MetaSolv Solution™ M/5

Network Areas

Best Practices Guide

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Printed in U.S.A.
MetaSolv Software, Inc.
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Getting Started

Purpose and scope

This guide helps you get started with Network Areas. It tells you what to set up and makes recommendations where appropriate, but it does not give step-by-step instructions. You can find step-by-step instructions in the online Help, and this document references specific Help topics where appropriate.

Note: The online Help references list topics that contain additional information or step-by-step instructions for completing specific tasks. To look up these topics in the online Help, press **F1** or click the **Help Topics** button from **Start>Programs**. Click the Full Text Search tab, and type in the specific topic name listed in the reference list.

This guide assumes you have purchased some combination of the PSR module, IP Address Management module, Internet Services module, and the DLC module. It also assumes you have set up the MetaSolv Solution™ (formerly Telecom Business Solution™) for general use and that you have a working knowledge of the software.

Using online Help

The MetaSolv Solution online Help contains a main table of contents, a traditional book-like index, and a full-text search index. To access any of these, launch the guide as described above and click the **Help Topics** button. The hierarchical contents are on the Contents tab, the book-like index is on the Index tab, and the full-text search index is on the Find tab.

Note: The first time you launch Help, MetaSolv's software displays a message while the file prepares for display. The first time you access the full-text search index, you run through a wizard to prepare the full-text index.

Document organization

If you want to know about...	See...
The Network Areas feature and how it works in the MetaSolv Solution software	Chapter 2

If you want to know about...	See...
What to consider when implementing network areas	Chapter 3
Using network areas for telephone number assignment and porting	Chapter 4
Using network areas in circuit design	Chapter 5
Using network areas for Internet services	Chapter 6
Specific terms used throughout this document and the Network Areas enhancement	Appendix A

Table 1: Document Organization

Document conventions

The following conventions are used throughout this document to help you better identify important items:

Convention	Description	Example
Bold text	Items you can click in the software, such as buttons, menu items, and fields	Click the **New** button. Press **F1** to access Help. Select **List>Location** from the main menu.
Italics	Places where you input information or select an item from a drop-down	Enter *your name* in the **Name** field. Select *TX* from the **State** drop-down.
Quotes	Status	The circuit is in "In Progress" status.
Step head	Procedural steps follow this heading	N/A
	Note	N/A
	Warning	N/A
	Cross-reference to a topic in the online Help	N/A

Table 2: Document Conventions

Network Areas Overview

This guide provides information on the new Network Areas feature in the MetaSolv software. Network Areas is a tool that customers can use to manage resources and provide efficient service to end users. The scenarios in this guide show the recommended uses of network areas.

What Are network areas?

A network area is a grouping of company resources that provides services to end-user locations. Network areas let you view and understand how a company provides service to users and what equipment is available for providing future service within the defined network area.

A network area is a user-defined feature. You can create a network area within a single floor in a building, a building complex, an entire city, or a larger geographical area. It is a grouping of network items and end-user locations that you can define to support local calling areas, rate centers, serving areas, or a unique business need. You can set up network areas in a variety of ways to show different views of a business. You can associate network items with more than one network area. This means you can construct network areas that support overlapping customer needs.

A network area can include:

- End-user and network locations
- Number inventories (for example, telephone numbers, NPA NXX/prefixes, and IP addresses)
- Network items [for example, switches, SONET nodes, network elements, digital loop carrier (DLC) components, equipment, and port addresses]
- Geographic areas

The following figure shows the relationships between a network area and company resources:

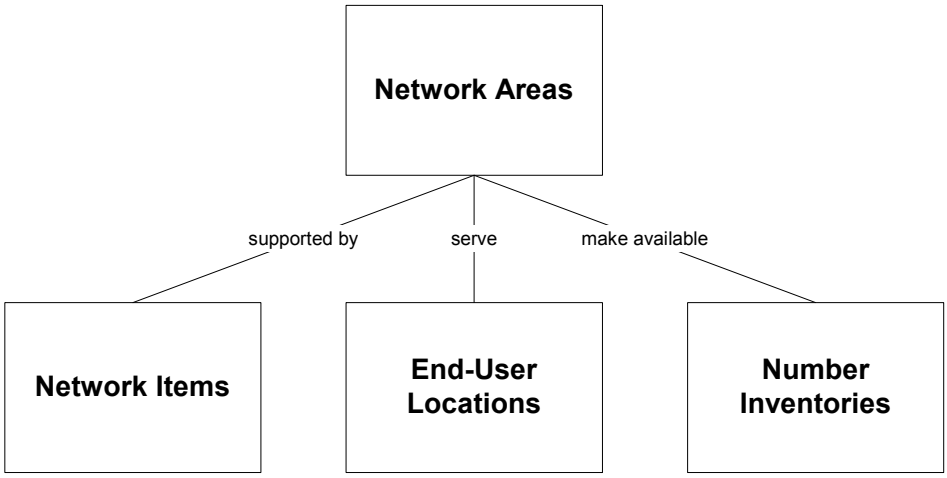

Figure 1: Network Areas Relationships

Starting with the M/5 release, rate centers are a type of network area. Rate centers loaded from the Local Exchange and Routing Guide (LERG) automatically become network areas. You can also enter and maintain rate center network areas using the Network Areas menu options in Infrastructure.

In North America, you associate rate centers, switches, and NPA NXX/prefixes using the Associated NPA NXX/prefix window located in the Infrastructure module. For international users, you now make the associations using the Network Areas feature.

Benefits

The Network Areas feature allows you to:

- Select telephone numbers to assign based on the network area

  When you create network areas and associate telephone numbers to them, you can filter the available phone numbers in PSR by network areas. At order time, when you assign a telephone number, you can select the network area that serves the customer to see the available phone numbers for the network area.

- Validate that a telephone number is portable

  Rate center network areas can validate whether a telephone number is portable from one address to another.

- Manage telephone numbers and IP addresses

  You can associate blocks of telephone numbers and IP addresses with a network area to reserve the numbers for future use. When assigning a telephone or IP address, you can choose from the numbers associated with the specific network area.

- Assign equipment when designing circuits based on the network area

During circuit design, you can display the equipment associated with a specific network area to build a circuit.

- Assign DLC components when designing circuits based on the network area

  If your network uses DLC, MetaSolv helps you search for DLC components associated with a network area for use to help design the circuit.

How the Network Areas feature works

Infrastructure

The Infrastructure module is where you enter information to create network areas and associate company resources. You can use the Infrastructure Network Area windows to view and maintain what is associated with a network area. The information for network associations is presented in a treeview format. You can also preload service locations in the Infrastructure module. This streamlines the order process by making the service locations available at order time.

Order management

When you specify a switch while creating a service location in PSR, the TBS software displays all network areas where the switch is associated so you can select the appropriate network area. If only one network area is associated, it is automatically selected. You can also associate the service location with a network area other than those associated with the switch.

Telephone number assignment also uses network areas. When assigning a new telephone number, the software presents the available telephone number inventory based on the network area supporting the service location for the assigned number.

