

# Model 640 NP CSO Manual

Optional Feature  
2700-1256-B1 Issue1

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## About This Manual

This manual describes how to configure the NP CSO software in a Mitel Networks NuPoint Messenger Model 640.

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## Who Should Read This Manual

This manual is intended for technicians and administrators who are responsible for configuring the NP CSO application on the NuPoint Messenger server.

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## How to Use This Manual

This manual contains detailed reference information, a list of tasks that you can perform, a collection of procedures for performing the tasks, and reader aids such as menu maps.

### Reference Chapters

Use the material in this manual for detailed inquiry into the installation and configuration of NP CSO. These chapters discuss how components are related, elaborate on concepts, give operational details, and contain all necessary tables and figures about configuration. Use the *Installation and Service Manual* appropriate for your platform for an actual server installation and the *Reference and Configuration Manual* for NuPoint Voice software configuration.

### Task Lists

Task lists follow Reference chapters that include procedures. Use the task list, starting with a principal task (shown in **boldface**), to install and configure NP CSO. Each task listed is described in more detail in a procedure. The task list is alphabetized, which helps most readers find the desired task (and procedure) quickly. No particular sequence of tasks is implied. The following example shows how a task list is organized:

### Procedures

Procedures follow the task list in the Reference chapter. Follow the steps in the procedures (CPs) to accomplish the desired tasks. Readers familiar with a NuPoint Messenger server can use the CPs as a checklist if desired, while readers new to a NuPoint Messenger server can use CPs for step-by-step instructions.

A reference line in each CP contains pointers, when necessary, to supplemental information such as another procedure, another manual, a technical reference, or a menu map.

Each CP is numbered for document identification and referencing; numbering does not indicate a sequence of performance. A numerical list of all CPs in this manual is also provided. It gives each CP's title, Chapter number, and which other procedures either call it or are called by it.

### Menu Maps and Other Navigation Aids

Most of the documents in the NuPoint Messenger document library have menu maps. You can refer to these document navigation aids at any point to help you reach a menu.

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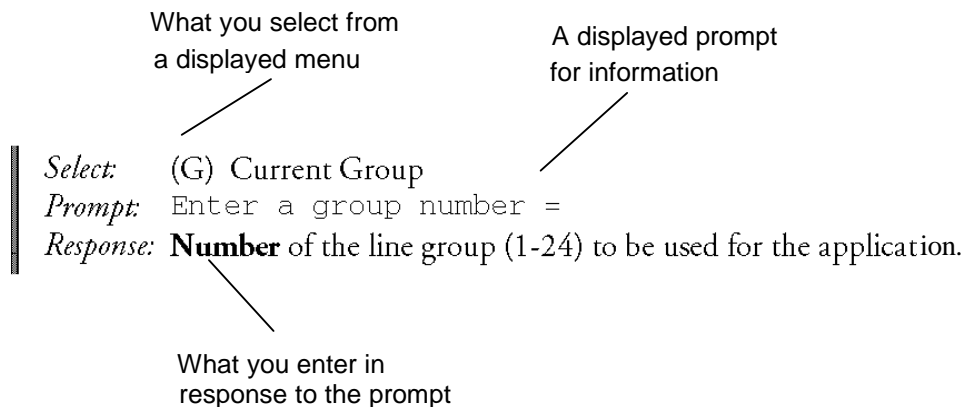
## Conventions Used in This Manual

The procedures in this manual use the following conventions to describe how you enter NP CSO configuration information and how information is displayed on the server console:

**Press Enter** Press the **Enter** key. For example, “Press **Enter** if the current number is correct.” On some keyboards, this key is labeled “Return” or has a return arrow (↵) on it.

**Enter** Type the text shown, then press the **Enter** key. For example, “Enter the line **number** (1-24)” means type a number from 1 through 24, and then press the **Enter** key.

**bold** Words or characters in bold type indicate either a value to be entered by you exactly as shown or, when used to indicate a variable entry, describe the type of value to be supplied by you. See example above.



**Note:** Unless otherwise stated, press **Enter** after each response you enter.

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## Reader Advisories

Reader advisories used in this manual are shown below.

**Note:** Information especially useful in relation to this procedure.



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### CAUTION!

Information that helps you prevent equipment or software damage.



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### CAUTION!

Information that helps you avoid electrostatic discharge (ESD) damage to the equipment.

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**WARNING!**

Information that helps you prevent an interruption to telecommunications traffic.

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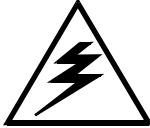


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**WARNING!**

A hazard that can cause you personal injury.

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**DANGER!**

Warns of a condition that could severely injure or kill you.

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## Before You Start

This manual assumes that you are familiar with using a console and keyboard. This section describes how to use the NuPoint Messenger server effectively.

## Console Tips and Techniques

The tips and techniques offered in the following paragraphs can make configuration entry sessions at the NuPoint Messenger server console more productive.

### Viewing Menus

- When you finish entering a value for a parameter, the server displays an abbreviated form of the current menu, called the “short menu.” To view the complete current menu when a short menu is displayed, just press **Enter**.
- To return to the Main Menu from any NuPoint Voice application configuration menu, press **X** (Exit), until the Main Menu appears.

### Accepting Defaults

- To accept a default displayed in a *prompt*, just press **Enter**.
- To accept a default displayed in a *menu*, no action is necessary.

### Avoiding Automatic Exit



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**CAUTION!**

The NuPoint Messenger server “times out” after 15 minutes. This means that if you do not enter anything at the console for 15 minutes, the server automatically exits from the current program. When this happens, all work that has not been saved on the disk is lost.

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To avoid being timed out and losing your work, follow these steps:

1. When you need time to think, write down the name of the current menu.
2. Exit to the (server) Main Menu.
3. When you want to continue your work, enter the appropriate menu options to regain your place.

If you find that the NuPoint Messenger server has timed out, follow the steps below. If your screen is blank, press any key to reactivate the screen and then continue with these steps.

1. Press any key to start the login sequence.
2. Enter your user ID and password (if requested).
3. Starting from the Main Menu, enter menu options to proceed to the menu from which the server timed out.
4. Reenter data as needed to regain lost work.

### Quitting an Entry Session

At any point during entry of offline or online parameters, you can quit. Quitting discards all parameter entries you have made and leaves the configuration the way it was before you started entering parameters.

To quit from the NuPoint Voice Configuration Offline or Online Menu:

*Select:* (Q) Quit -- Forget Changes  
*Prompt:* Quit and forget changes? (y/n) =  
*Response:* **Y** to return to the NuPoint Voice Configuration Main Menu.

### Shortcut Commands

You can use the **Ctrl** (Control) key or the / (slash) key while simultaneously pressing another key to execute shortcut commands at a NuPoint Messenger server console.

To do this...	Type...
Activate a timed-out console.	any key
From the offline or online menus, or FCOS, LCOS, GCOS menus, return to the NuPoint Voice Configuration Menu and save any entries.	<b>/X</b>
From the offline or online menus, or FCOS, LCOS, GCOS menus, return to the NuPoint Voice Configuration Menu without saving any entries.	<b>/Q Y</b>
Stop scrolling a displayed report.	<b>Ctrl-S</b>
Resume scrolling a displayed report.	<b>Ctrl-Q</b>
Return to the NuPoint Voice application when a # or \$ prompt is displayed.	<b>Ctrl-D</b> or type <i>exit</i>

## 1 Product Description

NP CSO (CSO) is an optional feature that uses both hardware and software to allow a Model 640 to continue to provide service during maintenance operations, software resource failures, and hardware failures. The unaffected modules and their respective line cards continue to process calls and allow users to record and retrieve information.

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### Functional Overview

NP CSO is based on the idea of distributed redundancy. Each critical hardware component and

software resource is duplicated in a separate part of the Model 640 server. Should a hardware component or software resource fail, the duplicate item can take over its functions. A Model 640 server with CSO can maintain call processing:

- When a component fails, such as a disk or line card
- When a module fails
- When a system process fails
- When a module process fails
- During a hardware replacement

Some component failures, such as a disk, have no impact on call processing. Other failures, such as a line card, affect only those calls on that component at the time of failure. If the module that is running system-wide resources fails, a standby module will take over the resources in 10 to 40 seconds. Most callers will not notice any interruption to service during that time.

### Hardware Architecture

NP CSO can only be enabled on Model 640 servers equipped with the following hardware:

- Two, three, or four modules
- Multiple SCSI buses
- Redundant Disks
- Separate CPU assembly and storage assembly power supplies
- Redundant Q-Net cards

The distributed hardware redundancy means that there is no single point of failure that could bring down the entire server. Figure 1-1 shows some of the redundant hardware components in a Model 640 server with CSO.

#### Figure 1-1 Distributed Hardware Redundancy

For more information on CSO hardware architecture and system response to hardware outages, see Chapter 2.

### Software Architecture

Software resources are duplicated in the system in much the same way as hardware components. System-wide resources (those shared by all modules in the Model 640 server) execute on one module while a hot-standby copy is kept current on another module. Should the first module fail, control is passed to the standby resources.

Module resources (those unique to each module) exist in each module and are not duplicated. Should a module resource fail and not restart, call processing is stopped on that module but continues on all other modules. Figure 1-2 illustrates how software resources are duplicated in a CSO system.

#### Figure 1-2 Distributed Software Redundancy

For more information on CSO software architecture and system response to software outages,

see Chapter 2.

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## The CSO I/O Module

The NP CSO Input/Output (CSO I/O) Module is an optional hardware module that becomes the connection point between the Model 640 server and other equipment such as a telephone switch, console, or modem. Figure 1-3 shows how connections are distributed from an I/O module to the server modules.

**Figure 1-3 I/O Module Connection Block Diagram**

The CSO I/O module performs two functions:

- Acts like a large A/B switch to move serial connections from one module to another. This allows the console, modem, and any serial integration links to always be connected to a module that is in service.
- Makes out-of-service loop start ports on the NuPoint Messenger server appear busy to the switch so that calls are not connected to those ports. Other telephony interfaces do not require the CSO I/O for this feature and do not require connection through the CSO I/O.

