

PViQ Hardware Quick Start Guide

PViQ Hardware Quick Start 441-071-ENG

Copyright © 2017 Panduit Corp. All rights reserved. No part of this book shall be reproduced, stored in a retrieval system, or transmitted by any means, electronic, mechanical, photocopying, recording or otherwise, without written permission from Panduit. No patent liability is assumed with respect to the use of the information contained herein.

Although every precaution has been taken in the preparation of this book, Panduit assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained herein.

Table of Contents

PANVIEW IQ™ HARDWARE QUICK START GUIDE 4

CONTACTING PANDUIT 4

WHAT IS PVIQ? 5

PVIQ HARDWARE COMPONENTS 5

- Patch Panels 6
- Fiber Trays 7
 - What makes the Panels Intelligent? 7
- Intelligent Modules (IMs) 8
- Interface Units 9
- Cables and Patch Cords 9

INSTALLATION AND CONFIGURATION CHECKLIST 10

SET UP AND COMMON TASKS 12

- Provisioning PViQ Panel Managers 12
- Configuring a PM with a Static IP Address 12
 - Step 1, Option A – Connect PM to live network 13
 - Step 1, Option B – Connect using a switch or router 13
 - Step 1, Option C – Connect using the laptop as the DHCP Server 15
 - Step 2 – Initiate a telnet session with the PM 16
 - Step 3 – Configure the PM with a Static IP Address 17
 - Step 4 – Commit the static IP address and settings to the PM 19
- Provisioning a PM with Other Device Information and Settings 20

INTEGRATING WITH THE PHYSICAL INFRASTRUCTURE MANAGER SOFTWARE PLATFORM..... 21

- Panel Mode Access 21
- Known Issues with PViQ Hardware 22

PanView iQ™ Hardware Quick Start Guide

This document is designed to supplement the printed installation instructions that you received with your PanView iQ™ (**PViQ™**) Hardware. It provides a brief overview of the equipment, and introduces the basic concepts needed to make the most of your new system.

The following basic topics are covered in this document:

1. **PViQ Overview** – a brief, high level look at the components and capabilities of the **PViQ** Hardware, designed to get you familiar with your new system.
2. **Installation and Configuration Checklist** – An overview of the installation process. *Read this section before beginning the installation of the equipment!*
3. **Set up and Common Tasks** – Once your **PViQ** System Hardware is functioning, this section describes the common tasks you will be using to make the most of your system.
 - a. Configuring Panel Managers to use Static IP Addresses
 - b. Integrating with the Physical Infrastructure Manager (PIM) Software
 - c. Understanding and Accessing Panel Modes

Contacting Panduit

For Technical Support on PIM Software, please contact Panduit Technical Support using one of the following methods:

- Toll-Free: 1-866-721-5302, Monday-Friday, 24 hrs/day
- 24/7 phone support - Response typically within the hour on weekends
- Email: systemsupport@panduit.com

What is PViQ?

The PViQ System is a physical infrastructure management system that provides intelligent monitoring of patch field connectivity using zero RU intelligence modules. These Intelligent Modules (IMs) scan patch field connections 24 hours a day/365 days a year to provide network administrators with visibility into the physical layer of their network.

The PViQ System provides:

- Guidance and traceability directly at the patch panel to ensure accurate connections and disconnections.
- Direct access to visual trace functions
- Guidance for Move, Add, and Change (MAC) orders via Multi-colored LEDs within the patch panel
- Access to patch panel functionality via an easy-to-use Command Line Interface

