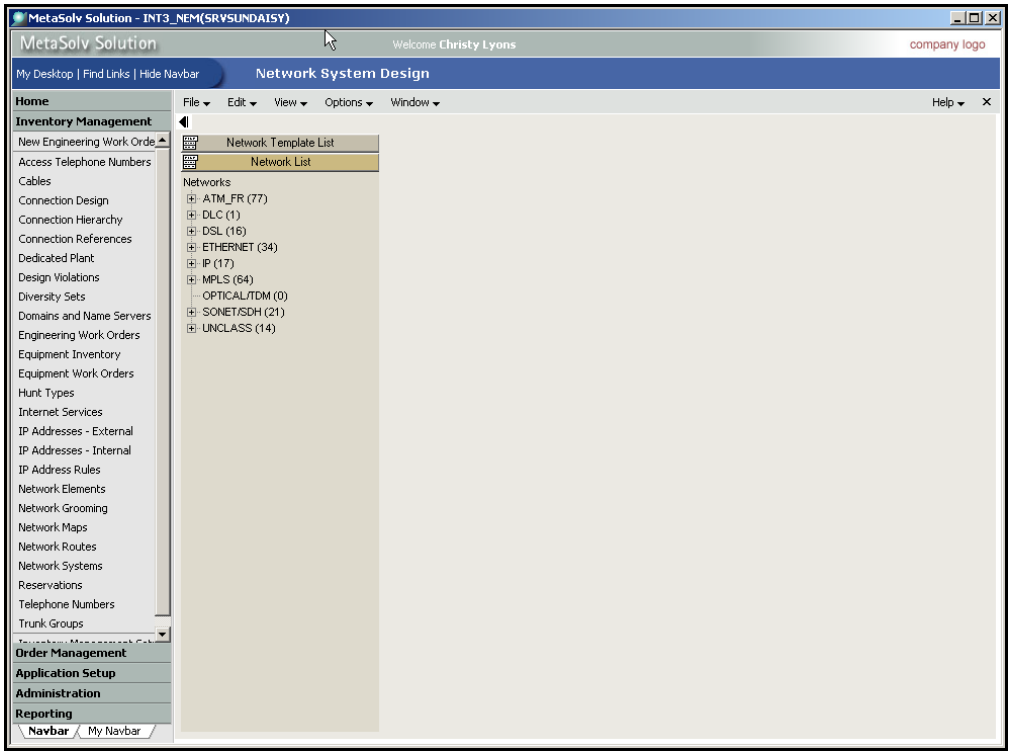
## Create network properties and add elements

You enter your network properties so that you can save the network. You then, add the network elements that you previously migrated.

**To create network systems**

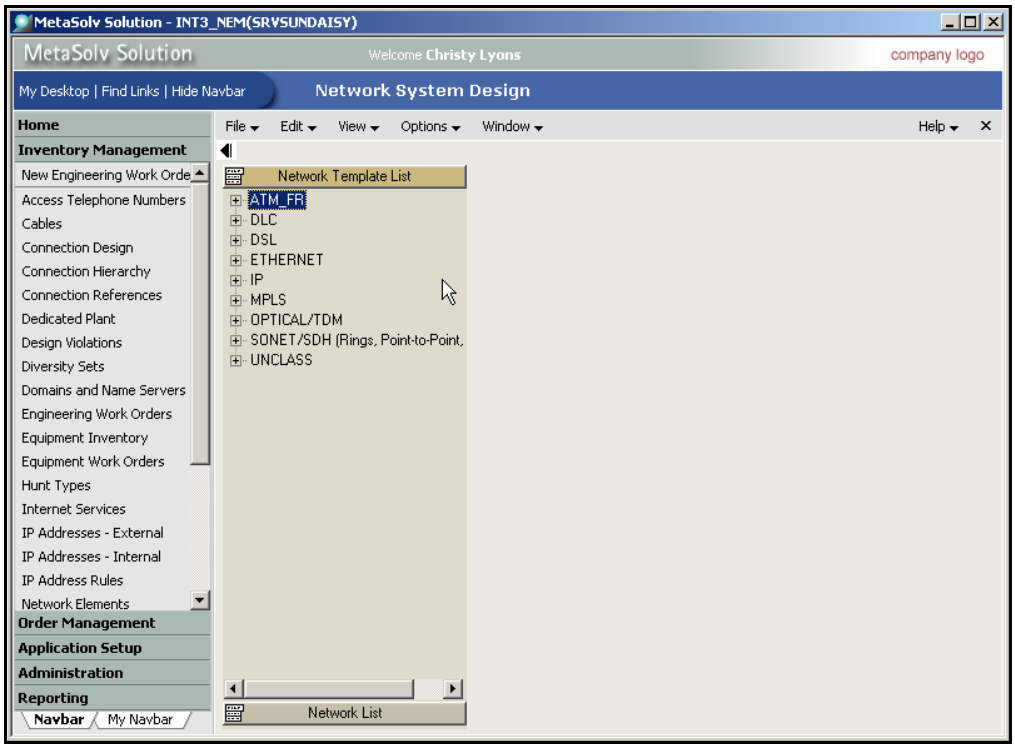
1. In the migration environment, log on to M6.
2. Click **Inventory Management** on the navigation bar, and click **Network Systems**.

The following window appears.



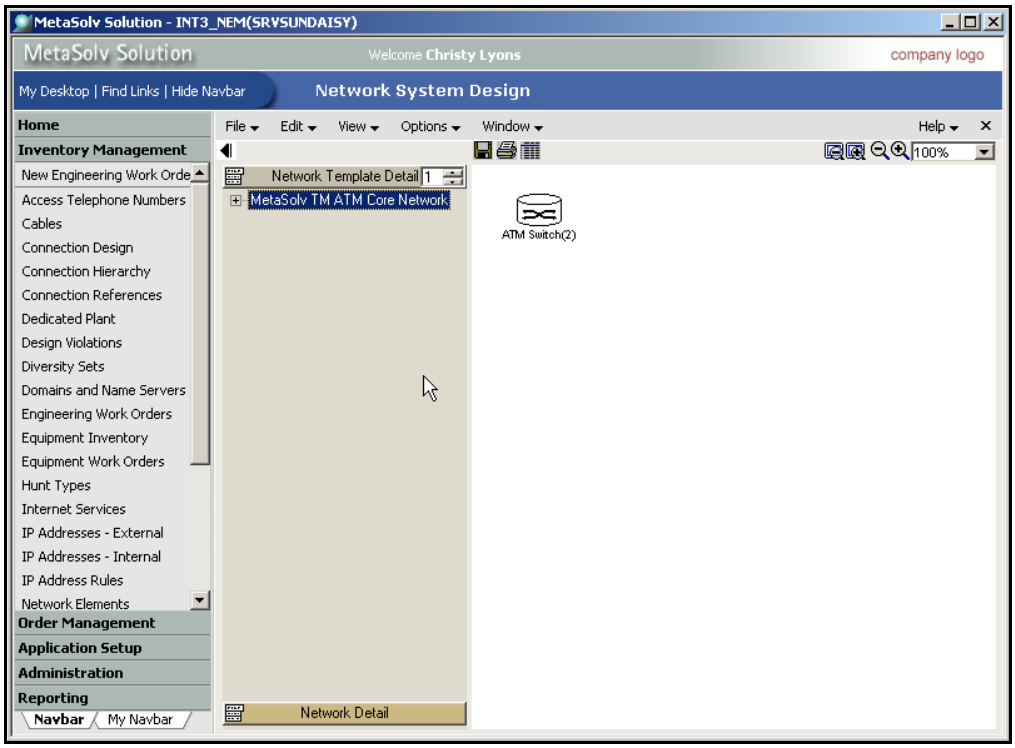

3. Click the Network Template List panel.

The following window appears.



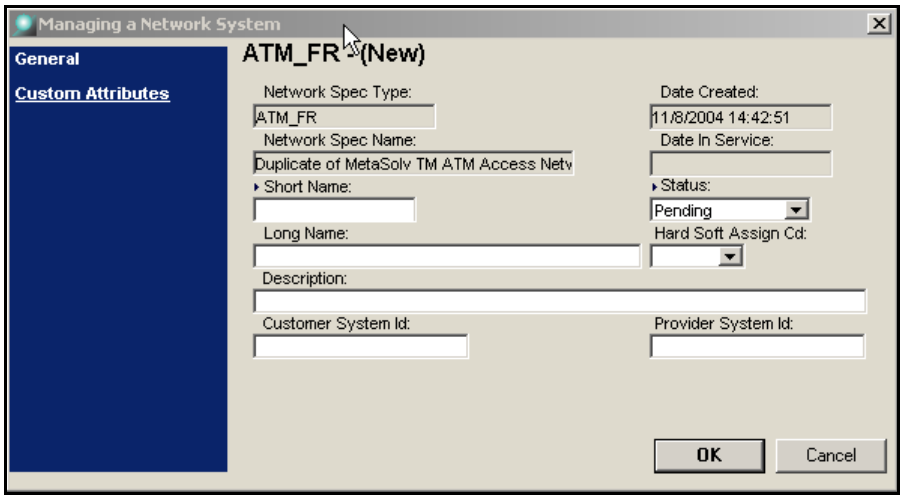

4. Expand the network template type that you want to use to build a network.
5. Right-click a network template, and select **Add Network Design**.

The following window appears.




6. Right-click the canvas, and select **Properties** from the pop-up menu.

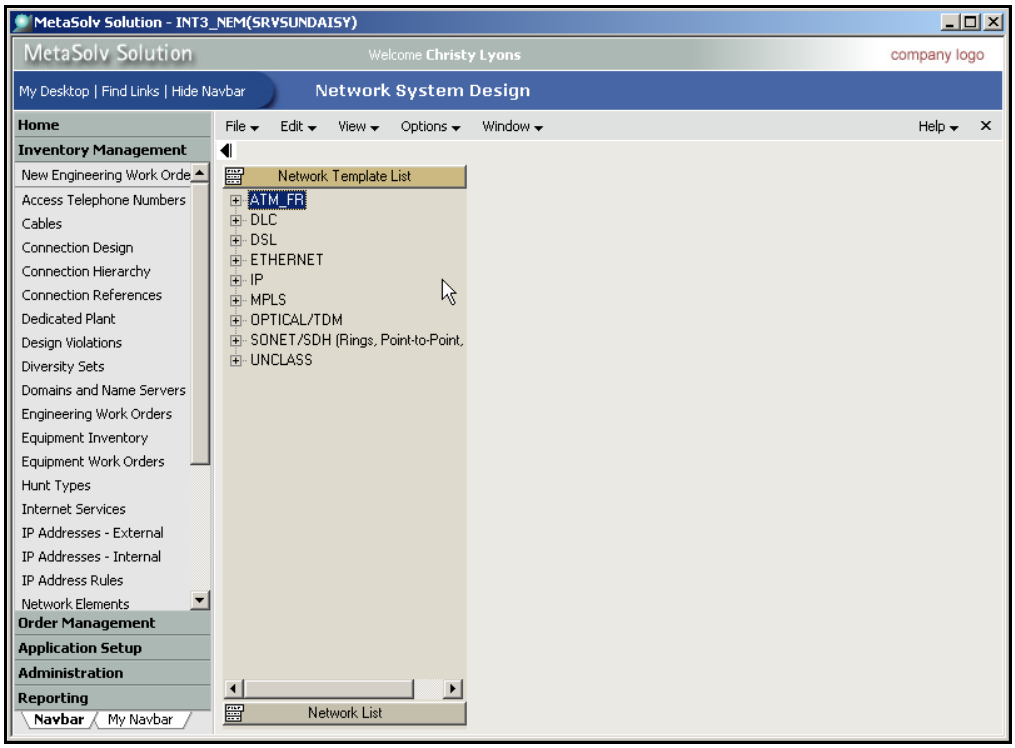
   The following window appears.



7. Enter the network properties and click **OK**.

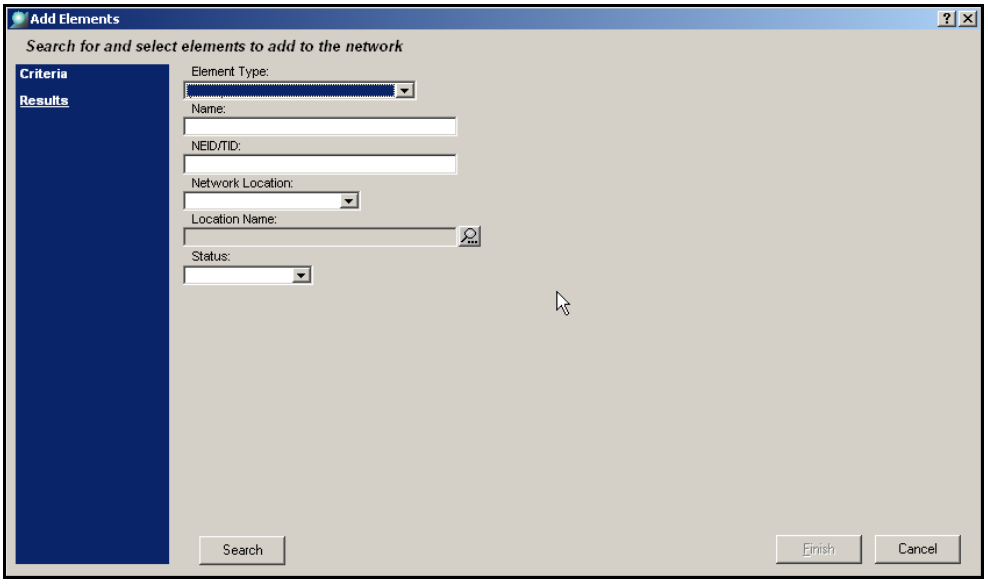
Following are descriptions of some of the fields on the window:

- **Short Name**—Short version of a network system name that appears on windows where space is limited.
- **Status**—State of the network system. Examples: In Service, Pending.
- **Long Name**—Long version of a network system name that appears on windows where space is allowed.
- **Hard Soft Assign Cd**—Specifies assignments to either hard or soft components within a network system. Soft elements are edge components that provide entry to and exit from the network. Hard components are core components of a system.
- **Description**—Description of the network system.
- **Customer System ID**—An identifying value assigned to a system by a customer. It distinguishes one customer network from another from a customer's perspective.
- **Provider System ID**—User-defined optional field for situations where the provider assigns an ID to a network system.
- **Equivalent Channels Required for Assignment**—Available for optical networks. Indicates the network requires the same channel assignment (wavelength) on each facility segment when assigning to multiple segments through a network.
- **Inherently Protected**—Available for optical networks. Indicates if a second set of assignments is necessary to protect a connection.



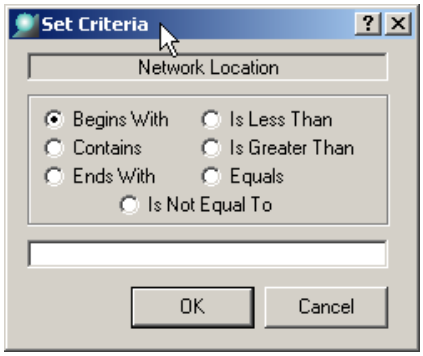

8. Right-click the canvas, and select **Add Elements** from the pop-up menu.

   The following window appears.

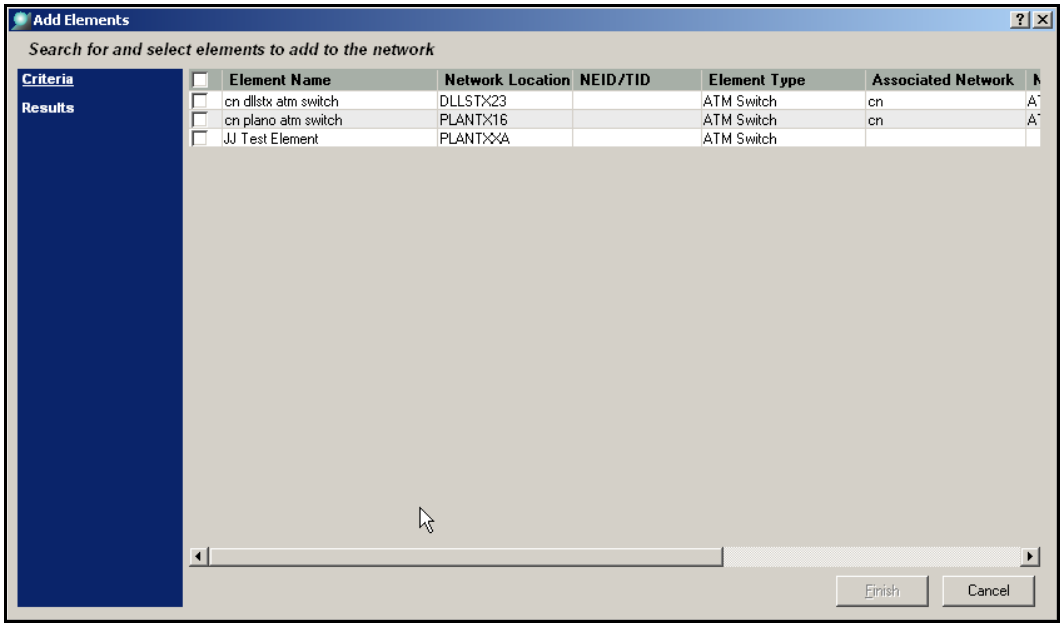


9. You must enter information in at least one search criteria field, and click the **Search** button.

   You can use the Set Criteria feature to search for Network Locations more efficiently. To do so, right-click in the **Network Location** field, select **Set Criteria**, enter criteria, and click **OK**.




   The results window will appear.




10. Select one or more element names, and click the **Finish** button.

   You can select the check box next to the Element Name heading to select all network elements.

   If selected network elements are associated with more than one element type, click **Next** and associate a network element type with each network element. Then click the **Finish** button.

# Add neighboring elements

You can select multiple network elements on a network system design and add neighboring elements. The system identifies neighboring elements by the equipment associated with the selected elements. Any connections assigned to the equipment is followed to the equipment at the other end of the connection to the highest level of equipment associated with a network element.

The network elements appear as choices to be added to the canvas only if the network elements are built with component types allowed by the network template.

**To add neighboring elements to a network system**

1. Right-click a network element on the canvas, and select **Add Neighboring Elements** from the pop-up menu.
2. Select the check box on the rows next to the element names you want to add to the network system design canvas.

You can select the check box in the header of the first column to select all elements. If there is an associated network, you should decide whether or not to add the network element to the canvas, or embed the associated network. Instructions for embedding networks follows this section.

3. Click the **Finish** button.

   If selected network elements are associated with more than one component type, click **Next** and select a component type for the network elements. Then click the **Finish** button.

During the conversion process, the connections that are converted and associated with neighboring network elements will be added to the network systems.

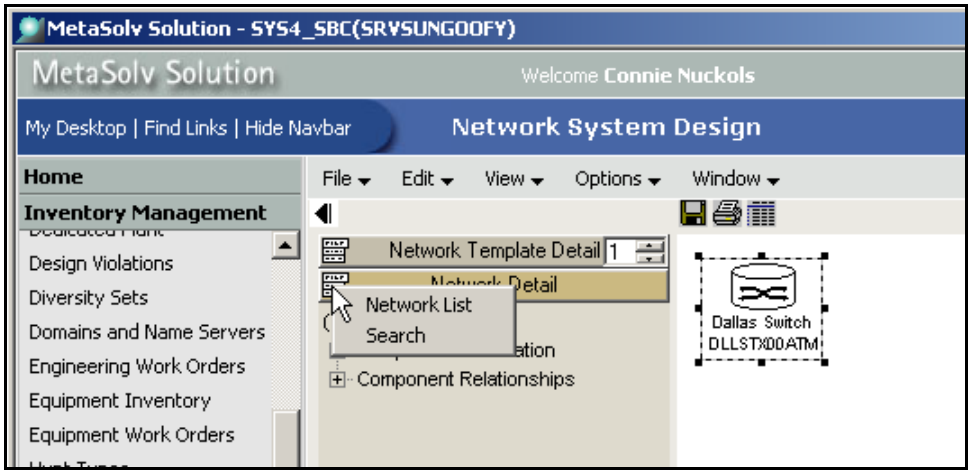
# Embed networks

When you add neighboring elements, you can retrieve network elements that are associated with network systems. Based upon the network template structure you are using, you might want to embed the entire network into a larger network. An example would be embedding a network that has customer access into a core backbone network.

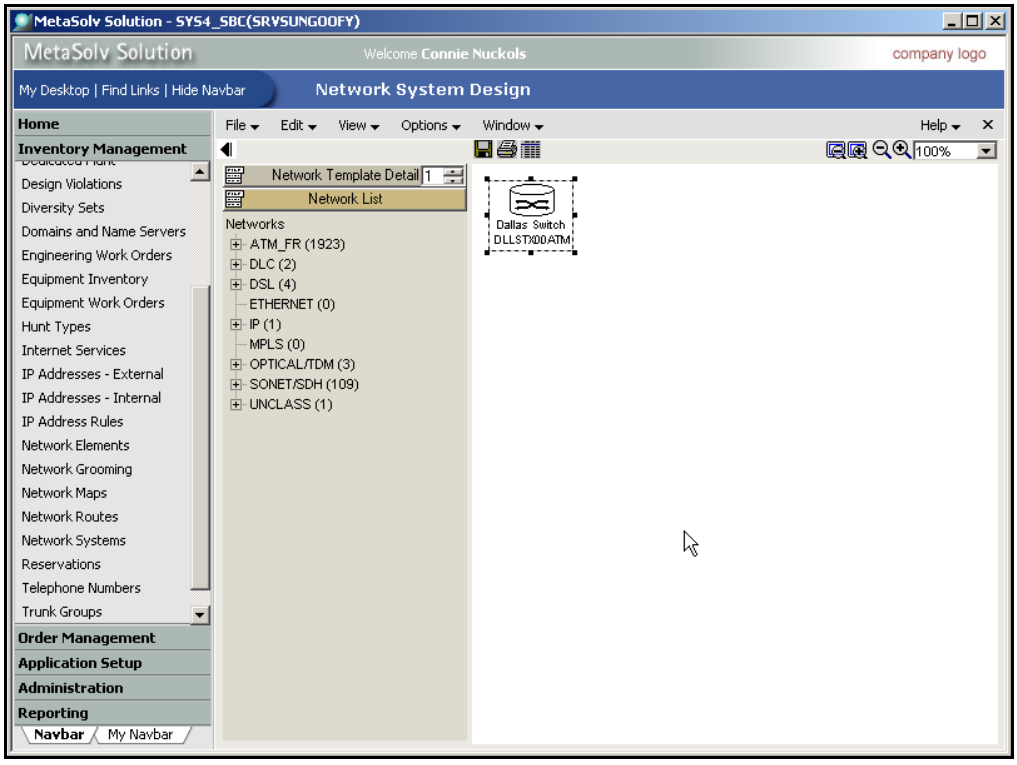
**To embed networks**

1. Open the network system in which you want to add smaller (access) networks.
2. Click the Network Detail panel.

3. Click the menu icon and select **Network List** from the pop-up menu, as shown in the following figure.




The following window appears.




4. Expand the network type you want to embed into the open network by clicking the "+" icon.

5. From the network list, drag the network system you want to embed, and drop it on the canvas.
6. Change the properties of the network system to make the status In Service.

   The network system hierarchy shows the embedded networks in the panel view.
7. Use the preceding steps to create all your network systems, and log out of the MetaSolv Solution core application.

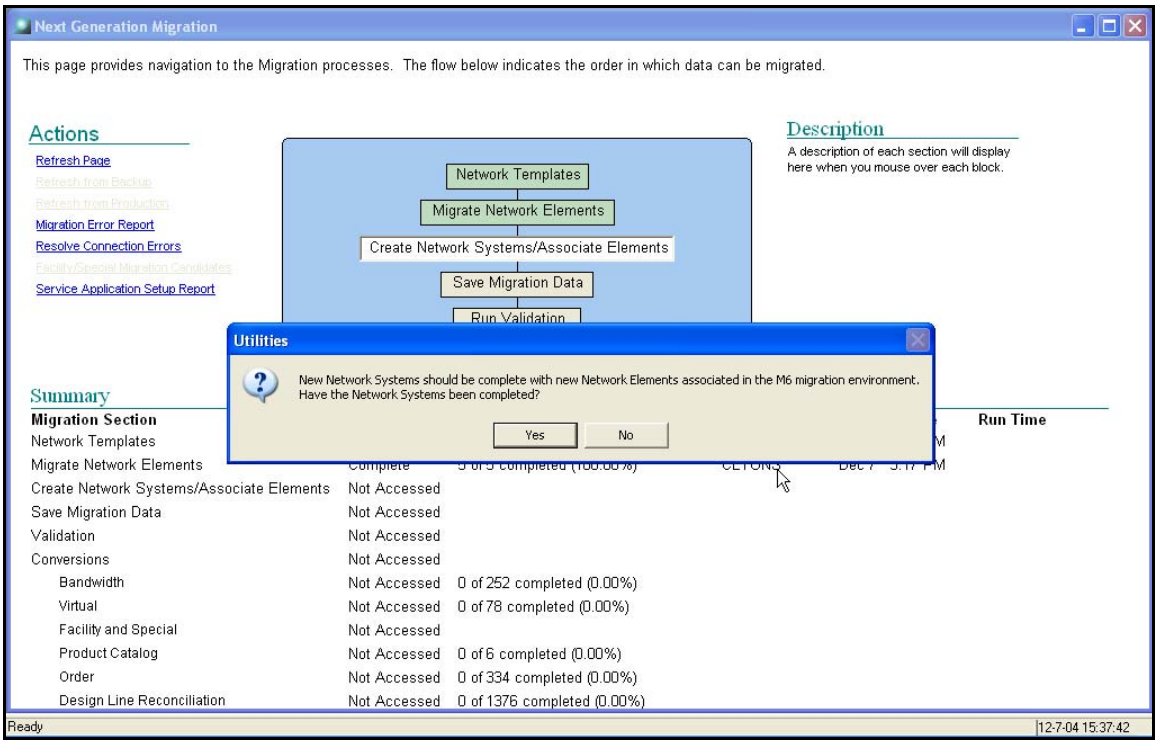
# Complete network systems

After you ensure that your networks are correct, complete the network systems section of the NGM tool. You have the option to correct the networks or restore from a backup at any time.

**To complete network systems step of migration tool**

1. In the migration environment, log on to MetaSolv Solution Utilities.

   The following window appears.




2. Click the **Yes** button.

If, at any time, you realize you made an error in your network templates, elements, or systems, you can restore your migration environment from a cold backup and start the migration process over.

# Saving data, running validations and conversions

The next step in the migration process is to save your migration data. If you use the Broadband Module, your saved data will contain the new network templates, migrated network elements, and network systems. If you do not use the Broadband Module, your saved data will contain only migrated network elements.

Next, you must run the validations and conversions regardless of whether you use the Broadband Module. You run these sections to reconcile design lines with migrated network element data. If you use the Broadband Module, the Next Generation Migration allows you to migrate your broadband data to data that is compatible with network templates and network systems.

You run validations and conversions through the MetaSolv Solution Utilities.