The CSO I/O module has redundant power sources and maintains all connections during resets and power outages. See Chapter 3 for detailed information on the CSO I/O module.

**Note:** You can install the NP CSO optional feature in two ways: software only, or software and the I/O module. Without the I/O module the system cannot switch serial ports or busy out phone lines, but it does provide redundant hardware and software tasks for maximum uptime.

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## Continuous Integrations

Many of the telephone switch integration optional features can take advantage of NP CSO software and hardware. The integration stays in service on all available phone ports, even if only one server module is functioning.

All inband and DID integrations can work with just the CSO software, or with the software and the I/O module. With just the software, the integration takes advantage of the CSO distributed software redundancy and stays in service on all functioning modules. The I/O module provides the added feature that any phone ports on a server module that goes out of service are busied out to the switch. See the *Enhanced Inband Integration Manual* for more information.

The Enhanced SMDI integration can also take advantage of the CSO features, but it requires the I/O module. In addition to the ability to busy out phone ports, the I/O module is able to switch the integration serial link from server module 1 to module 2, thus ensuring that integration data reaches the NuPoint Messenger server even if one of the modules goes out of service.

Most switches that support the SMDI integration protocol can use the Enhanced SMDI Integration optional feature. See the *Enhanced SMDI Integration Manual* for more information.

## 2 Hardware and Software Fault Tolerance

This chapter discusses what actions are taken by a Model 640 Server with the NP CSO optional feature when it encounters a hardware outage or software failure caused by either human intervention or an error condition.

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### Hardware Outages

The level of impact to users due to a hardware outage depends on the type of component experiencing the problem. Any type of outage triggers an alarm and causes a message to be put in the error log.

#### Power Supply

Each CPU assembly and storage assembly has its own power supply. Should the power supply for a CPU assembly be taken out of service, that CPU assembly and its components will stop functioning. See *CPU assembly*, below. Should the power supply for a storage assembly fail, all drives in the storage assembly will be unavailable. See *Disk, Storage Assembly, or SCSI Bus*, below. Service on other CPU assemblies and storage assemblies is not affected.

#### Disk Drive, Storage Assembly, or SCSI Bus

A NuPoint Messenger server Model 640 with NP CSO must have disk redundancy. Each primary disk must have a mirror copy located on another SCSI bus in another storage assembly. Because of this distributed redundancy, if a disk fails there is no impact to users, since the duplicate disk can still provide access to the same information. Likewise, if an entire storage assembly or SCSI bus fails, the redundant disks on other buses are still available to store and retrieve information.

#### CPU Assembly or CPU Card

An outage of a CPU card or an entire CPU assembly causes the loss of all transactions currently in progress on cards in that assembly: call session, fax sessions, and Ethernet sessions are all lost. All other modules continue to function and process calls.

Line groups in CSO systems should be spread across multiple modules so that if a CPU assembly is taken out of service, the ports in the line group in other modules can continue to handle calls for that line group.

See *Software Outages*, below, for information on what happens to software processes when a CPU assembly or CPU fails.

#### Line Card

All line cards in NuPoint Messenger servers function independently. An outage on one port or an entire line card only affects calls on that port or card. All other ports are still available to handle calls.

See the CSO I/O module chapter for information on making out-of-service loop start ports appear



busy to the switch.

## Other Cards

Like line cards, the loss of any other card affects only processes on that card. If a fax card goes out of service, any fax transactions in progress are lost and it is not available for any further transactions. Critical cards, such as Q-Net cards, are duplicated in each module so that communications with other modules are not lost should one card experience problems.

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## Software Outages

Software resources (or tasks) fall into two categories: tasks that are shared by all modules in the system, and tasks that run independently on each module.

## System-Wide Resources

System-wide resources are tasks that control activities that must be coordinated across the entire system, such as new speech allocation and mailbox account access. System-wide tasks run on only one module and are accessed by the other modules via the Q-Net connections.

Some system-wide resources manage data that is constantly updated. These resources execute on one module while a hot-standby copy is kept current on another module in case of failure. If the CSO software detects that one of these active resources has gone away it attempts to restart the resource. If it cannot restart the resource, control passes to the standby resource on another module.

Other system-wide tasks control various transactions and processes, but do not manage or store any data. If one of these resources fails and cannot be restarted, the CSO software starts the resource on another module.

The system administrator can configure which modules should be used for system-wide resources. If the CSO I/O module is installed, only those modules connected to the I/O module should run system-wide resources. If the CSO I/O module is not installed, all modules can be candidates for running system-wide resources.

## Module Resources

Module resources exist in each module and handle tasks within modules, such as call requests by line cards. If the CSO software detects that a module resource has gone away, it will attempt to restart the resource three times. If the failed resource is critical to module operation and does not restart within a predefined period of time, the module is reset. If several module resources fail at the same time, the module may reset immediately. If the module resets more than three times within a predefined period of time, it is removed from service.

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## Configuration Task List

### Configure NP CSO

Define CSO Floating Modules -----CP 5410

## CP 5410 Define CSO Floating Modules

This procedure provides instructions for setting which Model 640 modules are available for running system-wide software tasks. If the module running the tasks is taken out of service, the tasks "float" to one of the other modules defined here.



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### WARNING!

This process causes the system to automatically shut down and reset resulting in an interruption to call processing. It is recommended that you perform this procedure during periods of low call traffic.

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### Procedure Steps

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1. Reach the NuPoint Voice Configuration Main Menu, then go to the Floating Modules Menu.  
*Reference: Menu Map 13*
2. Enter the modules available for continuous system operation.  
*Select:* (D) Define Floating Modules  
*Prompt:* Changing the Floating Modules will cause the system to shutdown and reboot automatically. If you wish to change the Floating Modules and reboot the system type "float".  
*Response:* float  
*Prompt:* Enter modules that are available for floating  
*Response:* Enter **a** for all modules, or the **number(s)** of the modules, separated by commas. Do not enter any spaces.  
If you are using an ESMDI integration with the CSO I/O module, set the floating modules to 1 and 2.  
*Prompt:* Changing the Float Modules to: *n*  
Type "change" to confirm and reboot the system.  
*Response:* change  
*n* represents the module numbers entered above.
3. The system automatically shuts down and reboots, then continues with normal operation.
4. Verify the settings by reaching the NuPoint Voice Configuration Main Menu, then going to the Floating Modules Menu again.  
*Reference: Menu Map 13*
5. Choose to view the floating modules.  
Where *n* equals a module number.

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## 3 CSO I/O Module Hardware

The NP CSO Input/Output module is the common point on the Model 640 for all major serial datalink integrations, serial port peripheral equipment (modems, printers, serial consoles), and loop start analog voice ports that utilize the busy out condition. It performs like a large A/B box for data connections, switching them from one server module to another as required. It is primarily a pass-through for voice connections, except that when a voice port is out of service, the I/O module makes it appear busy to the switch so that calls are not routed to that port. The voice

port is routed through the CSO I/O only if it is a loop start connection using the Busy Out feature. Otherwise, all voice ports are directly connected to the Model 640 modules.

**Note:** The CSO I/O module is optional for Model 640 servers.

Figure 3-1 shows the CSO I/O module installed in a standard rack.

**Figure 3-1 CSO I/O Module**

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### I/O Module Components

The I/O module contains some or all of the following components:

- One Primary Control Card (PCC)
- Up to six Serial Interface Cards (SICs)
- Up to four Busy Out Cards (BOCs)

These cards are plugged into several backplanes that route power and data and provide connections at the rear panel of the module. Card locations are slot specific, as shown in Figure 3-2.

**Figure 3-2 Location of Cards in CSO I/O Module**

All plug-in cards can be inserted and removed while the power is on. In the case of a power failure, all serial connections routed through the module remain intact and all talk paths through the Busy Out Cards remain open (non-busy).

### Primary Control Card

The PCC is the command interface between the Model 640 Server modules and the I/O module. It has four command ports that connect to each of the server modules for receiving commands and sending status information. Additionally, the PCC has the following connectors:

- A “one-of-four” serial console port switch (DB-15)
- A “one-of-four” modem port switch (RJ-11)
- A “one-of-four” keyboard port switch (DIN)  
(currently not supported)
- Two “one-of-two” serial port switches (DB-9)

Each of these port switches can move a connection between the server modules. For example, the console switch port allows a single serial console to be connected to any one of up to four server modules without physically moving the connection. Figure 3-3 shows the connections between the PCC and Model 640 Server modules.

**Figure 3-3 Primary Control Card Connections**

The PCC has eight green LEDs on the front bezel that light in sequence to indicate that the PCC is functioning.

## Serial Interface Cards

The Serial Interface Cards (SICs) are similar in function to the serial port switches on the PCC. The I/O module can accommodate up to six SICs, and each SIC can switch eight serial ports between two server modules. All eight serial ports on a SIC are routed to a serial ports module via a special octopus cable with a DB-62F connector. The serial connections to the outside world are via an octopus cable that has a single DB-62M connection on one end and eight DB-25 connectors on the other end. Figure 3-4 shows the connections between a SIC and Model 640 modules.

**Figure 3-4 Serial Interface Card Connections**

## Busy Out Cards

Busy Out Cards (BOCs) prevent calls from being routed to Model 640 Server phone ports that are out of service. BOCs can function in either of two modes: a PBX passthrough mode and a CO “make busy line” mode. These cards are only used with analog loop start connections using the Busy Out mode.

In the PBX passthrough mode the BOCs serve as passthroughs for all telephone connections to the server modules. If any module goes out of service, either due to a fault or if the system administrator removes it from service, the server module can send a command to the BOC to apply a 110 Ohm load across the lines to make the ports appear busy to the switch. Figure 3-5 shows PBX mode BOC connections.