When you port a customer's telephone number, the current rate center network area of the number must be the same as the rate center network area that supports the service location to which the telephone number is ported.

Circuit design

Network Areas help ensure proper equipment assignments when you design a circuit. A network area is supported by network items that include switches, SONET nodes, network elements, DLC components, equipment, and port addresses. The network area supports a specified group of end-user locations through addresses and network locations. When you design a circuit, you can assign a network item can be based on the items that support the end-user's network area.

Note: Although SONET nodes and network elements can be associated with a network area, you cannot select and assign them based on network area. This functionality may be included in a future release.

Implementation Considerations

Setting preferences

For Network Areas to function, you must activate the Enable Network Areas preference.

In Infrastructure, this preference enables the Network Areas menu option on the Infrastructure List menu. The Network Areas menu option allows you to set up, maintain, and view network areas.

In Order Management, this preference lets you associate a switch network area and other network areas with end-user locations. When the network area functionality is enabled, you enter switch network area and network area information for each location on the Network Area tab of the End User Location Maintenance window.

When this preference is enabled, only end-user locations with associated switch network areas can be added to a PSR for a premise-based product. The network area information for each PSR location displays on the Network Area tab of the Product Service Request window when the service location is highlighted.

Enabling the network areas functionality also forces network area validation when you assign telephone numbers to a PSR or move telephone numbers from one PSR location to another. This validation ensures that only appropriate telephone numbers are assigned to a location.

In Circuit Design, this preference allows you to view equipment for assignment that is associated with one or more network areas that serve an end user location. The network items associated with the selected network area become available for assignment.

Using a network area hierarchy

A network area hierarchy is a grouping of network areas. You can build a network area hierarchy and associate network areas to show relationships.

Network area hierarchies are optional. Your business processes determine whether you need to arrange network areas into hierarchies. For example, if your company provides Internet dial-up services, users must be able to call a local number to gain access to the Internet. This case requires the creation of many small network areas—one for each local calling area. These network areas are equal, and there is no parent/child relationship between the network areas that requires a hierarchy.

On the other hand, if your company provides dial tone services, you might want to have a hierarchy with a rate center network area at the top. The rate center network area can be broken into smaller serving areas. In this case, a hierarchy shows the relationship between the parent rate center network area and the serving areas that belong to it.

The rules for a network area hierarchy are contained in the network area structure type. The structure type defines the types of network areas that can be included in the hierarchy, the parent/child relationships in the hierarchy, and the number of network areas permitted under a parent.

A network area can be included in more than one hierarchy, but it can have only one rate center as a parent. For example, a network area cannot be listed as a child to one rate center in Hierarchy A and a different rate center in Hierarchy B.

Keeping dial tone and Internet services network areas distinct

M/5 offers two new software options: Internet Services and IP Management. Keep the network areas for these two services separate from network areas for dial tone services. When network areas are presented for PSR ordering or for the selection of equipment for circuit design, it is much simpler if network areas specific to dial tone services are clearly distinguished from Internet services network areas.

Naming network areas

When naming network areas, create a naming convention that allows you to tell something about the network areas that you will see in lists or windows. You should be able to distinguish between your dial tone network areas and Internet services network areas by their names. You might consider naming Internet services network areas by the geographic areas they serve.

Setting up end-user locations for network areas

End-user locations can be set up in the following ways:

- In the Order Management subsystem, you can set up an end-user location and associate it with the appropriate network area as a PSR premise-based order is entered. Use this method when the end-user location is not known until an order is received.
- In the Infrastructure module, you can enter end-user locations on a one-by-one basis and associate them with network areas.

Both methods for setting up end-user locations in advance are good ideas if a given area is targeted for sales endeavors. Having the end-user locations preloaded and associated with a network area streamlines the order-taking process.

Telephone Number Assignment and Porting

Process overview

If your company provides service to end users, you must consider telephone number assignment and the porting of telephone numbers from one end-user location to another when you set up network areas. In this case, the recommended practice is to create a rate center network area. You can divide the rate center network area into additional network areas called serving areas.

The following figure shows a rate center network area set up for telephone number assignment. The rate center contains a number of serving areas. Each serving area contains a network item that supports end-users within the serving area.

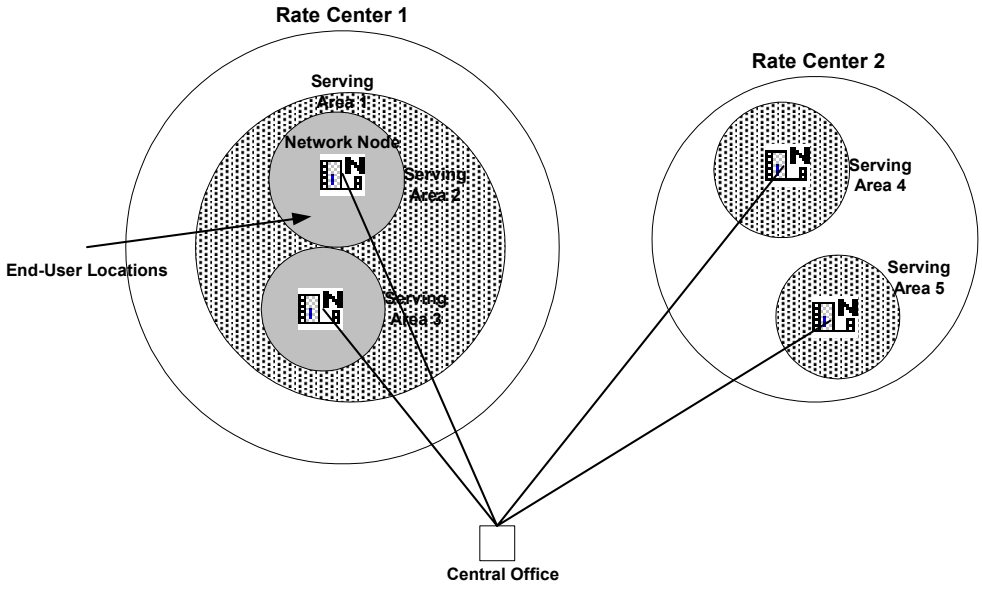

Figure 2: Rate Center Network Areas With Serving Areas

In this scenario, it appears that serving areas 2 and 3 are contained in serving area 1. This is not the case. Serving areas 2 and 3 support end-users that previously were supported by serving area 1. For some reason, serving area 1 could no longer support the end-users, so new serving areas were created.

You can associate blocks of telephone numbers with each network area. When you associate a network area with a specific block of numbers, new telephone number assignments for the serving area are drawn from this range of numbers at order time.

Setting up the network area

Basic Steps

To set up a network area for telephone assignment

1. Create a plan. Decide how many network areas you want, and determine the end user locations, network items, and number inventory you want to associate with each one.
2. Set the Enable Network Areas preference.