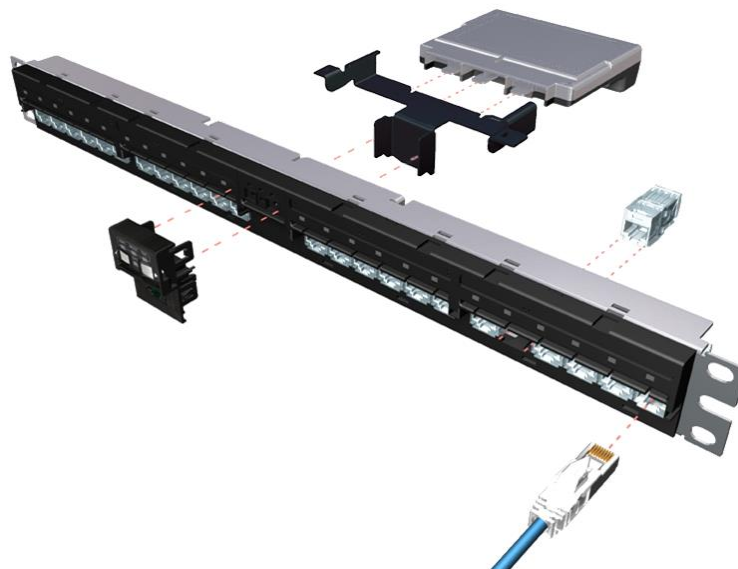
PViQ allows all of this without disrupting data connectivity.

PViQ Hardware Components

The PViQ System uses intelligent modules that connect directly into the back of **PanView iQ** Patch Panels, eliminating the need for additional hardware components that consume rack space.

The basic hardware components of the system include:

- **PViQ** Patch Panels or Fiber Trays
- **PViQ** Intelligent Modules
- Mounting Bracket
(Note: Fiber Trays do not require mounting brackets)
- **PViQ** Interface Units
- **PViQ** Patch Cords and Fiber Patch Cords



Patch Panels

PViQ Patch Panels are available in several styles:

- 24-port, flat (shielded or unshielded)
- 24-port, angled (shielded or unshielded)

Figure 1 shows the flat panel version. This patch panel is available in both shielded and unshielded versions, and is compatible with UTP or STP *Mini-Com*® Copper Modules.



Figure 1 - Flat PViQ Patch Panel

Figure 2 shows the angled panel version. This patch panel is available in both shielded and unshielded versions, and is compatible with UTP or STP *Mini-Com*® Copper Modules.



Figure 2 - Angled PViQ Patch Panel

Fiber Trays

PViQ supports patching capabilities through fiber channels with the use of fiber trays. Fiber tray supports:

- LC - MTP Single Mode connections
- LC - MTP Multi-Mode connections
- Field Terminated connections

Figure 3 shows an example of a fiber tray.



Figure 3 - PViQ Fiber Tray

What makes the Panels Intelligent?

PViQ Patch Panels contain electronics that communicate with the Intelligent Modules. The electronics monitor the patch panels for connections and report status via multi-colored LEDs. This intelligence allows **PViQ** to detect single and double-ended patch cord connects and disconnects.

Intelligent Modules (IMs)

The **PViQ** System includes two types of IMs:

- Panel Managers (PMs)
- Expansion Modules (EMs)

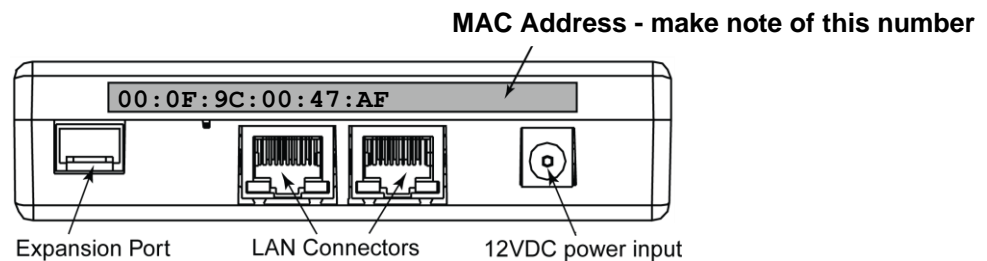
The Panel Manager (PM) is designed to consolidate patch field management functions into a single removable module.



Figure 4 - PViQ Panel Manager

The PM includes LAN connectors for daisy chaining multiple PMs. A total of 30 PMs may be daisy chained to a single switch port. An expansion port provides connectivity from the PM to 1, 2, or 3 Expansion Modules.

