GE
Security

User Manual

Picture Perfect v4 Redundant Edition

Picture Perfect 4.0 Redundant Edition

User Manual

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Preface

This document provides instructions for the software installation, configuration, and operation of the Picture Perfect Redundant System (PPRS) software.

The material in this manual has been prepared for persons responsible for, and familiar with the security needs of the customer facility. It is intended for use by System administrators and System operators.

System administrators (responsible for planning system design and implementation) setup, configure, and manage the Picture Perfect Redundant System. Redundant system forms and configuration utilities are accessible only to an operator with System Administrator (and `root`) permission.

System operators perform routine system operation duties in an established Redundant system, after system setup is complete. Redundant system forms are used for alarm monitoring and for taking appropriate action when failover occurs.

Read these instructions and all ancillary documentation entirely before installing or operating this product. The most current versions of this and related documentation may be found on our website. Refer to *Online publication library* on page 57 for instructions on accessing our online publication library.

Note: A qualified service person, complying with all applicable codes, should perform all required hardware installation.

Conventions used in this document

The following conventions are used in this document:

Bold	Menu items and buttons.
Italic	Emphasis of an instruction or point; special terms.
	File names, path names, windows, panes, tabs, fields, variables, and other GUI elements.
	Titles of books and various documents.
Blue italic	(Electronic version.) Hyperlinks to cross-references, related topics, and URL addresses.
`Monospace`	Text that displays on the computer screen.
	Programming or coding sequences.

Safety terms and symbols

These terms may appear in this manual:

CAUTION: *Cautions* identify conditions or practices that may result in damage to the equipment or other property.

WARNING: *Warnings* identify conditions or practices that could result in equipment damage or serious personal injury.

Chapter 1 System Overview

This chapter provides an overview of a typical redundant system operation and configuration.

In this chapter:

Introduction

The Picture Perfect Redundant System (PPRS) provides a reliable and stable Picture Perfect environment. A combination of both software and hardware redundancy detects faults and automatically transfers the workload to the backup host. In the event of failure on the primary host, the backup host continues the alarm monitoring and access control functions. The transfer of control from the primary host to the backup host occurs rapidly to ensure that there is almost no loss of data or alarms.

RSH (Remote shell) is used by default for the authentication of information between the two hosts, however in order to ensure secure transmission, SSH (Secure shell) should be enabled. This option must be selected during installation.

Software Requirements

- AIX 5L (5.3, 5.2) or Red Hat Linux 4.0
- Picture Perfect **`base`** package
- Picture Perfect PPRS package

Hardware Requirements

- Two servers running the same operating system in the same time zone
- Two network interface cards for each server
- One signal splitter for every direct connect micro line connected to the Picture Perfect system
- CD ROM drive
- Optional: One 4mm or 8mm tape drive

A typical site will require a minimum of 5 MB free disk space to install the Picture Perfect Redundant System software on each host. For specific configuration details, contact your GE Sales Engineering representative.

The Hosts

A redundant system consists of two servers, each running Picture Perfect and PPRS. The two servers communicate constantly with each other over dual networks (Ethernet®, Token Ring, or both). One server is designated as the primary host and the second server is designated as the backup host.

Note: The two networks should be independent of each other. Contact your network administrator to verify that your network is configured for redundancy.

The primary host runs Picture Perfect in an active mode, whereas the backup host runs Picture Perfect in a standby mode. In standby mode, Picture Perfect is up and running, but the user interface cannot write to the database nor send data to the microcontrollers. Similarly, Picture Perfect running on the backup host does not process data received from the microcontrollers.

Note: Any data entered into the backup Picture Perfect database will be lost! Picture Perfect on the backup host can only display database information. Any changes made on the backup host will not be saved

The Alarm Monitors

The information displayed on the Alarm Monitors of the primary and backup hosts is identical (assuming you selected the same facility sets when logging on). If the primary host fails, communication is lost and the session ends; however, the Alarm Monitor on the backup host (now the new primary host) continues to function and display current information and incoming alarms. To ensure continuous monitoring of alarms, the operator logs off of the inactive session and logs back in to the backup host.

System Status Information

The primary and backup hosts exchange status information at a user defined interval known as the heartbeat. PPRS on each host generates a status and sends it to the other host. PPRS on each host then examines the status received from the other host. The status information includes:

- The state of the two networks.
- The state of critical processes that are essential for the proper operation of Picture Perfect and PPRS.
- The state of Picture Perfect software parameters that indicate the “health” of the internal operation.