   The default is off, so you must enable the preference.
3. In the Infrastructure module, complete the following tasks:

   - Create each network area required by your plan. If you are loading data from the LERG, rate centers automatically become network areas.

     See "Setting up Network Areas: End-to-End Process Overview" in the online Help.
   - Associate the appropriate end-user locations and network locations with each network area.
   - Associate the appropriate network items with each network area. Network items include: switches, SONET nodes, network elements, DLC components, equipment, and port addresses.
   - Associate NPA NXX/prefix numbers with network area switches.
   - Associate telephone numbers with the network area. You can associate a block of numbers with the network area.
   - Associate telephone numbers with network area switches.
   - Associate geographic areas. This is optional. You can associate a country, state, or city with a network area. This feature allows you to search for a network area by its geographic area.
   - Create a hierarchy structure, and add the network areas to the structure. You can create network areas and use them without the hierarchy, but the hierarchy gives a treeview of all of the network areas and shows how they relate to the service being provided.

Scenario: associating switches and NPA NXX/prefixes with a network area

The Location and Routing Gateway (LARG) uses LERG data to load rate center network areas, as well as the switches and NPA NXX/prefixes associated with rate centers. Figure 3 shows the Dallas rate center with its associated switch and line ranges.

Figure 3 shows that the Dallas rate center has a subordinate serving area. Only certain number ranges need to be available to the SMU serving area—not the entire range available to the rate center. Additionally, there is a limitation on the line ranges within the 214-280 NPA NXX/prefix. The line range associated with the SMU serving area for this NPA NXX/prefix was edited in the Infrastructure module and reduced from 0000-9999 to 3000-4999.

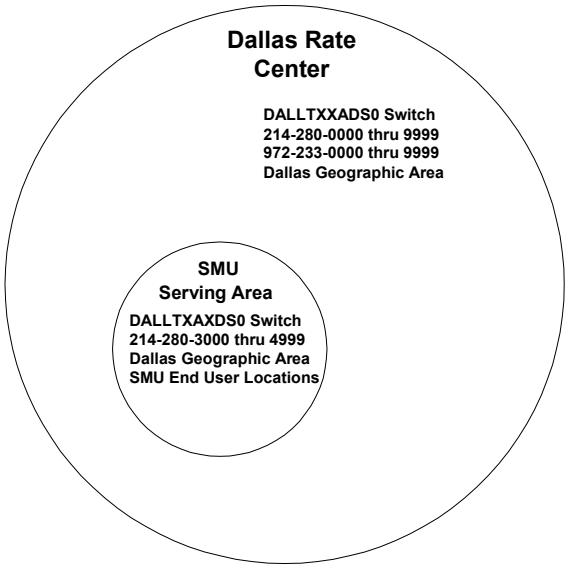

Figure 3: Associating Switches and NPA NXX/prefixes With a Network Area

Scenario: associating telephone numbers with network areas

In some cases it can be desirable to reserve telephone numbers in the number inventory for a serving area. The following figure shows the individual telephone numbers associated with the SMU serving area.

In this example, all of the numbers in the 214-280 NPA NXX/prefix (3000 through 4999) were individually reserved for the SMU serving area.

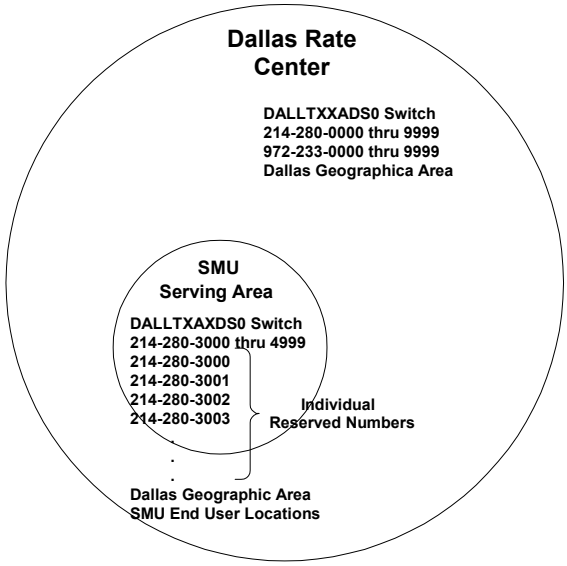

Figure 4: Telephone Numbers Associated With the SMU Serving Area

Scenario: associating switches and NPA NXX/prefixes with multiple rate centers

The LARG Loader uses LERG data to load rate center network areas and the switches and NPA NXX/prefixes associated with rate centers.

In some cases, a switch can serve more than one rate center. Additionally, only certain NPA NXX/prefixes associated with the switch can be available to a specific rate center. The following figure shows an instance in which a switch serves two rate centers.

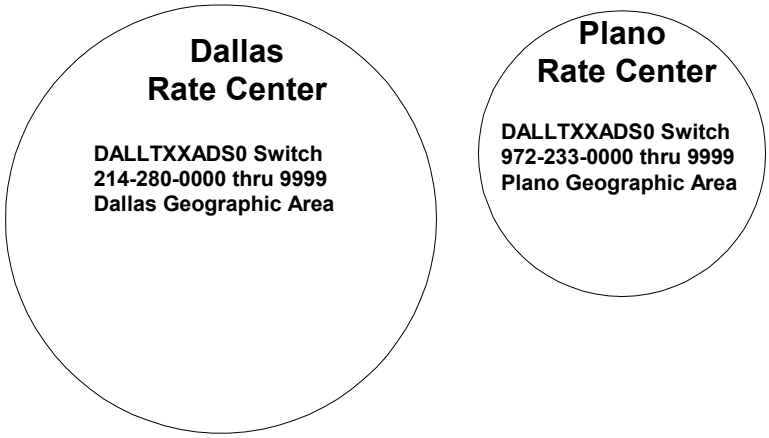

Figure 5: Multiple Rate Centers and NPA NXX/prefixes Served by One Switch

In this scenario, the DALLTXXADS0 switch is associated with the 214-280 and 972-233 NPA NXX/prefixes. However, the 214-380 NPA NXX/prefix is only available in the Dallas rate center, and the 972-233 NPA NXX/prefix is only available in the Plano rate center. The LARG originally associated the switch and both NPA NXX/prefixes with the Dallas rate center.

To arrive at the desired rate center configuration shown, the following actions were taken in the Infrastructure module:

- The switch was associated with the Plano rate center.
- The 972-233 NPA NXX/prefix was associated with the switch associated with the Plano rate center.
- The 972-233 NPA NXX/prefix was dis-associated from the Dallas Rate Center switch DALLTXXADS0.

Assigning telephone numbers using network areas

When you create a PSR for telephone service, you can select the network area that serves the customer's location and select from a list of available telephone numbers associated with that network area.

Using network areas to port telephone numbers

A telephone number cannot be ported from one rate center to another. It can only be ported from one location to another within a rate center. The best use of network areas to port numbers is to create serving areas within the rate center. You can create a network area hierarchy with rate center at the top of the hierarchy and serving areas as subordinate network areas under the rate center.