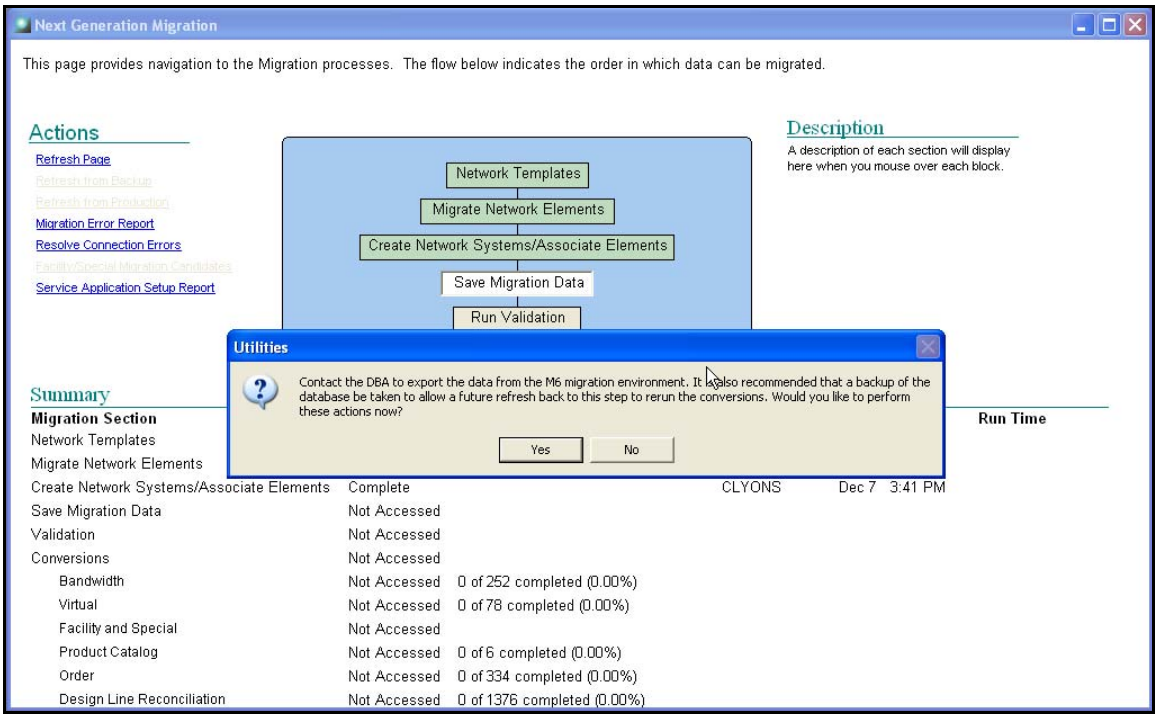
## Save migration data

After you test your network templates, network systems and migrated elements and you are sure that they are set up correctly, save the data. This data will be used later when newer copies of production are imported. Saving the data prevents you from having to perform the three migration steps again. It is very important that this information is saved and exported by the database administrator.

**To save migration data**

1. In the NGM tool, click the **Save Migration Data** button.

The following window appears.




2. Click the **Yes** button.

   All steps are disabled on the window except for the **Confirm Export** link.

3. Exit MetaSolv Solution Utilities.

# Export tables and create backup

The database administrator must export data and create a full backup of the migration environment. The DBA should follow the procedures in the "Save migration data" section of Chapter 8.

# Confirm export

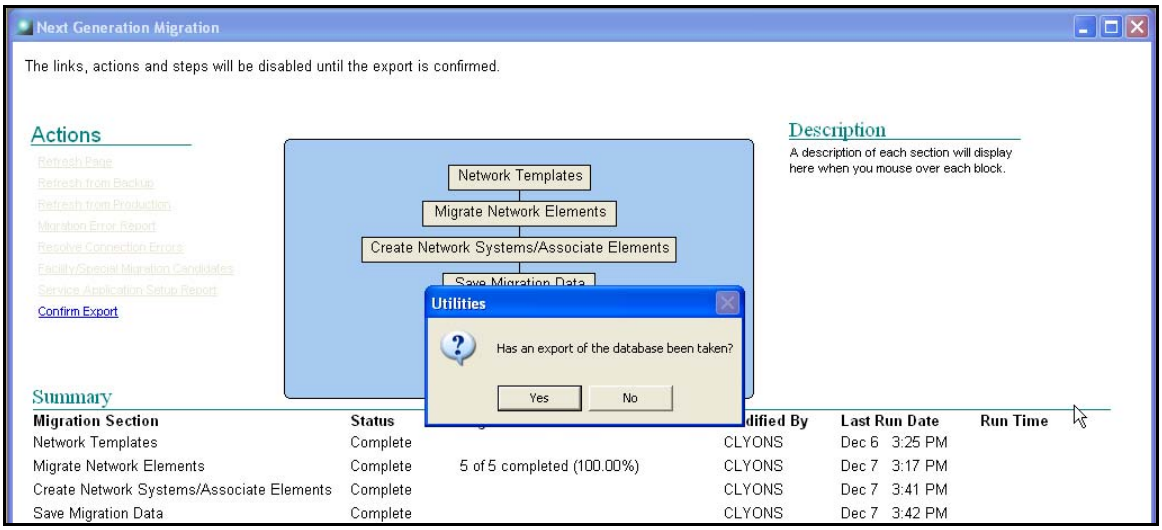
Verify that the database administrator has taken a backup of the database and has exported the broadband database tables. Then, complete the following steps:

**To confirm export**

1. In the migration environment, log on to the MetaSolv Solution Utilities.
2. Click the **NG Migrate** button.
3. Click **OK**.

4. In the Actions section, click the **Confirm Export** link.

   The following window appears.




5. Click the **Yes** button.

Once the export has been confirmed, the Action links change and the following options appear:

- **Refresh page**—When running conversions, you can click this link to refresh the migration status to immediately refresh the statistics on this page. The page is refreshed automatically every 30 seconds.
- **Refresh from Backup**—Click this link to refresh the migration environment with a previously-saved backup. Click Yes, and then have the database administrator perform the full import or restore from a cold backup. If you click Yes, you have the ability to cancel the refresh from the backup. See Chapter 8, "Performing database tasks" for details. It is imperative that the correct backup is used so that no work is lost.
- **Refresh from Production**—Click this link when you want a new copy of the current production database copied to the migration environment and upgraded. Click Yes, and then have the database administrator perform the full import from exported production data. The database administrator will also upgrade the environment to M6. All other actions are disabled except the option to cancel the refresh from the production. See Chapter 8, "Performing database tasks" for details.
- **Migration Error Report**—Use this link to open the Migration Error Report and review errors and informational messages generated during conversions or the migration.
- **Resolve Connection Errors**—Use this link to open the Resolve Connection Errors window to delete, correct, and apply changes to connections that did not convert.

- **Facility/Special Migration Candidates**—This link is disabled until the Run Validation step has been selected. Use this link to open the Facility/Special Conversion Candidates window to include/exclude facility or special connections for conversion to template-based bandwidth connections.

**Service Application Setup Report**—Use this link to retrieve a list of the applicable service application data. This report identifies the service types and connection specs that need to be set up in your M6 final production environment to support ordering template-based connections using ISRs, ASRs, and EWOs. You should view this report after the conversions have completed.

# Run validations

You run validations so that the migration tool can determine which facility and special circuits are candidates for conversion to bandwidth connections. Below is the criteria for circuits to be candidates for conversion:

- All facilities and specials that do not have circuit positions, or that have circuit positions but no riders and are assigned to equipment that is associated with a network element.
- Non-ordered circuits and circuits associated with ISRs (this does not include ASRs, which are not converted).
- Circuits on a PSR with the item type set to INTRNCKT.

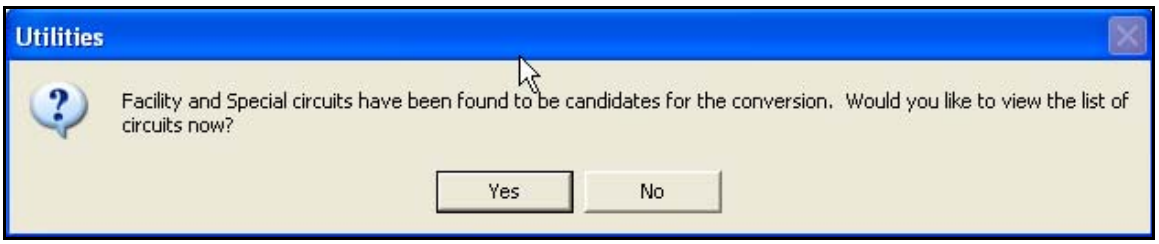
The window lists all circuits that meet this criteria and marks them as "Included". If no circuits meet these requirements, the report is empty.

Decide which facilities and specials you want converted to templated-based connections.

**To perform the validation**

1. Click the **Run Validation** button.

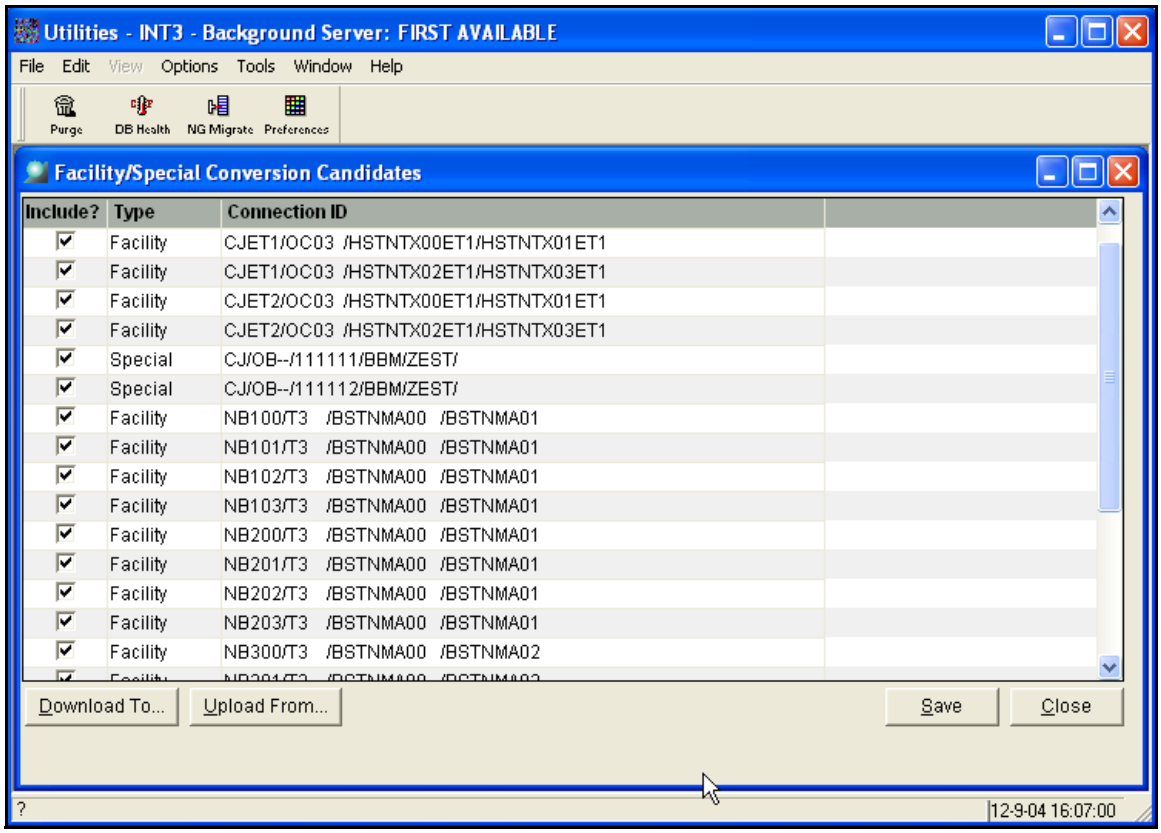
   If you have candidates for conversion, the following window appears.




   If there are no candidates for conversion, a message appears stating that no facility or special circuits were found to be candidates for conversion, and the Facility/Special Conversion Candidates report is empty.

2. Click the **Yes** button.

The following window appears.

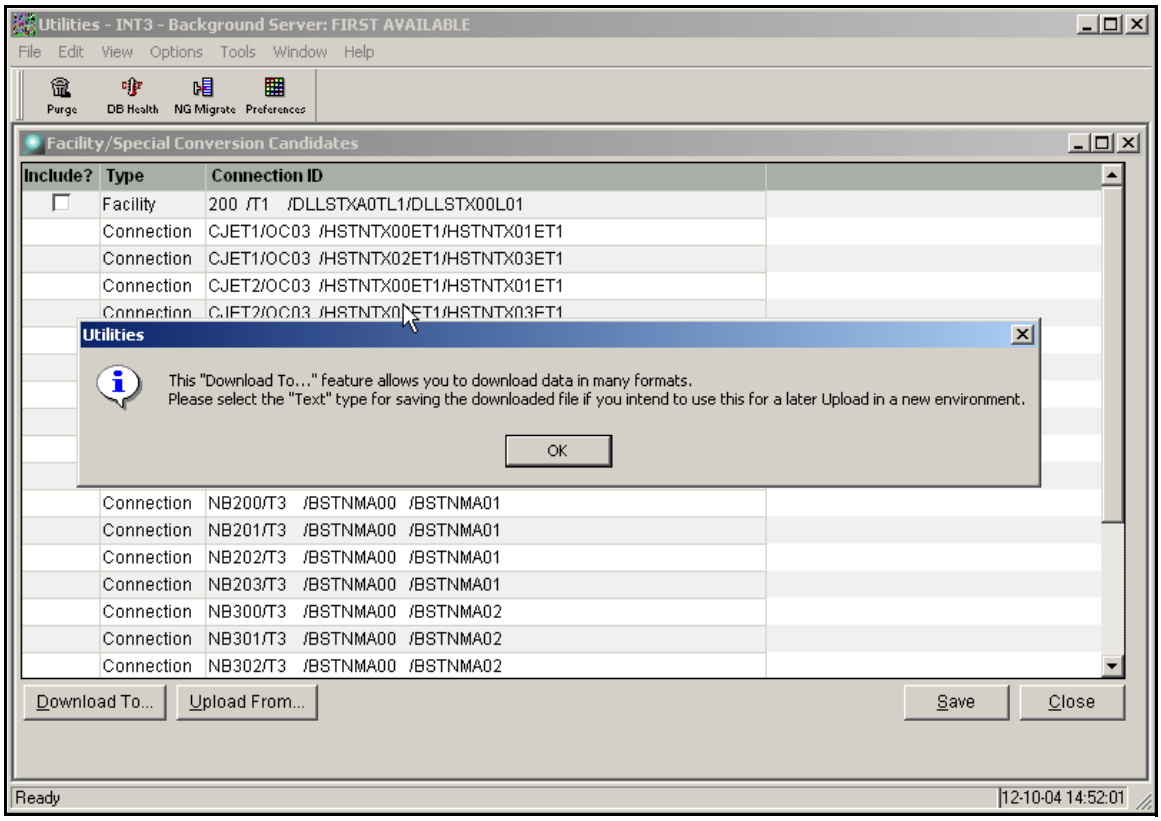



When the window opens, the Include? check box is selected for each candidate. You can click the **Include?** title to clear all check boxes.

3. Clear the **Include?** check boxes next to the circuits you do not want to convert to template-based bandwidth connections.
4. Click the **Save** button.
5. Click the **Close** button.
6. When you are sure you have made the correct decisions for the facility and special conversion candidates, click the **Download To** button.

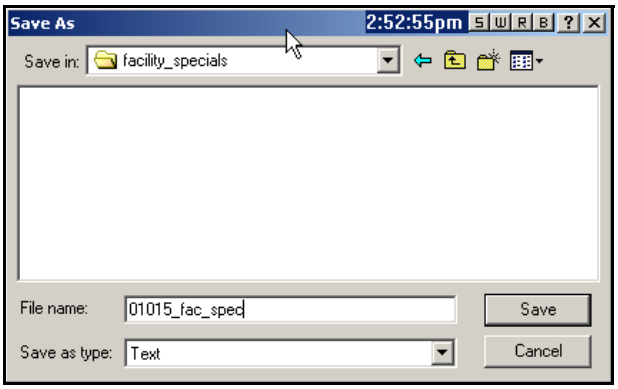
It is critical to download this file. You will later upload this file to newer copies of the production environment and eventually to your M6 production environment.

The following window appears.




7. Click **OK**.

   The following window appears.




8. In the **Save as type** field, select **Text**.
9. Select a directory in which to save the file.
10. Type in a File name.

For this guide, the file will be named: 010105_fac_spec. Once again, name your files so you can easily identify their contents.

11. Click the **Save** button.

⚠ You should save the file in a directory that will not get copied over in the test phase.

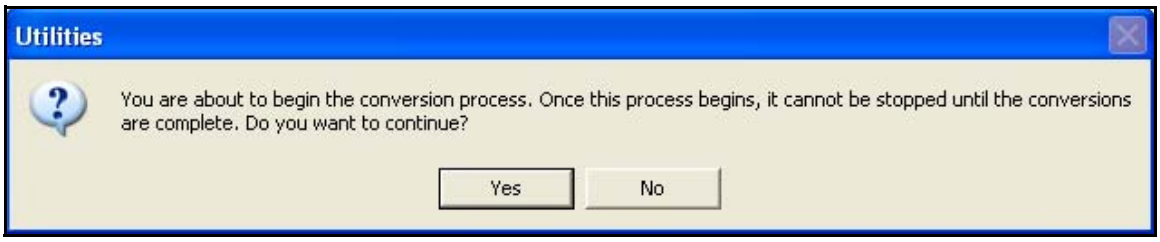
# Run conversions

When you run conversions, the conversion process is run on the migration environment. You use MetaSolv Solution Utilities to perform the conversions.

**To run conversions**

1. Click the **Run Conversions** button.

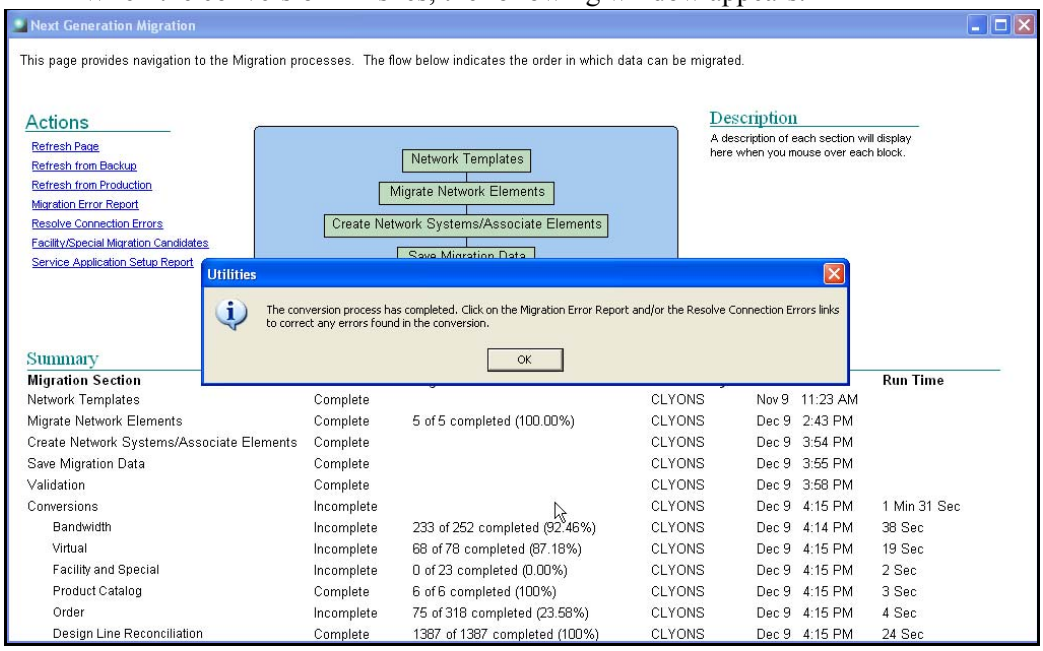
   The following window appears.




2. Click the **Yes** button to begin the conversion process.

   The amount of time this takes depends on the computer hardware used and the number of circuits to be converted.

When the conversion finishes, the following window appears.




3. Click the **OK** button.

# Review migration error report

You must review the migration errors and make corrections to resolve connection errors. There are three ways to resolve connection errors:

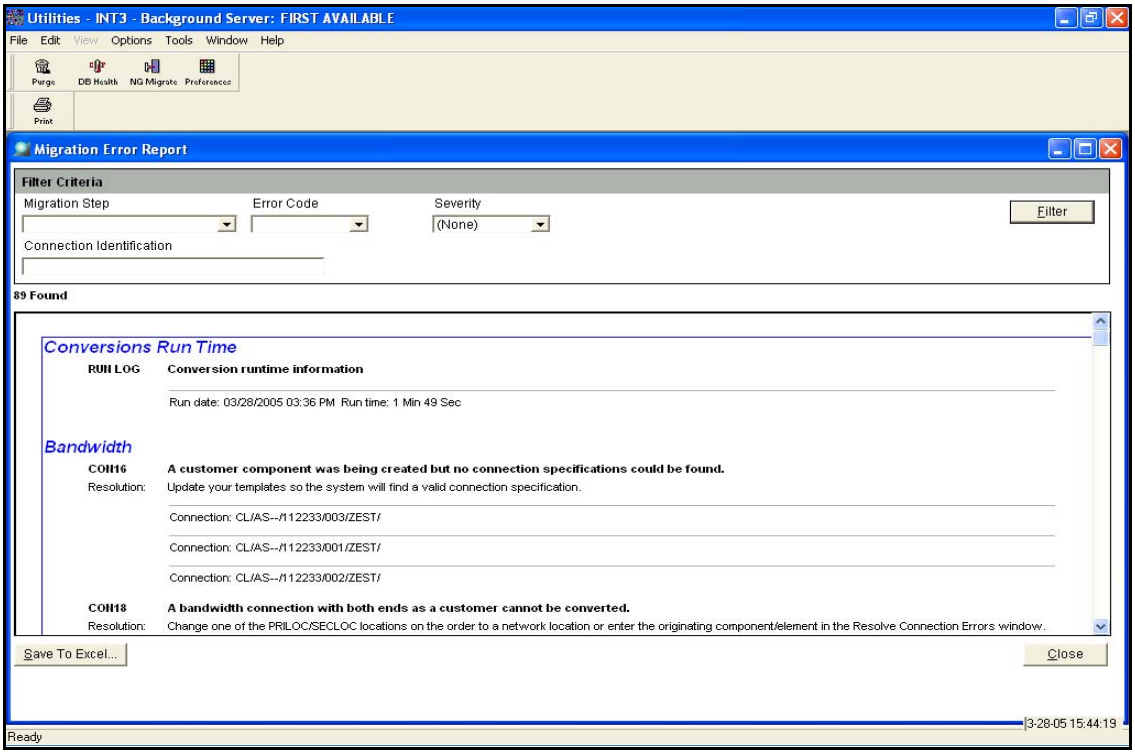
- Resolve Connection Errors link
- Reopen steps in the process. As an example, you might need to modify network systems to add elements.
- Create user exits.

There are additional errors you can encounter during the push process that are covered in the next chapter.

**To review migration errors**

1. Click the **Migration Error Report** link.

The following window appears.




Below are available actions from this window:

**Print**—This allows you to print the report.

**Save to Excel**—This allows you to save all the errors to a spreadsheet.

**Filter—**The allows you to filter the errors on the window.

If you have multiple errors, you can make the list more manageable by filtering the migration errors. You can do this by entering a connection identification, or by selecting one of the drop-down items, and clicking the **Filter** button.

You can filter the errors by the migration step in which they occurred. There are 14 migration steps that you can choose to filter by. Seven of these are conversion-related steps, six are push-related, and one is a log with the length of the conversion process.

Conversions steps include the following:

- Conversions Run Time (log of conversion process)
- Bandwidth Conversion
- Design Line Reconciliation
- Facility and Special Conversion
- Order Conversion
- Product Catalog
- Validation
- Virtual Conversion

The following push steps will not exist until the Push action is initiated later in the migration process. Refer to Chapter 6, "Rerunning the migration" for more information.