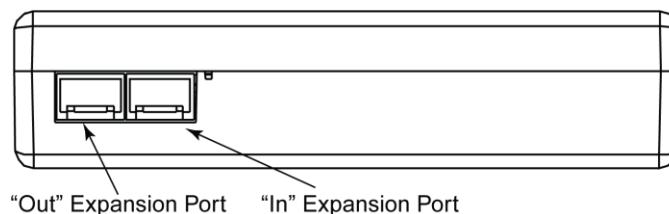
✓ **IMPORTANT NOTE:** The back of PM has a label showing the MAC Address of the unit. Make a note of this number – it is needed for a later step in the installation.



The Expansion Module (EM) expands the scanning and management capabilities of the PM by providing access to additional patch panels.



Figure 5 - PViQ Expansion Module



Each PM may control up to three EMs, giving each PM the ability to manage up to 4 panels (96 ports).

Interface Units

The **PViQ** Interface Unit (IU) attaches to the front of the patch panel or fiber tray, and provides access to various operational modes directly from the front panel. There are two styles of IU that can be attached to the patch panel. Figure 6 shows the IU for the Panel Manager. Figure 7 shows the IU for the Expansion Module.



Figure 6 - PM IU



Figure 7 - EM IU

As shown in below, each IU has four LED indicators, plus two navigation keys. In addition, the PM IU includes a Provisioning Port that supports Enhanced Interconnect Cords (I-Cords).

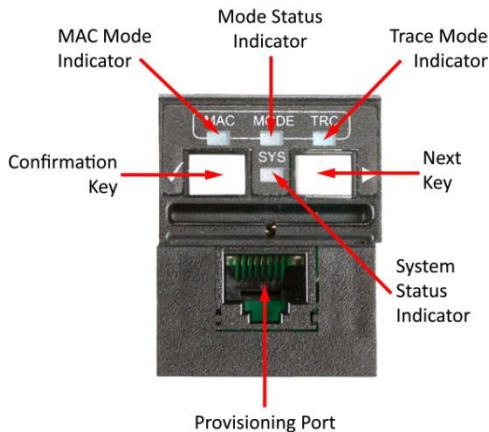


Figure 8 - **PViQ** Panel Manager Interface Unit, showing the Provisioning Port (PM IU only)

Cables and Patch Cords

Within the **PViQ** System, specific cables and patch cords are required for the following connections:

1. To connect the PM to the EM, use a **PViQ** Expansion Port Cable (EPC) (supplied with the EM)
2. To connect one PM to another PM, use a shielded RJ45 patch cord via the LAN connector (supplied with the PM)

Installation and Configuration Checklist

Use the checklist below for the installation and basic setup of your **PViQ** Hardware.

- Read the Hardware Quick Start Guide (this document) to familiarize yourself with the components and basic installation procedures
- Ensure that your Network includes a DHCP Server. By default, **PViQ** uses dynamic IP addresses.
- If you will be using **PViQ Interconnect Cords (I-Cords)**, or **Enhanced PViQ Interconnect Cords (Enhanced I-Cords)**, ensure that you are using **CDP enabled switches**

✓ CDP **must** be enabled to use I-Cord or Enhanced I-Cord.

✓ If your installation requires static IP addressing, instructions for assigning static IPs are included later in this document.

- Carefully follow the Panduit Installation Instructions to perform the following steps:
 - Install the **PViQ** Patch Panels
 - Install the **PViQ** Interface Units
 - Install the **PViQ** Intelligent Modules using the provided Mounting Brackets
 - Connect the Units according to the PN482 Installation Instructions, using the provided patch cables
- Apply power to the system and allow the Panel Manager (PM) to update the panel hardware with the current firmware (this happens automatically).

✓ Note that it may take 20-40 minutes for the PMs to initialize and update firmware. Do not move on to the next step until the panels enter "Secure Mode" (see Figure 9 below).

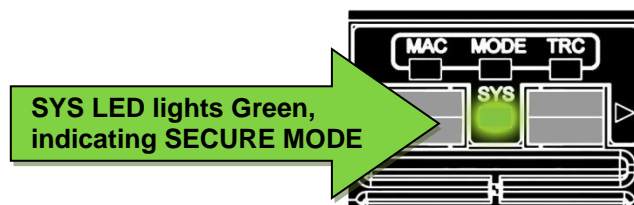


Figure 9 - Panel in Secure Mode

- Establish communication with the panel via Telnet.