Using Network Areas in Circuit Design

Process overview

During circuit design, you can filter equipment by network area so that a smaller set of equipment is presented to be included in the design.

In DLC, MetaSolv determines whether any DLC components are associated with a network area and presents the components for circuit design. Because there is a search feature specifically for DLC components, it is recommended you use network areas to manage DLC service. If no DLC components are found for the network area, you can query to locate appropriate DLC components.

Setting up the network area

Basic steps

To set up the network area

1. In the Infrastructure module, create the network area.

   See "Setting up Network Areas: End-to-End Process Overview" in the online Help.

2. Associate the end-user locations with the network area.

   If the end-user locations do not exist in the software, you must add them in the Infrastructure module before you can associate them with the network area.

3. Associate telephone numbers with the network area.

4. Associate the equipment with the network area.

Scenario: multiple pieces of equipment or cards serving multiple locations

Using network areas can help you assign equipment during the process of designing circuits. To use network areas to help select equipment during circuit design, you must associate the equipment or port addresses with a network area. When you design a circuit for any end-user location served by the network area, the software determines if the end-user location is served by pieces of equipment or ports. If so, the pieces of equipment or

ports are made available for assignment. If not, you must search for the serving equipment or ports.

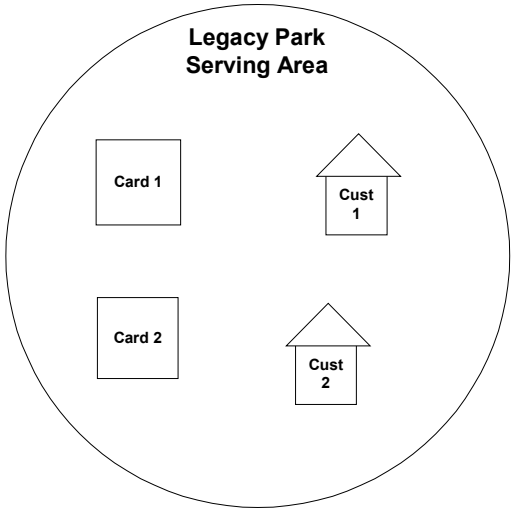

Figure 6: Multiple Pieces of Equipment or Cards Serving Multiple Locations

In the example, two cards serve both customers. When you design a circuit for either of the customers, both cards are available for you to assign.

Scenario: multiple pieces of equipment or ports serving different locations in a network area

Suppose for this scenario that multiple pieces of equipment or ports serve a network area, and the network area serves multiple end-user locations. Only some of the equipment or ports serve specific end-user locations.

You can handle this scenario in two different ways: If the network area contains a large number of end-users, you can set up two different network areas, each one containing only the equipment, ports, and end-user locations it serves. A second option is to keep only one

network area and associate each piece of equipment or port with the end-user locations it serves within a single network area.

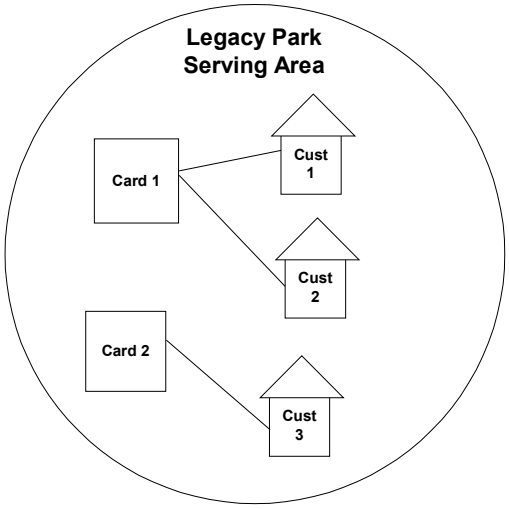

Figure 7: Multiple Pieces of Equipment or Ports Serving Different Locations in a Network Area

In the scenario, card 1 serves customer 1 and customer 2. Card 2 serves customer 3. If you associate card 1 with customer 1 and customer 2, only this card appears when you assign equipment while designing circuits for end user locations customer 1 and customer 2. Likewise, if you associate card 2 with customer 3, only this card appears as an eligible card when you design circuits for end-user location customer 3.

Scenario: multiple DLC terminals serving multiple locations

Using network areas can help you design DS0 circuits served by a DLC system. To use network areas to design DS0 circuits using DLC, you must associate DLC terminals, their associated equipment, or port addresses with a network area. When you design a DLC DS0 circuit for any end-user location served by the network area, DLC provisioning determines if the end-user location is served by a DLC component. If so, the component is made available for assignment. If not, you must search for the serving component.

In the following figure, two remote terminals serve the two buildings. When you design a DS0 circuit served by a DLC system, both terminals are available to assign as the serving component.

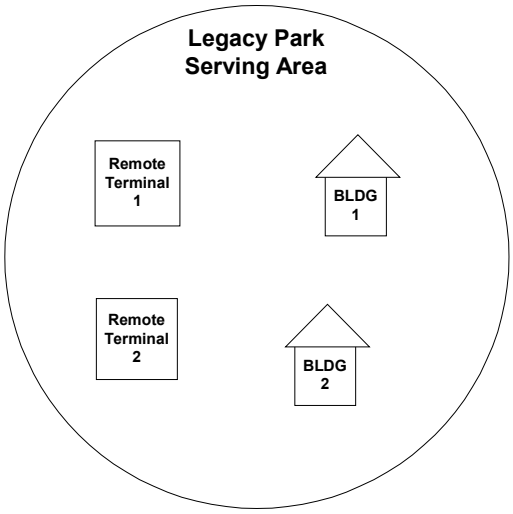

Figure 8: Multiple DLC Terminals Serving Multiple Locations

Scenario: multiple DLC terminals serving different locations in a network area

Suppose for this scenario that multiple DLC remote terminals serve a network area, and the network area serves multiple end-user locations. Each of the terminals serve different end-user locations.

You can handle this scenario in two different ways: If the network area contains a large number of end users, you can set up two different network areas—each one containing a single DLC component and the end-user locations it serves. A second option is to keep only one network area and associate each terminal with the end-user locations it serves.

The following figure shows two terminals associated with different end-user locations in a network area.

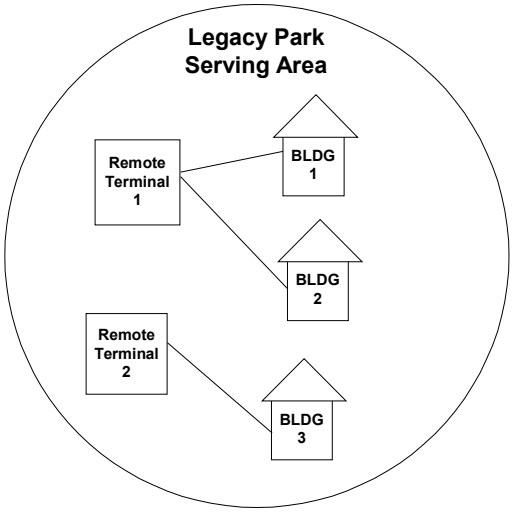

Figure 9: Multiple DLC Terminals Serving Different Locations

In this scenario, terminal 1 serves building 1 and building 2. Terminal 2 serves building 3. By associating terminal 1 with building 1 and building 2, only this terminal appears as a serving component when you design DS0 circuits for end-user locations building 1 and building 2. Likewise, by associating terminal 2 with building 3, only this terminal appears as a serving component when you design DS0 circuits for end-user location building 3.