- Copy BBM tables
- Copy NEM tables
- Push Templates
- Push NEM
- Push Network Systems
- NEM Validation/Synchronization

## Conversion Errors

Below are the types of conversion errors you might get when converting broadband data and pushing data. For each error, there are recommended procedures to correct the error. This can include user exits. There can be multiple user exits available for one error code. The available user exits that can be customized are listed in the "Custom user exits" section of this chapter. The error codes are broken down by area:

- CON—bandwidth connection
- CUS—custom user exit
- DBE—database
- FSC—facility and special connections
- NEM—network elements (Push error only)
- NET—network systems (Push error only)
- ORD—ordering service items
- RUNLOG—conversion runtime information
- TMP—network templates (Push error only)
- UNK—unknown
- VIR—virtual connections

**Table 6: Conversion Errors**

| Error Code | Description | Resolutions/(User Exit) |
|---|---|---|
| CON1 | No network was found for the terminating component/element. | ◆ Enter the terminating network system on the Resolve Connection Errors window<br>◆ Associate the component/element to one network system<br>◆ Add code to the corresponding custom user exit (bbmcstm11.sql.) |
| CON2 | The connection network system could not be determined. | ◆ Enter the connection network system on the Resolve Connection Errors window<br>◆ Update your network systems<br>◆ Add code to the corresponding custom user exit (bbmcstm7.sql) |
| CON3 | No originating component/element could be found. | ◆ Enter the originating component/element on the Resolve Connection Errors window<br>◆ Modify the circuit to find a component/ element<br>◆ Add code to the corresponding custom user exits (bbmcstm6.sql) (bbmcstm4.sql) |
| CON4 | More than one valid originating component/element was found. | ◆ Enter the originating component/element on the Resolve Connection Errors window<br>◆ Modify the circuit or reduce the number of components/elements<br>◆ Add code to the corresponding custom user exits (bbmcstm6.sql) (bbmcstm4.sql) |
| CON5 | No terminating component/element could be found. | ◆ Enter the terminating component/element on the Resolve Connection Errors window<br>◆ Modify the circuit to find a component/ element<br>◆ Add code to the corresponding custom user exit (bbmcstm6.sql) (bbmcstm4.sql) |
| CON6 | More than one valid terminating component/element was found. | ◆ Enter the terminating component/element on the Resolve Connection Errors window<br>◆ Modify the circuit or reduce the number of component/elements<br>◆ Add code to the corresponding custom user exit (bbmcstm6.sql) (bbmcstm4.sql) |

**Table 6: Conversion Errors**

| Error Code | Description | Resolutions/(User Exit) |
|---|---|---|
| CON7 | Multiple networks were found for the originating component/element. | ◆ Enter the originating network system on the Resolve Connection Errors window<br>◆ Associate the component/element with one network system<br>◆ Add code to the corresponding custom user exit (bbmcstm6.sql) (bbmcstm4.sql) |
| CON8 | No network was found for the originating component/element. | ◆ Enter the originating network system on the Resolve Connection Error window<br>◆ Associate the component/element with one network system |
| CON9 | No network was found for the terminating component/element. | ◆ Enter the terminating network system on the Resolve Connection Errors window<br>◆ Associate the component/element with one network system |
| CON10 | There were too many connection specifications found. | ◆ Enter the connection specification on the Resolve Connection Errors window<br>◆ Add code to the corresponding custom user exit (bbmcstm8.sql) |
| CON11 | No connection specifications could be found. | ◆ Update your templates so the conversion will find a valid connection specification |
| CON12 | A customer component was being created but a valid network could not be found. | ◆ Update network templates or network systems to allow the system to find a valid network system for the customer element/ component |
| CON13 | A customer component was being created but there were too many valid networks to choose from. | ◆ Enter the network system the customer should be associated with on the Resolve Connection Errors window<br>◆ Add code to the corresponding custom user exit (bbmcstm9.sql) |
| CON14 | A customer component was being created but there were too many valid connection specifications to choose from. | ◆ Enter the connection specification on the Resolve Connection Errors window<br>◆ Add code to the corresponding custom user exit (bbmcstm10.sql) |

**Table 6: Conversion Errors**

| Error Code | Description | Resolutions/(User Exit) |
|---|---|---|
| CON15 | A customer component was being created but there were too many base data connection specifications found. | ◆ Enter the connection specification on the Resolve Connection Errors window<br>◆ Create a user defined connection specification<br>◆ Add code to the corresponding custom user exit (bbmcstm10.sql) |
| CON16 | A customer component was being created but no connection specifications could be found. | ◆ Update your templates so the system will find a valid connection specification |
| CON17 | The network drawing could not be deleted for an automatic refresh. | ◆ In the migration environment, open the network and refresh the drawing. Right-click the network name and select Delete and Rebuild Graphics. |
| CON18 | A bandwidth connection with both ends as a customer cannot be converted. | ◆ Change one of the PRILOC/SECLOC locations on the order to a network location<br>◆ Enter the originating component/element on the Resolve Connection Errors window |
| CUS1 | Customer Defined Exception. | Customer-defined exception for bandwidth, facility, and special connections |
| CUS2 | Virtual Connection Customer Defined Exception | Customer-defined exception for virtual connections |
| DBE1 | Database Error | Please contact MetaSolv Global Customer Care |
| FSC1 | Invalid originating endpoint values returned from sp_bbm_custom_get_fs_endpt. | ◆ Verify custom logic in sp_bbm_custom_get_fs_endpt is either returning a valid network element or is indicating that a customer element is required (bbmcstm4.sql) |
| FSC2 | Unable to determine the broadband service category for the facility/ special connection. | ◆ Enter the broadband service category on the Resolve Connection Errors window<br>◆ Add code to the corresponding custom user exit (bbmcstm2.sql) |
| FSC3 | (Informational Message)<br>Connection excluded from circuit conversion in custom user exit | Not applicable |

**Table 6: Conversion Errors**

| Error Code | Description | Resolutions/(User Exit) |
|---|---|---|
| FSC4 | Invalid terminating endpoint values returned from sp_bbm_custom_get_fs_endpt. | ◆ Verify that the custom logic in sp_bbm_custom_get_fs_endpt is either returning a valid network element or is indicating that a customer element is required (bbmcstm4.sql) |
| FSC5 | Invalid broadband service category value returned from sp_bbm_custom_determine_bsc. | ◆ Enter the broadband service category on the Resolve Connection Errors window<br>◆ Add code to the corresponding custom user exit (bbmcstm2.sql) |
| FSC6 | No valid originating or terminating element was found. | ◆ Enter the originating/terminating element on the Resolve Connection Errors window<br>◆ Modify the circuit to find an originating/ terminating element |
| FSC7 | Unable to determine if a customer site should be created for the terminating endpoint. | ◆ Verify the Secloc on the Resolve Connection Errors window<br>◆ Enter a terminating element<br>◆ Add code to the corresponding custom user exit (bbmcstm1.sql) |
| FSC8 | Unable to determine if a customer site should be created for the originating endpoint. | ◆ Verify the Priloc on the Resolve Connection Errors window<br>◆ Enter an originating element<br>◆ Add code to the corresponding custom user exit (bbmcstm1.sql) |
| FSC9 | Unable to determine the bit rate to use for the circuit. | In the MetaSolv Solution core application, navigate to Inventory Management Setup and select the Service Types link in the Connection Identification section. Find the specified service type code, open its properties, and enter a value in the Rate Code field. |
| ORD01 | Service Item Hierarchy not converted. | ◆ The circuits listed have not been converted by the Circuit Conversion. |

**Table 6: Conversion Errors**

| Error Code | Description | Resolutions/(User Exit) |
|---|---|---|
| ORD02 | Service Item does not include a connection ID. | ◆ Assign the connection ID<br>◆ Delete the service item that does not include a connection ID<br>◆ Supp Cancel the Order<br>Note: The statistics are not updated for the orders corrected in the migration environment. When you delete service items, the total orders statistics are not updated. |
| UNK1 | Unexpected Error. | Please contact MetaSolv Global Customer Care. |
| VIR1 | Not all Bandwidth Circuits have been converted. | ◆ Convert all of the bandwidth connections the virtual is riding using the Resolve Connection Errors window |
| VIR2 | Could not find the originating connection. | ◆ Design the connection in the pre-M6 production environment |
| VIR4 | The originating endpoint network system could not be found. | ◆ Modify your network systems to use the element/component in only one network system<br>◆ Fix the connection on the Resolve Connection Errors window |
| VIR5 | The terminating endpoint network system could not be found. | ◆ Modify your network systems to use the element/component in only one network system<br>◆ Fix the connection on the Resolve Connection Errors window |
| VIR6 | The intermediate network system could not be found. | ◆ Modify your network systems to use the element/component in only one network system<br>◆ Fix the connection on the Resolve Connection Errors window |
| VIR7 | The connection has more than one break in connectivity. | ◆ Select a component on the Resolve Connection Errors window to have only one break in connectivity<br>◆ Add code to the corresponding custom user exit (bbmcstm13.sql) |

**Table 6: Conversion Errors**

| Error Code | Description | Resolutions/(User Exit) |
|---|---|---|
| VIR8 | The originating endpoint could not be found. | ◆ Fix the connection on the Resolve Connection Errors window<br>◆ Add code to the corresponding custom user exit (bbmcstm14.sql) |
| VIR9 | The terminating endpoint could not be found. | ◆ Fix the connection on the Resolve Connection Errors window<br>◆ Add code to the corresponding custom user exit (bbmcstm14.sql) |
| VIR10 | Too many customer defined specs have been defined for this connection. | ◆ Fix the connection on the Resolve Connection Errors window<br>◆ Modify the template to find only one connection specification<br>◆ Add code to the corresponding custom user exit (bbmcstm12.sql) |
| VIR11 | Too many base data defined specs have been defined for this connection. | ◆ Fix the connection on the Resolve Connection Errors window<br>◆ Add a customer defined connection specification to find only one connection specification<br>◆ Add code to the corresponding custom user exit (bbmcstm12.sql) |
| VIR12 | No connection specification could be found. | ◆ Fix the connection on the Resolve Connection Errors window<br>◆ Add a customer defined connection specification to find only one connection specification |
| VIR13 | There are no issues for this connection. | ◆ Add the correct connection specification on the Resolve Connection Errors window |

# Custom user exits

User exits exist so that portions of the connection conversion can be customized to meet your conversion needs. There are 15 exits that can be customized. Your IT professional or MetaSolv consultant can use a SQL script editor to change the SQL files and recompile them. You should save the SQL files created in the testing process so that they can be reapplied to the final production database.

MetaSolv Solution Utilities generates errors that occur during user exits in the Migration Error Report. The error type for customized exits is CUS1 for bandwidth, facility and special connections, and CUS2 for virtual connections.

Below are descriptions of the user exits:

**Table 7: User Exits**

| SQL file/error codes resolved | Stored Proc | Description |
|---|---|---|
| bbmcstm1.sql | ASAP.SP_BBM_CUSTOM_CREATE_EXTENSION | Used to create a customer site as an endpoint for a given circuit. |
| bbmcstm2.sql | ASAP.SP_BBM_CUSTOM_DETERMINE_BSC | Used to set the broadband service category for the given circuit. |
| bbmcstm4.sql | ASAP.SP_BBM_CUSTOM_GET_FS_ENDPT | Used to add custom user logic for finding the element for the originating or terminating endpoint of the given circuit. Also used to specify if the endpoint should be a customer site (an extension). |
| bbmcstm5.sql | ASAP.SP_BBM_CUSTOMER_CIRCUIT_BYPASS | Used to add code to exclude the given circuit from the conversion. |
| bbmcstm6.sql | ASAP.SP_BBM_CUSTOM_GET_BW_ENDPT | Used to find a unique endpoint for a bandwidth circuit. |
| bbmcstm7.sql | ASAP.SP_BBM_CUSTOM_NTWK_FOR_CONN | Used to find a unique network system for a bandwidth, facility, or special circuit whose endpoints are not customer sites (extensions). |
| bbmcstm8.sql | ASAP.SP_BBM_CUSTOM_CHOOSE_CONNSPEC | Used to find a unique connection spec. |
| bbmcstm9.sql | ASAP.SP_BBM_CUSTOM_NTWK_FOR_CUST | Used to find the network for a customer site element. |

**Table 7: User Exits**

| SQL file/error codes resolved | Stored Proc | Description |
|---|---|---|
| bbmcstm10.sql | ASAP.SP_BBM_CUSTOM_CONSPEC_FOR_CUST | Used to find a unique connection spec for a bandwidth circuit whose endpoint is a customer site (an extension). |
| bbmcstm11.sql | ASAP.SP_BBM_CUSTOM_NTWK_FOR_ELEMENT | Used to find a network system for a bandwidth, facility, or special circuit endpoint that is not a customer site. |
| bbmcstm12.sql | ASAP.SP_BBM_CUSTOM_GET_VIRTCONSPEC | Used to find a unique connection spec for a virtual connection. |
| bbmcstm13.sql | ASAP.SP_BBM_CUSTOM_LOAD_ASSGNMTS | Used to add bandwidth circuits to the design of the virtual circuit. This can be helpful to fill in the cloud of the VLR or to change the terminating circuit on the VLR. |
| bbmcstm14.sql | ASAP.SP_BBM_CUSTOM_GET_VIRT_ENDPT | Used to find a unique endpoint for a virtual circuit. |
| bbmcstm15.sql | ASAP.SP_BBM_CUSTOM_BWVOICE_CONNSPEC | Used to set the connection spec for a new BWVOICE virtual connection. |
| bbmcstm16.sql | ASAP.SP_BBM_CUSTOM_ CANCEL _CONNSPEC | Used to add connection specifications to canceled connections. |

## Example of custom user exit script

Following is an example of a user exit written to set the broadband service category for specific circuits that are stored in a temporary table in the database.

Procedure SP_BBM_CUSTOM_DETERMINE_BSC

```
/* Description: Use this stored procedure to set the broadband service
category for the given circuit.


     Filename:  bbmcstm2.sql


     Arguments: v_circuit_design_id in numberKey value from circuit table.

                v_orig_ns_comp_id in number             Key value from
ns_component for the originating endpoint of the circuit.

                v_term_ns_comp_id in number             Key value from
ns_component for the terminating endpoint of the circuit.

                v_orig_tech_type in varchar2Technology type supported by the
originating component.

                v_term_tech_type in varchar2Technology type supported by the
terminating component.

                v_bsc out varchar2Need to populate with broadband service
category for the circuit.
                                                         The valid Broadband
Service Category values are 'C'-Cell, 'F'-Frame,
                       'N'-Neither. Only return one of these values.
                v_return_cd out numberValid Values: -1 for sql errors.
                                                          1 v_bsc populated.
                                                         0 no user logic added.
               v_return_text out varchar2               Set to sql error text.
*/
             (v_circuit_design_id in number,
              v_orig_ns_comp_id in number,
              v_term_ns_comp_id in number,
              v_orig_tech_type in varchar2,
              v_term_tech_type in varchar2,
              v_bsc out varchar2,
              v_return_cd out number,
              v_return_text out varchar2)


IS


   v_bsc_tempvarchar2(10);


_Begin
```

```
/* By default exit the procedure. If logic is added remove these two lines of
code. */

   SELECT BSC INTO v_bsc_temp
   FROM BBM_CUSTOM_FAC_BSC
   WHERE CIRCUIT_DESIGN_ID = v_circuit_design_id;

   IF v_bsc_temp = 'ATM' THEN
      v_bsc := 'C';
      v_return_cd := 1;
   ELSIF v_bsc_temp = 'FRAME' THEN
      v_bsc := 'F';
      v_return_cd := 1;
   ELSIF v_bsc_temp = 'PENDING' THEN
      v_return_cd := -1;
      v_return_text := 'Pending val for BSC ' || v_circuit_design_id;
   ELSE
      v_return_cd := -1;
      v_return_text := 'Undef value for BSC ' || v_circuit_design_id;
   END IF;

RETURN;

   EXCEPTION
      WHEN OTHERS THEN
         v_return_cd := -1;
         v_return_text := SUBSTR(SQLERRM, 1, 200);
         return;
/* Pseudo code:
   If v_orig_tech_type = v_term_tech_type then
      if v_orig_tech_type = 'ATM' or v_orig_tech_type = 'Frame Relay' then
         if ATM then v_bsc = 'C'
         if Frame Relay then v_bsc = 'F'

         v_return_cd := 1;
```

```
            return;
         else
            -- add code here
         end if;
   elsif v_orig_tech_type is null or v_term_tech_type is null then -- (this
could happen if one endpoint is an extension)
         -- capture non-null value in variable ls_tech_type
         if ls_tech_type = 'ATM' or 'Frame Relay' then
            if ATM then v_bsc = 'C'
            if Frame Relay then v_bsc = 'F'

            v_return_cd := 1
            return;
         else
            -- add code here
         end if;
   end if;

   exception
      when others then
      v_return_cd := -1;
      v_return_text := v_return_text || '(' || to_char(v_circuit_design_id)
|| ') ' || substr(sqlerrm, 1, 200);
      return;
*/
End;
/
```

## User exit errors

1. Error Codes: -1 if error occurs, 1 if the user exit is returning a value, 0 if no user logic is added (this is the default)
2. If an error occurs and a -1 is returned, the v_return_text must contain the error text. The calling procedure will log the error. Custom user exits should not log any error messages.

### Changing a user exit

If you are in the conversion process and realize you need to change a user exit, you can do the following:

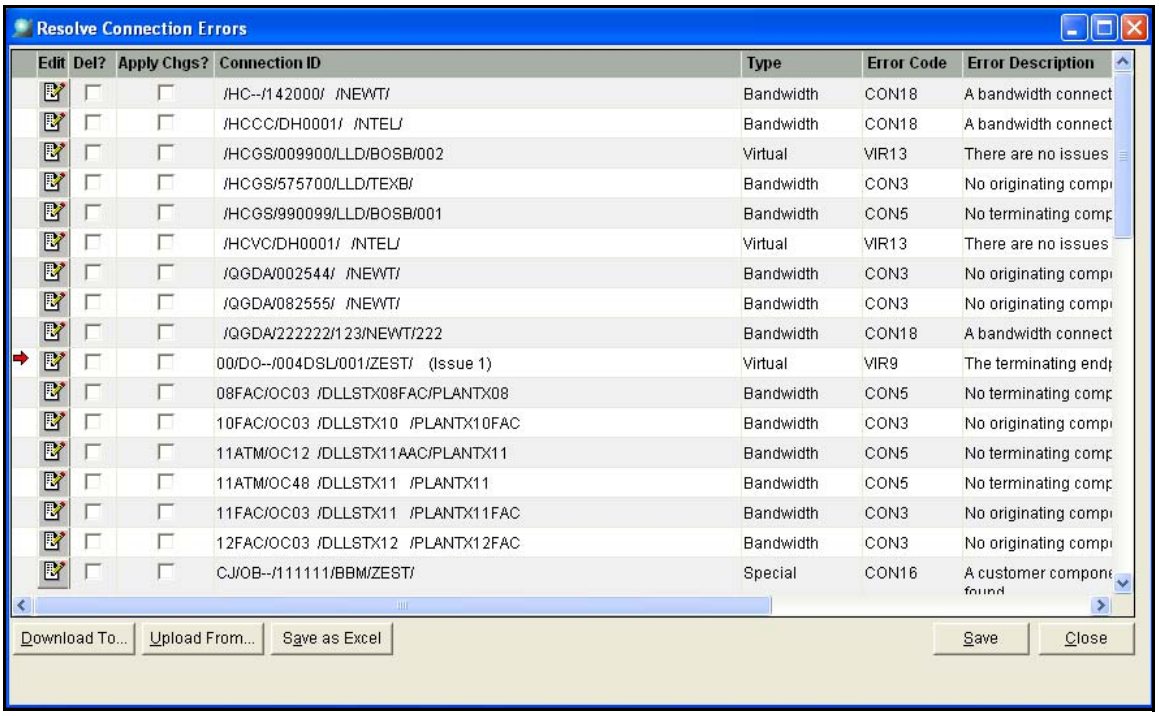
- Restore the migration environment from a cold backup.
- Change the user exit.
- Re-run validations.
- Re-run conversions.

# Resolve connection errors

**To resolve connection errors**

1. Click the **Resolve Connection Errors** link.

   The following window appears.




Below are the options available from this window:

**Edit**—Click the Edit icon to bring up a window on which you can make corrections to a connection.

**Del?**—Select the **Del** check box to delete a connection from the window. This does not delete the connection from the database.

**Apply Chgs?**—Select the **Apply Chgs** check box to perform validations on the changes you made. When you run the conversion process again, it will pick up your changes and attempt to convert the connection. When you select the **Apply Changes** check box on the Edit window, a check mark will automatically display in this column.

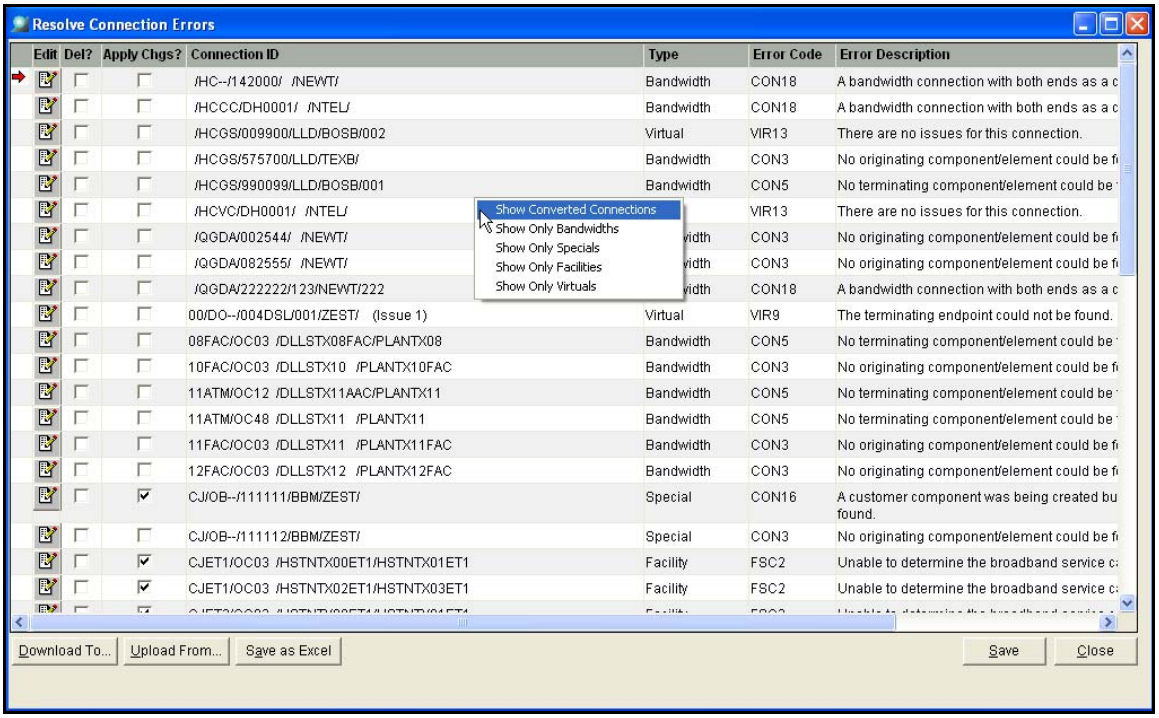
**Download To**—Click this button to download all connection errors to a text file that can later be uploaded and used in a new copy of production. By using this feature, you do not have to fix the same connection errors each time you upgrade from your production environment.

**Upload From**—Click this button to upload previously resolved connection errors to a new copy of production.

**Save as Excel**—Click this button to save the data on this window to an Excel spreadsheet. The spreadsheet will display data, even if the list shown on the window is filtered.

**Save**—Click this button to delete or apply changes on checked connections.

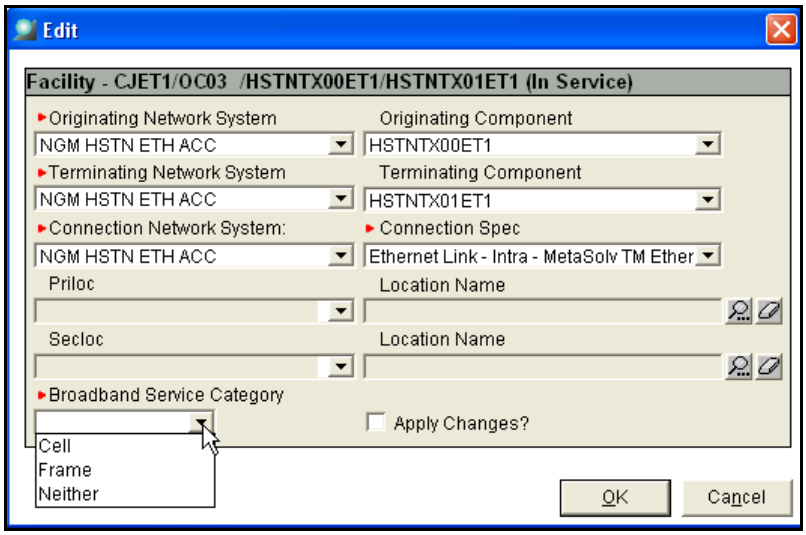
**Filter**—To filter the list of connections, right-click and select an option for filtering, as shown by the following window.




You can filter the list to view connections by type, or you can view the connections that have already been converted.

2. To edit connections, click the **Edit** button next to a connection.

The following window appears.




Following are descriptions of fields on the window:

**Originating Network System/Originating Component**—The parent network to which the originating component belongs. If this is a connection between a customer site and a component in a network system, the customer site will be associated with an originating network system based on the rules set up in network templates.

**Terminating Network System/Terminating Component**—The parent network to which the terminating component belongs. If this is a connection between two customer sites, the customer sites will be associated with an originating and terminating network system based on the rules set up in network templates. These could be the same network or different networks.

**Connection Network System/Connection Spec**—The connection network system is determined by the template relationship rules. The available connection specs are filtered by the connection network system and the originating/terminating components. The connection network system field must be populated before you can select a connection spec.

**Priloc/Secloc/Location Name**—Use the Priloc/Secloc to enter customer CLLI codes, or the Location Name to enter customer locations.

**Broadband Service Category**—This is a required custom attribute for template-based bandwidth connections. Facility and special circuits being converted to template-based bandwidth connections need a broadband service category defined.

**Apply Changes?**—You must apply changes to corrected connections so they can be saved and reapplied during the next iteration of the run conversion step.

3. Enter the correct information for the connections, select the **Apply Changes?** check box, and click **OK**.
4. Click **Save** on the Resolve Connection Errors window.

   Validation only occurs on rows that have not already been converted and that have the **Apply Chgs?** check box selected and the **Del?** check box cleared.

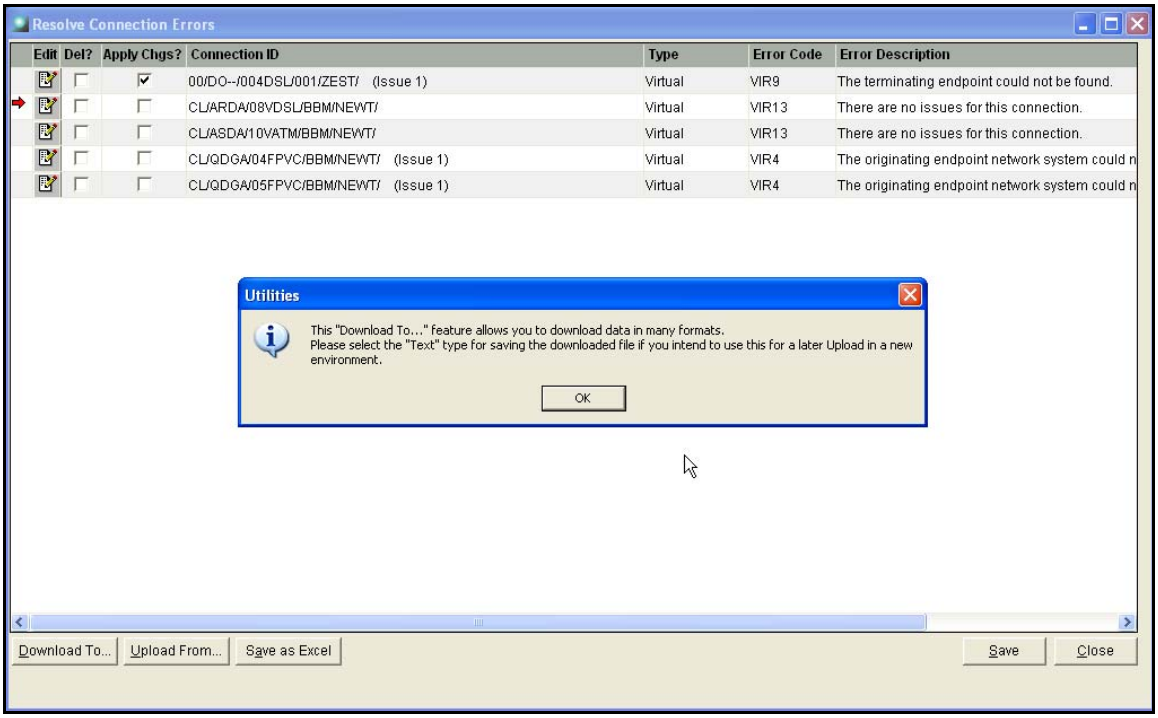
   Following are the validations that are performed:

   - If Bandwidth status is Canceled or Disconnected, only the Connection Spec is required.
   - If Virtual status is Pending and is on a PSR order, only the Connection Spec is required.
   - If Connection Spec is not the only column required, the Originating Component or Priloc CLLI/Location Name needs to be populated, but not both. If extensions are not allowed, the user has to enter Originating Component, Priloc CLLI/Location Name.
   - If Connection Spec is not the only column required, the Terminating Component or Secloc/Location Name needs to be populated, but not both. If extensions are not allowed, the user has to enter Terminating Component, Priloc CLLI/Location Name.
   - If Connection spec is not the only column required, the Originating Network System, Terminating Network System, Connection Network System, and Connection Spec are required.
   - If circuit type is facility or special, the Broadband Service Category is required.
   - Originating and Terminating Components or the Priloc/Secloc locations must be different.
   - Originating and Terminating Components cannot both be customer sites.
   - If one of the components is a customer site, it's network system must be the other end's network system or a network system higher up in hierarchy.

5. When all connections have been resolved, click the **Download To** button.

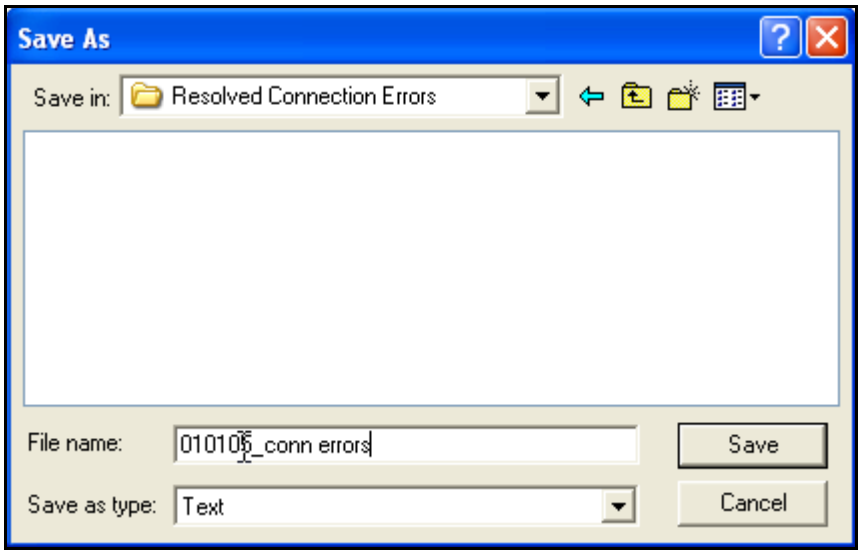
It is critical to download this file. You will later upload this file to newer copies of the production environment and eventually to your M6 production environment.