**Figure 3-5 PBX Mode Busy Out Card Connections**

The BOCs do not switch telephone connections like the PCC and SICs switch serial connections. Rather, the lines in a line group are routed through the BOC backplane to different Model 640 module patch panels. For example, the first half of the lines in a hunt group are cabled to module one and the second half of the lines are cabled to module two through the CSO I/O. Should one of the modules be out of service, the line group can still function with reduced capacity. The BOCs will make the out-of-service ports appear busy to the switch, so that it will not wait, endlessly ringing on an out-of-service port. Instead, the PBX will rapidly skip past the busied out ports and the call will be answered by the other in-service module.

You also can use the PBX passthrough mode by wiring the Busy Out Cards in parallel with the lines to the Model 640 modules, as shown in Figure 3-6. The BOC can still apply a load to the lines such that the switch sees them as busy.

**Figure 3-6 PBX Mode Parallel Connections**

In the CO “make busy line” mode, a single line (pair) from the CO is connected to one port on the BOC. This line is called a “make busy line” or a “scan port circuit.” Programming in the switch associates that line with all of the lines connected to a single Model 640 module. By placing a load across the “make busy” line, the Model 640 can signal the CO to busy out all of the associated lines connected to the module.

Figure 3-7 shows CO mode BOC connections.

**Figure 3-7 CO Mode Busy Out Card Connections**

The I/O module can house up to four Busy Out Cards, and each BOC has 24 ports, for a total capacity of 96 ports.

### I/O Module Backplanes

The I/O module can have as many as four separate backplanes. Each backplane accepts specific cards inside the module and provides connections at the back of the module.

- The upper backplane connects to PCC, Secondary Control Card (currently not available) and BOCs. It brings the card signals to the connectors on the back panel of the I/O module.
- The lower backplane routes power, data, and command signals to all of the plug-in cards.
- The optional serial backplanes (up to two) are used only with the SICs and provide the connectors required by the octopus serial cables.

Figure 3-8 shows all CSO I/O Module connectors.

Both the upper backplane and serial backplanes have blocks of jumpers that reroute serial connections during card hot-swap. The jumpers also tell newly-installed cards how to configure themselves.

Power for the I/O module comes into the lower backplane through four DB-15 connectors, each connected to one of the Model 640 Server modules. Having multiple power sources allows the I/O module to stay in service regardless of which server modules are taken out of service, and it can function with only a single power source.

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### Connections From the Model 640 to the I/O Module

All connections to the I/O module are made at the connector panel on the back of the module. Table 3-1 shows the serial port connections from the Model 640 modules.

Table 3-1 Model 640 Serial Connections to the I/O Module		
Model 640 Connector	I/O Module Connector	Required Cables
Serial Console from modules 1 and 2	Serial Console/VGA	Two 9-pin male to 15-pin female cables to connect the server modules to the I/O module. One 15-pin male to 9-pin female cable to act as the switched console port.
Serial Port 2 from modules 1 and 2 (CPU card)	PCC Serial 1	Three 9-pin male to 9-pin female cables; two to connect the server modules and the I/O module, one to connect the I/O module to a printer or other serial peripheral.
Serial Port 3 from modules 1 and 2 (MCB)	PCC Serial 2	Three 9-pin male to 9-pin female cables; two to connect the server modules and the I/O module, one to connect the I/O module to a printer or other serial peripheral.
Serial Port 6 from modules 1, 2, 3, and 4 (MCB)	Control	Four 9-pin male to 9-pin female cables to connect the server modules to the I/O module, one cable for each server module.

Telephone connections are dependent on the type of switch environment:

- For PBX mode connections, the phone lines connect from the Model 640 modules to a patch panel or octopus cable, then to the I/O module, then on to the switch.
- For CO mode connections, the phone lines go directly from the switch to the line cards on the Model 640 server, and the “make busy” signal lines run from the switch to a BOC in the I/O module.

Figure 3-8 shows the rear of the CSO I/O module with all connectors labeled. Note that the numbering of the cards (BOC and SIC) is zero-based and the connections from the Model 640 modules are one-based.

**Figure 3-8 Rear of CSO I/O Module**

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## Card LEDs

The CSO I/O module constantly polls the plug-in cards for changes in status. If a card detects that jumpers have been applied (in order to do a hot swap of that card), the firmware takes that card out of service and turns on the yellow out-of-service LED. A newly-inserted card initially has its red error LED on. When the PCC detects and initializes the new card, the error LED is turned off and the yellow out-of-service LED is turned on. At this point, the CSO software on the model 640 loads the correct values into the new card's registers and waits for the jumpers (if any) to be removed before placing the card in service and turning off the yellow LED.

**Figure 3-9 I/O Module Card LEDs**

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## Installation Task List

### Installing CSO I/O Module Hardware

CSO I/O Module Installation -----CP 6400

### Replacing CSO I/O Cards

Busy Out Card (BOC) Replacement-----CP 6403

Primary Control Card (PCC) Replacement -----CP 6402

Serial Interface Card (SIC) Replacement -----CP 6404

### Mapping CSO I/O Connections

Define Busy Out Card to Port Mappings -----CP 8023

Define Serial Port Functions-----CP 6412

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## CP 6400 CSO I/O Module Installation

This procedure describes how to install the NP CSO Input/Output Module. The module can be installed at the same time as a new Model 640, or as a later addition to an existing system.

**Note:** The length of the cables used to connect the Model 640 modules to the CSO I/O module depends on the configuration of the Model 640 (horizontal or vertical). Find the appropriate cables for your system in Table 1.

**Procedure Steps**

**Install the NuPoint Voice Modules**

1. If you are installing a new Model 640 server, install the NuPoint Voice modules by following the procedures in the *Model 640 Installation and Service Manual*. Do not install the serial console, modem, serial connections or phonelines.
  - Two-module system
  - Three-module system
  - Four-module system

**Inventory Cables**

2. Verify that you have the correct cables for your Model 640 configuration. Select cables using the following table (three module systems should use the specifications for a four module system):

<b>Table 1 Cables for Model 640 to CSO I/O Module Connection</b>				
<b>Description of Cables</b>	<b>Cables Required per Model 640 Configuration</b>			
	<b>Horiz Two Module</b>	<b>Vertical Four Module</b>	<b>Vertical Two Module</b>	
6' DB-9 male to DB-9 female	6	5	4	4
9' DB-9 male to DB-9 female	2	1	4	2
6' DB-9 male to HD-15 female	2	2	1	1
9' DB-9 male to HD-15 female	0	0	1	1
4' DB-15 male to DB-15 female	2	1	2	0
8' DB-15 male to DB-15 female	2	1	2	2

Set the other cables aside for use as spares.

3. Install the CSO I/O module in the rack. Mount it at the same height as the lowest Model 640 module.

**Figure 1 CSO I/O Module Location in Rack**

**Install Module 1 Cables**

4. Connect the cables from module 1 to the CSO I/O module. Connector and cable information is listed in Table 2 for both horizontal and vertical configurations. Refer to Figure 2 for details on how to connect the cables.

<b>Table 2 Module 1 Connections</b>		
<b>Connector on Model 640</b>	<b>Connector on CSO I/O Module</b>	<b>Cable Description</b>

Serial Port 2	PCC, below Ser 1, connect to Mod 1	6' DB-9 male to DB-9 female
Serial Port 3	PCC, below Ser 2, connect to Mod 1	6' DB-9 male to DB-9 female
Serial Port 6	Control 1 (Cont 1)	6' DB-9 male to DB-9 female
Serial Console Port 1	Serial Console (Con 1)	6' DB-9 male to HD-15 female

**Figure 2 Install Module 1 Cables**

**Install Module 2 Cables**

5. Connect the cables from module 2 to the CSO I/O module. Connector and cable information is listed in Table 3 for both horizontal and vertical configurations. Refer to Figure 3 for details on how to connect the cables.

Table 3 Module 2 Connections			
Connector on Model 640	Connector on CSO I/O Module	Cable Description	Length
Serial Port 2	PCC, below Ser 1, connect to Mod 2	DB-9 male to DB-9 female	6' (Horiz) 9' (Vert)
Serial Port 3	PCC, below Ser 2, connect to Mod 2	DB-9 male to DB-9 female	6' (Horiz) 9' (Vert)
Serial Port 6	Control 2 (Cont 2)	DB-9 male to DB-9 female	6' (Horiz) 9' (Vert)
Serial Console Port	Serial Console (Con 2)	DB-9 male to HD-15 female	6' (Horiz) 9' (Vert)

**Figure 3 Install Module 2 Cables**

**Install Module 3 Cables**

6. Connect the cables from module 3 to the CSO I/O module. Connector and cable information is listed in Table 4 for both horizontal and vertical configurations. Refer to Figure 4 for details on how to connect the cables.

Table 4 Module 3 Connections			
Connector on Model 640	Connector on CSO I/O Module	Description	Length
Serial Console Port	Serial Console (Con 3)	DB-9 male to HD-15 female	9' (Horiz) 6' (Vert)
Serial Port 6	Control 3 (Cont 3)	DB-9 male to DB-9 female	9' (Horiz) 6' (Vert)

**Figure 4 Install Module 3 Cables**

**Install Module 4 Cables**

7. Connect the cables from module 4 to the CSO I/O module. Connector and cable information is listed in Table 5 for both horizontal and vertical configurations. Refer to Figure 5 for details on how to connect the cables.

Table 5 Module 4 Connections			
NuPoint Voice Connector	CSO I/O Module Connector	Description	Length



Serial Console Port	Serial Console (Con 4)	DB-9 male to HD-15 female	9'
Serial Port 6	Control 4 (Cont 4)	DB-9 male to DB-9 female	9'

**Figure 5 Install Module 4 Cables**

Install the Power Cables

8. Install the power cables from each module to the CSO I/O module. Connector and cable information is listed in Table 6. Refer to Figure 6 for details on how to connect the cables.