Selecting equipment using network areas

When you design a non-DLC circuit for an end user location, the software displays network areas. You can select the appropriate network area to see its associated equipment and make a selection for building the circuit. The software highlights the first available equipment for the network area.

Selecting DLC components using network areas

When you design a DLC DS0 circuit for an end-user location served by the network area, the software helps you determine if the end-user location is served by a DLC component. If so, the components, cards, and/or port addresses are made available for assignment. If not, you can query for the serving component.

Using Network Areas for Internet Services

Process overview

The recommended best practice for setting up Internet services network areas is by geographic region. You set these up by associating a city/state or state with the network area. This setup is the best for managing dial-up access numbers, IP addresses, and network items required for Internet communication.

Two network areas component types for Internet Services are included in the software base data: DUAA (dial-up access area) and DEDWEB (dedicated access/Web hosting).

It is recommended that you create separate network areas for dial-up access numbers and the dedicated Internet access or Web hosting services. Because you can assign equipment to more than one network area, you can have as many network areas as you need to manage and view your Internet services resources.

It is not recommended that you create a network area hierarchy for Internet services. Typically, these network areas are equal, and there is no parent/child relationship between the network areas that requires a hierarchy.

It is recommended for Internet services that you have only one network area for each city/state combination. If you have multiple network areas for the same city/state, the incorrect one may be picked when orders are processed.

Managing dial-up access numbers

To offer dial-up connections in a locality, Internet service providers (ISPs) must provide a local telephone number for customers in a given network access area to allow the customers access to the Internet. This is a telephone number that a customer can dial using a modem to gain access to the ISP's network and thus the Internet.

Setting up the dial-up access area network area

Basic Steps

To set up a network area for dial-up access numbers

1. Enter a PSR to define your hunt group for the access numbers. To define the hunt group, complete the following tasks:
   - Make sure your company is the customer defined on the order.
   - Add the hunt group to the product through the Add Item Specification window.
   - Add lines to your service request with a price of zero dollars.

- Add the telephone numbers for the hunt group.

  See "Adding Hunt Information to a PSR" in the online Help.

2. In the Infrastructure module, complete the following tasks:
   - Create the appropriate network areas with the component type DUAA.

     See "Setting up Network Areas: End-to-End Process Overview" in the online Help.
   - Associate the appropriate geographic area with the network area.
   - Associate the access telephone numbers with the network area and indicate the lead number.
3. In the Equipment module, add the appropriate server.
4. Install the software specs for the incoming mail server, outgoing mail server, shared Web server, FTP server, and authentication, onto the server.
5. In the Equipment module, associate the software specs with the equipment.
6. In the Infrastructure module, associate the equipment with the network area.
7. In the Equipment module, assign IP addresses to the equipment.

   For additional information on adding equipment for Internet services and assigning IP addresses, see the *Internet Services Best Practices Guide*.

Scenario: setting up a dial-up access area

Best ISP provides dial-up Internet access to customers in Texas and Utah. Customers ordering dial-up service are given an access telephone number to dial into that, ideally, provides them with toll-free access to the Internet. To facilitate this process, Best ISP created multiple network areas of component type DUAA for each POP (point of presence) in its network.

For example, Best ISP provides access to Dallas, Fort Worth, Austin, and Houston, and each of these areas has a POP. Best ISP created network areas of component type DUAA for each of the city/state combinations and assigned a lead telephone number for the modem pool in that POP to the network area. A network area that includes the entire state was also created for provisioning purposes. Any other states that Best ISP provides service to are set up in a similar fashion.

The following table shows how Best ISP defined its dial-up access areas:

State	Network Access Area Name	Access Telephone Number
Texas	Austin, TX	(512) 123-4567
	Dallas, TX	(214) 234-5678
	Fort Worth, TX	(817) 345-6789
	Houston, TX	(281) 582-6339
	Texas	(281) 582-8667
Utah	Salt Lake City, UT	(801) 456-7890
	Provo, UT	(801) 555-1234
	Utah	(801) 555-2345

Table 3: Defined Dial-up Access Areas

Once you define network areas, you can associate the appropriate Internet equipment with the network area. For each dial-up access area network area, Best ISP associated equipment with the following software specification types:

- Incoming mail server
- Outgoing mail server
- Shared Web server
- FTP server
- Authentication server

The following figure shows how dial-up access area network areas might be set up for cities inside the state of Texas. If a customer calls in from a city that does not have a specific network area, the state-only network area is chosen. For example, if a customer calls in from Tyler, TX, no network areas match that city/state combination. In this case,

the network area for the state, “DUAA Texas,” is used to retrieve the equipment to which the customer's services should be provisioned.

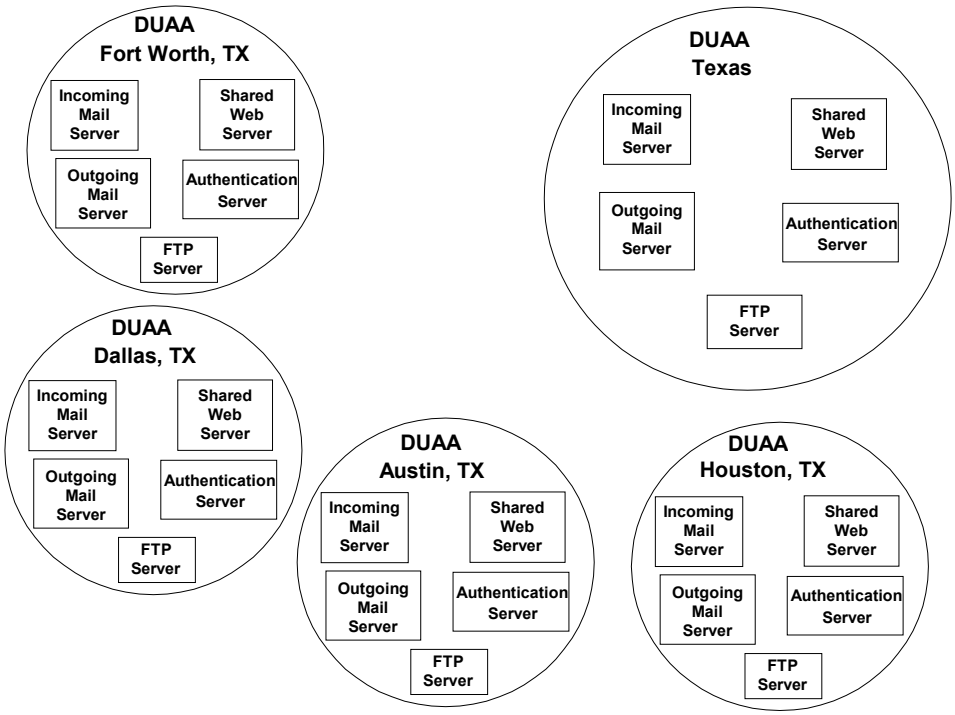

Figure 10: Dial-up Access Areas

If the server used for mail services provides both incoming and outgoing mail, assign both of these software types to the equipment. The same piece of equipment can be assigned to multiple network areas. This setup helps the manual selection of server equipment for provisioning and flow through activation provisioning using activation APIs. If a network area is not available for the customer's city/state combination, the customer's order is provisioned on equipment in the state-only network area.