The following window appears.




6. Click **OK**.

The following window appears.




7. In the **Save as type** field, select **Text**.
8. Select a directory in which to save the file.
9. Type in a file name.

   For this guide, the file will be named: 010105_conn errors. Name your files in a way that you can easily identify what is in them. Note their location so you do not lose your work. You will need these files later.
10. Click the **Save** button.

⚠ You should save this file in a directory that will not get copied over in the test phase.

6

# Rerunning the migration

This section guides you through making subsequent passes through the migration process. In most cases, the production environment will have had numerous changes and additions since you completed the first run of the migration process in the migration environment.

It is recommended that after you test and complete the migration process, that you create a new copy of production and push your migrated data into the latest copy of production. From this point, you process any new data, and re-run the validations and conversions.

## Refresh from production

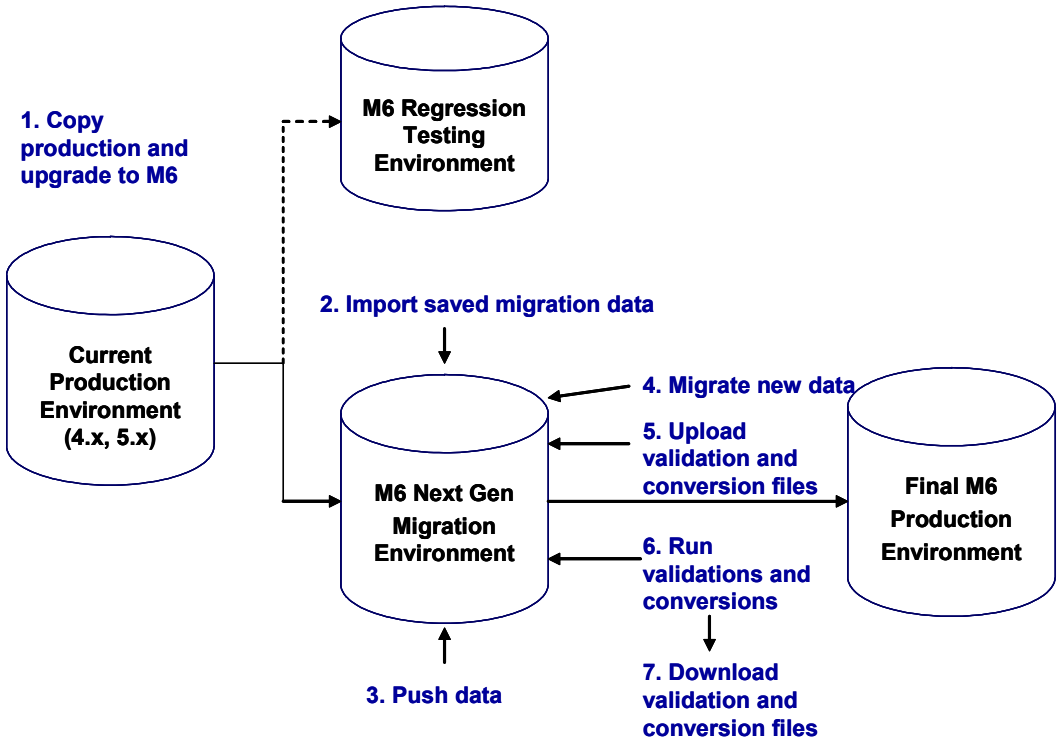
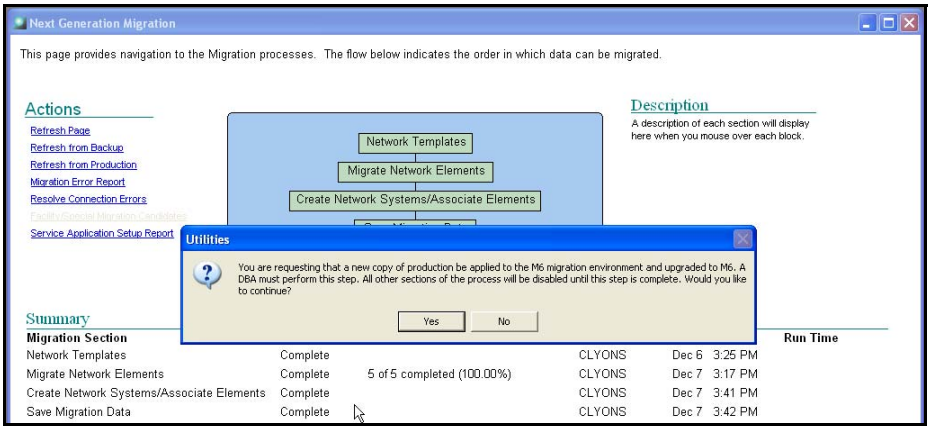



**Figure 14: Process to refresh from production**

1. DBA—Make a copy of the current production environment, upgrade it to M6, and make a backup. The copied environment is your new migration environment.
2. DBA—Import the saved migration data that includes new network templates, migrated network element data, and new network systems into the migration environment.
3. SME—Run a Push action in the tool to merge the imported data into the new migration environment.
4. SME—Migrate any new network element data in the migration environment.
5. SME—Upload any validation or conversion files you previously downloaded to the migration environment. (These are the two files you downloaded in Chapter 5.)
6. SME—Run validations and conversions in the migration environment. If any new facilities and specials are selected for conversion, download those to a file using the tool.
7. If you resolve any new conversion errors, the SME should also download those to a file using the tool.

**To refresh from production**

1. Click the **Refresh from Production** link.
2. The following window appears.




3. Click the **Yes** button.

The database administrator should perform the steps to "Refresh from production" on page 134. These steps include importing the previously exported data.

You cannot do anything in the migration tool until the database administrator performs the refresh from production tasks.

# Push data

In this step, the migration data that you previously exported is pushed into the new migration environment. This data includes new network templates, migrated network elements, and network systems. There are several items that will not be pushed during the push action. For this reason, you should not perform the following tasks in the migration environment:

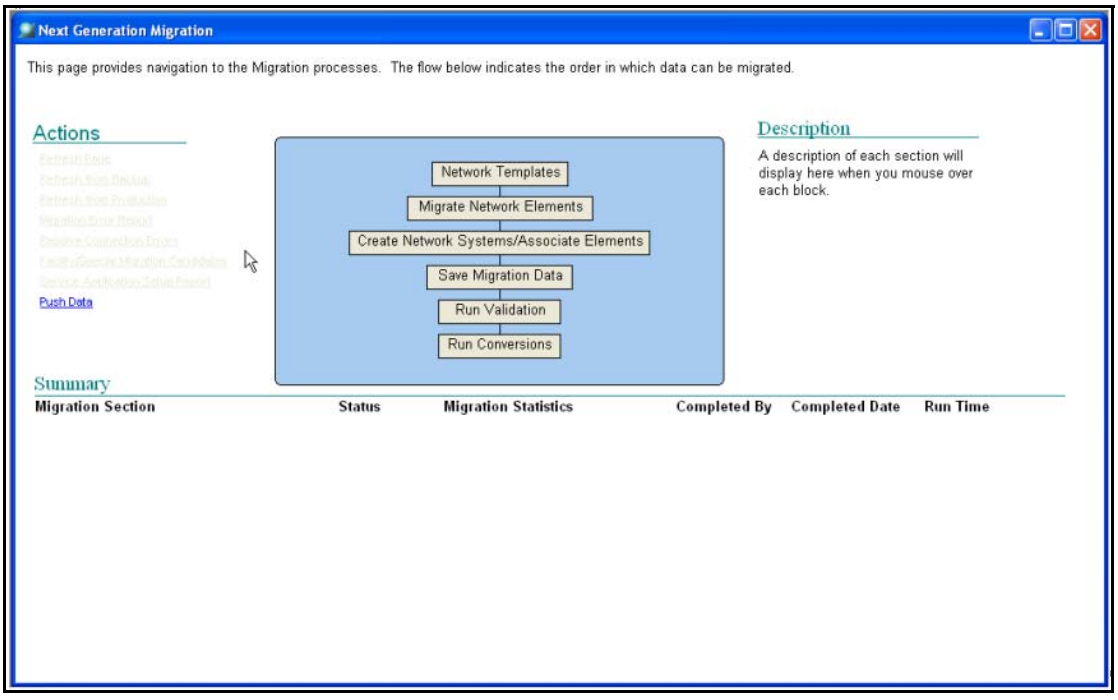
- Add equipment specs (Exception: equipment type changes will be exported)
- Install equipment
- Change existing network systems (includes network elements)
- Change existing templates
- Create new connections between elements in existing network systems
- Create new standalone network elements (not associated to network systems)

Instead, you should make these types of changes in your production environment, after fully testing them in a test environment.

**To push data to the migration environment**

1. After the database administrator finishes the Refresh from Production task, log on to MetaSolv Solution Utilities.

   The following window appears.




2. In the Actions section, click the **Push Data** link.

This synchronizes the previously exported network templates, network elements, and network systems with the latest copy of production.

The push will fail if there are critical push errors. When you push data, previous steps in the migration process are reopened for any new data that needs to be set up, such as network templates, network elements, or network systems.

Whether or not the push fails, you should click the **Migration Error Report** link to view errors. On the report, you might see errors described in the previous chapter. In addition, you might now see push errors, which are described in this chapter.

# Resolve push errors

Below you will find the error codes and the resolutions needed to fix the errors. See Figure 15 on page 113 for more information about the source and target environments referred to in the error codes.

The error severities are:

- 1=Critical
- 2=Warning
- 3=Informational

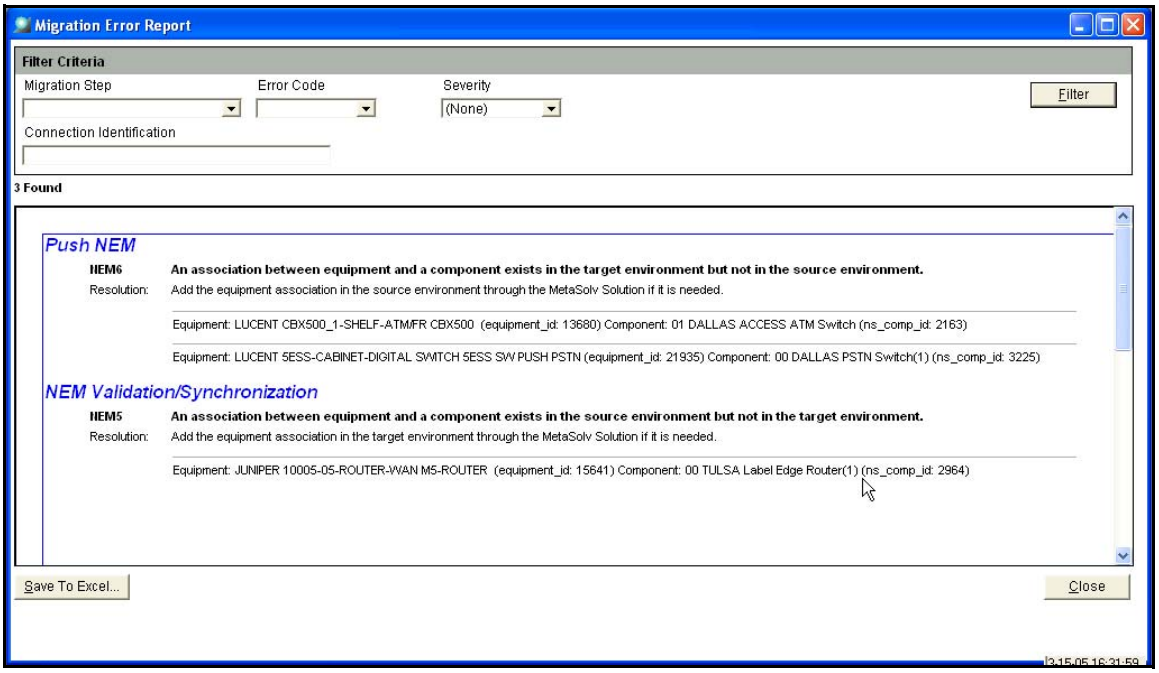
Following are descriptions of errors that can occur during the push process.

| Error Code | Description | Resolution | Severity |
|---|---|---|---|
| NEM1 | Component Types, that are associated with Network Element types, exist in the source environment, but do not exist in the target environment. | Ensure that all required Component Types have been processed through the Network Template push step. | 1 |
| NEM2 | Equipment Spec Types, that are associated with Equipment Specs with Network Element associations, exist in the source environment, but do not exist in the target environment. | Add the Equipment Spec Type to the target environment through the Equipment Spec Type Maintenance window in MetaSolv Solution. | 1 |
| NEM3 | The Network Element Type Name already exists and has been changed to make it unique. | Edit the Name field on the Network Element Type Maintenance window in MetaSolv Solution. | 2 |
| NEM4 | The Network Element Name already exists and has been changed to make it unique. | Edit the Name field on the Network Element Properties window in MetaSolv Solution. | 2 |

| Error Code | Description | Resolution | Severity |
|---|---|---|---|
| NEM5 | An association between equipment and a component exists in the source environment, but not in the target environment. | Add the equipment association in the target environment through MetaSolv Solution, if it is needed. | 2 |
| NEM6 | An association between equipment and a component exists in the target environment, but not in the source environment. | Add the equipment association in the source environment through MetaSolv Solution, if it is needed. | 2 |
| NET1 | The Network name already exists and has been changed to make it unique. | On the Managing a Network System Properties window in Metasolv Solution, edit the Short Name field. | 1 |
| NET2 | The Element name already exists and has been changed to make it unique. | On the Managing an Element Properties window in Metasolv Solution, edit the Name field. | 1 |
| NET3 | The Network Location for the element could not be found. | In Metasolv Solution, add the missing location in Application Setup to the production environment and edit the Network Location field on the Managing an Element properties window. If necessary, also edit the Element Type field to make the component an element. | 2 |
| NET4 | All or some of the equipment for the element could not be associated because the equipment was already associated with another element in the target database. | In Metasolv Solution, disassociate the equipment from the existing element and associate with the new element on the Managing an Element Properties window. | 2 |
| TMP1 | The Template name already exists and has been changed to make it unique. | On the Managing a Template Properties window in Metasolv Solution, edit the Network Template Name field. | 1 |
| TMP2 | The graphic image for the element type could not be found. | On the Managing a Component Type Properties window in Metasolv Solution, edit the Image Name field. | 1 |
| TMP3 | The Connection Type name already exists and has been changed to make it unique. | On the Managing a Connection Type Properties window in Metasolv Solution, edit the Name field. | 1 |

| Error Code | Description | Resolution | Severity |
|---|---|---|---|
| TMP4 | The Connection Spec name already exists and has been changed to make it unique. | On the Managing a Connection Spec Properties window in Metasolv Solution, edit the Connection Spec Name field. | 1 |

Below is an examples of the Migration Error Report window.




Any changes to network templates, elements, or systems that need to be made to MetaSolv Solution as a result of the "push" action should be made in the migration environment. After you make the changes, continue the migration process at the **Save Migration Data** step explained in the previous chapter.

# Processing new data

To understand processing new data and resolving errors the terms source and target are used. The source is the saved data from the previous migration environment. The target is the latest migration environment (which contains a new copy of production) The following diagram illustrates the relationship between the source and target environments.

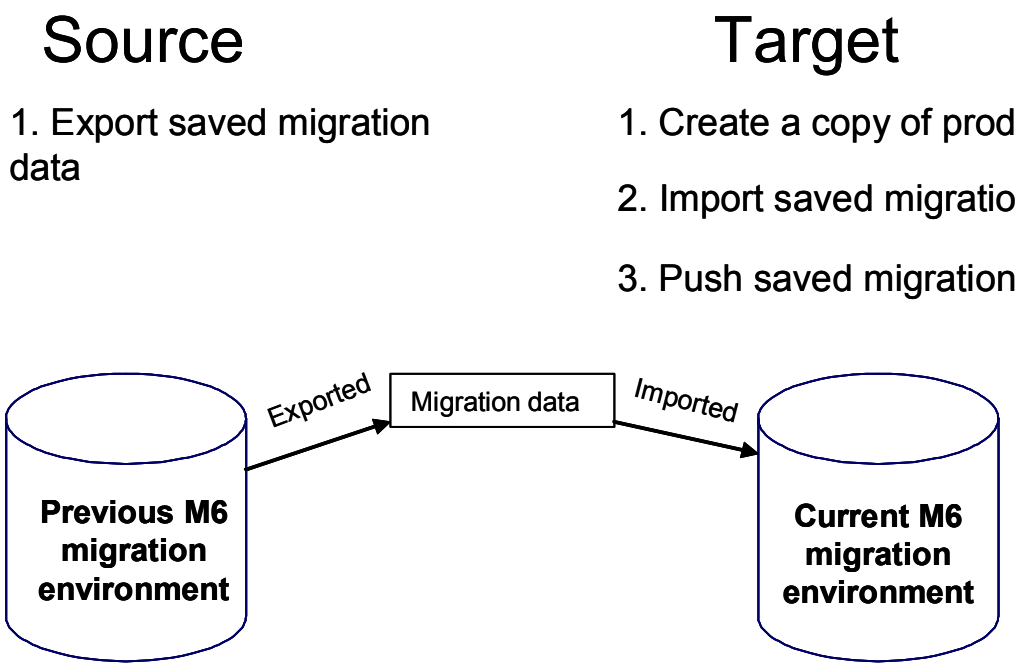
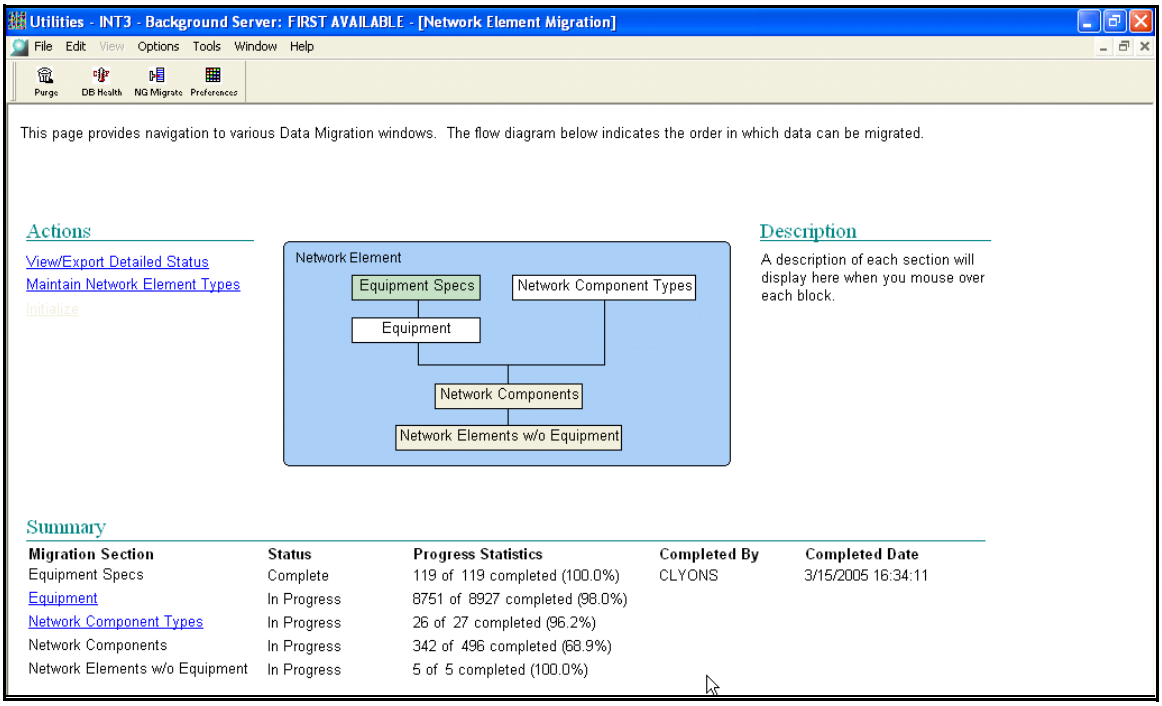



**Figure 15: Source and Target Environments**

Once you have taken a new copy of production, you will have new data that users have entered since the first copy of production was taken. This can include new equipment specifications, installed equipment, new network components (5.x network elements) and network component types (5.x element types). This new data must be processed with the Next Generation Migration tool.

The graphic below shows an example of the window as a user has new data to process after the push.




## Process new equipment

When the equipment section is reopened after the Push has been executed, the following items will be marked as Not Complete:

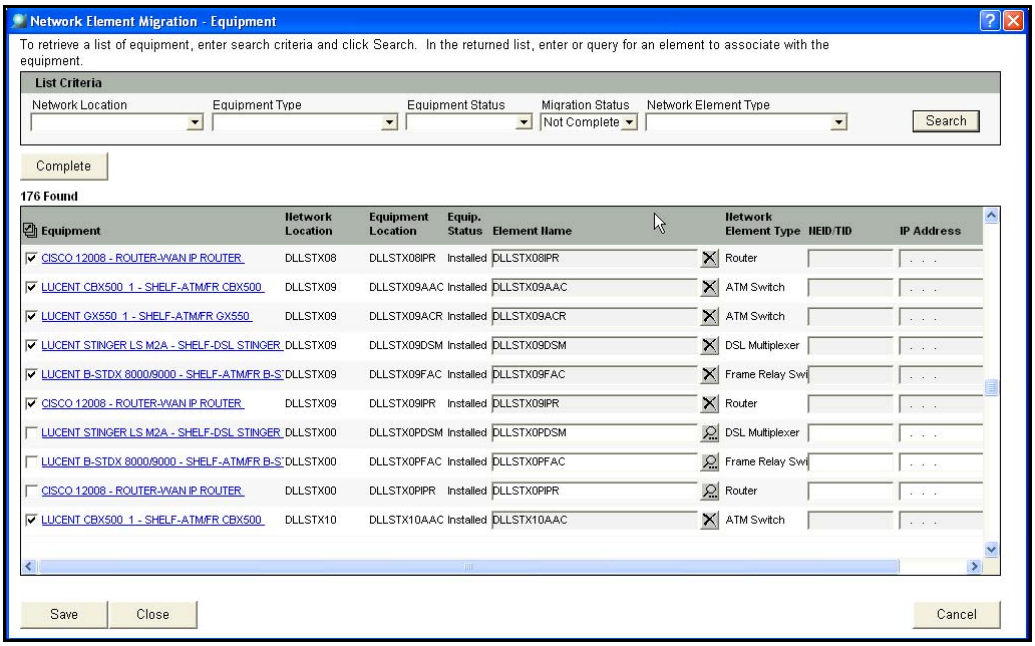
- New Equipment added to the Target environment whose equipment specification is associated to a network element type.
- Network Elements that were created in the Equipment section and then associated to a Network System in the Source environment during the previous iteration of the Next Gen Migration.

  The reason these items are reopened is because the network element records were created in the source environment (the migration environment used for the previous iteration of the process) and then the network elements were added to network systems. At the **Save Migration Data** step, an export of the database was taken capturing all of the data that was complete up to that step (create network templates, migrate network elements, and create network systems/associate elements). When a new copy of the production database was upgraded to M6 (the new target environment), it did not contain the data that was processed in the source (migration) environment. Then, an import of the data was

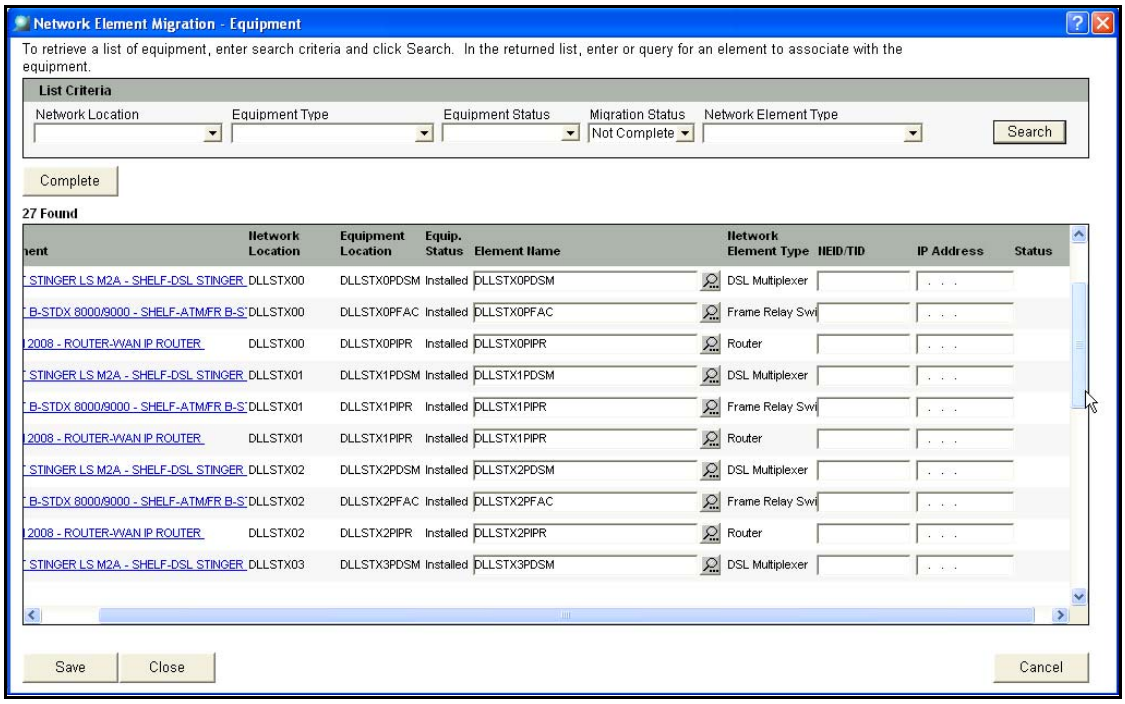
executed to push back the data that previously processed so that re-work was unnecessary. This step in the process is looking for a re-validation of the data previously processed.

Network Elements that had an existing Network Component (5.x network element) record prior to using the NEM, will not be reopened after the push is executed.

If you search by the Migration Status of Not Complete, equipment that was previously created as Network Elements through the Equipment section will appear in the list but the check box will be automatically selected. To re-complete these rows (pending there are no new changes to items created in the previous iteration), click the **Save** button.




Once the rows are processed, re-retrieve the equipment that has a status of Not Complete. This should display all new equipment that was added to the Target environment and whose equipment specification is associated to a network element type. Process this new equipment as needed. Refer to Chapter 3, "Migrating network element data" for more assistance on processing equipment.