✓ Refer to the PViQ **Command Line Interface** section of the PViQ Hardware User Guide (PN514) for specific instructions.

- ❑ Use the **PViQ** CLI's "help" command to learn about the various commands available through this interface.

```
PSH > help
```

✓ Refer to the PViQ **Command Line Interface** section of the PViQ Hardware User Guide (PN514) for specific instructions.

- ❑ Learn to identify and use the panel modes via the front panel Interface Units.

✓ Refer to the PViQ **Interface Unit** section of the PViQ Hardware User Guide (PN514) for specific instructions.

✓ Your PViQ Hardware Documentation set also includes a **QUICK REFERENCE CARD**, which provides a visual guide to identifying the various LED configurations.

- ❑ To make the most of your **PViQ** System Hardware, integrate your **PViQ** Hardware with the Physical Infrastructure Manager (PIM) Software Platform (available separately).

PIM Software Platform is a web-based application suite that maps and monitors both the physical layer and network resources. It provides automated network documentation and maintenance for the physical layer to increase network management efficiency.

For more information on PIM Software Platform, visit www.panduit.com/pim, or contact your Panduit sales representative.

Set Up and Common Tasks

Provisioning PViQ Panel Managers

PViQ Panel Managers (PMs) are intelligent modules provisioned with configuration data and settings that enable users to manage and identify the devices within the network. The settings that may be provisioned on a PM include: IP address, IP settings and address type; device name; SNMP configuration and trap settings; and information on physical location including rack name and rack position.

Depending on customer preference, PMs may be provisioned using one of the following methods:

1. Telnet prior to installing the equipment (in a “bench setup” environment)
2. Telnet after PMs have been installed.

✓ **NOTE:** PMs may also be provisioned via PIM Software after PMs have been installed. Refer to the PIM Software User Manual for more information.

A valid range of static IP addresses for the subnet where the PMs will reside should be identified prior to proceeding.

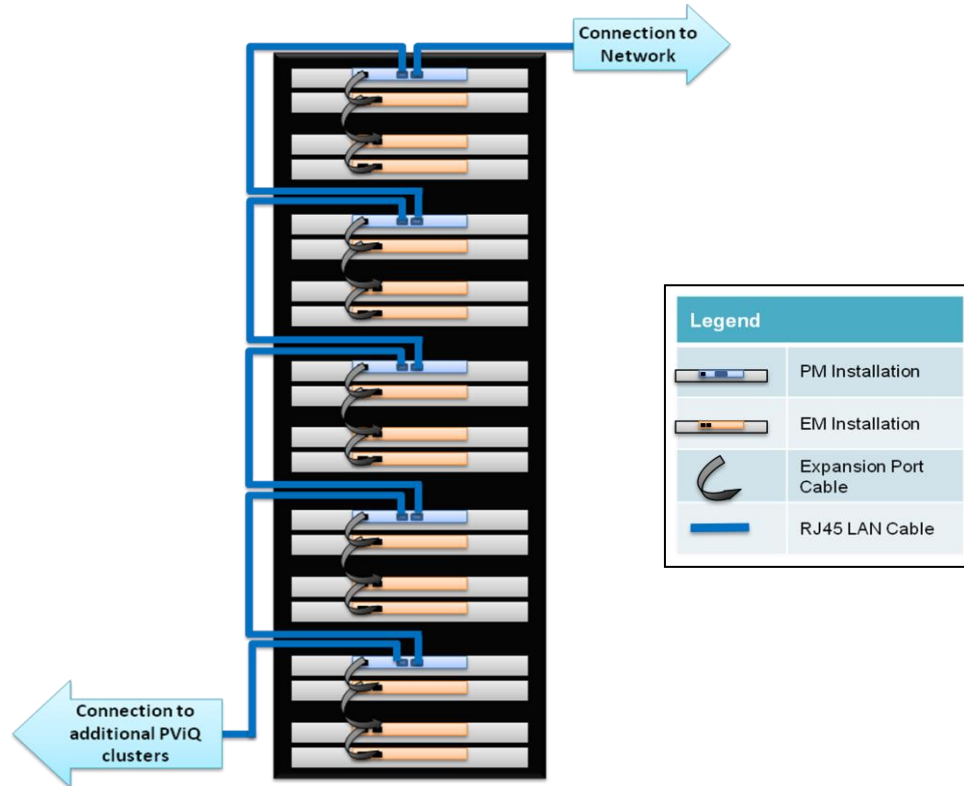
Configuring a PM with a Static IP Address