Using dial-up access area network areas

When you create a PSR for dial-up access, in the Order Management subsystem, you can select a network area and retrieve the dial-up access numbers associated with the network area. You can narrow the search for network areas to the customer's city and select from network areas associated with that specific geographic area. Once the dial-up access numbers are retrieved, you can select one for the customer by checking a checkbox.

If order provisioning is done manually, you invoke the tech translation sheet and retrieve equipment associated with the appropriate network area. For the customer's e-mail address, retrieve the incoming and outgoing mail servers from the network area associated with the access phone number and assign the e-mail account to the incoming and outgoing

mail servers. Assign the Web page to a shared Web server and an FTP server from the network area.

If flow through activation has been implemented or for dial-up orders from the Web front end, selecting equipment for provisioning is done automatically without manual intervention. This selection is done, based on the network areas, access telephone numbers, and equipment being set up in the manner described.

Managing dedicated Internet access or Web hosting

ISPs can also provide dedicated (always on) Internet access and Web hosting services to customers. To provide Web hosting, an ISP hosts, or provides, space for a customer's domain on an ISP Web server and FTP server.

Setting up the Internet services network area

Basic steps

To set up for dedicated Internet access or Web hosting

1. In the Infrastructure module, complete the following tasks:
   - Create the appropriate network areas with the component type DEDWEB.

     See "Setting up Network Areas: End-to-End Process Overview" in the online help.
   - Associate the appropriate geographic area with the network area.
   - Associate specific IP addresses with the network area.
2. In the Equipment module, add the server.
3. Install the software specs for the outgoing mail server, dedicated and shared Web servers, and FTP server onto the server.
4. In the Equipment module, associate the software specs with the equipment.
5. In the Infrastructure module, associate the equipment with the network area.
6. In the Equipment module, assign IP addresses to the equipment.

   For additional information on adding equipment for Internet services and assigning IP addresses, see the *Internet Services Best Practices Guide*.

Scenario: setting up dedicated Internet access or Web hosting network areas at the state and city level

Best ISP provides dedicated access and Web hosting services to the same areas to which it provides dial-up products. However, the dedicated and Web hosting products do not have an access telephone number associated with them like the dial-up Internet products, so the telephone number cannot be used to select a network area.

For dedicated access and Web hosting products, you must set up network areas of component type DEDWEB based on geographic areas. In this scenario, each city where

Best ISP has a POP is defined as a network area. A network area that includes the state is also created for provisioning purposes.

The same types of equipment assignments are made for dedicated access or Web hosting network areas as for dial-up access network areas. The equipment includes the following software spec types:

- Incoming mail server
- Outgoing mail server
- FTP server
- Dedicated Web server
- Shared Web server

If the server you use for mail services provides both incoming and outgoing mail, assign both of these software spec types to the equipment. You can associate the same piece of equipment with multiple network areas. This setup allows you to manually select server equipment for provisioning and flow through activation provisioning using activation APIs.

The following table shows how Best ISP defined its dedicated/Web hosting access areas:

City	State	Network Access Area Name
Austin	TX	DEDWEB Austin, TX
Dallas	TX	DEDWEB Dallas, TX
Fort Worth	TX	DEDWEB Fort Worth, TX
	TX	DEDWEB TX
Salt Lake City	UT	DEDWEB Salt Lake City, UT
Provo	UT	DEDWEB Provo, UT
	UT	DEDWEB UT

Table 4: Defined Dedicated/Web Hosting Access Areas

The mechanism for selecting a DEDWEB network area from which to retrieve equipment is based on the city and state from the customer's billing address. For example, a customer living in Austin orders Web hosting services from Best ISP. Based on the billing address, you would provision the Web hosting and any other products the customer ordered (for example, e-mail) to servers in the DEDWEB Austin network area.

The following figure shows how dedicated access and Web hosting services can be set up for areas inside a state. Individual areas have network areas set up, and an overall network area that takes in the entire state is set up.

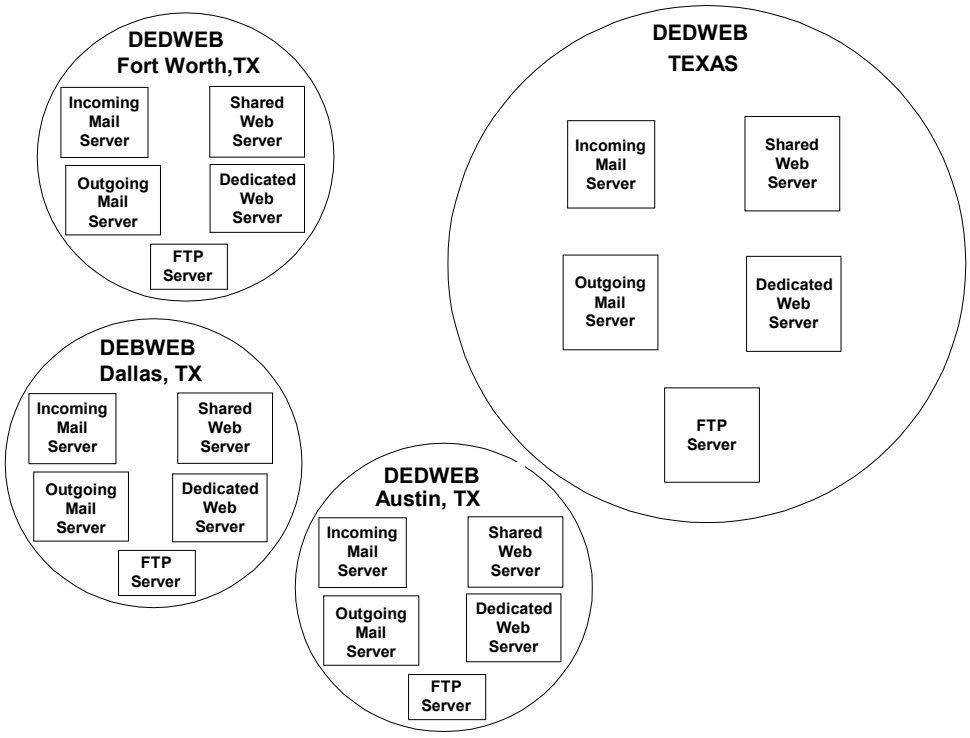

Figure 11: DEDWEB Network Areas

If a customer calls in from a city that does not have a specific network area, the state-only network area is chosen. For example, if a customer calls in from Tyler, Texas, no network areas match that city/state combination. In this case, the network area for the state, "DEDWEB TEXAS," is used to retrieve the equipment to which the customer's services should be provisioned.