## Process network components

When the Network Components section is reopened after the Push has been executed, the following items will be marked as Not Complete:

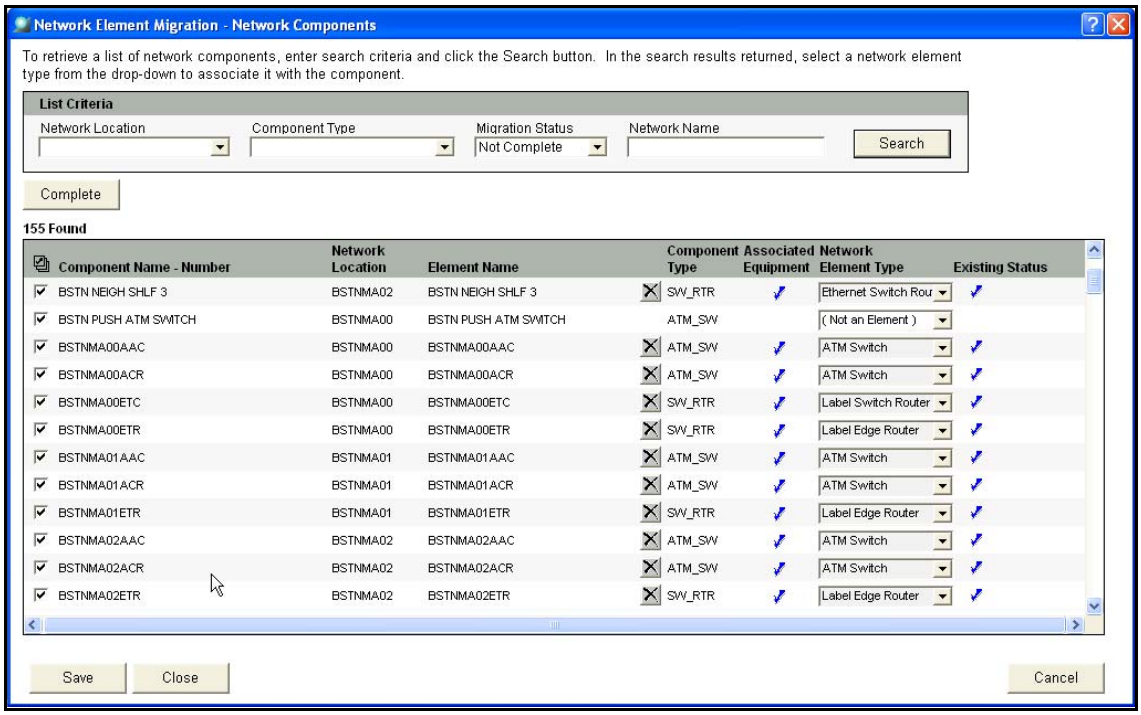
- New network components (5.x network elements) added to the target environment whose component type (5.x element type) is associated to a network element type.
- Data processed in the network component section in the source environment during the previous iteration of the Next Gen Migration.

  This step in the process is looking for a re-validation of the data previously processed.

  Network components (5.x network elements) that had an existing network component record prior to using NEM will not be opened after the push is executed.

- If you search by the Migration Status of Not Complete, network components that were previously processed through this section will appear in the list, but the check box will be automatically selected. To re-complete these rows, click the **Save** button.

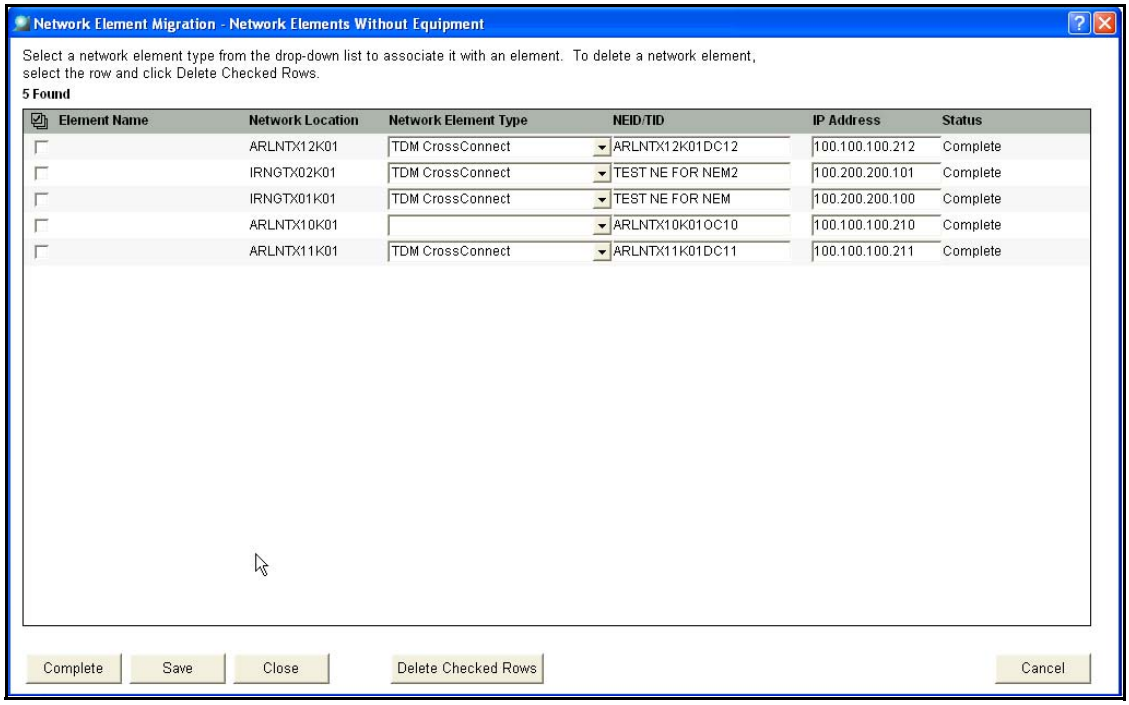
.



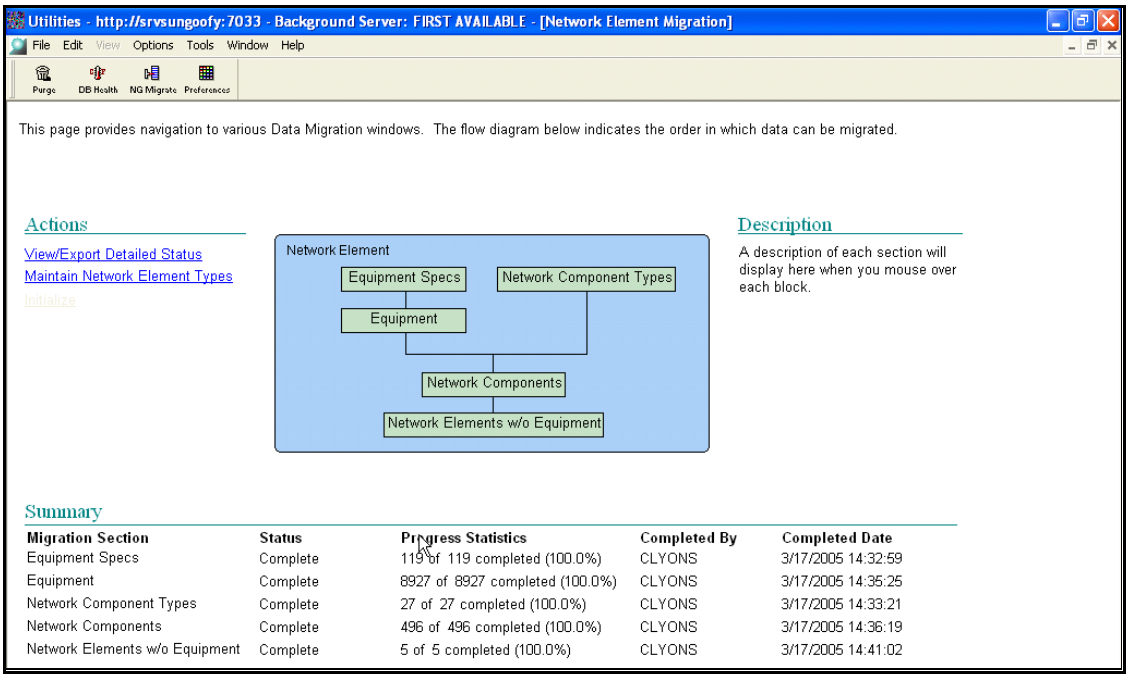

Once the rows are processed, re-retrieve the network components that have a status of Not Complete. This should display all new network components that were added to the target environment. Process these new network components as needed. Refer to Chapter 3, "Migrating network element data" for more assistance on processing equipment.

## Process network elements without equipment

The Network Elements Without Equipment section should be processed as it was when running through this process in the previous iteration.

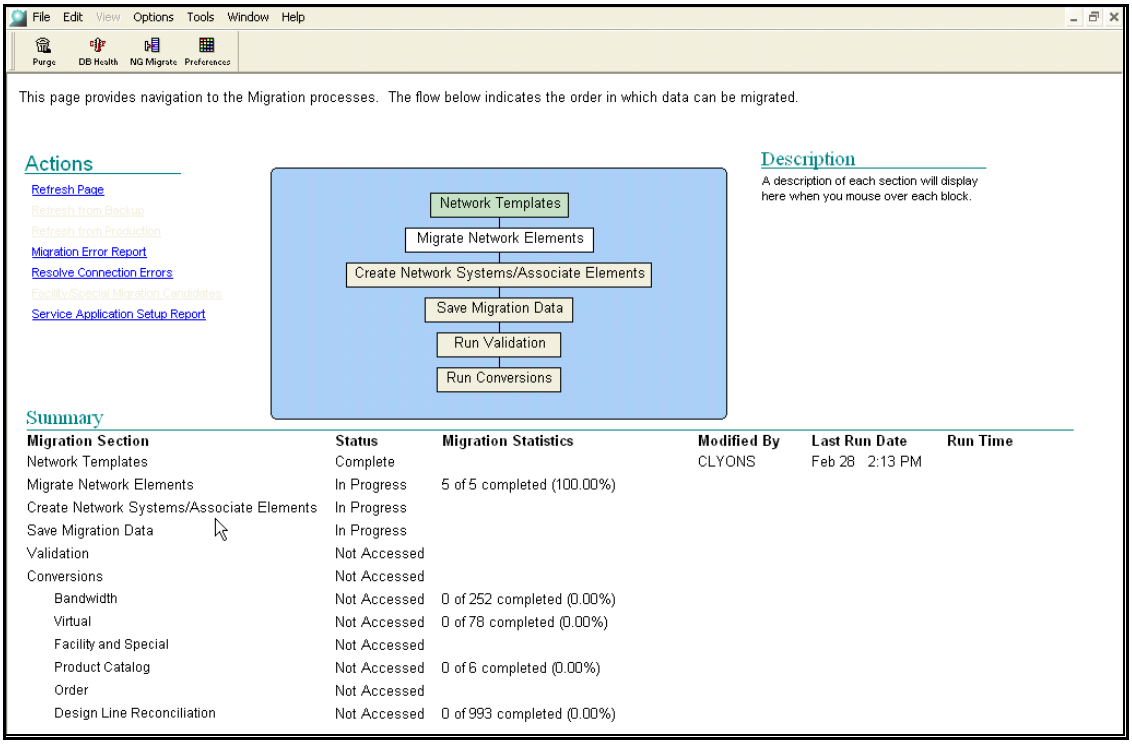


After the NEM data has been processed, all steps should show complete as shown below.




| Migration Section | Status | Progress Statistics | Completed By | Completed Date |
|---|---|---|---|---|
| Equipment Specs | Complete | 119 of 119 completed (100.0%) | CLYONS | 3/17/2005 14:32:59 |
| Equipment | Complete | 8927 of 8927 completed (100.0%) | CLYONS | 3/17/2005 14:35:25 |
| Network Component Types | Complete | 27 of 27 completed (100.0%) | CLYONS | 3/17/2005 14:33:21 |
| Network Components | Complete | 496 of 496 completed (100.0%) | CLYONS | 3/17/2005 14:36:19 |
| Network Elements w/o Equipment | Complete | 5 of 5 completed (100.0%) | CLYONS | 3/17/2005 14:41:02 |

Close the window to return to the Next Gen Migration window as shown below. Click the **Migrate Network Elements** button to complete the step and to re-initialize the statistics for the conversions.



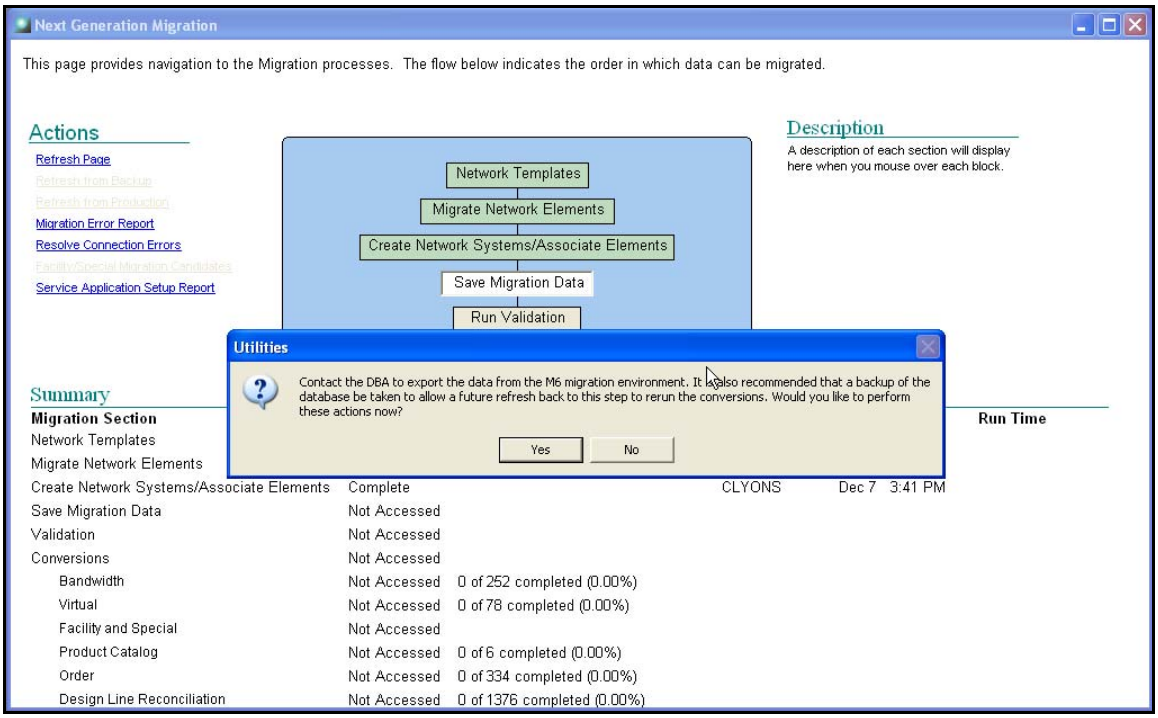

# Save migrated data

If you created new templates, migrated new network elements, and created new network systems since the last time the migration data was saved, save the data again for any subsequent pushes.

**To save migration data**

1. Click the **Save Migration Data** link.

The following window appears.




2. Click the **Yes** button.

   All steps are disabled on the window except the **Confirm Export** link.

3. Exit MetaSolv Solution Utilities.

The database administrator must run the export and advised to create a full backup of the migration environment. The DBA should follow the steps in the section titled "Support migration processing" in Chapter 8 to perform the following tasks:

- Save migration data
- Create backup
- Export tables

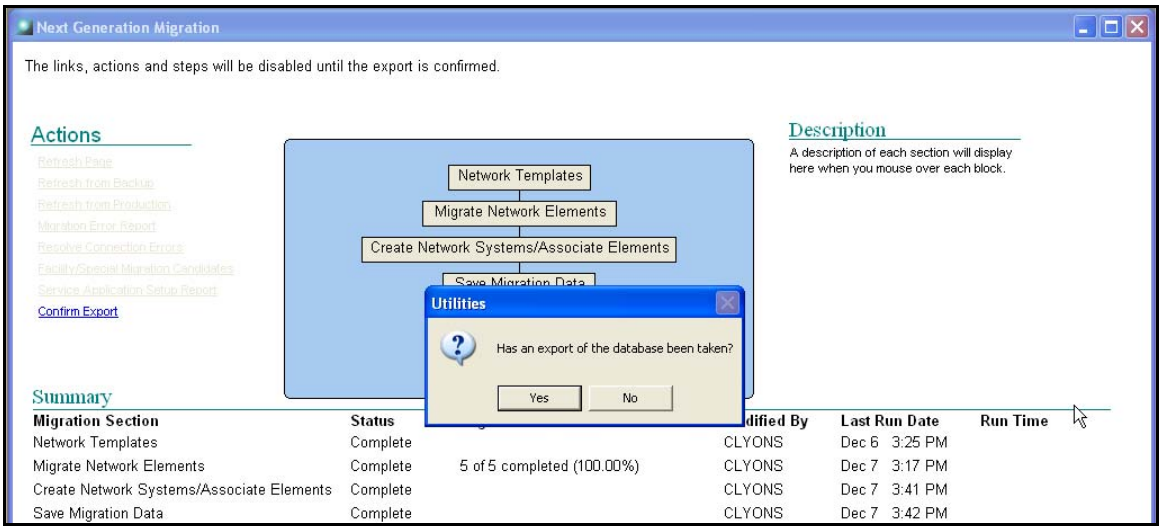
# Confirm export

Verify that the database administrator has taken a backup of the database and has exported the broadband database tables.

**To confirm export**

1. In the migration environment, log on to MetaSolv Solution Utilities.
2. In the Actions section, click the **Confirm Export** link.

The following window appears.




3. Click the **Yes** button.

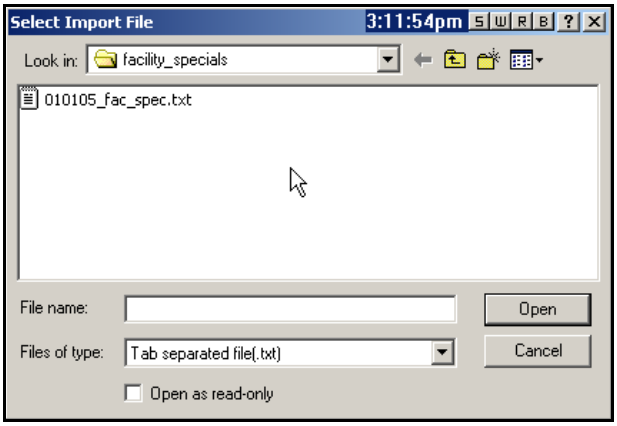
# Upload files

Next upload any previously downloaded text files that contain the selected specials and facilities and any corrected connection errors.

**To upload specials/facilities data**

1. Click the **Specials/Facilities Migration Candidates** link.
2. Click the **Upload From** button to import the previously downloaded text file.
3. Click the **Yes** button.

   The following window appears.

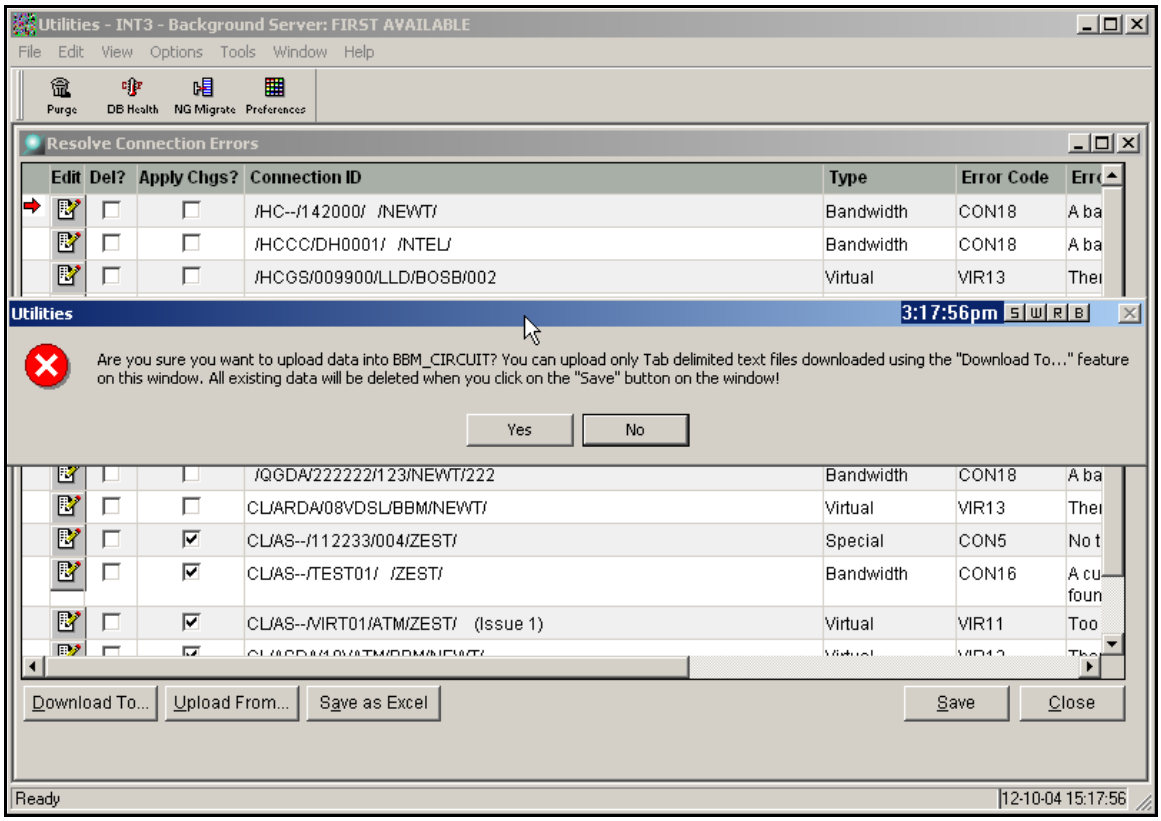


4. Select the previously downloaded text file and click the **Open** button.
5. Click the **Save** button.

**To upload corrected connection error data**

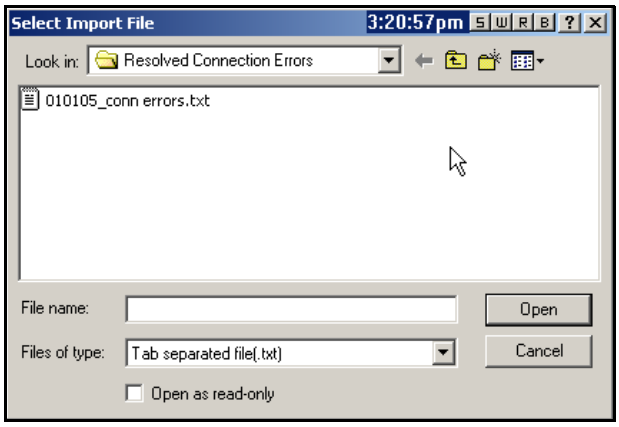
1. Click the **Resolve Connection Errors** link.
2. Click the **Upload From** button to import the previously downloaded text file.

The following window appears.

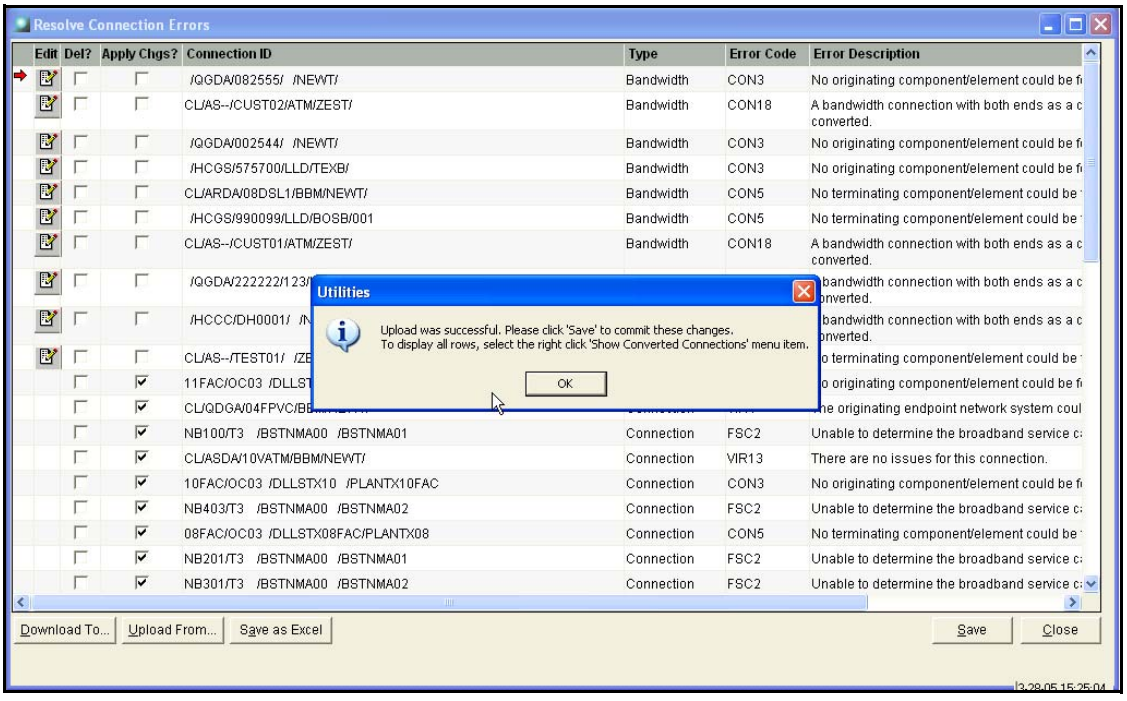



3. Click the **Yes** button.

The following window appears.

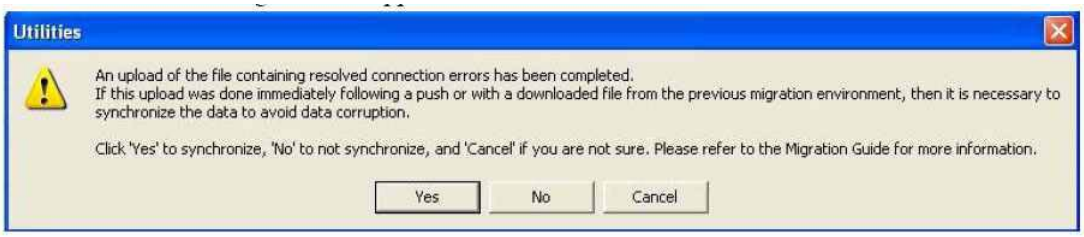



4. Select the previously exported file and click the **Open** button.




5. Click **OK**.
6. Click the **Save** button.

The following window appears.




7. If you are uploading resolved connection errors **immediately after a push**, click the **Yes** button to synchronize the data.

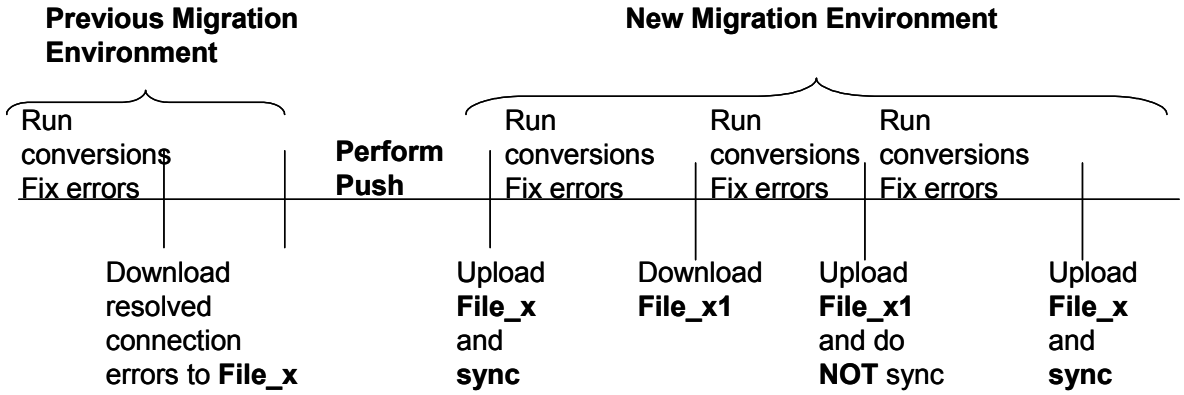
# When should I synchronize?