Failover Operation

Failover occurs when the primary host initiates the transfer of control to the backup host. If the primary host determines that its operating status is faulty, it sends a failover message to the backup host, then immediately shuts itself down. When this occurs, a failover alarm appears on the Alarm Monitor, and an Alarm Alert pop-up window displays. The backup host then implements its takeover operation and becomes the primary host.

Takeover Operation

If the backup host receives a failover message from the primary host or if the primary host is not responding, the backup host initiates the takeover procedure and takes control of PPRS by becoming the primary host. When this occurs, a takeover alarm appears on the Alarm Monitor, and an Alarm Alert pop-up window displays.

Disable-Failover Operation

When the primary host detects a loss of communication with the backup host (over both networks), it executes the disable failover procedure which inhibits failover until the backup is operational again. When this occurs, a disable failover alarm appears on the Alarm Monitor, and an Alarm Alert pop-up window displays.

If the backup host itself is not functioning correctly, the backup host disables its takeover capability and sends a status message to notify the primary host of the action. Upon receiving the disable failover message, the primary host disables its failover option and sends a disable-failover alarm to the Alarm Monitor, and an Alarm Alert pop-up window displays.

Hardware Overview

PPRS consists of two hosts (Host1 and Host2) connected by redundant networks (Ethernet, Token Ring, or both). One computer is designated as the primary host and the other as the backup host. Both the primary and backup hosts have a copy of the database. See *Figure 1, PPRS Architecture (without Modems)* on page 5 and *Figure 2, PPRS Architecture (with Modems* on page 5.

Networks

The two networks provide a redundant link between the two hosts. The network type can be Ethernet, Token Ring, or a combination of both. Each network connects to both hosts. Network micros may be connected to either network (See *Network Micros* on page 40). The networks are used to exchange status information and data between the primary and backup hosts.

If SSH authentication is desired, it must be selected during the installation of PPRS. Refer to *Chapter 2 Installing PPRS*.

Workstations

The workstations provide the Picture Perfect Redundant System (PPRS) user interface.

Signal Splitter

One signal splitter is required per direct connect micro line. The signal splitter provides a communications link to and from a micro to both hosts. The backup host ignores the signals until a failover occurs. After failover, when the backup becomes the new primary host, the communications link is already in place and host-to-micro communication is undisturbed.

Modems and Cables

Short-haul modems are required between the signal splitter and the Micro/5 if the distance between those two points is greater than 100 feet.

Several types of cables are used in the PPRS architecture. Check the table below to be sure you are using the proper types for your setup

Table 1. Modems and Cables

Connection Points	Cable Description	Cable Part Number
Splitter to Host	Modem to Host Cable	320026001
Splitter to Micro/5	Micro/5 to Host Cable	320011002
Splitter to Short-Haul Modem	Splitter to Modem Cable	320240001
Short-Haul Modem to Micro/5	Modem to Micro/5 Cable	320025001

Figure 1. PPRS Architecture (without Modems)