<b>Table 6 Power Cables Connections</b>			
<b>NuPoint Voice Connector</b>	<b>CSO I/O Module Connector</b>	<b>Description</b>	<b>Length</b>
Module 1	Power 1	DB-15 male to DB-15 female	8' (Horiz) 4' (Vert)
Module 2	Power 2	DB-15 male to DB-15 female	8' (Horiz) 4' (Vert)
Module 3	Power 3	DB-15 male to DB-15 female	12' (Horiz) 8' (Vert)
Module 4	Power 4	DB-15 male to DB-15 female	12' (Horiz) 8' (Vert)

**Figure 6 Install Power Cables**

Connect Common Hardware to CSO I/O Module

9. If your system will have a modem, connect it to the CSO I/O module serial port 1 common connection. The connector is labeled "Ser 1" at the top right of the module, as shown in Figure 7.

**Figure 7 I/O Module Modem Connections**

10. If required, connect a second serial device to the CSO I/O module serial port 2 common connection. The connector is labeled "Ser 2" at the top right of the module.
11. Connect your console to the CSO I/O module, using the connector labeled "Console" with an arrow. Use the 15-pin (male) to 9-pin (female) cable supplied.

Connect Phonelines

12. If your CSO I/O Module does not contain Busy Out Cards, connect phone lines directly from the switch or MDF to the Model 640 line cards and skip to step 16.
13. Busy Out Card connections are made with 25-pair cables and RJ-21 connectors. If you are configuring the system for PBX mode, connect 2-pair RJ-45 connectors from the Model 640 line cards to the patch panel above the I/O module. Note that each cable carries two phone ports.

If you do not have a patch panel, connect the RJ-45 connectors on the octopus cable to the Model 640 line cards and connect the RJ-21 connector to the BOC

adapter cable (RJ-21M to RJ-21F).

Connect the patch panel to the I/O module with an RJ-21F-to-RJ-21M cable. Plug these cables into the BOC IN connectors on the rear of the module as shown in Figure 8.

Figure 9 shows the alternate parallel connection method for PBX mode.

**Figure 8                      BOC Cable Connections**

**Figure 9                      BOC Parallel Connections**

14. Run 25-pair cables from the BOC OUT connectors on the CSO I/O Module to the switch. Make careful notes indicating which switch extension is connected to each BOC card/port and Model 640 line card port. You will need this information when configuring the NuPoint Voice software. The pinouts for the BOC backplane connectors are shown in Figure 10.

**Figure 10                    BOC Backplane Connector Pinouts**

15. If you are configuring the system for CO mode, cross-connect phone lines from the switch to the Model 640 line cards using RJ-45 connectors. Note that each cable and RJ-45 connector carries two phone ports.

Connect the "make busy" signal lines from the switch to the RJ-21 connectors on the rear of the I/O module. Make careful notes indicating which switch line is connected to each BOC port.

## Configure Software

16. Define the modules available as system task modules.  
*Reference: CP 5410, Ch. 2*
17. Define the serial port functions.  
*Reference: CP 6412*
18. If your CSO I/O Module contains Busy Out Cards, define the card mappings.  
*Reference: CP 8023*

## Test the System

19. Reach the NP CSO Administration Menu from the System Maintenance Additional Options Menu.  
*Reference: Menu Map 13*
20. Move the tasks from one module to the other to verify that the I/O module is working.

*Select:*            (F) Manual Switchover  
*Prompt:*        WARNING!!!! This shuts down the Integration on the  
                         system for up to 10 sec.  
                         The Integration is currently on module *n*.

*Response:*        Do you want to switchover to module *n* (y/N) ?  
                         Enter **Y** to switch the integration.  
                         You will lose your console session when control switches to the other  
                         module. You must log in again on the new control module.

21. Verify that all connections are switched from one module to the other and that the

system is functioning normally.

---

## CP 6403 Busy Out Card (BOC) Replacement

This procedure describes how to replace a Busy Out Card (BOC) in the NP CSO Input/Output (CSO I/O) Module. All phone line connections through the BOC will remain open (non-busy) during the replacement procedure.

### Procedure Steps

---

#### Remove the BOC

1. Put on a grounded wrist strap and attach it to the rack. Doing so protects the component from electrostatic discharge.
2. Remove the the front panel of the I/O module.
3. Use a screwdriver to unfasten the screw that holds the BOC to the card cage.
4. Rotate the card release levers and grasp them firmly, then pull the card straight out, as shown in Figure 1.

#### Figure 1 Removing a Card From The I/O Module

5. Place the card on an anti-static bag.

#### Install the New BOC

6. Pick up the new BOC. Hold it with the connectors facing away from you.
7. Identify the correct position in the card cage for the card. The BOC must be installed in slot 4, 5, 6, or 7.
8. Insert the card into the alignment groove on the top and bottom of the card cage.
9. Slide the card along this groove until the connectors are touching the corresponding connectors on the backplane.
10. Be sure that the connectors are properly aligned, then press firmly on the BOC ejector keys until the connectors are fully seated. The yellow LED should come on indicating that the card is in place but out of service.
11. Tighten the screw that holds the card in the card cage.
12. Replace the front panel of the I/O module.
13. Verify that the card is initialized and is in service (the yellow LED is off).

---

## CP 6402 Primary Control card (PCC) Replacement

This procedure describes how to replace the Primary Control Card (PCC) in the NP CSO Input/Output (CSO I/O) Module. Connections through the PCC will remain connected to a specific module during the replacement procedure.

## Procedure Steps

---

### Prepare the CSO I/O Module

1. Reach the System Maintenance Additional Options Menu and go to the NP CSO Administration Menu. Note which module (node) is running the CSOIO tasks.  
*Reference: Menu Map 13*
2. Remove the back panel from the I/O module.
3. On the back of the CSO I/O module, locate the PCC jumpers near the upper right corner. The jumpers are labeled 33-36 in Figure 1.

#### Figure 1 PCC Connectors on CSO I/O Module, Rear View

4. Install the PCC jumper boards so that the PCC connections are fixed to the module determined in step 1, as shown in **Figure 2**. Note that the jumper boards are labeled to show you which way to install them. Take care to align them carefully over the pins.
  - Tasks currently on module 1 "Module 1 Up ↑"      Install Jumper Boards with pointing up
  - Tasks currently on module 2 "Module 2 Up ↑"      Install Jumper Boards with pointing up

**Note:** You do not need to use jumper boards if the system is down.

#### Figure 2 Jumper Board Installation

5. Verify the yellow out of service LED lights on the PCC. This indicates the card has been jumpered to be taken out of service.

### Remove the PCC

6. Put on a grounded wrist strap and attach it to the rack. Doing so protects the component from electrostatic discharge.
7. Remove the front panel of the I/O module.
8. Use a screwdriver to unfasten the screw that holds the PCC to the card cage.
9. Rotate the card release levers and grasp them firmly, then pull the card straight out, as shown in Figure 3.

#### Figure 3 Removing a Card From The I/O Module

10. Place the card on an anti-static bag.

### Install the New PCC

11. Pick up the new PCC. Hold it with the connector facing away from you.
12. Identify the correct position in the card cage for the card. The PCC must be installed in slot 0.
13. Insert the card into the alignment groove on the top and bottom of the card cage.
14. Slide the card along this groove until the connectors are touching the corresponding connectors on the backplane.
15. Be sure that the connectors are properly aligned, then press firmly on the PCC

release levers until the connectors are fully seated. The yellow LED should come on indicating that the card is in place but out of service.

16. Tighten the screw that holds the card in the card cage.
17. Replace the front panel of the I/O module.

#### Return System to Normal Operation

18. Remove the PCC jumper boards by rocking them gently from side to side while pulling. Do not try to pull the board off suddenly, as you could bend pins on the backplane.
19. Verify that the card is initialized and is in service (the yellow LED is off).
20. If not already there, reach the NP CSO Administration Menu from the System Maintenance Additional Options Menu.  
*Reference: Menu Map 13*
21. Move the tasks controlled by the PCC to the other module to verify the PCC is working.

*Select:* (F) Manual Switchover  
*Prompt:* WARNING!!!! This shuts down the Integration on the system for up to 10 sec.  
The Integration is currently on module *n*.

*Response:* Do you want to switchover to module *n* (y/N) ?  
Enter **Y** to switch the integration.  
You will lose your console session when control switches to the other module. You must log in again on the new control module.

22. Verify that all connections are switched from one module to the other and that the system is functioning normally.

---

## CP 6404 Serial Interface Card (SIC) Replacement

This procedure describes how to replace the Serial Interface Card (SIC) in the NP CSO Input/Output (CSO I/O) Module. Serial connections through the SIC remain connected to a specific module during the replacement procedure.

### Procedure Steps

---

#### Prepare the CSO I/O Module

1. Reach the System Maintenance Additional Options Menu and go to the NP CSO Administration Menu. Note which module (node) is running the CSOIO tasks.  
*Reference: Menu Map 13*
2. Remove the back panel from the I/O module.
3. On the back of the CSO I/O module, locate the vertical rows of SIC jumpers on the serial backplanes that correspond to the card the you are replacing. Figure 1 identifies the jumper blocks for each SIC.

#### Figure 1 CSO I/O Module SIC Jumper Blocks

4. Install the SIC jumper board so that the serial connections are fixed to the module

determined in step 1. Note that the jumper board is labeled to show you which way to install it. Take care to align it carefully over the pins, as shown in Figure 2.

### Figure 2 Jumper Board Installation

5. Verify the yellow out of service LED lights on the SIC. This indicates the card has been jumpered to be taken out of service.

### Remove the SIC

6. Put on a grounded wrist strap and attach it to the rack. Doing so protects the component from electrostatic discharge.
7. Remove the front panel of the I/O module.
8. Use a screwdriver to unfasten the screw that holds the SIC to the card cage.
9. Rotate the card release levers and grasp them firmly, then pull the card straight out, as shown in Figure 3.