You should synchronize when you are uploading resolved connection errors immediately after pushing data to a new copy of production in your migration environment. Any time you upload a resolved connection errors file from a previous migration environment, you should synchronize your data.

⚠ If you do not synchronize data at the right time, data can become corrupted.

If you upload resolved connection errors from the same migration environment, you should NOT synchronize the data.

In the example below, File_x is synchronized every time it is uploaded because it was downloaded from a previous migration environment, and uploaded to a new migration environment after the push was performed. File_x1 was downloaded and uploaded in the same migration environment, therefore it is not necessary to synchronize.



# Re-run validations and conversions

See the "Run validations" section in the prior chapter to re-run the validations after the push. The original connection selections and all new facilities and specials which are candidates for conversion will be shown when you click the **Facility/Special Migration Candidates** link. If you make any changes to the data, download a new text file.

Likewise, see the "Run conversions" section in the prior chapter to run the conversions after the push, and review the Migration Error Report. Download a new text file when you are finished.

# Cutover weekend

The process for cutover weekend is similar to that described in this chapter, except that the process is actually run on the production environment. The DBA will upgrade the production environment to M6, and then import the latest saved migration data.

You will then run the validations and conversions, and resolve any conversion errors.

It is recommended that you refrain from creating and modifying network templates, creating network elements, installing equipment, and modifying networks after the last refresh from production is worked through the migration environment.

# Performing post migration tasks

This chapter lists items you should review, or modify and describes things that may have changed in production after the migration process is complete.

## Search for converted facility circuits

When facility circuits are converted to bandwidth connections, the search feature works differently. To search for facility circuits prior to the migration, you enter the designation in the Designation field and check the facility check box.

After you convert your facilities to bandwidth connections, use the Connection ID field to enter criteria for the facility designation, and check the Bandwidth check box.

## Create service applications

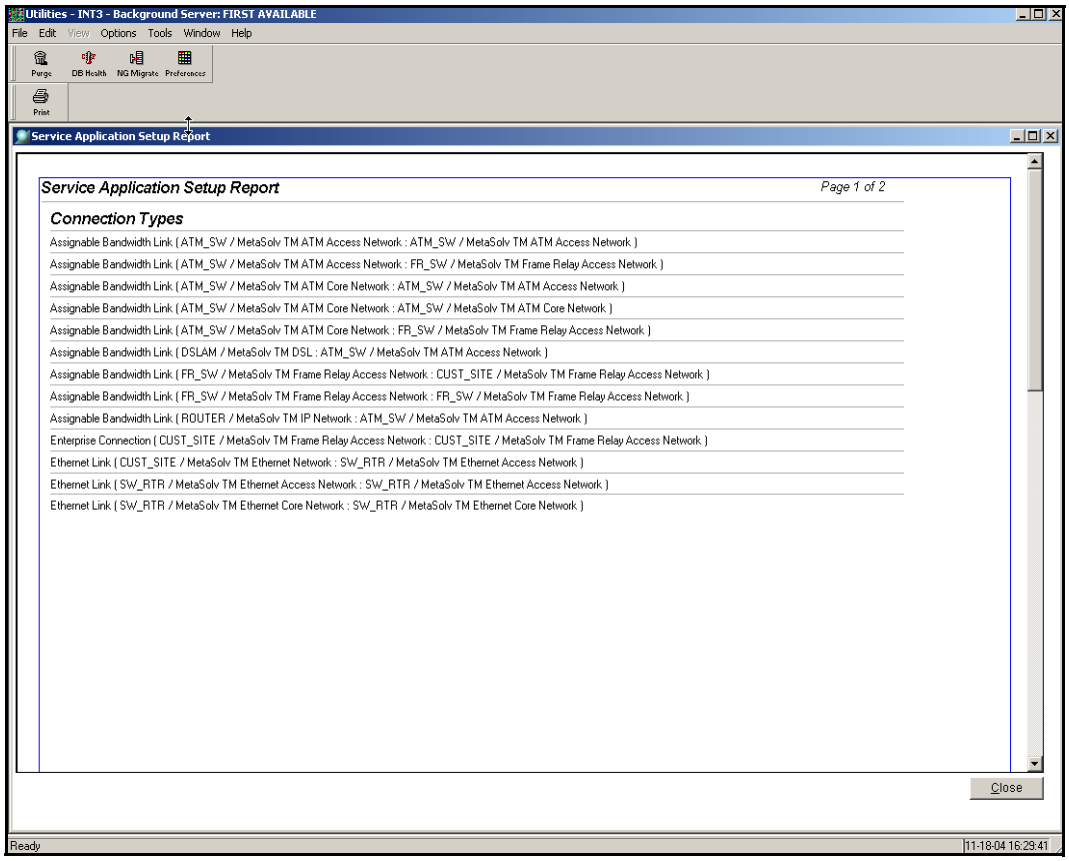
You must use service applications to order template-based connections on ISRs, EWOs, and ASRs. If you did not convert any ISRs or ASRs, then the Service Application Setup Report will be empty. If you have information on the report, use this information to create service applications in the MetaSolv Solution core application.

You can use the service applications report in MetaSolv Solution Utilities to guide you in creating service applications.

**To view service application setup report**

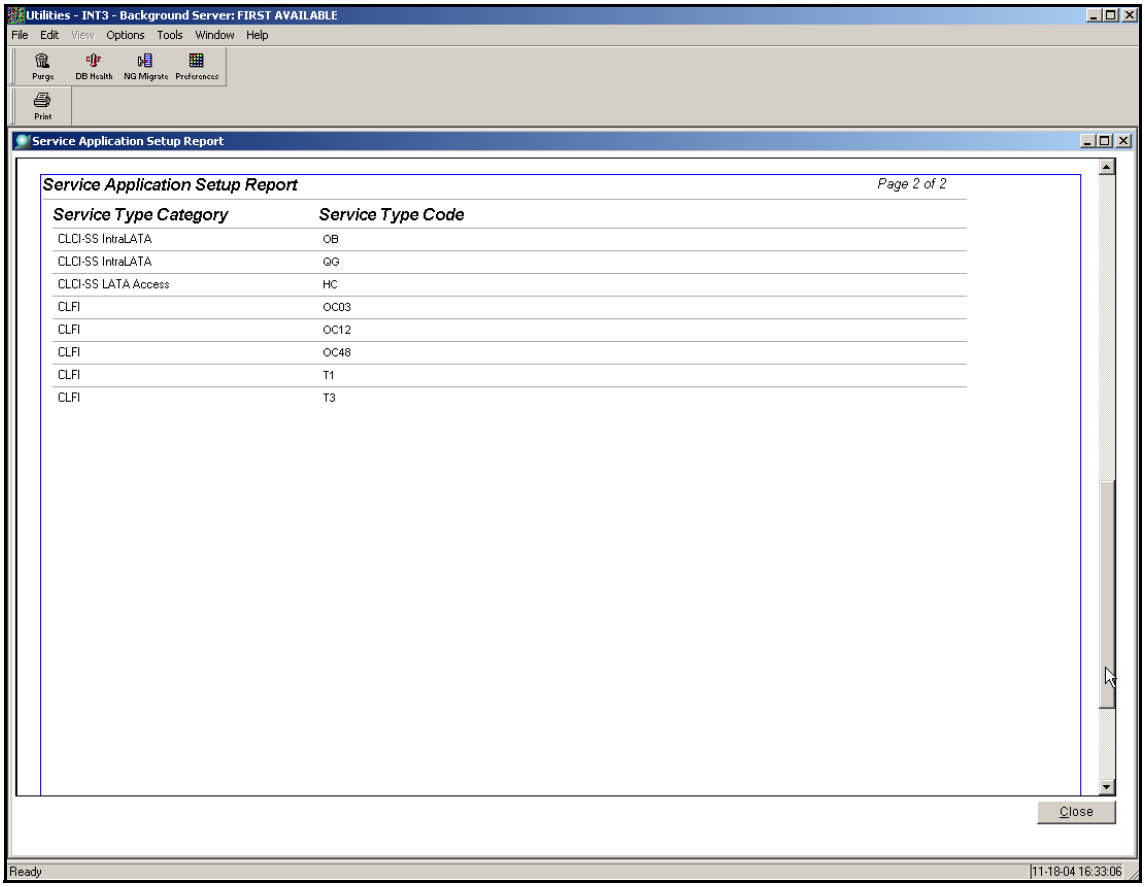
1. Log on to MetaSolv Solution Utilities.
2. Click the **NE Migrate** button.
3. Click the **Service Applications Report** link.

The following window appears.




4. Scroll to the next page.

The following window appears.




5. Click the **Print** button.

### To create service applications

To create a service application, you must define the service type and connection type. The connection type is the connection specification that is associated between network components in a network template. You create the service types and connection types that are listed on the Service Application Setup Report.

1. Log on to MetaSolv Solution.
2. Click **Inventory Management** on the navigation bar, and click **Inventory Management Setup**.
3. On the Connection Design section, click the **Service Applications** link.
4. Click the **Add New** link.
5. In the **SA Name** field, enter a service application name.

6. Click the **Definition** tab.
7. Right-click **Service Type** and select **Add Definition** from the pop-up menu.
8. Click the **Search** button.
9. Select service type codes and click **OK**.

You can press the Ctrl key to select multiple service type codes at one time.

10. Right-click **Connection Type** and select **Add Definition** from the pop-up menu.
11. To filter the available connection types, select a template type in the **Template Type** drop-down menu and click the **Search** button.
12. Select connection types and click **OK**.

You can press the Ctrl key to select multiple connection types at one time.

13. Click **OK**.

You should now be able to order template-based backbone connections.

# Performing database tasks

This chapter describes what a database administrator needs to do to support the next generation migration process. Read Chapter 1, "Next Generation Migration overview" prior to reading this chapter, so you have a thorough understanding of your role in the migration process.

## Database administrator role

In this guide, specific file names are used to provide consistency throughout the document. You can change these names for your environment. As described in Chapter 1, the next generation migration process requires the creation of a migration environment, in addition to a regression testing environment. You, the database administrator, will perform specific tasks throughout the migration process as outlined in this chapter. These tasks include:

- Support migration processing
  - Copy production database and upgrade to M6
  - Save migration data
- Refresh the migration environment from production
- Refresh the migration environment from backup
- Support cutover weekend

When you complete each task, inform the SME so they can resume their migration tasks.

Remember that the migration is an iterative process, during which you might be asked to perform multiple backups and refreshes. You will export data that has been migrated and refresh the migration environment with versions of production data.

# Support migration processing

The first step in the migration process is to make a copy of the production database, create a migration environment and upgrade it to M6.

## Copy production database and upgrade to M6

**To copy and upgrade production database**

1. Copy the production database into the migration environment and upgrade the copy to M6.
2. Install the most current M6 service pack and update the database with the M6 SQL scripts and stored procedures. Reference the latest 6.0.x *MetaSolv Solution Setup Guide*, and refer to the **"Service pack and EFix installation"** chapter.

### Run the BBMmaster sql

This step creates the stored procedures specific to the migration process.

**To run the BBM sql**

1. Connect to SQL*Plus using the ASAP user ID.

   Remember to spool the output to a file to capture script errors.
2. At the SQL>prompt, type:

   @<drive letters>:<installation directory>\bbm\sql\bbmmaster.sql

   and press **ENTER**.

   The stored procedures have been applied when the SQL> prompt reappears.
3. Refer to the *MetaSolv Solution Setup Guide* to run the DBHealth utility.

### Create a backup

Create a full or complete backup of the migration environment. Options to creating the backup include, but are not limited to the following:

- Perform a full database export.
- Make a cold backup of the database.

Creating a backup at the beginning of the process saves time if the SME needs to start the migration over and prevents you from having to perform the upgrade again.

# Save migration data

Migration data must be saved after the network templates, network elements, and network systems have been created in the migration environment. The project SME will notify you when these tasks are complete. At that time, you will create a backup of the migration environment and export its data. If you do not save this data, all migration work done to this point might be lost.

## Create a backup

Create a backup of the migration environment. Options to creating the backup include, but are not limited to the following:

- Perform a full database export.
- Make a cold backup of the instance.

The backup can be used to create a new migration environment or a regression testing environment.

## Export migration (bbm) tables

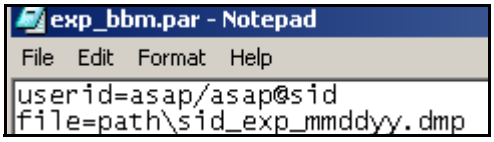
**To export migration (bbm) tables**

1. Edit the exp_bbm_tbls.par file to add the correct SID, path, and .dmp file name and the log file name.

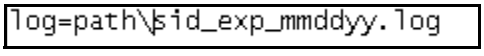
⚠ It is recommended that you do not overwrite previous .dmp and log files. Instead, change the .dmp file and log name for each export. A naming convention that maintains uniqueness is to name the files with your SID and dates. For purposes of this document, the file will be named MIG_exp_010105.

The file is located at: @<drive letters>:<installation directory>\bbm\parfiles\

The following screenshots indicate the areas that must be changed.




Scroll down and replace the log file name and path at the bottom of the script.



2. Use the exp_bbm_tbls.par file to export the database tables. This .dmp file will later be used to import tables into the BBM schema and into another environment. The MetaSolv Solution experts will use MetaSolv Solution Utilities to run a push action to merge the new production data with this exported migrated data.
3. To run the export, see the Oracle Utilities documentation for information about exporting and importing data.

# Refresh from production

In this procedure, you replace the migration environment with a current copy of production.

**To refresh from production**

1. Copy the production database (perform a full import or use cold backup files) into the migration environment and upgrade the copy to M6.
2. Install the latest M6 service pack and update the database with the M6 SQL scripts and stored procedures. Reference the latest *6.0.x MetaSolv Solution Setup Guide*, and refer to the "Service pack and EFix installation" chapter.

   To refresh the migration environment with the latest production data, you need access to these files:

   Under <drive letters>:<installation directory>\bbm\sql\

   add_bbm_user.sql

   bbmmaster.sql

   bbmmasterafterimp.sql

   Under <drive letters>:<installation directory>\bbm\parfiles\

   imp_bbm_tbls.par

   You also need the export file MIG_exp_010105.dmp (the export you created earlier)

## Run the BBMmaster sql

This step creates the stored procedures specific to the migration process.

**To run the BBM sql**

1. Connect to SQL*Plus using the ASAP user ID.

   Remember to spool the output to a file to capture script errors.
2. At the SQL>prompt, type:

   @<drive letters>:<installation directory>\bbm\sql\bbmmaster.sql

   and press **ENTER**.

The stored procedures have been applied when the SQL> prompt reappears.

3. Review the log file for sql and ora- errors.
4. Refer to the *MetaSolv Solution Setup Guide* to run the DBHealth utility.

## Run add_bbm_user sql

Run the add_bbm_user.sql script to create the bbm user. You must run this one time for each environment before importing saved migration data. Tables exported in the Save Migration Data step are imported under this schema. The default tablespace for BBM is DATA.

**To run add_bbm_user**

1. Connect to SQL*Plus using the ASAP user ID.

⚠ In some versions of M6 there is an exit step in the add_bbm_user.sql file that you need to remove before running the sql script.

2. At the SQL>prompt, type:

   @<drive letters>:<installation directory>\bbm\sql\add_bbm_user.sql

   and press ENTER.

⚠ Running this sql script will automatically spool a log file called add_bbm_user.log and it will be saved in your default directory for SQLplus.

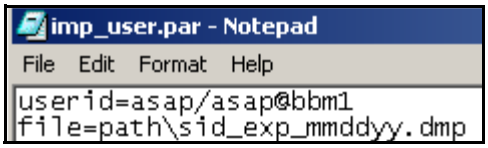
## Import data

You need to edit the import par file with the correct information to import data.

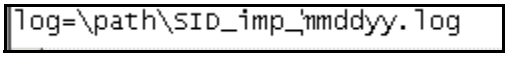
**To import data**

1. Edit the imp_bbm_user.par file to correct the SID, path and dump file name (MIG_exp_010105.dmp - contains the bbm tables exported earlier in the process) and the log file name.

   Below are screenshots of the areas that need to be changed.




   Scroll down and replace the log file name and path at the bottom of the script.




2. Use the imp_bbm_user.par file to import the saved migration data.

3. To run the export, see the Oracle Utilities documentation for information about exporting and importing.
4. Review the log file for sql and ora- errors.

### Run the bbmmasterafterimp sql

This step creates stored procedures that reference the new bbm tables.

1. Connect to SQL*Plus using the ASAP user ID.

Remember to spool the output to a file to capture script errors.

2. At the SQL>prompt, type:

   @<drive letters>:<installation directory>\bbm\sql\bbmmasterafterimp.sql

   and press **ENTER**.
3. Review the log file for sql and ora- errors.
4. Refer to the *MetaSolv Solution Setup Guide* to run the DBHealth utility.

MetaSolv Solution experts will use MetaSolv Solution Utilities to run a push action to merge the new production data with the imported migrated data. This process might take several iterations until the data is set up correctly.

# Refresh from backup

At multiple points in the migration process, MetaSolv Solution SMEs might request a refresh of the migration environment from a backup. Depending on your backup mechanism, you can either perform a full import or refresh from cold backup. It is important that backups are coordinated with the SME so that it is clear at what point the environment is being backed up or restored.

# Support cutover weekend

The steps in this process are similar to the steps you perform to refresh from production, except they are performed during the production environment upgrade.

After everything has been tested on the most current copy of the production database in the migration environment and converted successfully, you should perform the following tasks so the conversion process can be run on the production environment.

**To support cutover weekend**

1. Backup the production database.

2. Upgrade production database to M6.

Reference the *6.0.2 MetaSolv Solution Setup Guide.* You will need to run the SQL scripts in the upg_60 folder. There is no need to update the database with the 6.0.2 SQL scripts and stored procedures.

3. Install the latest M6 service pack and update the database with the latest M6 SQL scripts and stored procedures. Reference the latest 6.0.x *MetaSolv Solution Setup Guide* and refer to the "Service pack and EFix installation" chapter.

To upgrade your production environment, you need access to these files:

**Under <drive letters>:<installation directory>\bbm\sql**

- add_bbm_user.sql
- bbmmaster.sql
- bbmmasterafterimp.sql

**Under <drive letters>:<installation directory>\bbm\parfiles**

- imp_bbm_tbls.par

You also need the export file: MIG_exp_010105.dmp (the last export taken in the migration process)

## Run the BBMmaster sql

This step creates the stored procedures specific to the migration process.

**To run BBM sql**

1. Connect to SQL*Plus using the ASAP user ID.

Remember to spool the output to a file to capture script errors.

2. At the SQL>prompt, type:

   @<drive letters>:<installation directory>\bbm\sql\bbmmaster.sql

   and press **ENTER**.

   The stored procedures have been applied when the SQL> prompt reappears.

3. Review the log file for sql and ora- errors.
4. Refer to the *MetaSolv Solution Setup Guide* to run the DBHealth utility.

## Run add_bbm_user sql

Run the add_bbm_user.sql script to create the bbm user.

**To run add_bbm_user**

1. Connect to SQL*Plus using the ASAP user ID.

   Remember to spool the output to a file to capture script errors.

2. At the SQL>prompt, type:

   @<drive letters>:<installation directory>\bbm\sql\add_bbm_user.sql

   and press **ENTER**.

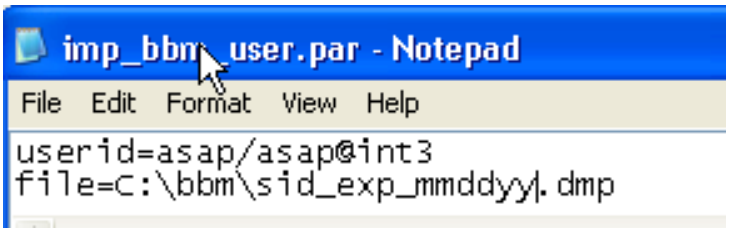
## Import data

You need to edit the import par file with the correct information to import data.

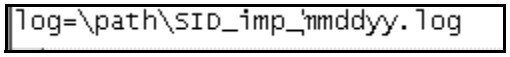
**To import data**

1. Edit the imp_bbm_user.par file to correct the SID, path and dump file name (MIG_exp_010105.dmp - contains the bbm tables exported earlier in the process) and the log file name.

   Below are screenshots of the areas that need to be changed.




   Scroll down and replace the log file name and path at the bottom of the script.




2. Use the imp_bbm_user.par file to import the saved migration data.
3. To run the import, see the Oracle Utilities documentation for information about exporting and importing.

## Run the bbmmasterafterimp sql

This step creates stored procedures that reference the new bbm tables.

1. Connect to SQL*Plus using the ASAP user ID.

   Remember to spool the output to a file to capture script errors.

2. At the SQL>prompt, type:

   @<drive letters>:<installation directory>\bbm\sql\bbmmasterafterimp.sql

   and press **ENTER**.

3. Review the log file for sql and ora- errors.
4. Refer to the *MetaSolv Solution Setup Guide* to run the DBHealth utility.

The MetaSolv Solution experts will use MetaSolv Solution Utilities to run a push action to merge the imported migrated data into the production environment.

# Appendix A: Pre Migration Analysis Tool

You can download this tool from the Oracle E-Delivery Web site. The executable is the PMAT.EXE.

The Pre-Migration Analysis Tool should be used on pre-M6 MetaSolv Solution versions. When you run the tool, it provides a detailed analysis of what data may be affected by the Next Generation Migration. This section shows you how to use the tool, and how to interpret the data so that you can make modifications to the production environment before running the Next Generation Migration.

The PMAT data is a gauge so that you can see how much data will migrate during the Next Generation Migration. The more data to be converted, the longer the conversion process might take.

Besides gauging the amount of data to be converted, you can see what data may or may not be converted. Additionally, you can use this information to make changes to data in the production environment.

When you logon, there is a summary section for all affected areas. You can click the buttons to get more detail in the following areas:

- General
- Circuits
- Equipment
- Network Systems
- Product Catalog
- Orders

You can also choose to export the data into an Excel spreadsheet.

## Run the Pre-Migration Analysis Tool (PMAT)

**To run the Pre-Migration Analysis Tool**

1. Double-click the PMAT.ZIP file executable.
2. Extract files to a directory.

3. Modify the PMAT.INI file to add the production database information.

   Below is an example of the INI file. To configure the Pmat.ini file, set the Profiles parameter to the name of the database where the migration analysis will be performed.

```
[DBMS_Profiles]
Profiles= 'DatabaseName'

[Profile DatabaseName]
DBMS=O84
Database=Oracle7
UserId=
DatabasePassword=
LogPassword=
ServerName=DatabaseName
LogId=
Lock=
PRomPt=1
DbParm=DisableBind=0,DelimitIdentifier='No',CommitOnDisconnect='No'
AutoCommit=0
```

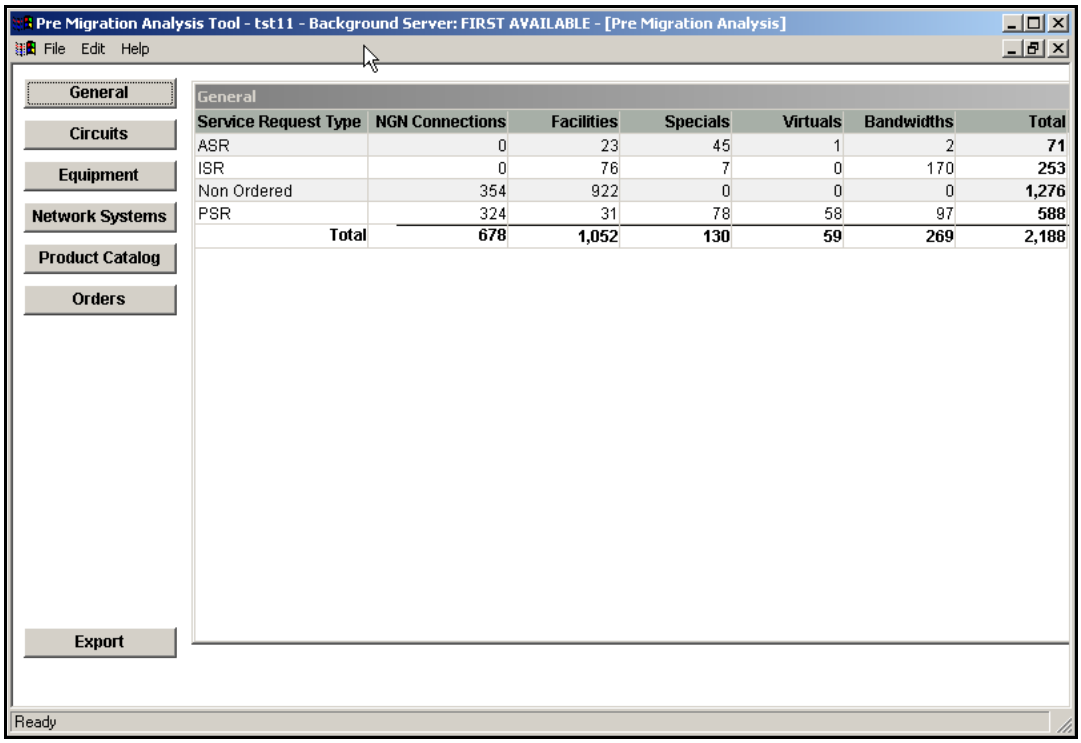
4. Double-click the PMAT.EXE file.

## Analyze data

**To analyze data**

1. Click the **General** button.

If the size of the data box is not full screen, click File>Open Pre Migration Analysis Window.




The General view shows the number of circuits by circuit type and order type. This is informational data only to help you understand how many circuits exist in the production environment.

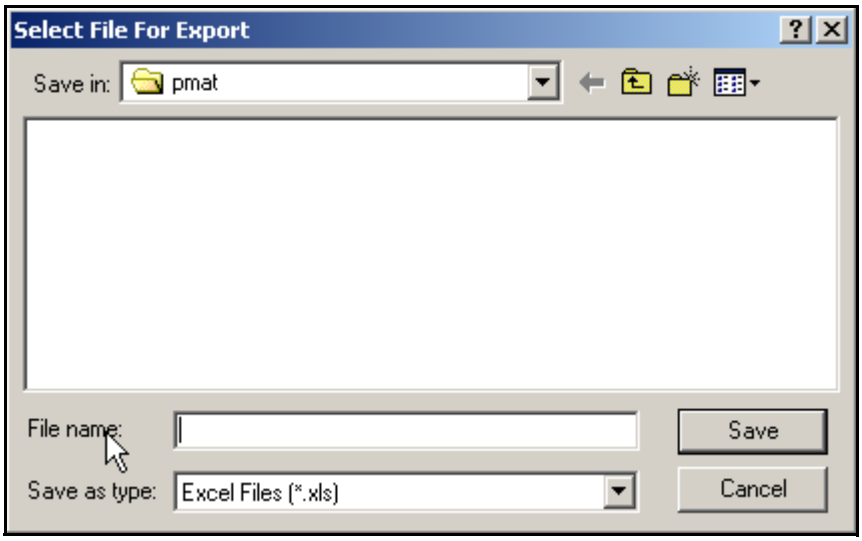
In this guide, each button that you can click to view information will be called a section. You can click most summary rows to view detailed information.