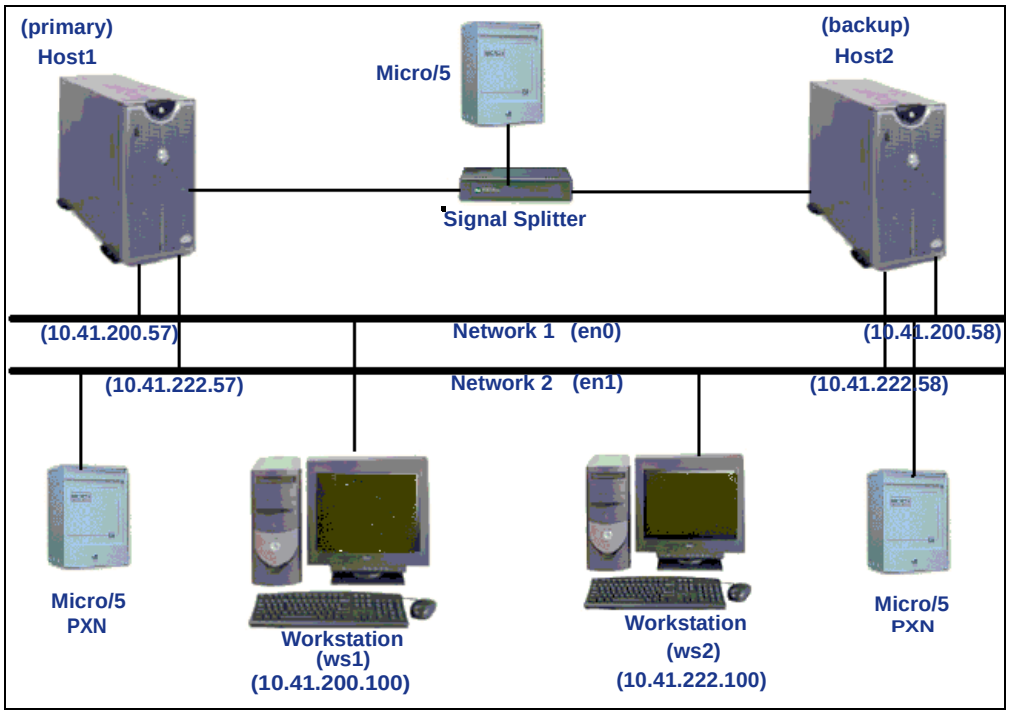
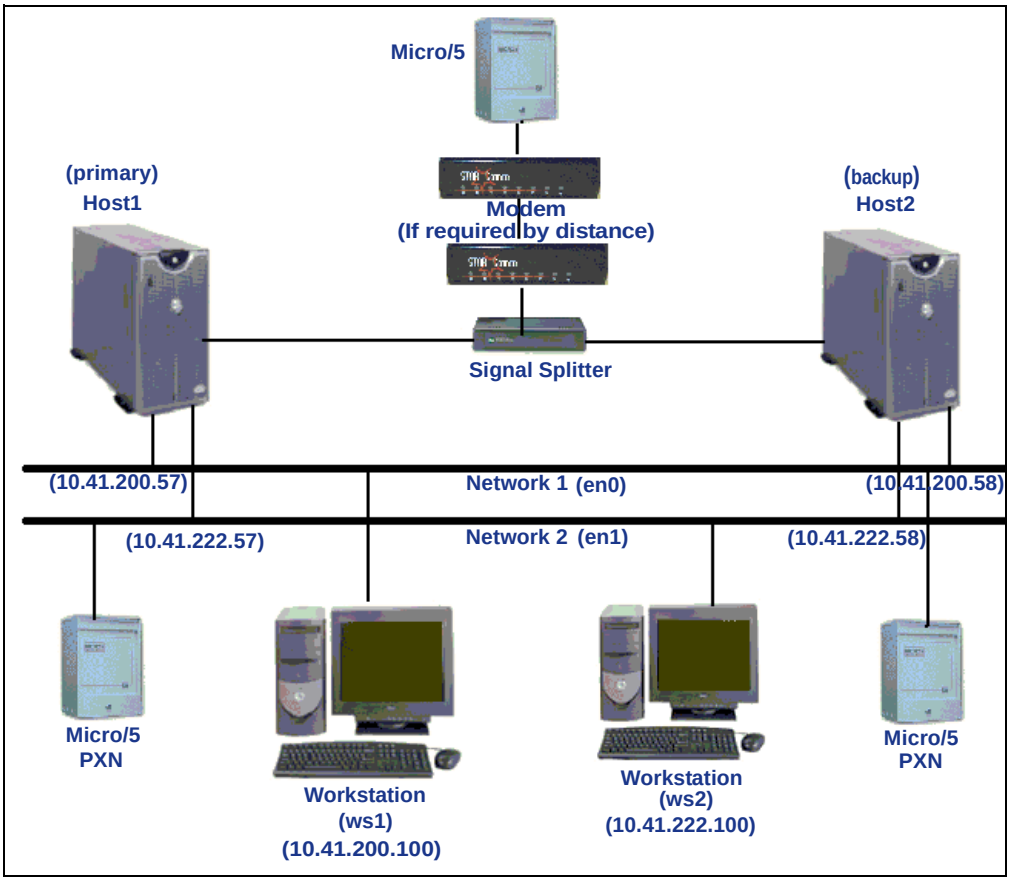


Figure 2. PPRS Architecture (with Modems



Software Overview

The PPRS software consists of the PPRS user interface and the PPRS application. The PPRS software runs on both the primary host and backup host.

User Interface

The PPRS user interface has three functions:

- To configure PPRS.
- To control PPRS.
- To display the status of PPRS for the primary and backup hosts in a color-coded manner.