Typically, users will want to assign a static IP address to each PM. (By default, PMs are set up to receive an IP address dynamically from the network via DHCP). The key steps for configuring IP settings on the PM are as follows:

- **Step 1:** Dynamically assign an IP address to the PM using one of the following options:
 - **Option A:** *Live network* - Connect PMs to a live network to receive IP address via DHCP
 - **Option B:** *Bench setup with DHCP-enabled switch/router* - Connect a DHCP-enabled switch or router between the laptop and the PM
 - **Option C:** *Bench setup with a DHCP service enabled on a laptop* - Activate DHCP service on a laptop and connect to the PM
- **Step 2:** Initiate a telnet session with the PM
- **Step 3:** Configure the PM with a static IP address and IP settings
- **Step 4:** Commit the static IP address and IP settings to the permanent database of the PM

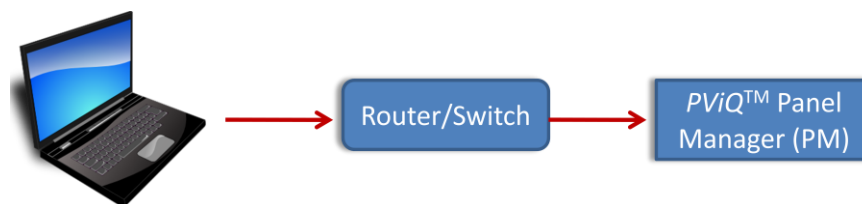
Step 1, Option A – Connect PM to live network

1. Connect PMs to the live network for dynamic assignment of IP address.



Step 1, Option B – Connect using a switch or router

1. Use Ethernet cables to connect a DHCP-enabled switch or router as shown below. The PM is assigned an IP address dynamically by the router/switch.



2. Use the Panduit command line utility (`pviqutil.exe`) to locate the PM. This utility is available on the PViq Hardware CD-ROM, or you can download it directly from the Panduit web site:

<http://www.panduit.com/Support/Software/110205>

Save the utility into a convenient location on your laptop, such as the C:\ drive. Open a command prompt and enter the following:

```
C:\>pviqutil.exe
```

Running the utility allows you to discover the PM behind the detected network interface. You will see output similar to this:

```
There is 1 interface
  1: network address 192.168.0.0

Search Network 192.168.0.0
It takes 10 to 30 seconds, please wait ...

192.168.0.6      00:0F:9C:00:3A:F1 Nov  3 2008 10:00:11 V=01.16.03 (03Nov2008)

Done!! Press the Enter key to exit ...
```

3. Compare the MAC address (e.g., `00:0F:9C:00:3A:F1`) of the discovered PM to the MAC address label located on the back of the PM to verify that they match. ***Make a note of the IP address that was dynamically assigned to the PM for use at a later step.***
 - In the example above, the PM with MAC address `00:0F:9C:00:3A:F1` has been assigned an IP address of `192.168.0.6`.
4. You are now ready to initiate a telnet session with the PM. Please proceed to **Step 2: Initiate a Telnet Session with the PM.**

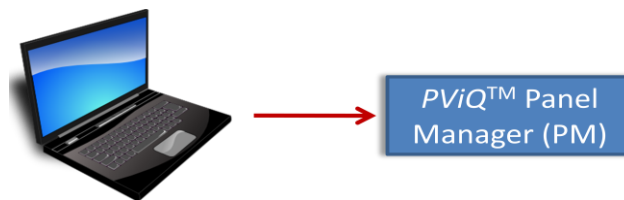
✓ **NOTE:** Depending on your setup, you may have more than 1 network interface. When multiple network interfaces are detected, you will be prompted to either **search** or **skip** each network in sequence.

To search the network, enter “g” for “go” and press the <Enter> key. The utility searches for and displays any PMs located on that network.

To skip the network, enter “s” for “skip” and press the <Enter> key. You will be asked if you want to search the next network interface.