## *Export data to Excel spreadsheet*

**To export data**

1. Click a button for the section of data you wish to export.
2. Click the **Export** button.

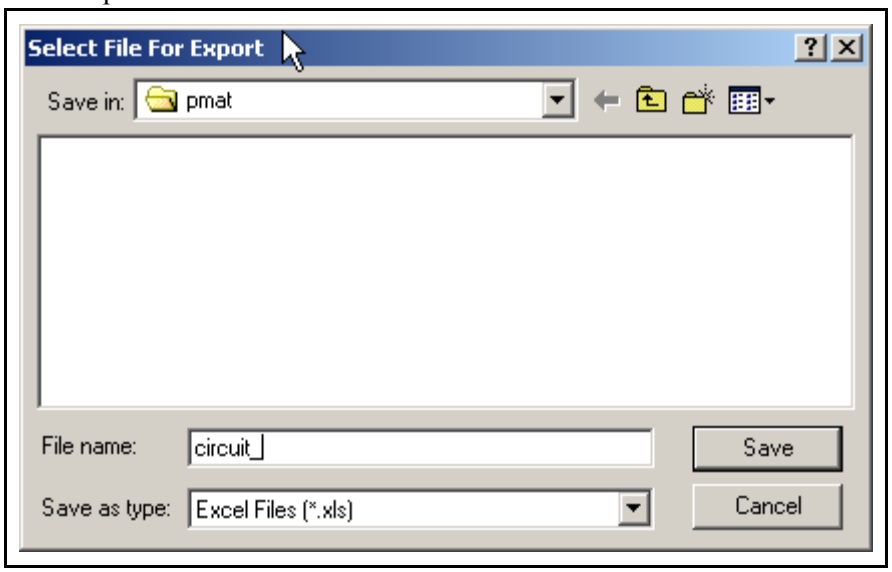
The following window appears.




3. In the **File name** field, type in a name.

To distinguish the spreadsheets by section when exporting multiple sections, you can use the section name in the File name field.

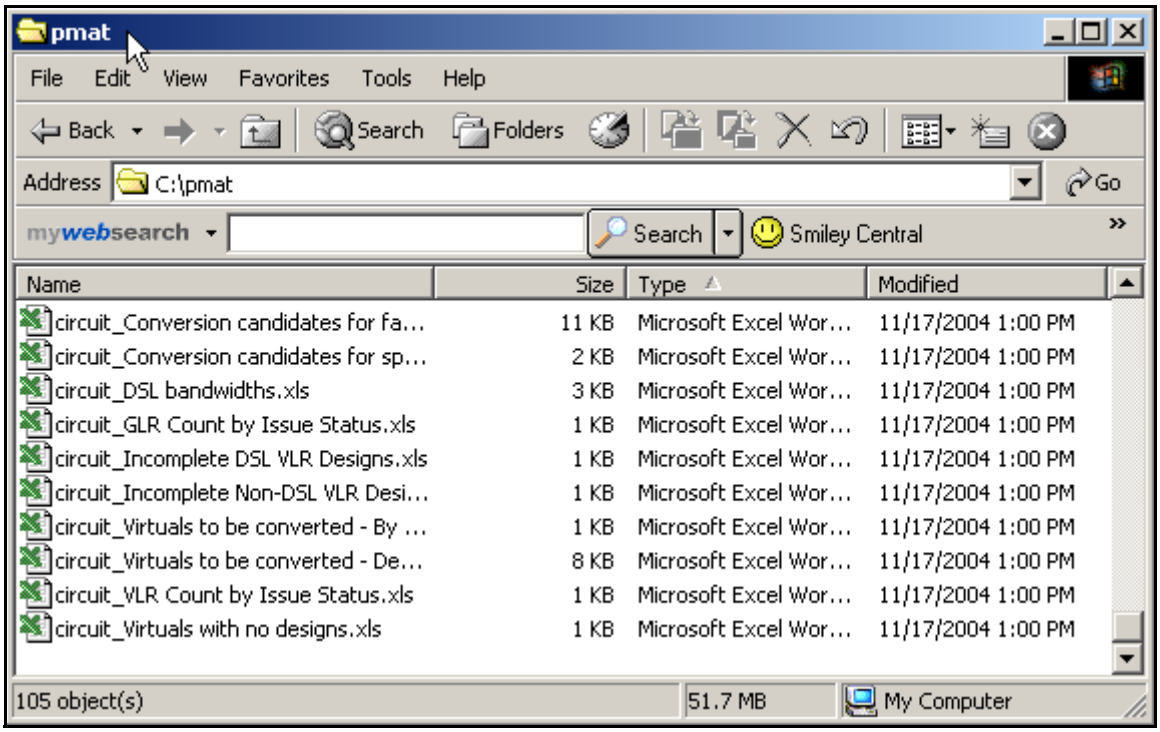
See example below:




4. Click the **Save** button.
5. Click **OK**.

   The files will be named beginning with the name you entered and appended with the name of the data you exported.

Example.




The column headers that you see on spreadsheet may differ from the PMAT generated report seen in the window. Below are tables explaining the differences.

**Table 8: General Columns**

| PMAT Tool | Spreadsheet |
|---|---|
| Service Request Type | Type of SR |
| NGN Connections | Connection Count |
| Facilities | Facility Count |
| Specials | Special Count |
| Virtuals | Virtual Count |
| Bandwidths | Bandwidth Count |
| ISR | LEC |
| PSR | SO |

**Table 9: Circuit Reports**

| PMAT Tool | Spreadsheet |
|---|---|
| Connection ID | Exchange Carrier Circuit ID |
| Service Request Type | Type of SR |
| PSR | SO |
| Pending Issues | Pending Count |
| Number of Virtuals Riding | Virtuals Riding |
| Current Issues | Current Count |
| Previous Issues | Previous Count |
| Overridden Issues | Overridden Count |
| Canceled Issues | Canceled Count |
| Status | Status |
| Pending | 1 |
| Assigned | 2 |
| In Progress | 3 |
| CLR Issued | 4 |
| DLR issued | 5 |
| In Service | 6 |
| Pending Disconnect | 7 |
| Disconnected | 8 |
| Problem | 9 |
| Canceled | A |

**Table 10: Equipment Reports**

| PMAT Tool | Spreadsheet |
|---|---|
| Manufacturer | Vendor Name |
| Part Number | Vendor Part Number |
| (Blank) | Vendor Comm Code |
| (Blank) | Vendor Issue Number |
| Occupies Mount Pos<br>No check<br>Checked | Occupies Mounting Positions<br>0<br>1 |
| NE Candidate | (Blank) |
| Active<br>No check<br>Checked | Active<br>N<br>Y |
| Has Mount Pos<br>No check<br>Checked | Mountpos Seq<br>(Blank)<br>1 |
| Comp Name | NS Comp NM |
| Comp Nbr | NS Comp NBR |
| Network System | Ns NM Short |

**Table 11: Network Systems Reports**

| PMAT Tool | Spreadsheet |
|---|---|
| Technology Type | NST Net Sys Type |
| Template Name | NST Config Type NM |
| Network Systems Count | Compute 0003 |

**Table 11: Network Systems Reports**

| PMAT Tool | Spreadsheet |
|---|---|
| Network Element (count) | Compute 0002 |
| SONET | Network Elements |
| Component Type | NST Comp Type |
| Component Type Name | NST Comp Type NM |
| Components | Compute 0003 |
| Components with Equipment | Compute 0004 |
| Connection Specification | Compute 0001 |
| Count | Compute 0002 |

**Table 12: Product Catalog Reports**

| PMAT Tool | Spreadsheet |
|---|---|
| Item Type | Itemtypecd |
| From Eff Date | From Eff Dt |
| To Eff Date | To Eff Dt |

**Table 13: Order Reports**

| PMAT Tool | Spreadsheet |
|---|---|
| Connection ID | Exchange Carrier Circuit ID |
| Service Request Type | Type of SR |
| Serv Item Alias | Item alias |
| Serv Item Type | Serv item type cd |
| PSR | SO |

**Table 13: Order Reports**

| PMAT Tool | Spreadsheet |
|---|---|
| Serv Item Status | Serv Item Status |
| Pending | 1 |
| Assigned | 2 |
| In Progress | 3 |
| CLR Issued | 4 |
| In Service | 6 |
| Pending Disconnect | 7 |
| Disconnect | 8 |
| Problem | 9 |
| Canceled | A |
| Due Date Complete | Z |

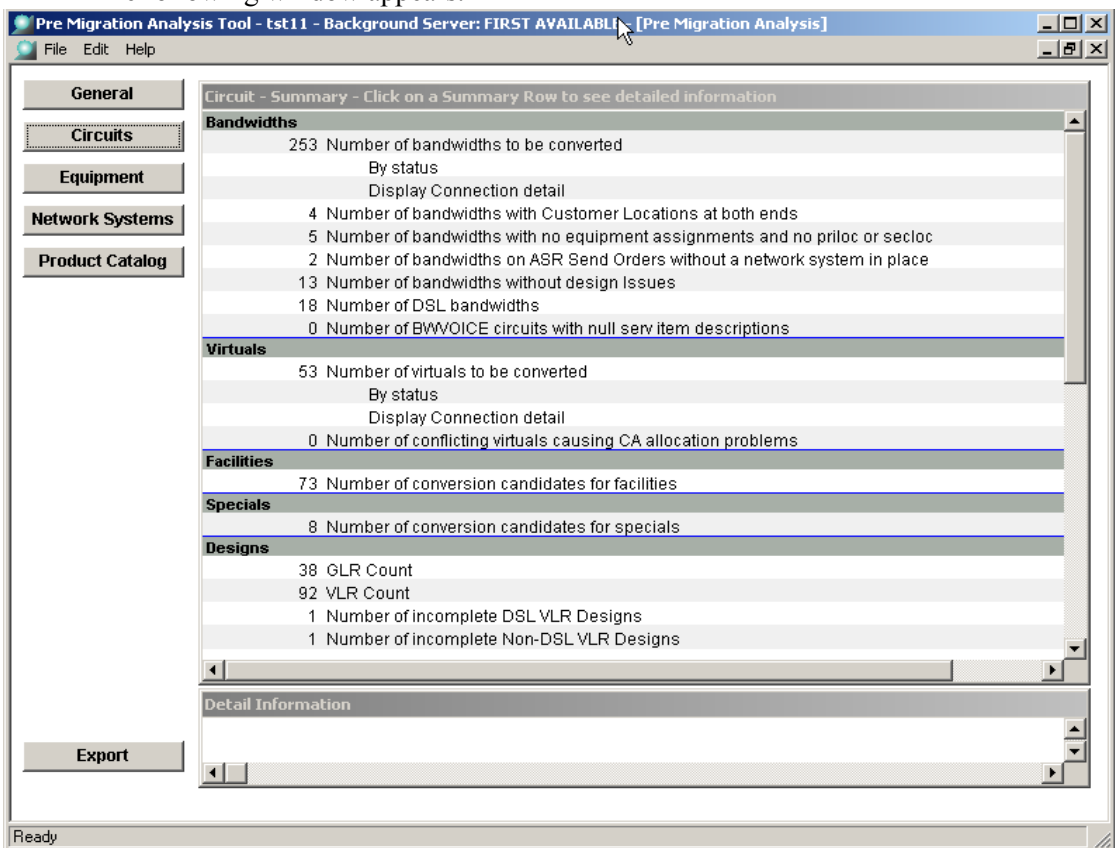
## Analyzing circuits

This section covers analyzing bandwidth, virtual, facility, and special circuits, and reviewing the design information. This section is helpful to customers who are converting data from the broadband module. If no data appears, it signifies that there are no circuits or VLRs that will be converted.

**To view circuit reports**

1. Click the **Circuits** button.

The following window appears.




The circuits button will generate more detail including the number of circuits that can be converted.

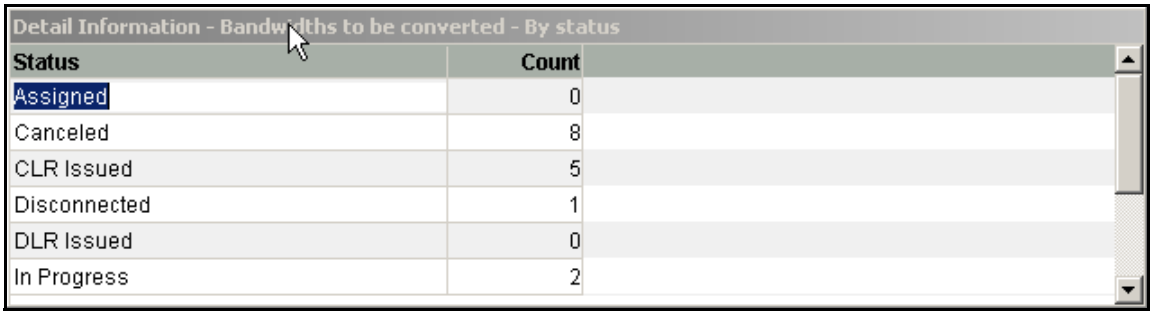
### *Bandwidth circuits*

For bandwidth circuits, you will see the following information by status and connection detail:

- Number of bandwidth circuits to be converted
- Number of bandwidth circuits with customer sites at both ends by circuit status
- Number of bandwidth circuits with no equipment assignments or primary or secondary locations
- Number of bandwidth circuits on ASR Send Orders without a network system in place
- Number of bandwidth circuits without design issues
- Number of DSL bandwidths
- Number of bandwidths with virtuals riding them

2. In the **Bandwidths** section, click **By status** row.

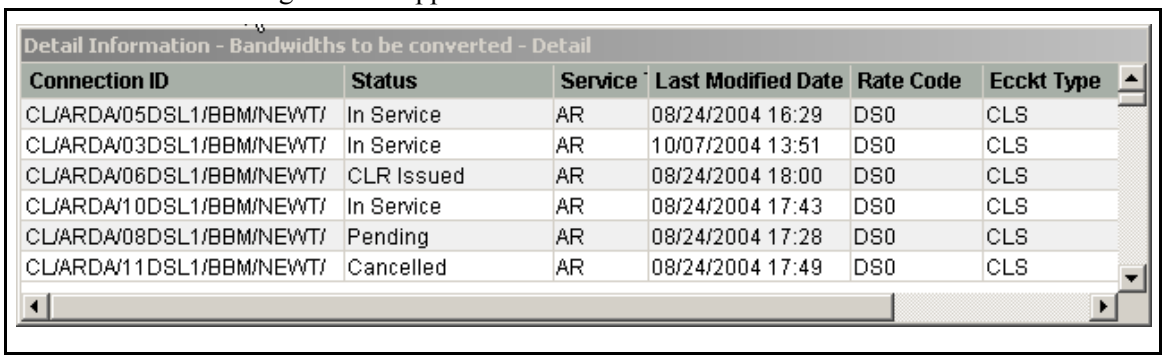
3. The following window appears.




This displays the status of the bandwidths to be converted. If you have canceled or disconnected bandwidths, you can purge them in your production environment to clean up your database.

4. In the Bandwidth section, click **Display Connection detail** row.

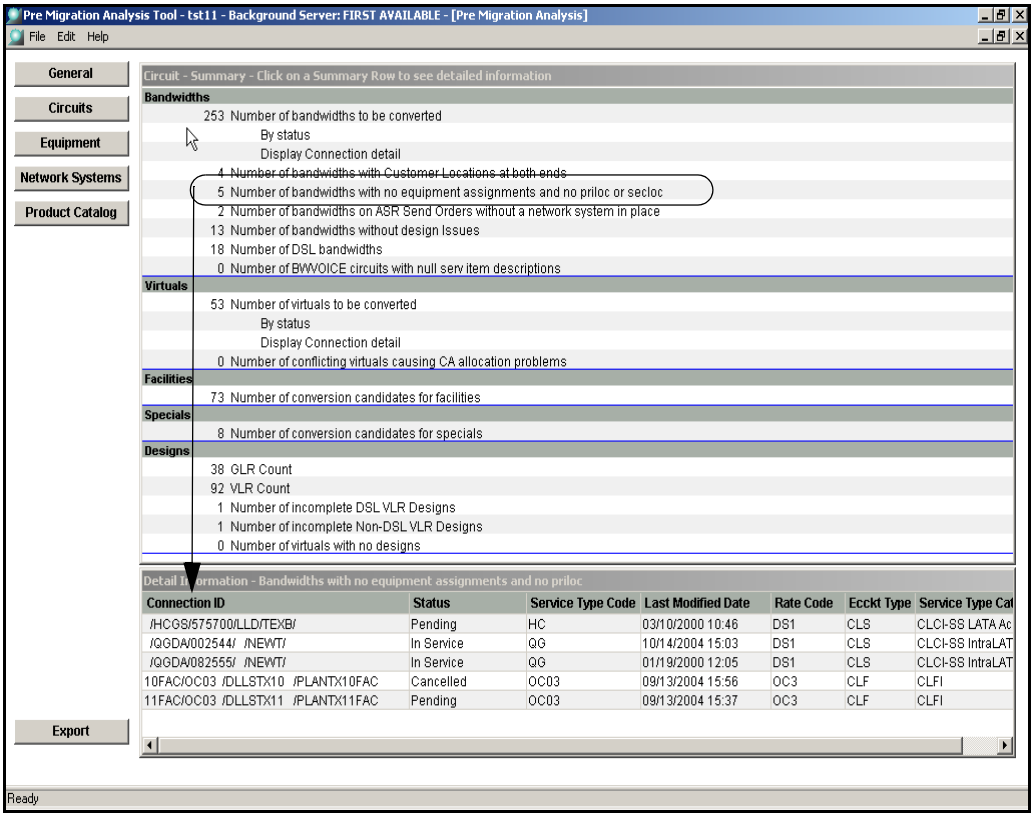
   The following window appears.




This will list each connection identification with the status, service type code, last modified date, rate code, ECCKT type and service type category.

5. To view detailed data about each row, click the row, and view the information in the Detail Information section.

   Below is an example showing the detailed information for the number of bandwidths with no equipment assignments and no priloc or secloc.



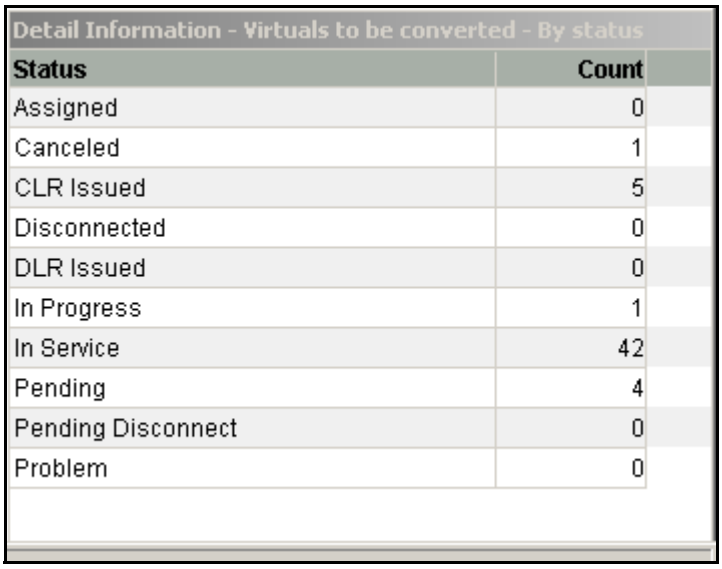

- The bandwidth circuits that have two customer sites will not be converted. If you have bandwidth circuits with customer sites, you should review them in the production database, to see if they are correct, and make any modifications to them as necessary.
- The bandwidth circuits without equipment and no priloc or secloc cannot be converted because the system cannot figure out where to build the network element. You can resolve these errors when resolving connection errors.
- Bandwidth circuits on ASR send orders will need to be associated with a network system so that they can be migrated to bandwidth connections. If you do not have a network system set up, you should create one using the Other Provider component type.
- Bandwidth circuits that have no issues will not be converted as nothing has been designed. You should look at all bandwidth circuits without issues to determine if the orders should be canceled and entered again with a new product catalog or new bandwidth connection.
- DSL bandwidth circuits should be converted during the migration.

### *Virtual circuits*

For virtual circuits, you will see the following information by status and connection detail:

- Number of conflicting virtuals causing CA allocation problems

6. In the **Virtual** section, click **By status** row.
7. The following window appears.



Detail Information - Virtuals to be converted - By status

| Status | Count |
|---|---|
| Assigned | 0 |
| Canceled | 1 |
| CLR Issued | 5 |
| Disconnected | 0 |
| DLR Issued | 0 |
| In Progress | 1 |
| In Service | 42 |
| Pending | 4 |
| Pending Disconnect | 0 |
| Problem | 0 |

8. In the **Virtual** section, click **Display Connection detail** row.

   The following window appears.

Detail Information - Virtuals to be converted - Detail

| Connection ID | Status | Service Type | Last Modified Date | Rate Code | Ecckt Type | Service Type Category |
|---|---|---|---|---|---|---|
| /QHDA/222222/123/NEWT/222 | CLR Issued | QH | 02/10/2000 08:45 | | CLS | CLCI-SS IntraLATA |
| /HCVC/DH0001/ /NTEL/ | Pending | HC | 02/28/2000 14:06 | DS1 | CLS | CLCI-SS IntraLATA |
| /HCGS/009900/LLD/BOSB/002 | Pending | HC | 03/10/2000 10:05 | N/A | CLS | CLCI-SS LATA Access |
| CL/QHDA/002612/BBM/NEWT/ | In Service | QH | 08/23/2004 10:47 | | CLS | CLCI-SS IntraLATA |
| CL/ASDA/00VATM/BBM/NEWT/ | In Service | AS | 08/23/2004 12:34 | | CLS | CLCI-SS IntraLATA |
| CL/QDGA/01FPVC/BBM/NEWT/ | In Service | QD | 08/23/2004 14:34 | DS0 | CLS | CLCI-SS IntraLATA |
| CL/QDGA/00FPVC/BBM/NEWT/ | In Service | QD | 08/23/2004 14:46 | DS0 | CLS | CLCI-SS IntraLATA |

   This will list each connection identification with the status, service type code, last modified date, rate code, ECCKT type and service type category.

9. To view detailed data about each row, click the row, and view the information in the Detail Information section.

- Conflicting Virtuals - If you have a pending disconnect and other pending virtuals on the same order that you are going to reuse the DLCI or VPI/VCI custom attributes from, the disconnect needs to be due dated before it's converted so that there are no duplicates.

### *Facility and Special circuits*

For facility and special circuits, you will see the following information:

- Number of circuits that are candidates for conversion (can have no riders)

The number of facility and special circuit candidates may be reduced when steps in the Next Generation Migration process are performed.

10. In the **Facilities or Specials** section, click the **number of conversion candidates** row.

    The connection ID, status, service type code, last modified date, rate code, ECCKT type, and service type category appear for each candidate.

The PMAT displays all facilities and specials that do not have riders on them. This does not necessarily mean they will be converted to bandwidth connections. Running the network element migration process will filter out the facilities and specials to be converted based on the following:

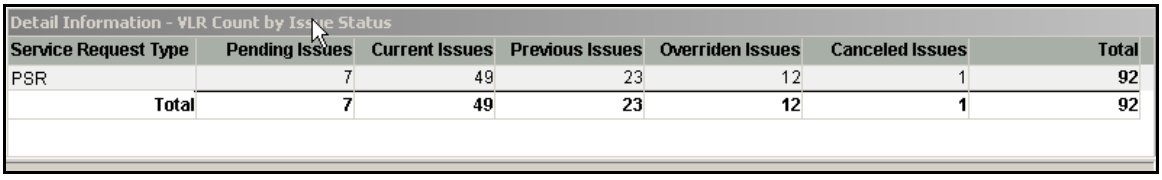
- it has at least one network element
- no riders
- not an ASR ordered circuit
- the order is completed
- only the INTRNTCKT item type if on a PSR

### *Designs*

For GLR and VLR designs, you will see the count of each. The GLR count lets you know that you already have template-based connections.

11. In the **Designs** section, click the **VLR Count** row.

    The following window appears.




| Service Request Type | Pending Issues | Current Issues | Previous Issues | Overriden Issues | Canceled Issues | Total |
|---|---|---|---|---|---|---|
| PSR | 7 | 49 | 23 | 12 | 1 | 92 |
| **Total** | **7** | **49** | **23** | **12** | **1** | **92** |

The detail window of PMAT will show the status of VLRs. All VLRs will be converted to GLRs. However, to speed up the conversion process, you can manually delete VLRs in cancel, overridden or previous statuses. Ideally, you want to convert current and pending VLRs to the new GLR format.

The GLR count is informational only and lets you know whether or not network templates have been used.

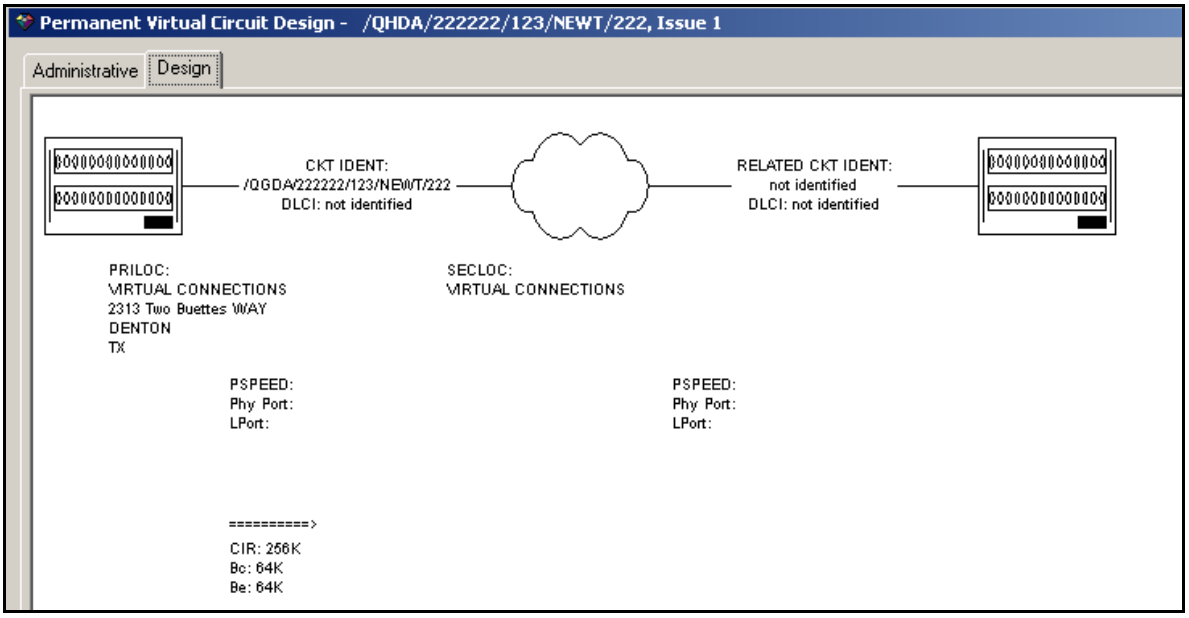
12. Click the **Number of incomplete** row to see VLR designs that are incomplete broken down by DSL or non-DSL.

These designs do not have all circuits.

Detail Information - Incomplete DSL VLR Designs

| Connection ID | Status | Service Type Code | Last Modified Date | Rate Code | Ecckt Type | Service Type Category |
|---|---|---|---|---|---|---|
| CL/AS--/TEST02/ /ZEST/ | In Progress | AS | 11/03/2004 09:20 | | CLS | CLCI-SS IntraLATA |

If no related circuit is assigned then the circuit will be converted as is, but this is something you should research and ideally add related circuits. Below is an example of a design without the related circuit.