### Figure 3 Removing a Card From The I/O Module

10. Place the card on an anti-static bag.

### Install the New SIC

11. Pick up the new SIC. Hold it with the connector facing away from you.
12. Identify the correct position in the card cage for the card. The SIC must be installed in slot 9, 10, 11, 14,15, or 16.
13. Insert the card into the alignment groove on the top and bottom of the card cage.
14. Slide the card along this groove until the connectors are touching the corresponding connectors on the backplane.
15. Be sure that the connectors are properly aligned, then press firmly on the SIC release levers until the connectors are fully seated. The yellow LED should come on indicating that the card is in place but out of service.
16. Tighten the screw that holds the card in the card cage.
17. Replace the front panel of the I/O module.

### Return System to Normal Operation

18. Remove the PCC jumper board by rocking it gently from side to side while pulling. Do not try to pull the board off suddenly, as you could bend pins on the backplane.
19. Verify that the card is initialized and is in service (the yellow LED is off).
20. If not already there, reach the NP CSO Administration Menu from the System Maintenance Additional Options Menu.  
*Reference: Menu Map 13*
21. Move the tasks controlled by the SIC to the other module to verify that the SIC is working.

```
Select: (F) Manual Switchover
Prompt: WARNING!!!! This shuts down the Integration on the
        system for up to 10 sec.
        The Integration is currently on module n.

        Do you want to switchover to module n (y/N) ?
```

- Response:* Enter **Y** to switch the integration.  
You will lose your console session when control switches to the other module. You must log in again on the new control module.
22. Verify that all connections are switched from one module to the other and that the system is functioning normally.

---

## CP 8023 Define Busy Out Card to Port Mappings

This procedure describes how to configure the Model 640 Server to associate voice ports with Busy Out Card (BOC) ports. In the event of a server module going offline, this mapping allows the server to signal the CSO I/O module to apply a load to the corresponding BOC ports to make the lines appear busy.

When you are using PBX mode mapping, you must map (connect) the voice ports from each server module to a contiguous range of ports on a single Busy Out Card. The ports from one server module cannot be connected to two BOCs, and they cannot be in two discrete groups.

When you are using CO mode mappings with Make Busy Lines from the CO, you can terminate a single Uniform Call Distributor (UCD) in more than one server module, but you must provide a Make Busy Line for each module and map each one separately. If a module is taken out of service, the server can use the appropriate Make Busy Line to signal the CO to busy out just the UCD lines on that module, leaving the other lines to carry traffic.

---

### Procedure Steps

1. Reach the NuPoint Voice Configuration Offline Menu, go to the CSOIO Integration Menu, and from there select the Busy Out Card Mapping Menu.

*Reference:* Menu Map 13

2. Select the mode that you want to use for BOC configuration.

*Select:* (E) Operational Environment (PBX or CO)

*Prompt:* Enter the operation mode PBX or CO

*Response:* **P** if you are connecting all phone lines through the BOC ports.

**C** if you are connecting all phone lines directly to the voice ports and one "make busy" line to a BOC port.

If you change modes (from CO to PBX or vice versa) the system prompts for a confirmation.

*Prompt:* This clears your previous PBX/CO map.

Type "clear" to continue with this process:

*Response:* clear

3. If you selected PBX mode, continue with step 4. If you selected CO mode, skip to step 9.

### PBX Mode Mappings

4. Select F to reach the PBX Busy Out Card Mapping Menu.

*Reference:* Menu Map 13

5. Select the server module for which you want to map ports.

*Select:* (D) VM module

*Prompt:* Enter the VM module

*Response:* The **number** (1-4) of the server module for which you want to map ports.

6. Select the BOC that the lines map to.

*Select:* (A) Current Busy Out Card number

*Prompt:* Enter the busy out card number

*Response:* The **number** (0-3) of the BOC that has phone lines connected to the server module from step 5.

7. Identify which BOC ports are connected to the server module.

*Select:* (B) First Busy Out Card port

*Prompt:* Enter the first busy out port

*Response:* The **number** (0-23) of the first port on the BOC that is connected to the server module from step 5.

*Select:* (C) Last Busy Out Card port

*Prompt:* Enter the last busy out port

*Response:* The **number** (0-23) of the last port on the BOC that is connected to the server module from step 5.

8. Repeat steps 5 through 7 for each server module that has ports connected to Busy Out Cards.

## CO Mode Mappings

9. Select F to reach the CO Busy Out Card Mapping Menu

*Reference:* Menu Map 13

10. Select the Busy Out Card and port that you want to use as a Busy Out Line to signal the CO.

*Select:* (A) Current Busy Out Card number

*Prompt:* Enter the busy out card number

*Response:* The **number** (0-3) of the BOC is connected to CO Busy Out Lines.

*Select:* (B) Busy Out Card port

*Prompt:* Enter the busy out port

*Response:* The **number** (0-23) of the port on the BOC that is connected to a CO Busy Out Line.

11. Identify the UCD in the CO that is associated with the Busy Out Line.

*Select:* (D) U.C.D. Group

*Prompt:* Enter the U.C.D. group

*Response:* The number of the UCD group in the switch that is associated with the Busy Out Line. This number is for information only; it is not used by the Model 640.

12. Identify the server module where the UCD lines terminate.

*Select:* (C) VM module

*Prompt:* Enter the VM module

*Response:* The **number** (1-4) of the server module where the UCD lines terminate.

13. Repeat steps 10 through 12 for each CO Make Busy Line.

14. Exit to the NuPoint Voice Configuration Offline Menu to save your changes.



## CP 6412 Define Serial Port Functions

This procedure describes how to assign functions to serial ports in a Model 640.

### Procedure Steps

---

1. Reach the System Maintenance Additional Options Menu, then go to the Console/Serial Port Setup Menu.

*Reference: Menu Map 13*

2. Select the module that has the serial ports that you want to define or change.

*Select:* (M) Change Current Module

*Prompt:* Module number?

*Response:* The **number** (1-4) of the module for which you want to define serial ports.

The system displays the current video and serial port assignments for the module.

3. Assign a function to a serial port.

*Select:* (A) Assign a type and name to a port

*Prompt:* Port (do not type the '/dev/')?

*Response:* The name of a serial port, for example ser1.

*Prompt:* Port Types Menu

*Response:* **T** for direct connect serial terminal

**M** for a modem port

**P** for a printer port

**I** for an integration port

*Prompt:* Port name?

*Response:* A name for the serial port, such as "console" or "modem."

The system displays the port settings that you have just made.

4. Repeat step 3 for each serial port on each module that you want to define.

5. Set the baud rate for each port.

*Select:* (S) Set port attributes

*Prompt:* Serial Port Attributes Menu

*Select:* (B) Set baud rate for a port

*Prompt:* Port name (do not type the '/dev/')?

*Response:* The identifier of a serial port that you have already assigned, such as ser1.

6. The system displays the baud rate menu. Select the appropriate baud rate for the device that you are connecting to the serial port.

7. Repeat steps 5 and 6 for each defined serial port.

8. Exit to the Console/Serial Port Setup Menu.

9. If you have assigned printers, specify the order for output redirection. This setting

controls the order in which devices appear when the system allows you to select a device for output, such as from a report.

*Select:* (R) Output redirection menu printer sequence

The system displays the current order of the available printers, followed by the Output Redirection Menu Printer Sequence

*Select:* (S) Change menu sequence

*Prompt:* Sequence changes are made by swapping pairs of items,  
or by swapping an item to an empty sequence number.  
First menu item number to swap?

*Response:* The sequence **number** (1-9) of the first printer that you want to move in the list.

*Prompt:* Second menu item number to swap?

*Response:* The sequence **number** (1-9) of the second printer that you want to move in the list, or an unused sequence number to move the item to the bottom of the list.

The system confirms the sequence change and returns you to the Console/Serial Port Setup Menu.

10. Exit to save your changes.

---

## 4 Adding and Replacing Components

This chapter contains procedures for adding and replacing components with the system online and processing calls. In order to do this, your Model 640 server must have:

- NP CSO software
- Multiple Modules
- Redundant Disks

If your system does not have the above three elements, you must make hardware changes with the system powered off. Instructions for those procedures are found in the *Model 640 Installation and Service Manual*.

---

### Adding and Replacing Components Task List

#### System Upgrades

Add an Active and Redundant Disk Pair -----CP 2139

#### NuPoint Voice Module Hardware Replacement

Alarm Monitor Power Supply (AMPS) Replacement

With the System Online-----CP 6407

Storage Assembly Power Supply Replacement With the System Online-----	CP 6408
CPU Card Replacement With the System Online-----	CP 6409
Hard Disk Replacement With the System Online -----	CP 2162
Line Card Replacement With the System Online-----	CP 2135
Q-Net Card Replacement With the System Online -----	CP 6410
Module Control Board (MCB) Replacement With the System Online-----	CP 6411

### System-Wide Procedures

Enable a Module -----	CP 7014
Update Disk Redundancy-----	CP 7015
Increase System Hours-----	CP 7021
Shut Down a Module -----	CP 7027

---

## CP 2139 Add an Active and Redundant Disk

This procedure describes how to add an active and redundant pair of disks with the NuPoint Messenger server online, processing calls. This procedure requires the system to have:

- NP CSO Optional Feature
- Redundant disks
- Multiple modules

If your system does not meet these requirements, follow the Offline Add Disk procedure (CP 2138) in your *Model 640 Installation and Service Manual*.

Be sure the Service Diskette, Module Enable Diskette, and all Optional Feature Diskettes contain the serial numbers for all disks in the system and the disks to be added.

**Note:** This capability is only supported by Release 6.0C and later.

### Procedure Steps

---

#### Before You Begin

1. Determine the bus locations for the new disks. Refer to TR 1919 for information on supported disk locations.  
*Reference: TR 1919*

#### Prepare the System

2. Reach the Hard Disk Utilities Menu, then go to the SCSI Status Menu.  
*Reference: Menu Map 8*
3. Verify that all disks are in sync.  
*Select:* (D) Display status of all SCSI Buses and disks.  
*Response:* System displays a report showing the status of all disks. Verify that all disks show the status as ENA. Press **Enter** to exit.
4. If any disk is out of sync with its redundant mate, update the redundancy.