Step 1, Option C – Connect using the laptop as the DHCP Server

1. To connect directly to the PM from your laptop, you must activate a DHCP service on the laptop.
 - If you are using an operating system that includes DHCP Server service (such as Windows 2003), activate this service.
 - If you are using Windows XP or another operating system that does not include DHCP Server service, you will need to download a third-party DHCP software utility – such as DHCP Turbo or a similar product – to activate this service.
 - Configure the DHCP Server service according to the software instructions, then activate the service.
2. With the DHCP Server service active, connect the PM to the laptop using a standard RJ45 patch cord.



3. Power up the PM.
4. Check the DHCP Server database (the method for doing this will vary depending on the third-party software selected). You will see a list of MAC addresses and IP addresses.
5. Identify the IP address assigned to the PM based on its MAC address (see MAC address label on the back of the PM). **Make a note of the corresponding IP address.**
6. *Optional:* You may run the `pviqutil.exe` command to verify the MAC address and IP address of the PM.
7. You are now ready to initiate a telnet session with the PM. Please proceed to **Step 2: Initiate a Telnet Session with the PM.**

Step 2 – Initiate a telnet session with the PM

1. After you have located the IP address of the PM (using Option A, B or C of Step 1), telnet into the PM from a command prompt (or by using another telnet program).

From a command prompt, enter the following command and press the <Enter> key:

```
telnet <IP addr>
```

(where <IP addr> is the IP address of the PM)

2. Use the default username and password (admin, panduit) to login:

```
Welcome to Panduit Shell ...
This system is to be used by authorized personnel only.
```

```
Username: admin
Password:*****
```

```
    You are using PAN SHELL command line interface, Version 1.0.0
    Last logon: Unavailable
```

```
PSH >
```

3. Proceed to **Step 3: Configuring the PM with a Static IP Address.**

Step 3 – Configure the PM with a Static IP Address

1. A .To view the current configuration of the PM, enter the command “`config ip`” at the PAN SHELL prompt:

2.

```
PSH > config ip
IP Type ..... : dynamic          Committed      Pending
IP Address ..... : 192.168.0.6      dynamic        dynamic
Subnet Mask ..... : 255.255.255.0   dynamic        192.168.0.6
Gateway ..... : 0.0.0.0          dynamic        255.255.255.0
DNS Server ..... : 192.168.0.1     dynamic        0.0.0.0
Physical Address ... : 00:0f:9c:00:3a:f1
PSH >
```

3. . Set up the PM with a valid static IP address, mask and gateway for the subnet by entering the “`config ip`” command according to the following syntax:

```
PSH > config ip [-type {static}] [-addr {dotted-IP}] [-mask
{dotted-IP}] [-gateway {dotted-IP}]
```

The newly entered IP settings are in a “Pending” status.

```
PSH > config ip -type static -addr 192.168.0.20 -mask 255.255.254.0 -gateway 192
.168.0.1
IP Type ..... : dynamic          Committed      Pending
IP Address ..... : 192.168.0.6      dynamic        static
Subnet Mask ..... : 255.255.255.0   dynamic        192.168.0.20
Gateway ..... : 0.0.0.0          dynamic        255.255.254.0
DNS Server ..... : 192.168.0.1     dynamic        192.168.0.1
Physical Address ... : 00:0f:9c:00:3a:f1
PSH >
```

4. Enter the “`config ip config`” command to apply the IP settings to the hardware (“Current”) without saving permanently to the database.

```
PSH > config ip config
```

✓ **NOTE:** After the command executes, the telnet session will terminate.

5. Start a new telnet session using the **new IP address** and login. Execute the “`config ip`” command to view the IP settings.

The IP settings show that they have been applied to the hardware, but have not been saved to the permanent database (i.e., committed).

```
Welcome to Panduit Shell ...
This system is to be used by authorized personnel only.

Username:admin
Password:*****

You are using PAN SHELL command line interface, Version 1.0.0
Last logon: Unavailable

PSH > config ip
      IP Type ..... : Current      Committed      Pending
      IP Address ..... : 192.168.0.20   dynamic        static
      Subnet Mask ..... : 255.255.254.0
      Gateway ..... : 192.168.0.1
      DNS Server ..... : 0.0.0.0
      Physical Address ... : 00:0f:9c:00:3a:f1
PSH >
```

✓ **NOTE:** If the PM goes through a **power cycle** at this point (without “committing” the configuration), the IP settings will revert to the **previous configuration**.