Application Program

PPRS performs the following functions:

- Creates and initializes shared resources and starts Picture Perfect.
- Based on the configuration, it assumes the role of either a primary or backup host.
- Checks the status of a second host through heartbeat monitoring.
- Monitors the status of two networks.
- Maintains synchronized databases on both the primary and backup hosts.

The PPRS application executes the failover operation, the disable-failover operation, and the takeover operation.

Chapter 2 Installing PPRS

This chapter includes information needed to successfully install the Picture Perfect PPRS package.

In this chapter:

Overview

This chapter provides the system administrator with installation instructions for the Picture Perfect Redundant System software.

You can install the PPRS package as an add-on package to an existing installation, or you can install PPRS on a new (or upgraded) installation.

Conventions

The operating system assigns a name to each network interface. Two Ethernet interfaces will be assigned, for example, `en0` and `en1`.

Installation Terminology

Host

One of the two hosts or servers used in the redundant environment.

Host Name

The first of two names assigned to each host, such as `orion` and `andromeda`. The second name is associated with the second network adapter (two per host, one for each network), such as `orion222` and `andromeda222`.

Note:

- Use lowercase a through z, and/or numerics 0 through 9.
- Use the simple machine name such as **`pphost1`**, not the fully qualified name.
- The host name may not be more than 16 characters in length.
- Do not use host names containing the dash character (-). This is not a valid character in the Informix Dynamic Server 9.30 and will prevent the database from starting.
- Do not use host names containing the underscore character (_). This is not a valid character in the web server running on the Picture Perfect host.

Primary Host

The host which is to run the active version of Picture Perfect and through which all updates are made.

Backup Host

The host which runs a duplicate version of Picture Perfect and will become active only if the primary host fails.

Local Host

The host on which you are currently working. It can be either the primary host or the backup host, depending on your location.

Remote Host

The host on which you are not working, but which is connected to the local host through the network. It can be either the primary host or the backup host, depending on your current location.

IP Address

The multi-digit number, such as `10.41.200.57`, which defines a unique location within a network. Each host needs an IP address for both of its host names.

TCP/IP Configuration

See your network administrator for IP addresses for the following items on both networks:

- Primary Host (two IP addresses)
- Backup Host (two IP addresses)

Before you configure TCP/IP, map out the IP addresses for each network.

Table 2. Network map

Network	Interface	Host1 DomainIP Address	Host2 Domain IP Address
Network 1	en0	10.41.200.57	10.41.200.58
Network 2	en1	10.41.222.57	10.41.222.58

How to configure TCP/IP

- First configure TCP/IP on the primary host.
- Then repeat the process on the backup host.

AIX To configure TCP/IP on an AIX host, use the SMIT TCP/IP menu:

Note: To move your cursor to the next data entry field on a form, press an up/down arrow key.

1. Type the following command at the system prompt in an AIX window: `smit tcpip` Enter

   The TCP/IP menu appears.

2. Select **Minimum Configuration & Startup** and press Enter.

   The Available Network Interfaces window appears.

3. Select the network interface card, for example `en0` or `en1`, and press Enter.

   The Minimum Configuration & Startup menu appears.

4. Type the host name. (The host name will be the same for `en0` and `en1`.)

5. Type the IP address. Provide IP addresses for the network interfaces used for PPRS, for example:

   ```
   10.41.200.57 for en0
   10.41.222.57 for en1
   ```

6. To start the selected network driver (`en0 or en1`), set the **Start Now** field on the Minimum Configuration & Startup screen to `yes` (type `yes` or press Tab, then press Enter.

7. Repeat steps *3* through *6* to configure each network driver.

8. Because both hosts are configured with the same name, as indicated in *step 4*, you will need to edit the `/etc/hosts` file to change the host name for the second network card's IP address.
   For example, if the host name for `10.41.200.57` and `10.41.222.57` is `orion`, change the host name for `10.41.222.57` to `orion222`.

Linux To configure TCP/IP on a Linux host:

Note: The following steps edit the contents of the /etc/hosts file. We recommend that you make a backup copy of the file before performing these steps.

1. Log on to the system as the `root` user.
2. From the **Application Menu**, select **System Settings**, then **Network**.

   The Network Configuration window displays.
3. Select a network device, for example `en0` or `en1`, then click **Edit**.