Using dedicated access and Web hosting network areas

If order provisioning is done manually, you invoke the tech translation sheet and retrieve equipment associated with the appropriate network area. For the customer's e-mail address, retrieve the incoming and outgoing mail servers and assign the e-mail account to incoming and outgoing mail servers for the network area. Assign the domain to a shared or dedicated Web server (based on the SRVRTYCD MDL on the domain item type on the order) and an FTP server from the network area.

If flow-through activation has been implemented, the software selects equipment for provisioning automatically without manual intervention. This selection is done based on the network areas and equipment being set up in the manner described.

Associating IP addresses to network areas

IP addresses can be associated to network areas along with an inheritance of associations. By default, the inheritance of associations is from a pool to its subnets and from a subnet to its host addresses. However, you also have the ability to exclude child subnets from inheriting the parent pool's associations. You can exclude child subnets on a selective basis, or you can exclude all child subnets from inheriting the associations.

IP pools and IP subnets can be explicitly associated to network areas. However, IP base networks and IP hosts cannot.

If an IP pool is associated to a network area, all subnets belonging to the pool or subsequently created from the pool will automatically inherit the association.

Although host addresses belonging to a subnet automatically inherit the network area association of the parent subnet, free hosts within a pool do not.

If IP subnets associated to different network areas are combined, the resulting subnet will inherit all the associations. If the preference limiting associations to one is set, the association will be user-selected.

Setting preferences for IP address associations to network areas

Specific preferences can be set for IP address associations by selecting from the menu **Options>Preferences>Infrastructure>Internet Services**.

You can set a preference which requires each subnet be associated to a network area when the subnet is created. This applies when an association is not inherited.

You can also set a preference to allow only one association. With this setting, if IP subnets associated to different network areas are combined, the user selects the association for the resulting subnet to inherit.

Creating IP address associations to network areas

There are three ways to associate an IP pool or IP subnet with a network area:

- From IP Number Inventory
- When the pool or subnet is created
- From the IP pool associated to that network area

Adding, viewing, or editing IP address associations

Basic steps

To add, view, or edit IP addresses associated with a network area

1. In the Infrastructure module, select **List>Number Inventory>IP Addresses>IP Address Management** from the main menu.

   The IP Address Inventory window opens.

2. Right-click an IP address and select **Network Area Associations**.

3. The dialog displays the associated IP addresses.
   - Click the blank paper button to create a new association.
   - Click the eraser button to remove an existing association and add a different one.

For additional information on assigning IP addresses, see the *Internet Services Best Practices Guide*.

Creating network areas component types and customized hierarchies

A network area component type is a user-defined label that identifies the network area. Examples of network area component types include telephone number areas, serving areas, districts, and local calling areas.

MetaSolv Solution base data contains three component types: rate center (RC), dial-up access areas (DUAA), and dedicated Internet circuit/Web hosting (DEDWEB). You can edit the names for these component types but not the component type codes.

You can also create customized component types representing levels of a hierarchy. These levels are not constrained by geographical regions.

Basic steps

To create a network area component type

1. In the Infrastructure module, select **List>Network Area>Component Type** from the main menu.

   The Network Area Component Type Query window opens.
2. Click the **New** button on the Infrastructure toolbar.
3. Enter the necessary information in the Component Type window.

To create a customized hierarchy

1. In the Infrastructure module, select **List>Network Area>Structure Type** from the main menu.

   The Network Area Structure Type Query window opens.
2. Click the **New** button on the Infrastructure toolbar.
3. On the General tab, complete the following tasks:
   - Provide a name for your new structure type.
   - Select the component types you want to include in your new structure. Click the blank paper button to add more component types to the list.
   - Put a check in the **Highest Level** checkbox next to the component you want listed as the highest level.
4. On the Hierarchy tab, complete the following tasks:
   - Right-click on First - Top Level and select **Add**.

- Select the Child Component Type.
- Provide any other necessary information, and click **OK**.
- Repeat these tasks until you complete the hierarchical relationship for your structure type.

5. Create a new network area for each level in the customized hierarchy.

Appendix A: Glossary

Application Programming Interface (API)

An application programming interface (API) supports interconnection and communication between the TBS database and customer or third-party software. APIs enable data to be imported into and exported from the TBS database. APIs verify all exported and imported data to ensure the integrity of data in the TBS database. For more information on APIs and how they are used with the TBS software, consult the *Application Programming Interface Programmer's Guide*.

Authentication

Authentication is the process of identifying an individual to permit access to an ISP's network for a dial-up user. Identification is typically based on a username and password entered by the user.

In security systems, *authentication* is distinct from *authorization*, which is the process of giving individuals access to system objects based on their identity. Authentication merely ensures that the individual is who he or she claims to be, but says nothing about the access rights of the individual. Authentication is key to offering dial-up service. An Authentication server handles the authentication process.

Dedicated access

Dedicated access service allows a customer to communicate with the ISPs elements, without the high cost of long-haul point-to-point dedicated circuits and without the security risks and poor performance associated with carrying wide-area-network and Intranet traffic over the Internet. Many ISPs offer connectivity speeds ranging from 56 Kbps through OC-3 (155 Mbps).

Various forms of "always-on" connectivity are available to the user requesting a direct connection depending on the transport media employed. Many forms of direct access have become available over the years. Examples of the traditional and the newer forms of transport include:

- Dedicated circuit
- xDSL or Digital Subscriber Line
- Frame relay/ATM

Dedicated Web hosting

With dedicated Web hosting, a single Web server is “dedicated” to one customer website. Dedicated hosting consists of out sourced hosting services that provide secure Web server facilities, scalable bandwidth to the Internet and optional server monitoring, management, file-system backup, and reporting services.

Dial-up access

Dial-up access provides access via local service on the Public Switched Telephone Network (PSTN).

E-mail accounts

E-mail accounts are typically bundled with other Internet accounts. There are two important protocols in e-mail management. The first is Post Office Protocol (POP). The POP mail protocol allows users to read e-mail from a server. POP3 is the latest version of the protocol. Simple Mail Transfer Protocol (SMTP) is a protocol for sending e-mail messages between servers. Most e-mail systems that send mail over the Internet use SMTP to send messages from one server to another; the messages can then be retrieved with an e-mail client using POP.

Initially as part of the configuration of the e-mail service, the service provider denotes what the value is to attribute to the POP3 or SMTP server. An example would be for the TBS administrator to set the POP3 server as POP3.MetaSolv.com or alternatively SMTP1.MetaSolv.com.