6. Proceed to **Step 4: Commit the static IP address and settings to the PM.**

Step 4 – Commit the static IP address and settings to the PM

Changes to the IP configuration become permanent by executing the “`config ip commit`” command and completing a power cycle on the PM.

1. Commit the changes to the IP configuration by entering the following command:

```
PSH > config ip commit
```

```
PSH > config ip commit
      Current      Committed      Pending
IP Type ..... : dynamic      static
IP Address ..... : 192.168.0.6   192.168.0.20  192.168.0.20
Subnet Mask ..... : 255.255.255.0 255.255.254.0 255.255.254.0
Gateway ..... : 0.0.0.0        192.168.0.1   192.168.0.1
DNS Server ..... : 192.168.0.1
Physical Address ... : 00:0f:9c:00:3a:f1
PSH >
PSH >
```

The IP settings are now in a “Committed” status. (The “Current” column will display the previous IP settings if the “`config ip config`” command was not executed. Following a power cycle on the PM, the “Current” column will be updated to reflect the “Committed” IP configuration settings.)

2. Power cycle the PM.

✓ **NOTE:** The telnet session will be terminated.

3. After power is restored to the PM, the IP settings will change to the “Current” status. This can be verified by telneting into the PM using the new static IP address.

```
Welcome to Panduit Shell ...
This system is to be used by authorized personnel only.

Username:admin
Password:*****

You are using PAN SHELL command line interface, Version 1.0.0
Last logon: Unavailable

PSH > config ip
      Current      Committed      Pending
IP Type ..... : static      static
IP Address ..... : 192.168.0.20  192.168.0.20  192.168.0.20
Subnet Mask ..... : 255.255.254.0 255.255.254.0 255.255.254.0
Gateway ..... : 192.168.0.1   192.168.0.1   192.168.0.1
DNS Server ..... : 0.0.0.0
Physical Address ... : 00:0f:9c:00:3a:f1
PSH >
```

4. Repeat this process to provision additional PMs.

Provisioning a PM with Other Device Information and Settings

The PM may also be provisioned with the following device information and configuration settings via Telnet:

- Device name:
 - Syntax: `config devicename <name>`
 - *Example:* `config devicename pm_panel 5-6-9`
- PIM server for traps:
 - Syntax: `config snmp -trapip <1-5> <dotted-IP>`
 - *Example:* `config snmp -trapip 1 10.240.85.196`
- Send all traps:
 - Syntax: `config snmp -trapon <1-5> <all|none|[crit] [maj] [min] [adv]>`
 - *Example:* `config snmp -trapon 1 all`
- Set rack position:
 - Syntax: `config rackposition <offset> <number>`
 - *Example:* `config rackposition 1 6`
(sets the RU to 6 for this PM)
- Set rack name:
 - Syntax: `config rackname <offset> <name>`
 - *Example:* `config rackname 1 Rack1`

For help on available commands and command syntax, use the “?” from the PViQ utility, or refer to the section on “PViQ Command Line Interface” in the PViQ Hardware User Manual.

Alternatively, the PMs may be provisioned with this information after the PViQ system has been installed, powered and discovered by the network via the Physical Infrastructure Manager (PIM) Software.

Integrating with the Physical Infrastructure Manager Software Platform

Panduit® Physical Infrastructure Manager (PIM) Software Platform is a web-based application suite that maps and monitors both the physical layer and network patch field to enable better infrastructure visibility. The application suite provides automated network documentation and maintenance for the physical layer, offering improved reliability and security while increasing overall network management efficiency.

Some functionality of the **PViQ** System Hardware can only be accessed via the PIM Software Platform (available separately). Once the **PViQ** Hardware has been installed and powered up, the PIM Software Platform interface can be installed.

Carefully follow the installation instructions contained in the Physical Infrastructure Manager (PIM) Software User Manual (PN495). With the PIM Software installed, end users have several options for performing basic tasks. The next section describes the panel modes, and gives the options available for activating each.