   The Ethernet Device window displays.
4. Check **Activate device when computer starts.**
5. It is recommended that DHCP be disabled and a static IP address used. You will need to supply the static IP address, Subnet mask, and Default Gateway address.

   Note: If you intend to enable DHCP, make sure the host IP address remains static and is tied to the MAC address of the network card. Check with your IT department for DHCP configuration information.
6. When you have completed these changes, click **Ok** .

   You are returned to the Network Configuration window.
7. Click **Activate**.
8. When prompted to save your changes, click **Yes**.
9. When your changes have been saved, click **Ok** to close this window.
   a. Once the device is activated, you will be returned to the Network Configuration window again.
   b. Repeat *step 3* through *step 9* for each network device.
10. Close the window.

Network Cabling

Before you connect the network cable to a network interface, you need to determine the network board that is configured to each specific network interface (en0 or ent0; en1 or ent1).

Pre-Installation Requirements

Before you begin the installation of PPRS, make sure both hosts meet the following requirements:

- The following software packages are installed on both hosts:
  - AIX 5.2L or Red Hat Linux 4.0
  - Picture Perfect `base` package

  Note: The settings, selected at installation, for features such as Seed Counter must be the same for both hosts. Both servers must also be configured for the same time zone.
- Two network adaptors are installed on each host.
- Each host has a host name and an IP address for each of its two network adaptors, and they can ping each other.
- Port numbers are selected that are four or more digits long, greater than 9000, and not already in use (check the `/etc/services` file for port numbers already in use).

  Note: Make sure the primary port numbers and the backup port numbers on both hosts match, otherwise there will be no communication between the two hosts.

Installation Procedures

Primary Host Installation

Decide which host will be the primary host. Follow these steps to install PPRS on the primary host. To perform the installation for the backup host, refer to *Backup Host Installation* on page 18.

Note: PPRS requires two (2) network interface cards to be installed on each host and configured; that is, they have been defined and configured with the network IP addresses that will be used for the redundant system.

If this is not done:

- The Informix database will be unable to start.
- After PPRS is installed, it will be impossible to install any other packages, or to start PPRS.

To install the software:

1. Log on as `root` and open a terminal window.

   You should see a # prompt.
2. Type the following to shut down Picture Perfect:

   `. /cas/bin/profile` Enter
   `rc.pperf -k` Enter
3. Insert the Picture Perfect CD-ROM into the drive of the primary host.

Linux

4. The CD mounts automatically.

AIX

   Mount the CD by typing:

   `mntCD` Enter

   If this command is not found, type:

   `mount -v cdrfs -o ro /dev/cd0 /mnt` Enter

5. To display a list of installation options, type:

Linux `/media/cdrom/INSTALL -o` Enter

AIX `/mnt/INSTALL -o` Enter

You will receive messages similar to those shown below, followed by a list of packages:

```
Picture Perfect CD-ROM Installation - 1.12 3/9/04
Copyright (C) 2004 GE Security
The following BASE_OPTIONS product(s) are available:
Prod #    Name and Descriptions
------    -----------------------------
0         base                Picture Perfect Base package
1         eif                 Picture Perfect External Interface package
2         graph               Graphics Monitoring and Control package
3         image               Picture Perfect Imaging package
4         impexp              Picture Perfect Import/Export package
5         netlan              Picture Perfect Network System - Host package
6         pprs                Picture Perfect Redundant System package
7         subhost             Picture Perfect Network System - Subhost package
8         tours               Picture Perfect Guard Tours package
Enter product number(s), separated by ',' to select, 'q'  to quit:
```

6. Type the corresponding product number, for example 6, to install the Picture Perfect Redundant System (`pprs`) package and press Enter.

   Your package selection will now be displayed, and you will be asked to confirm it:

```
You have selected the following product(s):
6         pprs                Picture Perfect Redundant System package
Is this correct (y/n)? [y]
```

7. To make a different selection, type `n`, and you will be returned to *step 5* where you will be prompted again for your selection.
   To continue the installation, type: `y` Enter

   The installation will commence, and messages similar to the following will appear on the screen:

```
Installing pprs...
Picture Perfect Multi-package Installation - 1.12 3/9/04
Copyright (C) 2004 GE Security

Installing from image in /mnt/pp ...
400 blocks

Do you want to install the Picture Perfect PPRS Package (y/n)? [y]
```