*Reference: CP 7015*

### Install the Primary Disk

5. Remove the front cover of the disk storage assembly.
6. Remove the blank filler plate where you want to install the new primary disk.

**Note:** The slot determines the disk ID. That is, a disk installed in slot 0 has a disk ID of 0.

7. Fit the glides on the disk carrier into the grooves on the top and bottom of the storage assembly shelf and slide the hard disk subassembly in. Refer to Figure 1 for details.

### Figure 1 Hard Disk Installation

8. Use the ejector keys to seat the disk and tighten the captive screws.
9. Replace the storage assembly front cover.

### Configure the Disk

10. Reach the NuPoint Voice Hardware Configuration Menu, then go to the Disk Configuration Menu.

*Reference: Menu Map 12*

11. Add the active disk.

*Select:* (A) Add a disk  
*Prompt:* Please insert service disk into floppy drive, hit  
<RETURN> when ready.

*Response:* Insert the diskette and press **Enter**.

*Prompt:* Input a disk in the following range:  
n:n n:n n:n n:n  
Which Disk?

*Response:* n:n represents the bus and disk numbers of the disks available to be added. Enter the bus and disk number of the active disk that you just installed.

### 12. Confirm the configuration changes.

*Prompt:* Enter Y to confirm the change:

*Response:* Y if change is correct,  
N if changes are not correct and abort the process.

13. Increase the system hours.

*Reference: CP 7021*

### Install the Redundant Disk

14. Install the new redundant disk the same way you installed the primary disk in steps 5 through 9.

### Configure the Redundant Disk

15. Reach the Hardware Configuration Menu, then go to the Disk Configuration Menu.

*Reference: Menu Map 12*

16. Add the redundant disk.

*Select:* (M) Make a disk redundant  
*Prompt:* Please insert service disk into floppy drive, hit  
<RETURN> when ready.

- Response:* Insert the diskette and press **Enter**.
- Prompt:* Active Disk: Input a disk id in the following range:  
n:n n:n n:n n:n  
Which disk:
- Response:* n:n represents the bus and disk numbers of the disks currently installed in the system.  
Enter the **bus and disk number** of the active (primary) disk that you installed during the first half of this procedure.
- Prompt:* Redundant Disk: Input a disk in the following range:  
n:n n:n n:n n:n  
Which Disk?
- Response:* n:n represents the bus and disk numbers available to be added.  
Enter the **bus and disk number** of the redundant disk that you just installed.
17. Confirm the configuration changes.
- Prompt:* Enter **Y** to confirm the change:
- Response:* **Y** if change is correct,  
**N** if changes are not correct and abort the process.
18. Verify that all disks are in sync.
- Select:* (D) Display status of all SCSI Buses and disks.
- Response:* System displays a report showing the status of all disks. Verify that all disks show the status as ENA. Press **Enter** to exit.
19. If any disk is out of sync with its redundant mate, update the redundancy.  
*Reference:* CP 7015

---

## CP 6407 Alarm Monitor Power Supply Replacement with the System Online

This procedure describes how to replace an Alarm Monitor Power Supply (AMPS) with the NuPoint Messenger server online, processing calls. This procedure requires the system to have:

- NP CSO Software
- Redundant disks
- Multiple modules



---

### **WARNING!**

This procedure requires the CPU assembly to be shut down resulting in an interruption to call processing on the module. It is recommended that you perform this procedure during periods of low call traffic when the remaining modules can handle the required call volume.

---

### Procedure Steps

---

1. If the AMPS supply is still in operation, complete steps 2 through 6. Otherwise go to step 7.

#### Shutdown the CPU Assembly

2. Reach the System Maintenance Additional Options Menu and go to the NP CSO

Administration Menu. Note which module (node) is running the CSOIO tasks.

*Reference: Menu Map 12*

3. If the module running the CSOIO tasks is the one for which you will be replacing the AMPS supply, switch the tasks to the other module.

*Select:* (F) Manual Switchover

*Prompt:* WARNING!!!! This shuts down the Integration on the system for up to 10 sec.  
The Integration is currently on module n.

Do you want to switchover to module n (y/N) ?

*Response:* Enter **Y** to switch the integration.

You will lose your console session when control switches to the other module. You must login again on the new control module.

4. Reach the System Maintenance Menu, then go to the Module Maintenance Menu.

*Reference: Menu Map 12*

5. Shut down the CPU assembly.

*Select:* (D) Disable a Module

*Prompt:* Input a module id in the following range:  
n n n n  
Which Module?

*Response:* Enter the **number** of the CPU assembly that is powered by the AMPS to be replaced.

*Prompt:* Type "disable" to confirm your request:

*Response:* disable

The specified module automatically resets itself and stays in an out-of-service mode.

6. Turn off the power to the CPU assembly.

#### Replace the Power Supply

7. Put on a grounded wrist strap and attach it to the rack. Doing so protects the component from electrostatic discharge.
8. Follow the steps to physically remove and replace the AMPS in your *Model 640 Installation and Service Manual*. You do not need to turn off power to the rest of the NuPoint Messenger server.

#### Restart the CPU Assembly

9. Turn on the new power supply.
10. Reach the System Maintenance Menu, then go to the Host Maintenance Menu.

*Reference: Menu Map 12*

11. Enable the CPU assembly.

*Select:* (E) Enable Module

*Prompt:* Input a Module id in the following range:  
n n n n  
Which Module?

*Response:* Enter the **number** of the CPU assembly to be enabled.

The CPU assembly resets itself and returns to normal operation.

## CP 6408 Storage Assembly Power Supply Replacement with the System Online

This procedure describes how to replace a storage assembly power supply with the server online, processing calls. This procedure requires the system to have:

- NP CSO Optional Feature
- Redundant disks
- Multiple modules

If your system does not meet these requirements, please follow the Offline Replace Disk procedure (CP 2138) in your *Model 640 Installation and Service Manual*.

### Procedure Steps

---

1. If the power supply and storage assembly are still in operation, complete steps 2 through 7. Otherwise go to step 8.

#### Prepare the System

2. Reach the Hard Disk Utilities Menu, then go to the SCSI Status Menu.  
*Reference: Menu Map 8*
3. Verify that all disks are in sync.  
*Select:* (D) Display status of all SCSI Buses and disks.  
*Response:* System displays a report showing status of all disks. Verify that all disks show the status as ENA. Press **Enter** to exit.
4. If any disk is out of sync with its redundant mate, update the redundancy.  
*Reference: CP 7015*
5. Shut down the bus in the storage assembly that contains the power supply to be replaced.  
*Select:* (S) Shutdown SCSI BUS or disk  
*Prompt:* SCSI Shutdown Menu  
*Select:* (B) Shutdown a SCSI bus  
*Prompt:* Which Bus (0-3)?  
*Response:* Enter the **number** of the bus to be shut down.  
*Prompt:* type "disable" to confirm your request:  
*Response:* disable
6. Exit from the SCSI Shutdown Menu and verify that the desired bus has been shut down.  
*Select:* (D) Display Status of all SCSI Buses and disks  
*Response:* The system displays a report showing status of all disks. Verify the bus is disabled by checking other disks on the bus; these disks should be listed as DIS (disabled).
7. Turn off the disk storage assembly power supply.

#### Replace the Power Supply

8. Put on a grounded wrist strap and attach it to the rack. Doing so protects the component from electrostatic discharge.
9. Remove the front panel of the storage assembly.

10. Loosen the two captive screws and use the ejector keys to slide the power supply out. Refer to Figure 1 for details.

### Figure 1 Storage Assembly Power Supply Removal

11. Fit the glides on the new power supply carrier into the grooves on the top and bottom of the storage assembly shelf and slide the power supply in.
12. Use the ejector keys to seat the power supply and tighten the two captive screws.
13. Replace the front cover on the storage assembly.
14. Turn on power to the storage assembly.
15. Reach the Hard Disk Utilities Menu, then go to the SCSI Status Menu.  
*Reference: Menu Map 8*
16. Enable the bus in the affected storage assembly.  
*Select:* (E) Enable SCSI BUS or disk  
*Prompt:* SCSI Enable Menu  
*Select:* (B) Enable a SCSI bus  
*Prompt:* Which Bus (0-3)?  
*Response:* Enter the **number** of the bus to be enabled.
17. Exit from the SCSI Enable menu and verify that the desired bus has been enabled.  
*Select:* (D) Display Status of all SCSI Buses and disks  
*Response:* System displays a report showing status of all disks. Verify the bus is enabled by checking other disks on the bus; these disks should be listed as ENA, OUTSYN or OUTDAT.
18. Update the redundancy of any disks affected by the SCSI bus shutdown.  
*Reference: CP 7015*

---

## CP 6409 CPU Card Replacement with the System Online

This procedure describes how to replace a CPU card with the NuPoint Messenger server online, processing calls. This procedure requires the server to have:

- NP CSO Software
- Redundant disks
- Multiple modules



### **WARNING!**

This procedure requires the CPU assembly to be shut down resulting in an interruption to call processing on the module. It is recommended that you perform this procedure during periods of low call traffic when the remaining modules can handle the required call volume.

---

## Procedure Steps

### Before You Begin

1. Verify that the replacement CPU card is configured correctly.  
*Reference: TR 1912*



2. If the CPU card is still in operation, complete steps 3 through 7. Otherwise go to step 8.

### Shutdown the CPU Assembly

3. Reach the System Maintenance Additional Options Menu and go to the NP CSO Administration Menu. Note which module (node) is running the CSOIO tasks.  
*Reference: Menu Map 12*
4. If the module running the CSOIO tasks is the one for which you will be replacing the CPU, switch the tasks to the other module.

*Select:* (F) Manual Switchover

*Prompt:* WARNING!!!! This shuts down the Integration on the system for up to 10 sec.  
The Integration is currently on module n.

Do you want to switchover to module n (y/N) ?

*Response:* Enter **Y** to switch the integration.

You will lose your console session when control switches to the other module. You must login again on the new control module.