Panel Mode Access

PViQ Patch Panels perform tasks based on the state, or MODE, of the panel. Placing the panels into various modes can be accomplished in one of three ways: via the front panel buttons, via the Command Line Interface (CLI), or via the PIM Software interface. The table below summarizes the panel modes and accessibility for each.

Table 1 - Mode Option Availability

Activity	Front Panel Interface	Command Line Interface	PIM Software Interface
Secure Mode	Default	Default	Default
Learn Mode	No	Yes	Yes
Maintenance Mode	Yes	No ¹	Limited ²
Trace Mode	Yes	No	Yes
MAC Mode	No	No	Yes
Location Mode	No	Yes	No

¹ Although you cannot place panels into Maintenance Mode from the CLI, you can perform panel resets via the "reset system" CLI command. Refer to the PViQ Hardware User Manual (PN514) for details.

² For Firmware Update only

Secure Mode

Secure Mode is the normal operating state. Provides visual alerts when any unauthorized changes are made. The panels will automatically enter Secure Mode unless specifically placed into other modes.

Learn Mode

Learn Mode is a process where panel and port information for existing patch cord connections is detected and learned. Learn Mode can be entered using either the PIM Software or the Command Line Interface. For security reasons, panels cannot be placed into Learn Mode via the front panel.

Maintenance Mode

Maintenance Mode is used for resets, restorations and firmware updates.

Trace Mode

Trace Mode visually identifies or verifies near-end and far-end connectivity in a patch panel or fiber tray.

MAC Mode

Move, Add, and Change (MAC) Mode notifies users when pending change orders have been sent to the PViQ patch Panel. MAC Mode can only be entered using the PIM Software Interface.

Location Mode

Location Mode is used to identify where a specific panel resides within a facility. When invoked, all of the port LEDs for the requested panel light green, and the panel beeps until the Confirmation Key on the Interface Unit is pressed. Location Mode is entered via the PViQ Command Line Interface.

Known Issues with PViQ Hardware

- PViQ panels must be in Maintenance Mode to change out or reseal a PM or EM. “Hot Swap” of the PViQ Intelligent Modules (PMs or EMs) is not allowed.
- When disconnecting I-cords and Enhanced I-cords, disconnect from the switch **first**. If you disconnect from the patch panel first, there’s no power to keep the cord LED flashing red at the switch end.
- When connecting I-cords and Enhanced I-cords, after plugging into the provisioning port, do NOT move the plug from the provisioning port to the wingboard port until the wingboard port is flashing green (that is, after connecting the far end to a switch port and getting a flashing amber MODE LED).
- Under certain conditions it is possible to initiate multiple traces on the same panel, causing multiple open traces on a panel. To avoid this situation, Panduit strongly recommends performing only one trace at a time.
- PViQ Patch Panel Firmware “downgrade” – that is, attempting to install a firmware revision with a lower revision number – is not supported. Unpredictable results can occur, including the loss of PM functionality.

- Attempting to put the Panel Manager in LEARN mode while in TRACE mode may cause an exception, in some cases causing the client screen to gray. If the client screen grays out, you must restart the client.
- The current version of PViQ panel firmware does not support loop detection. Users should ensure that their system is free from looped connections to the PM.
- When using Learn Mode resolve Secure Mode violations between two PViQ panels, both panels must be put into Learn Mode to correctly “learn” the connection. If only one panel is put into Learn Mode, the Connectivity Screen in PIM software may not display the connection properly.
- If Trace Mode and Learn Mode are simultaneously exited via the CLI (using the “set mode” command), the next time Trace Mode is initiated the trace will begin on the port that was actively being traced when last exited.
- Under certain conditions, it is possible for a panel to erroneously display both the MODE LED (Learn Mode) and the TRC LED (Trace Mode) simultaneously.
- Repeatedly entering and exiting Trace Mode while the panel is in Learn Mode will eventually cause the panel to exit out of both Trace and Learn Modes, returning to the Secure Mode.
- If a trace is initiated that spans across PMs, moving too quickly across the ports can cause the other PM to incorrectly remain in Trace Mode. Users must wait briefly for the Trace to stabilize before changing ports.