8. To confirm, type: `y` Enter

   Messages similar to the following will display:

```
Checking if need to save nls or help files...

Picture Perfect NLS Text Save - 1.16 2/19/04
Copyright (C) 2004 GE Security
Fri Mar 24 10:54:40 EDT 2004
Saving nls files ...
Saving nls files in /cas/nls/src/en_US ...
Saving nls files in /cas/nls/src/en_US/.devel ...
Saving help files ...
Saving help files in /cas/help/en_US ...
Saving help files in /cas/help/en_US/.devel ...
NLS Text Save Finished
PPRS.INST Picture Perfect Installation - Version 1.7 3/24/04
Copyright (C) 2004 GE Security
Loading Picture Perfect Redundant System Package...
Extracting files from media...
13200 blocks
The files have been read from the media.
******************************************************
******************************************************
***   Redundant Picture Perfect Does NOT Start       ***
***   Automatically When System Boots Up.            ***
******************************************************
******************************************************
Redundant Picture Perfect Network Configuration
Will orion be the Primary host (y/n)? [y]
```

CAUTION: Only one host should be designated as the primary host.

9. Make sure to type: **`y`** (Enter), as this server will be the primary host.

   You will be asked to confirm your answer.

   ```
   Are You Sure (y/n)? [y]
   ```

10. Type: `y` (Enter), if the previous response is correct.

    You will be prompted for the name of the second interface to be used by Picture Perfect redundancy.

    ```
    Please enter Second PRIMARY (LOCAL) System Name:
    ```

11. Enter the second name of the primary host (for example, `orion222`), and press (Enter).

    You will be asked for the IP address of the second network interface.

    ```
    Enter its IP Address: [10.41.222.57]
    ```

12. If the IP address displayed is the correct IP address for the second network interface, accept it by pressing (Enter), or enter the IP address of the second network interface, and press (Enter).

    You will be asked to confirm your answer.

```
Name of Second PRIMARY (LOCAL) host is ......: orion222
IP address of Second PRIMARY (LOCAL) host is ...: 10.41.222.57
Is the name and IP address correct (y/n)? [y]
```

13. If the name and IP address are correct, type: `y` Enter

    You will be prompted for the name of the backup host.

```
Please enter First BACKUP (REMOTE) System Name:
```

To enter the name of the backup host:

1. Type the name of the backup host (such as `andromeda`), and press Enter.

   You will be prompted for the IP address of the backup host.

```
Enter its IP Address: [10.41.200.58]
```

2. If the IP address displayed is the correct IP address for the backup, accept it by pressing Enter, or enter the IP address of the backup host, and press Enter.

   You will be asked to confirm your answer.

```
Name of first BACKUP (REMOTE) host is ......: andromeda
IP address of first BACKUP (REMOTE) host is ...: 10.41.200.58
Is the name and IP address correct (y/n)? [y]
```

3. If the name and IP address are correct, type: `y` Enter

   An entry will be added to your `/etc/services` file for the port used by Informix to communicate with the database of the backup host, and you will be prompted for the second name of the backup host.

```
Adding the following entry to /etc/services
andromeda_star  1960/tcp      #Informix REMOTEDB Port
Please enter Second BACKUP (REMOTE) System Name:
```

4. Enter the second name of the backup host (such as `andromeda222`), and press Enter.

   You will be prompted for the IP address of the second network interface of the backup host.

```
Enter its IP address: [10.41.222.58]
```

5. If the IP address displayed is the correct IP address for the second network interface of the backup host, accept it by pressing Enter, or enter the IP address of the second network interface of the backup host, and press Enter.

   You will be asked to confirm your answer.

```
Name of Second BACKUP (REMOTE) host is ......: andromeda222
IP address of Second BACKUP (REMOTE) host is ...: 10.41.222.58
Is the name and IP address correct (y/n)? [y]
```

6. If the name and IP address are correct, type: `y` Enter

   Messages will be displayed indicating the Informix `sqlhosts` and `onconfig` files are being updated with the information provided, as well as the Picture Perfect system configuration table.

```
Updating /cas/db/etc/sqlhosts file
REMOTE DB PORT IS andromeda_star
Updating /cas/db/etc/onconfig file
Updating host & system_config tables
```

7. You are then prompted for the port numbers used by Picture Perfect on the primary host to communicate with Picture Perfect on the backup host. Each port number MUST be four or more digits long, greater than 9000, and not already in use (the installation script will check the `/etc/services` file to ensure that existing port numbers are not used).