5. Reach the System Maintenance Menu, then go to the Module Maintenance Menu.  
*Reference: Menu Map 12*

6. Shut down the CPU assembly.

*Select:* (D) Disable a Module

*Prompt:* Input a module id in the following range:  
n n n n  
Which Module?

*Response:* Enter the number of the CPU assembly that is powered by the AMPS to be replaced.

*Prompt:* Type "disable" to confirm your request:

*Response:* disable

The specified module automatically resets itself and stays in an out-of-service mode.

7. Turn off the power to the CPU assembly.

### Remove the CPU card

8. Put on a grounded wrist strap and attach it to the rack. Doing so protects the component from electrostatic discharge.
9. Remove the front panel of the CPU assembly.
10. Use a screwdriver to unfasten the screw that holds the CPU card to the card cage.
11. Detach all cables from the CPU card. (You may have to remove the card part way to reach some of the cable connectors.)
12. Grasp the CPU card firmly, and pull it straight out.
13. Place the CPU card on an anti-static bag.

### Install the New CPU card

14. Pick up the replacement CPU card. Hold it with the connector facing away from you.
15. Insert the CPU card in the same slot as the previous CPU card.
16. Slide the CPU card along the alignment groove in the bottom of the card cage until the CPU card connectors are touching the corresponding connectors on the backplane.

17. Be sure that the connectors are properly aligned, then press firmly on the edge of the CPU card until the connectors are fully seated.
18. Reattach all cables to the CPU card. See Table 1 for connections.
19. Tighten the screw that holds the CPU card in the card cage.
20. Replace the front panel of the CPU assembly.

<b>Cable</b>	<b>Connector(s)</b>
Keylock/Speaker reset/wire harness	J1, J2, J4, J5
Floppy Drive cable	J7
Tower Parallel Port Ribbon cable	J8
Serial Port 1 cable	J10
Serial Port 2 cable	J9
Keyboard cable	J12

### **Restart the CPU Assembly**

21. Turn on the power to the CPU assembly.
22. Reach the System Maintenance Menu, then go to the Module Maintenance Menu.  
*Reference: Menu Map 12*

23. Enable the CPU assembly.

*Select:* (E) Enable Module

*Prompt:* Input a module id in the following range:  
n n n n  
Which Module?

*Response:* Enter the number of the CPU assembly to be enabled.

The CPU assembly resets itself and returns to normal operation.

---

## **CP 2162 Hard Disk Replacement with the System Online**

This procedure describes how to replace a hard disk with the server online, processing calls. This procedure requires the server to have:

- NP CSO Optional Feature
- Redundant disks
- Multiple modules

If your system does not meet these requirements, please follow the Offline Replace Disk procedure in your *Model 640 Installation and Service Manual*.

This procedure is very different from the Replace Disk program run from the Service Diskette, in that the old disk is removed and the new one installed using the same SCSI ID, then the Replace Disk program is run. There is no need to identify an old SCSI ID and a new SCSI ID since the same ID is being used. Information is then copied from the mirror image to the newly replaced disk.

**Note:** This capability is only supported by Release 6.0C and later.

## Procedure Steps

---

### Prepare the System

1. Reach the Hard Disk Utilities Menu, then go to the SCSI Status Menu.  
*Reference: Menu Map 8*
2. Verify that all disks are in sync, with the possible exception of the disk to be replaced.  
*Select:* (D) Display status of all SCSI Buses and disks.  
*Response:* System displays a report showing status of all disks. Verify that all disks show the status as ENA, with the possible exception of the disk to be replaced. Press **Enter** to exit.
3. If any disk, other than the disk to be replaced, is out of sync with its redundant mate, update the redundancy. Do **not** update the redundancy of the disk to be replaced.  
*Reference: CP 7015*

### Replace the Disk

4. Remove the front panel of the storage assembly.
5. Loosen the two captive screws and use the ejector keys to slide the hard disk drive out. Refer to Figure 1 for details.

### Figure 1 Hard Disk Drive Removal

6. Remove the mounting if you need it for the replacement disk.
7. Fit the glides on the new disk carrier into the grooves on the top and bottom of the storage assembly shelf and slide the hard disk assembly in.
8. Use the ejector keys to seat the disk and tighten the captive screws.
9. Replace the front cover on the disk storage assembly.
10. Reach the Hard Disk Utilities Menu, then go to the SCSI Status Menu.  
*Reference: Menu Map 8*

### Configure the Disk

11. Reach the Hardware Configuration Menu, then go to the Disk Configuration Menu.  
*Reference: Menu Map 12*
12. Replace the disk.  
*Select:* (R) Replace a disk  
*Prompt:* Please insert service disk into floppy drive, hit <RETURN> when ready.  
*Response:* Insert the diskette and press **Enter**.  
*Prompt:* Input a disk in the following range:  
n:n n:n n:n n:n  
Which Disk?  
*Response:* n:n represents the bus and disk numbers of the disks installed in the system available to be replaced.  
Enter the **bus and disk number** of the disk that you just installed.

The system configures the disk. When the process is complete the system prompts

with the serial number of the new disk.

*Prompt:* Serial number is xxxx.

13. Update the redundancy of the new disk and any of the other disks affected by the SCSI bus shutdown.

*Reference:* CP 7015

---

## CP 2135 Line Card Replacement with the System Online

This procedure describes how to replace a line card with the server online, processing calls. This procedure requires the Model 640 to have:

- NP CSO Software
- Redundant disks
- Multiple modules



---

### **WARNING!**

This procedure requires the CPU assembly to be shut down resulting in an interruption to call processing on the module. It is recommended that you perform this procedure during periods of low call traffic when the remaining modules can handle the required call volume.

---

---

## Procedure Steps

### Before You Begin

1. Verify that you have the correct kind of replacement line card and configure it.  
*Reference:* TR 1901

### Shutdown the CPU Assembly

2. Reach the System Maintenance Additional Options Menu and go to the NP CSO Administration Menu. Note which module (node) is running the CSOIO tasks.  
*Reference:* Menu Map 13
3. If the module running the CSOIO tasks is the one in which you will be replacing a line card, switch the tasks to the other module.

*Select:* (F) Manual Switchover

*Prompt:* WARNING!!!! This shuts down the Integration on the system for up to 10 sec.  
The Integration is currently on module n.

Do you want to switchover to module n (y/N) ?

*Response:* Enter **Y** to switch the integration.  
You will lose your console session when control switches to the other module. You must log in again on the new control module.

4. Reach the System Maintenance Menu, then go to the Module Maintenance Menu.  
*Reference:* Menu Map 12

5. Shut down the CPU assembly.

*Select:* (D) Disable a Module

*Prompt:* Input a module id in the following range:

n n n n  
Which Module?

*Response:* Enter the number of the CPU assembly that contains the line card to be replaced.

*Prompt:* Type "disable" to confirm your request:

*Response:* disable

The specified module automatically resets itself and stays in an out-of-service mode.

6. Turn off the power to the CPU assembly.

#### Remove the Line Card

7. Put on a grounded wrist strap and attach it to the rack. Doing so protects the component from electrostatic discharge.
8. Remove the front panel of the CPU assembly.
9. Identify the line card to remove.
10. Unplug the phone lines connected to the line card.
11. Using the pull tabs, remove the MVIP cable. You only need to remove it from enough cards so that you can access the line card.
12. Use a screwdriver to unfasten the screw that holds the line card to the card cage.
13. Grasp the line card firmly, and pull it straight out.
14. Place the line card on an anti-static bag.

#### Install the New Line Card

15. Pick up the line card. Hold it with the edge connector facing away from you.
16. Identify the correct position in the card cage for the card. Make sure you insert the card in the position for which it is jumpered.
17. Insert the line card into the alignment groove on the bottom of the card cage.
18. Slide the line card along this groove until the line card connectors are touching the corresponding connectors on the backplane.
19. Be sure that the connectors are properly aligned, then press firmly on the edge of the line card until the connectors are fully seated.
20. Tighten the screw that holds the line card in the card cage.
21. Reconnect the MVIP cable to all appropriate cards. Always use the pull tabs, *not* the cable, when manipulating the MVIP cable.
22. Reconnect the phone lines to the line card.
23. Replace the front panel of the CPU assembly.

#### Restart the CPU Assembly

24. Turn on the power to the CPU assembly.
25. Reach the System Maintenance Menu, then go to the Module Maintenance Menu.

*Reference: Menu Map 12*

26. Enable the CPU assembly.

*Select:* (E) Enable Module

*Prompt:* Input a module id in the following range:

```
n n n n
Which Module?
```

*Response:* Enter the number of the CPU assembly to be enabled.

The CPU assembly resets itself and returns to normal operation.

---

## CP 6410 Q-Net Card Replacement with the System Online

This procedure describes how to replace a Q-Net card with the server online, processing calls. This procedure requires the server to have:

- NP CSO Software
- Redundant disks
- Multiple modules



---

### **WARNING!**

This procedure requires the CPU assembly to be shut down resulting in an interruption to call processing on the module. It is recommended that you perform this procedure during periods of low call traffic when the remaining modules can handle the required call volume.

---

## Procedure Steps

---

### Before You Begin

1. Verify that you have the correct kind of replacement Q-Net Card and configure it.  
*Reference: TR 1915*

### Shutdown the CPU Assembly

2. Reach the System Maintenance Additional Options Menu and go to the NP CSO Administration Menu. Note which module (node) is running the CSOIO tasks.  
*Reference: Menu Map 12*
3. If the module running the CSOIO tasks is the one in which you will be replacing the Q-Net card, switch the tasks to the other module.

*Select:* (F) Manual Switchover

*Prompt:* WARNING!!!! This shuts down the Integration on the system for up to 10 sec.  
The Integration is currently on module *n*.

Do you want to switchover to module *n* (y/N) ?

*Response:* Enter **Y** to switch the integration.

You will lose your console session when control switches to the other module. You must login again on the new control module.

4. Reach the System Maintenance Menu, then go to the Module Maintenance Menu.  
*Reference: Menu Map 12*

5. Shut down the CPU assembly.

*Select:* (D) Disable a Module

*Prompt:* Input a module id in the following range:  
n n n n

Which Module?