If no originating circuit, then the circuit will error out with a VIR2 error code during the conversion process. See Chapter 5, “Saving data, running validations and conversions” to view error codes.

If you have virtual circuits with no design issues (VLRs), they cannot be converted to template-based graphical layout records (GLRs). You may want to research these virtual circuits further.

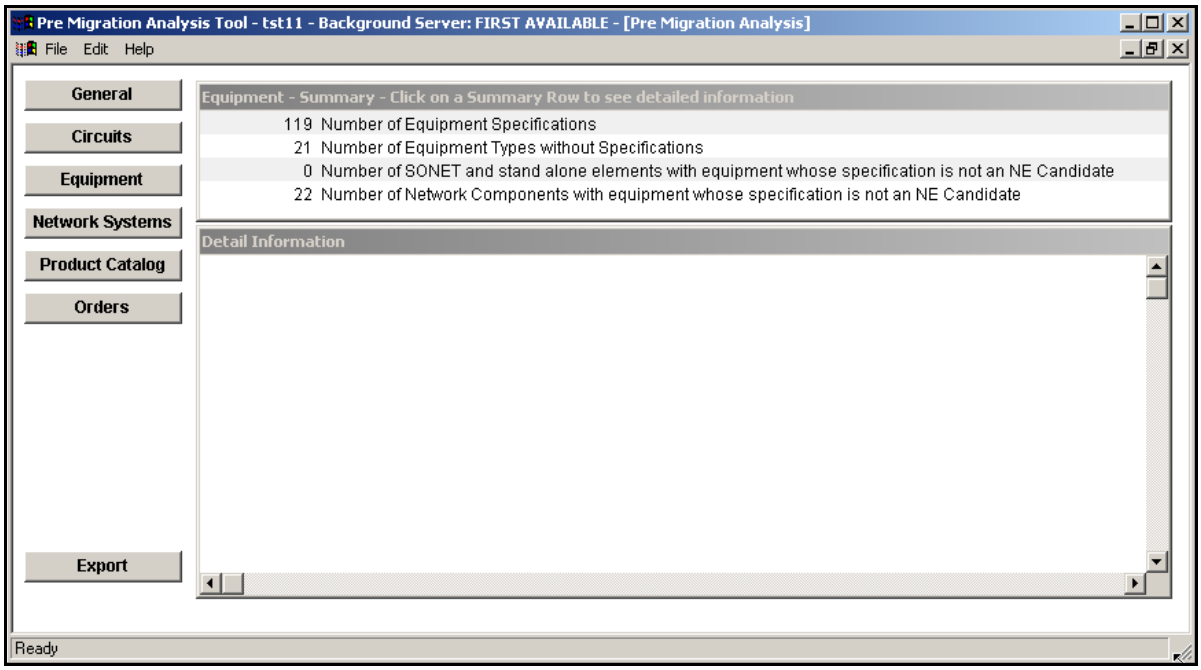
## Analyzing equipment

This section is important to customers migrating network elements and customer's converting from the broadband module.

**To view equipment reports**

1. Click the **Equipment** button.

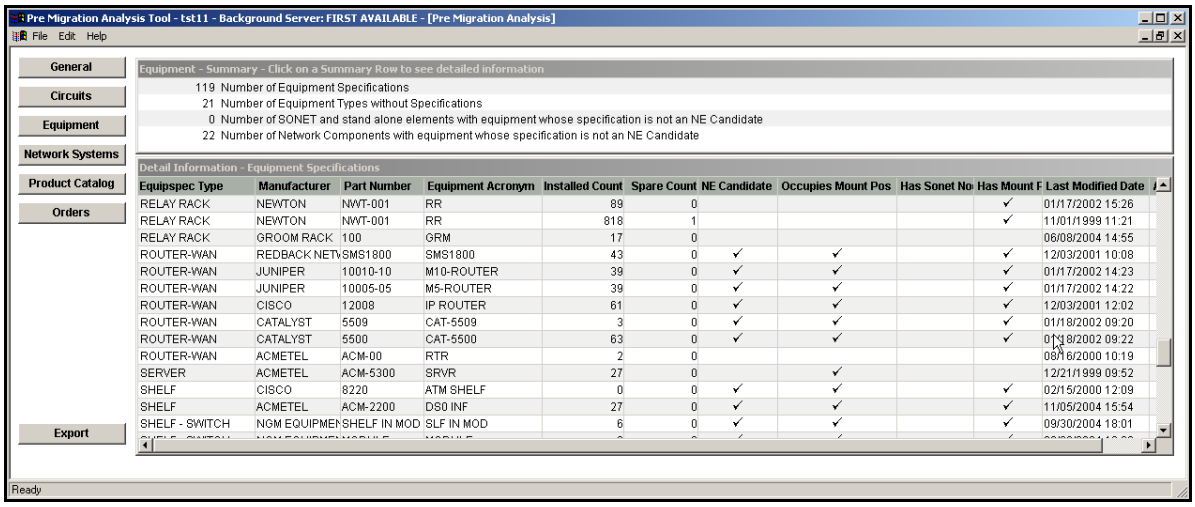
   The following window appears.




   The number of instances that each equipment type and equipment specification is used will be shown here. Also, the number of SONET, stand alone elements and network components (5.x network elements) who have equipment whose specification is not an Network Element candidate are displayed.

2. Click the **Number of Equipment Specifications** row.

The following window appears.



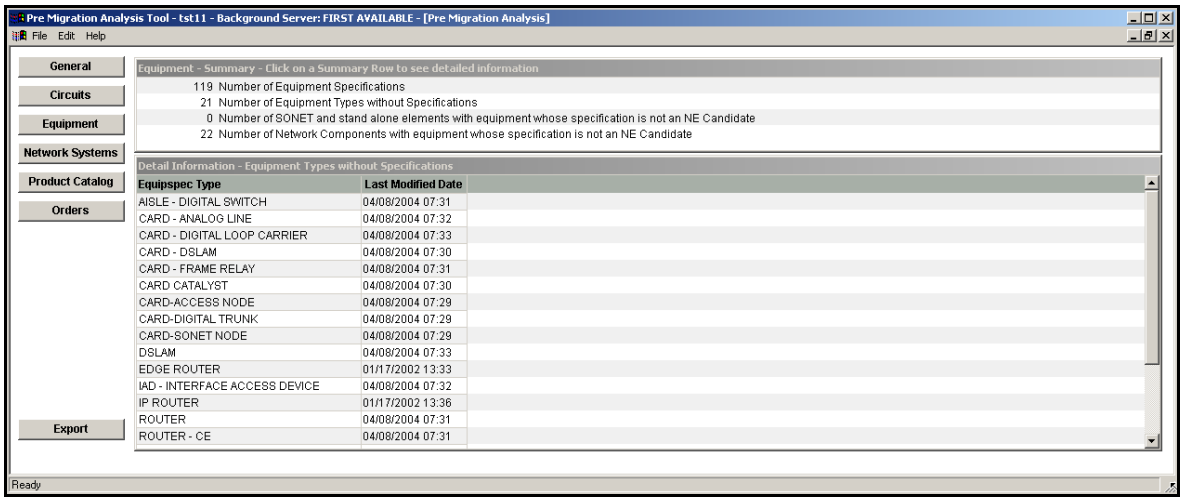

In the Equipment Specifications Detail Information section, you should review the specifications that are checked as NE Candidates. Only equipment such as shelves that have mounting positions and that are mounted are defaulted to migrate.

To perform the network element migration process you will be asked to associate each equipment specification with network element types or choose not to associate with a network element type. The process will be performed more efficiently if you delete any unused equipment specifications in the *production* environment before you start the migration.

In the PMAT tool, you should look for NE candidates with equipment specifications with no installed instances, and delete the equipment specification from the *production* environment if it is not intended for use.

3. Click the **Number of Equipment Types without Specifications** row.

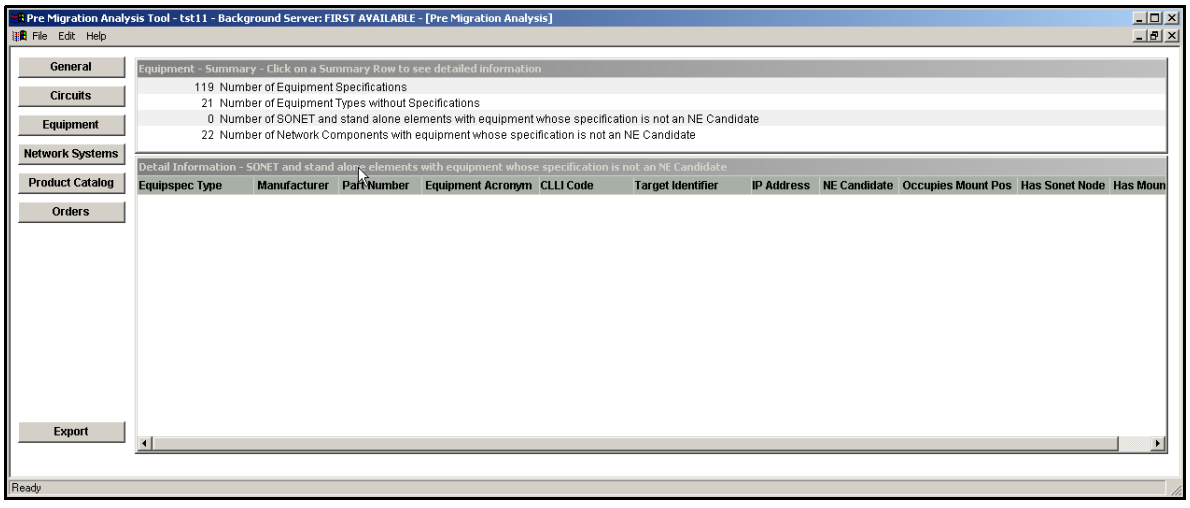
   The following window appears.




   The equipment types without specifications section lists equipment types in which there are no equipment specifications. These will not be shown in the network element migration; however, now is a good time to clean up unused data. You should review your equipment types and make any changes to your equipment specifications before you start the migration.

4. Click the **Number of SONET and stand alone elements...**row.

   The following window appears.

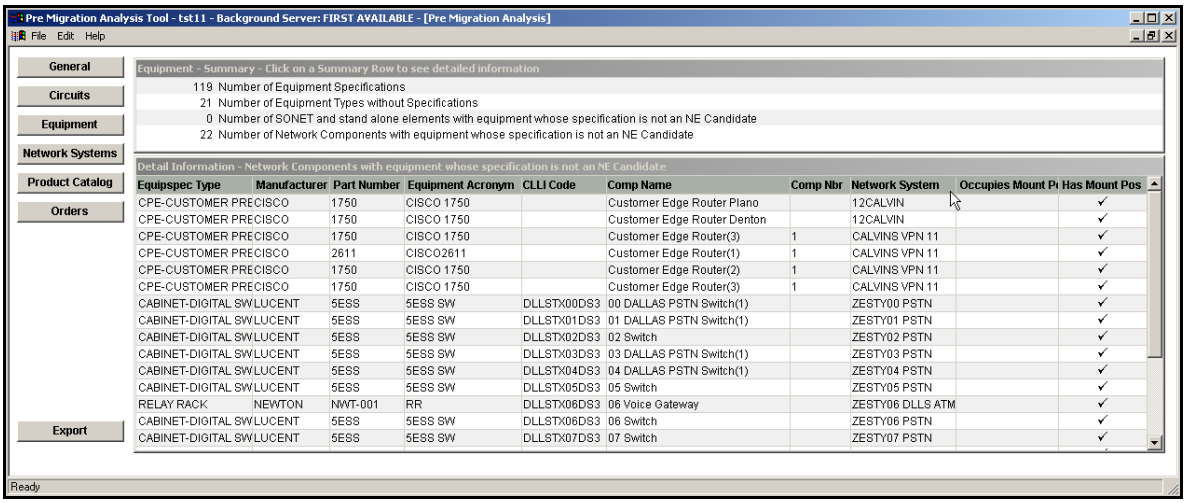



   Typically stand alone network elements and SONET nodes should be network elements. In this case, the network elements are associated to equipment specifications that are not

candidates for network element conversion. This could be because the equipment is associated at a card level instead of at the shelf level. You should research this further to determine whether the network element association was made at the wrong equipment level or if the equipment specification should be associated with a network element type.

5. Click the **Number of Network Components with equipment...**row.

   The following window appears.




Typically network components should be network elements. In this case, the network components (5.x network elements) are associated to equipment specifications that are not pre-selected as candidates for the network element conversion. This could be because the equipment is associated at a card level instead of at the shelf level and the query used will filter specs with a type using the word 'card'. You should research this further to determine whether the network element association was made at the wrong equipment level or if the equipment specification should be associated with a network element type.

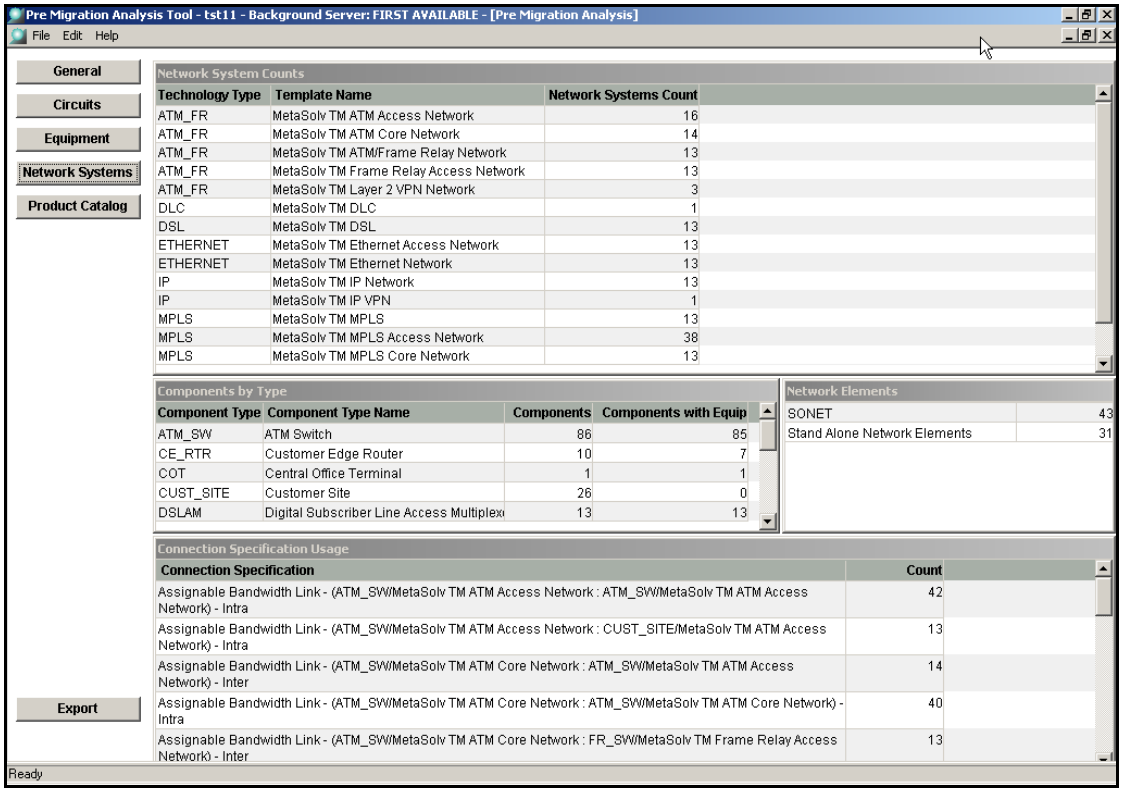
See Chapter 3, "Migrating network element data" to find additional information about equipment specifications and network element types.

## Analyzing Network Systems

**To view network system reports**

1. Click the **Network Systems** button.

The following window appears.




This section is informational only.

For customers who are using a post-5.x version of MetaSolv Solution, the **Network System by Count** section shows the network systems by technology type, and the network templates along with the number of networks created using each template.

If you do not use network templates to build network systems, your counts will be zero.

Below is an example.

Network System Counts

| Technology Type | Template Name | Network Systems Count |
|---|---|---|
| ATM_FR | MetaSolv TM ATM Access Network | 16 |
| ATM_FR | MetaSolv TM ATM Core Network | 14 |
| ATM_FR | MetaSolv TM ATM/Frame Relay Network | 13 |
| ATM_FR | MetaSolv TM Frame Relay Access Network | 13 |
| ATM_FR | MetaSolv TM Layer 2 VPN Network | 3 |
| DLC | MetaSolv TM DLC | 1 |
| DSL | MetaSolv TM DSL | 13 |
| ETHERNET | MetaSolv TM Ethernet Access Network | 13 |
| ETHERNET | MetaSolv TM Ethernet Network | 13 |
| IP | MetaSolv TM IP Network | 13 |
| IP | MetaSolv TM IP VPN | 1 |
| MPLS | MetaSolv TM MPLS | 13 |
| MPLS | MetaSolv TM MPLS Access Network | 38 |
| MPLS | MetaSolv TM MPLS Core Network | 13 |

The Components by Type section lists the 5.x network elements that are used in network systems and also lists the number of components (5.x network elements) associated with equipment.

Pre-M6 versions used the term network element in place of component. Beginning with M6, the term network element is replaced with component when it is not associated to a network element type. See Chapter 3, “Migrating network element data” for more information about components and network elements.

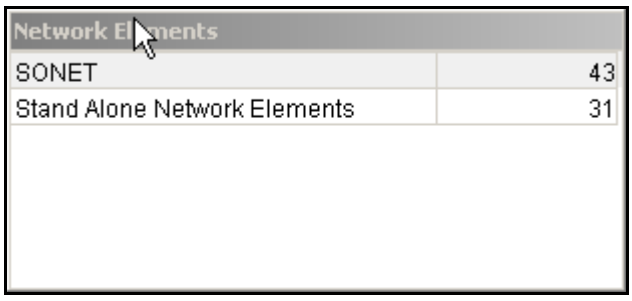
Below is an example.

Components by Type

| Component Type | Component Type Name | Components | Components with Equip |
|---|---|---|---|
| ATM_SW | ATM Switch | 86 | 85 |
| CE_RTR | Customer Edge Router | 10 | 7 |
| COT | Central Office Terminal | 1 | 1 |
| CUST_SITE | Customer Site | 26 | 0 |
| DSLAM | Digital Subscriber Line Access Multiplex | 13 | 13 |

The **Network Elements** section lists the SONET (network node types) and the stand alone network elements that were created in pre-M6 versions.

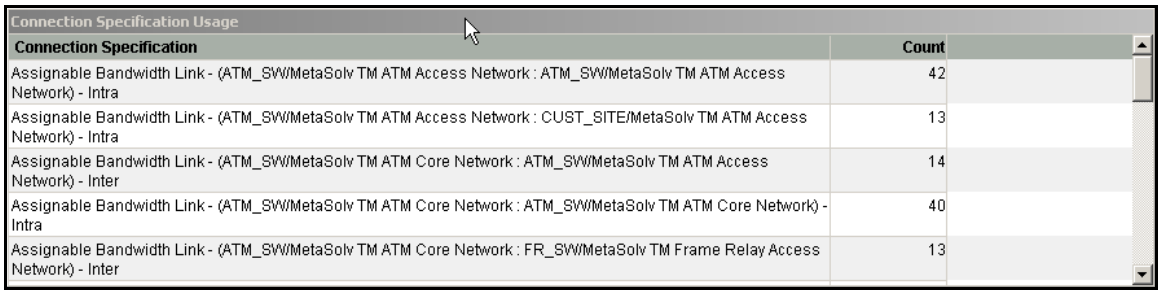
Below is an example.




This data is informational only.

The Connections Specifications section lists any 5.x connection specifications that are being used if you currently use network templates.

Below is an example.

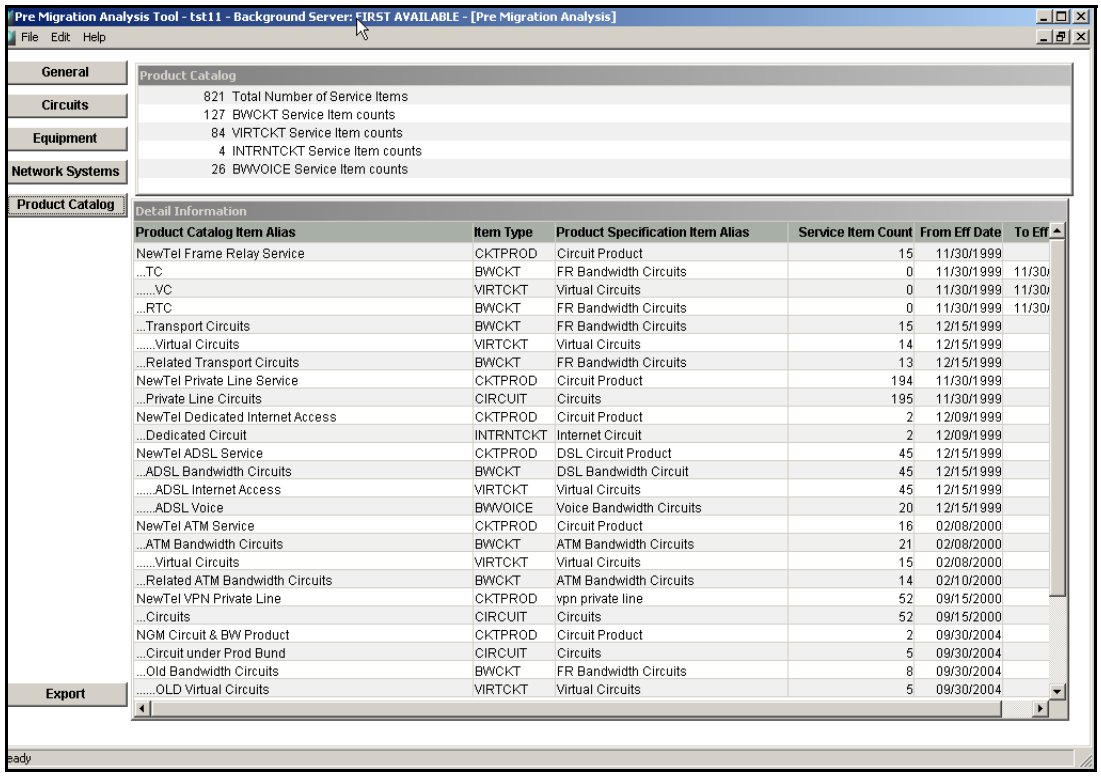


## Analyzing Product Catalog

**To view product catalog reports**

1. Click the **Product Catalog** button.

The following window appears.




The **Product Catalog** section lists the total number of service items, and then the service items that will be converted. These service item types are: BWCKT, VIRTCKT, INTRNTCKT, BWVOICE, CIRCUIT. Only INTRNTCKT and CIRCUIT items that are specials or facilities with no riders are eligible for conversion.

In this section, you cannot sort on the header label in the detail view.

The **Detail Information** section lists the product catalog items with the corresponding item type and product specifications, and total count of each product catalog item.

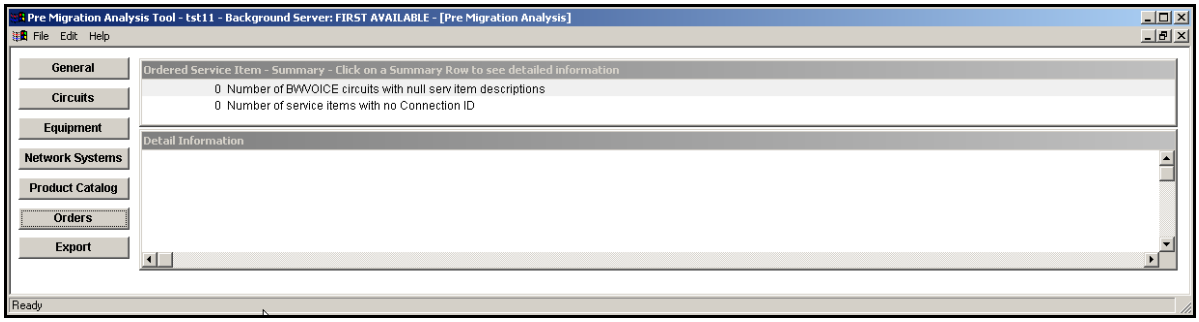
## Analyzing orders

This section allows you to determine if you have orders that may need additional research so that they can be converted.

**To view order reports**

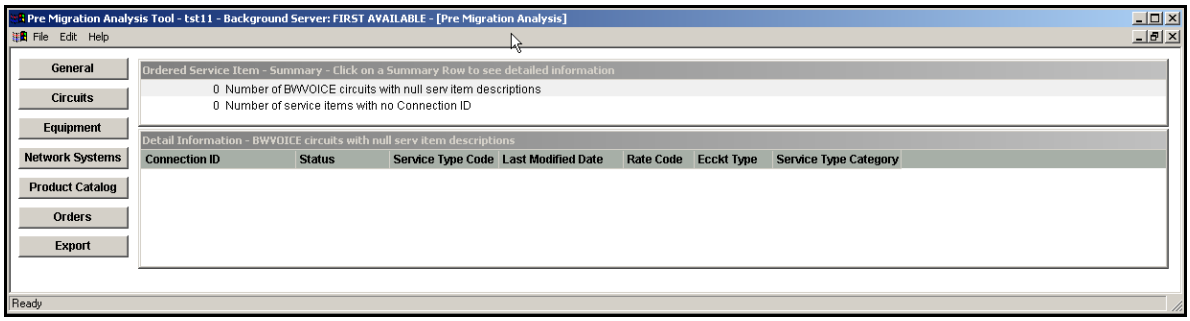
1. Click the **Orders** button.

   The following window appears.




2. Click the **Number of BWVOICE circuits...** row.

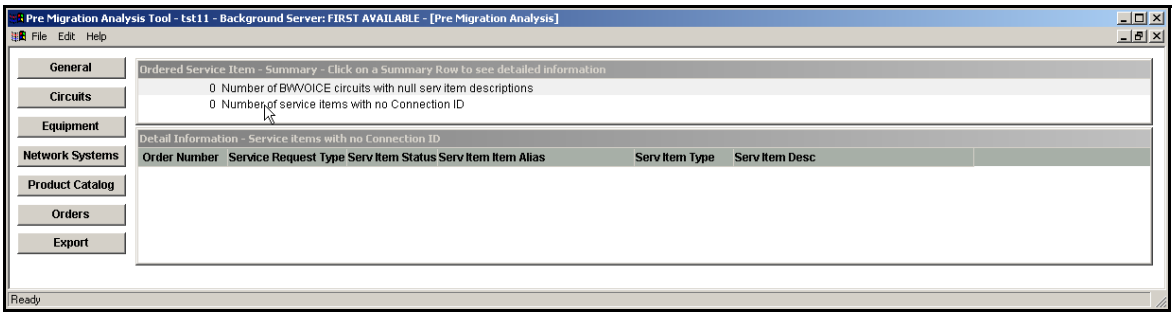
   The following window appears.




   For ordered BWVOICE items with null service item descriptions, the order must be supplemented and a phone number must be assigned to the BWVOICE item.

3. Click the **Number of service items...** row.

   The following window appears.



Service items that do not have circuit identification will need to be further researched in the core application after the conversion has run so that the orders can be corrected.

Once you have finished analyzing your data and performing any data cleanup, you will begin the Next Generation Migration process. The first step will be to create network templates if you use the broadband module, or to perform the Migrate Network Elements step if you are not using the broadband module.