More than one e-mail address may be established on an Internet services account.

E-mail addresses

E-mail is a colloquial term for electronic mail. An e-mail address is a domain-based address, which is used to refer to a specific user. An example of an e-mail address is jdoe@metasolv.com.

Equipment

Equipment is material used in the design of a circuit. "Installed" equipment is operational, meaning it is installed and ready to be assigned. Installed equipment is always at a particular network location, is considered base equipment, or can be mounted in either a rack or a shelf. Equipment can have mounting positions and port addresses associated with it. A mounting position is a slot in a piece of equipment. A port address maintains information on an equipment's port that can be assigned for transmission purposes. Port addresses can be either physical or “enabled” by the physical, as in the relationship with the circuit positions associated with facilities. The port address can also be identified with a node address available for circuit assignment.

An important property of equipment is its cross connects. Cross connects may be hard-wired or software. Hard-wired cross connects are used to connect two pieces of equipment

using a physical media. Hard-wired cross connects are used to track hard-wired cross-connects between port addresses (channel bank to jack position) and between a port address placeholder and port address (DDM2000 shelf to jack position).

Geographic areas

Geographic areas are related to real estate, right-of-way, taxing authorities, and other relevant information. The geographic information is associated with geographic markers as well as blueprints and other drawings of the actual facilities. The underlying repository should be integrated with call before you dig (CBUD) inquiries.

IP address identification

An IP address is a 32-bit numeric code that uniquely identifies a computer or device on a network. This address is composed of two parts, the network number and the host number. The leading portion identifies the network number, often referred to as the "network prefix." The remainder identifies the particular host in the network. By convention, the IP address is expressed as four decimal numbers separated by a dot. This notation divides the 32-bit address into four 8-bit (byte) fields and specifies the value of each field independently as a decimal number with the fields separated by dots. Each number can have a value of zero to 255 (for example, 131.1.20.240).

Network areas

A network area is a grouping of company resources (for example, locations, telephone numbers, switches, and equipment) that provides service to end users.

Network locations

Network locations are physical locations that may or may not be owned/served by the user's company but are of interest for equipment inventory purposes. This location may have a Telcordia Technologies assigned CLLI™ code, a fictitious "CLLI" code, or may simply be identified by a street address. Network locations provide origination and termination information for interoffice plant. Equipment is installed at network locations. Network locations define the end points of network routes. Network locations are used by the SOA gateway in terms of determining where a Class 5 switch is installed. NPA NXX/ prefixes are also associated with the network locations out of which they are served. These associations are identified from a LERG perspective.

Network nodes

Network nodes maintain information relative to a network item that makes up a telecommunications facility network. Network nodes are identified by the equipment's shelf assembly (for example, OC-12 terminal, linear ADM, regenerator, ring multiplexer) and related components (for example, OLIU, MXRVO, DS1 cards). One node of the network is designated as the host network element, which is identified to communicate with network management systems and other elements.

Network systems

Network systems stores the data and handles the processing associated with individual network systems. For example, this business object contains functionality to create the system, create the system nodes, create the internode connections, identify maintenance channels, and manage the capacity of the system. It also handles the assignment of customer service items to the network.

NPA NXX/Prefix

An NPA code is a 3-digit code in the NXX series that identifies a numbering plan area. It is the first three digits of a 10-digit destination number for all inter-NPA calls within the North American numbering plan area. The NXX Code is normally used as a central office code. The NXX prefixed with the NPA, uniquely identifies the destination code of the end office when number portability is not involved.

Number inventory

Number inventory represents the different numbers available to the company, including such numbers as telephone numbers and IP addresses.

Physical port

A physical port is a socket on the equipment where you plug it into a network. You can assign an IP address to the equipment's physical or virtual port.

Software specifications

A software specification is a reusable description of a specific software type. It includes the basic information about a software program, including the program name, vendor, and version. You must set up software specifications on the Software Spec window before you can associate software with a piece of equipment.

Switches

Switches connect lines and trunks to form a desired communications path between two points in a telecommunications network. The information contained in Switch Details helps to identify ownership of switched traffic routes.

Web hosting

Web hosting is an important value-added service that is typically provided by ISPs. There are two primary forms of Web hosting: dedicated and shared. Dedicated Web hosting involves hosting only one website on a server. Shared Web hosting involves hosting several websites on the same server.

Appendix B: Contacting Customer Support

MetaSolv Customer Support helps report, track, and resolve issues relating to the MetaSolv Solution product line. The following table details the various ways you can contact Customer Support:

Method	Number/Address	Special Notes/Procedures
E-mail	techsupport@metasolv.com	The customer must be a known MetaSolv software end-user whose e-mail address has been entered into the Customer Support system. When a customer sends an e-mail to the system, an automated e-mail response, with a service request number, is automatically sent to the customer. See "Guidelines for e-mailing Customer Support" on page 38. See "What information will Customer Support need?" on page 38.
Telephone Hotline	Toll Free: 888-884-7686 Voice: 972-403-8400	Toll-free hotline staffed Monday through Friday, 7 A.M.to 6 P.M. CT. All **severity 1** requests must be reported via the telephone hotline. A voice response system provides instructions for reporting requests. See "Guidelines for e-mailing Customer Support" on page 38. See "What information will Customer Support need?" on page 38.
Fax	972-403-8333	

Method	Number/Address	Special Notes/Procedures
Mail	MetaSolv Software, Inc. Customer Support 5560 Tennyson Parkway Plano, TX 75024	
Internet	support.metasolv.com	1. Click **Click here to continue**. 2. Enter user ID and password. 3. Click **Submit new customer support ticket**. Fill out information as required. 4. Click **Submit this information as a service request**.

Guidelines for e-mailing Customer Support

When you submit a request via e-mail, specify in the subject line one of the following product types in the subject line followed by a colon, space, and the subject of your request:

Warning: If you do not follow the exact spelling and format in the subject line, your e-mail cannot be processed by the automatic system and it will be sent back to you.

- Background Processor
- DB/UPGD/Install
- Engineering
- Gateway
- Ordering
- Security
- Tools
- Trouble
- Work Mgmt

For example, to submit a problem for a gateway-related problem about the network provisioning indicator, your subject line will be *Gateway: Network provisioning indicator is not working properly*.

What information will Customer Support need?

Please be at your computer with the following information when you call:

- The product version number, which is found by choosing **Help>About MetaSolv Solution** from the main menu in the MetaSolv software product family.
- A printout of the system properties. To obtain the printout:

1. Select **Help>About MetaSolv Solution** from the main menu.
2. Click the **System Properties** button.
3. In the System Properties window, click all the pluses to expand the hierarchy.
4. Click the **Print** button.

- Exact wording of any messages that appear on your screen.
- The window name where the problem occurred. Press **Ctrl+W** to determine the window name, which you can find in the lower, left corner of your screen on the status bar. The window name starts with w_.
- What you were doing when the problem occurred.
- How you tried to solve the problem.
- Whether the problem is reproducible.

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