*Response:* Enter the **number** of the CPU assembly that contains the Q-Net card to be replaced.

*Prompt:* Type "disable" to confirm your request:

*Response:* **disable**

The specified module automatically resets itself and stays in an out-of-service mode.

6. Turn off the power to the CPU assembly.
7. Disconnect and remove the cable between the affected Q-Net card and the hub and set it aside.
8. Install a terminator on the hub in place of the cable.

#### Remove the Q-Net Card

9. Put on a grounded wrist strap and attach it to the rack. Doing so protects the component from electrostatic discharge.
10. Remove the front panel of the CPU assembly.
11. Identify the Q-Net Card to remove.
12. If necessary, use the plastic loops to remove the MVIP cable so that you can access the Q-Net Card.
13. Use a screwdriver to unfasten the screw that holds the Q-Net Card to the card cage.
14. Grasp the Q-Net Card firmly, and pull it straight out.
15. Place the Q-Net Card on an anti-static bag.

#### Install the New Q-Net Card

16. Pick up the Q-Net Card. Hold it with the connector facing away from you.
17. Identify the correct position in the card cage for the card. Make sure you insert the card in the position for which it is jumpered.
18. Insert the Q-Net Card into the alignment groove on the bottom of the card cage.
19. Slide the Q-Net Card along this groove until the Q-Net Card connector is touching the corresponding connector on the backplane.
20. Be sure that the two connectors are properly aligned, then press firmly on the edge of the Q-Net Card until the connectors are fully seated.
21. Tighten the screw that holds the Q-Net Card in the card cage.
22. Reconnect the MVIP cable to all appropriate cards.
23. Replace the front panel of the CPU assembly.
24. Remove the terminator from the hub and reconnect the Q-Net cable from the new card to the hub.

#### Restart the CPU Assembly

25. Turn on the power to the CPU assembly.
26. Reach the System Maintenance Menu, then go to the Module Maintenance Menu.  
*Reference: Menu Map 12*
27. Enable the CPU assembly.

*Select:* (E) Enable Module

*Prompt:* Input a module id in the following range:  
n n n n

Which Module?

*Response:* Enter the **number** of the CPU assembly to be enabled.  
The CPU assembly resets itself and returns to normal operation.

---

## CP 6411 Module Control Board (MCB) Replacement with the System Online

This procedure describes how to replace a Module Control Board (MCB) with the server online, processing calls. This procedure requires the server to have:

- NP CSO Software
- Redundant disks
- Multiple modules



---

### WARNING!

This procedure requires the CPU assembly to be shut down resulting in an interruption to call processing on the module. It is recommended that you perform this procedure during periods of low call traffic when the remaining modules can handle the required call volume.

---

---

### Procedure Steps

1. If the MCB is still functioning, complete steps 2 through 6. Otherwise go to step 7.

#### Shutdown the CPU Assembly

2. Reach the System Maintenance Additional Options Menu and go to the NP CSO Administration Menu. Note which module (node) is running the CSOIO tasks.  
*Reference: Menu Map 13*
3. If the module running the CSOIO tasks is the one in which you will be replacing a MCB, switch the tasks to the other module.

*Select:* (F) Manual Switchover

*Prompt:* WARNING!!!! This shuts down the Integration on the system for up to 10 sec.  
The Integration is currently on module *n*.

Do you want to switchover to module *n* (y/N) ?

*Response:* Enter **Y** to switch the integration.

You will lose your console session when control switches to the other module. You must login again on the new control module.

4. Reach the System Maintenance Menu, then go to the Module Maintenance Menu.  
*Reference: Menu Map 12*

5. Shut down the CPU assembly.

*Select:* (D) Disable a Module

*Prompt:* Input a module id in the following range:  
*n n n n*  
Which Module?

*Response:* Enter the **number** of the CPU assembly that contains the MCB to be



replaced.

*Prompt:* Type "disable" to confirm your request:

*Response:* **disable**

The specified module automatically resets itself and stays in an out-of-service mode.

6. Turn off the power to the CPU assembly.

#### Replace the MCB

7. Put on a grounded wrist strap and attach it to the rack. Doing so protects the component from electrostatic discharge.
8. Follow the steps in your *Model 640 Installation and Service Manual* to physically replace the MCB. You do not need to shut down the rest of the NuPoint Messenger server.

#### Restart the CPU Assembly

9. Turn on the power to the CPU assembly.
10. Reach the System Maintenance Menu, then go to the Module Maintenance Menu.  
*Reference: Menu Map 12*

11. Enable the CPU assembly.

*Select:* (E) Enable Module

*Prompt:* Input a module id in the following range:  
n n n n  
Which Module?

*Response:* Enter the **number** of the CPU assembly to be enabled.

The CPU assembly resets itself and returns to normal operation.

---

## CP 7014 Enable a Module

The procedure describes how to enable a module to return it to normal call processing operation. When changing the status of multiple-modules, always change the one the console is attached to last.

### Procedure Steps

---

1. Reach the System Maintenance Menu, then go to the Module Maintenance Menu.  
*Reference: Menu Map 12*

2. Enable the module.

*Select:* (E) Enable Module

*Prompt:* Input a module id in the following range:  
n n n n  
Which Module?

*Response:* Enter the **number** of the module to be enabled.

The specified module automatically resets itself and returns to normal operation.

## CP 7015 Update Disk Redundancy

This procedure describes how to synchronize the information between a primary disk and its redundant partner disk.

### Procedure Steps

---

1. Reach the Hard Disk Utilities Menu, then go to the SCSI Status Menu.

*Reference: Menu Map 8*

2. Check the status of all disks.

*Select:* (D) Display Status of All SCSI Buses and Disks

*Response:* The system displays a table showing all disks and hosts.

Note the status of the redundant disks (indicated by an R after the status). Use the following table to identify which disks need to be updated.

<u>Status:</u>	<u>Disks to be updated:</u>
ENA	None; disks are not out of synchronization.
OUTSYN	Software; speech and accounts
OUTDAT	Speech and accounts
OUTSFW	Software

3. Exit from the SCSI Status Menu and go to the Redundancy Update Menu.

*Reference: Menu Map 8*

4. Update the redundancy.

- If multiple disks are out of synchronization, update the redundancy of all disks using the "Update all out of synchronization hard disks" option.

*Select:* (A) Update all out of synchronization hard disks

*Prompt:* Type "update" to confirm your request:

*Response:* update

**Note:** Any disk listed as ENA is not updated.

- To update a specific disk use:

*Select:* (Q) Update system software drives

*Prompt:* Do you want to see the sector numbers being updated?

*Response:* **Y** if you want to see the system counting the sector numbers on the screen,  
**N** to skip the display.

**Note:** The system allows you to watch the number of the sector number being updated, but this display slows the verification process.

or

*Sele* (S) Update speech and account drives on a hard disk.

*ct:*

*Pro* Do you want to see the sector numbers being updated?

*mpt*

:

*Res* **Y** if you want to see the system counting the sector numbers on the screen,  
*pon*

se: **N** to skip the display.

**Note:** The system allows you to watch the number of the sector number being updated, but this display slows the verification process.

5. Exit from the Redundancy Update Menu, then go to the SCSI Status Menu.

*Reference: Menu Map 8*

6. Verify that all disks are in sync.

*Select:* (D) Display status of all SCSI Buses and disks.

*Response:* System displays a report showing the status of all disks. Verify that all disks show the status as ENA. Press **Enter** to exit.

---

## CP 7021 Increase System Hours

This procedure describes the online process of increasing the system hours on an AIP system. You must have the service diskette with the serial numbers for the hard disks to complete this process.

### Procedure Steps

---

1. Go to the Model 640 Installation and Service Manual, Chapter 3  
Model 70  
Model 120  
Model 640

---

## CP 7027 Shut Down a Module

This procedure describes how to shut down a module. When changing the status of multiple-modules, always change the one the console is attached to last.



---

### WARNING!

This procedure removes the module from call processing operation. It is recommended that you perform this procedure during periods of low call traffic, when the remaining modules can handle the required call volume.

---

### Procedure Steps

---

1. Reach the System Maintenance Menu, then go to the Module Maintenance Menu.

*Reference: Menu Map 12*

2. Shut down the module.

*Select:* (D) Disable Host

*Prompt:* Input a module id in the following range:

n n n n  
Which Module?

*Response:* Enter the **number** of the module to be shut down.

*Prompt:* Type "disable" to confirm your request:

*Response:* **disable**

The specified module automatically resets itself and remains offline at the Maintenance From Hard Disk Menu.

## List of Procedures

Procedure Number	Chapter Number	Title	CPs Called	Called By
CP 2135	4	Line Card Replacement With the System Online		
CP 2139	4	Add an Active and Redundant Disk Pair	CP 7015, CP 7021	
CP 2162	4	Hard Disk Replacement With the System Online	CP 7015	
CP 5410	2	Define CSI Floating Modules		
CP 6400	3	CSO I/O Module Installation		
CP 6402	3	Primary Control Card (PCC) Replacement		
CP 6403	3	Busy Out Card (BOC) Replacement		
CP 6404	3	Serial Interface Card (SIC) Replacement		
CP 6407	4	Alarm Monitor Power Supply Replacement With the System Online	CP 7015	
CP 6408	4	Storage Assembly Power Supply Replacement With the System Online	CP 7015	
CP 6409	4	CPU Card Replacement With the System Online		
CP 6410	4	Q-Net Card Replacement With the System Online		
CP 6411	4	Module Control Board (MCB) Replacement With the System Online		
CP 6412	3	Define Serial Port Functions		
CP 7014	4	Enable a Module		
CP 7015	4	Update Disk Redundancy		CP 2139, CP 2162, CP 6407, CP 6408
CP 7021	4	Increase System Hours		CP 2139
CP 7027	4	Shut Down a Module		
CP 8023	3	Define Busy Out Card to Port Mappings		