Note: Make sure the primary port numbers and the backup port numbers on both hosts match, otherwise there will be no communication between the two hosts.

```
Enter PRIMARY [orion] Local PORT Number (i.e. 9001): [9001]
Enter BACKUP [andromeda] Remote PORT Number (i.e. 9002): [9002]
```

To check if the specified ports are correct:

1. Press Enter to accept the displayed port, or type the port of your choice, and press Enter.

   You are asked to confirm your answer.

```
PRIMARY [orion] Local PORT Number: [9001]
BACKUP [andromeda] Remote PORT Number: [9002]
Are these ports correct (y/n)? [y]
```

2. If the ports are correct, type: `y` Enter

   An entry will be added to your `/etc/services` file for the ports and other updates performed to the Picture Perfect database.

```
Setting Ports...Please Wait
Adding the following entry to /etc/services
pprs:
        PPRS    9001/tcp                #PPRS monitor port
Adding the following entry to /etc/services
pprs:
        PPRS    9002/tcp                #PPRS monitor port
Building .mwmrc and dtwmrc
Adding alternate-servers in /usr/lib/X11/fs/config
pptimed successfully installed
```

```
Adding Sweeper Alarm/Input_group to System
Creating PPRS Sweeper Failure alarm record.
Creating PPRS Sweeper Failure input group record.
Do you want to configure Secured shell for this system (y/n)?: [n] y
```

3. If you choose not to enable SSH, skip to *step 7*.
   If you want to enable SSH authentication, type: `y` Enter
   Messages similar to the following display:

```
Starting secured shell(SSH) configuration...

Generating DSA key, Enter 'y' for any overwrite prompts:
Generating public/private dsa key pair.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
```

4. As prompted, enter a passphrase and enter it again to confirm. Messages similar to the following display:

```
Your identification has been saved in /root/.ssh/id_dsa.
Your public key has been saved in /root/.ssh/id_dsa.pub.
The key fingerprint is:
cf:fa:58:71:c0:a7:6d:e4:e3:d7:88:42:7c:8e:47:96 root@bctgto


Restarting ssh-agent
Key in SAME PASSPHRASE as entered above
Enter passphrase for /root/.ssh/id_dsa:
```

5. As prompted, enter the passphrase entered in *step 4*. Messages similar to the following display:

```
Identity added: /root/.ssh/id_dsa (/root/.ssh/id_dsa)

Transferring public key to remote host bctcobalt2
Key in 'yes'for 'continue connecting' prompts
Enter root password for bctcobalt2, when asked for it.
The authenticity of host 'bctcobalt2 (172.16.4.196)' can't be established.
RSA key fingerprint is b0:10:37:d7:e9:cd:b7:6a:89:30:10:e4:99:b3:c3:4b.
Are you sure you want to continue connecting (yes/no)? yes
```

6. Type `yes` to continue the authentication setup.

```
Warning: Permanently added 'bctcobalt2,172.16.4.196' (RSA) to the list of known host
root@bctcobalt2's password:
```

7. The installation is now complete. You will see messages similar to the following.

```
The 'PPRS.INST' installation has completed successfully.
Checking if need to update nls files...
Picture Perfect NLS Check - 2.0 1/19/04
Copyright (C) 2004 GE Security
Fri Feb 24 11:05:07 EDT 2004
```

```
Updating nls files...
Picture Perfect NLS Text Update - 1.30 1/19/04
Copyright (C) 2004 GE Security
Fri Feb 24 11:05:07 EDT 2004
Comparing nls files in /cas/nls/src/en_US/.devel ...
Updating nls files in /cas/nls/src/en_US ...
Comparing help files in /cas/help/en_US/.devel ...
Updating help files in /cas/help/en_US ...
Building en_US ...
NLS Text Update Finished
Running /cas/bin/fixperm on /tmp/pprs.perm file...
No errors detected
/cas/bin/fixperm finished.
Installing BASE_OPTIONS product(s) was successful.
```

Note: If you did not have a successful PPRS installation, do not press Enter. Instead contact your GE Customer Support representative for additional instructions.

```
The INSTALLation has completed.
The system needs to be rebooted for the changes to take effect.
Reboot the system (y/n)? [y]
```

8. Press Enter (defaults to `y`) to reboot the system. Remember to remove the installation CD after the reboot is complete.

Backup Host Installation

Decide which host will be the backup host. Follow these steps to install PPRS on the backup host. To perform the installation for the primary host, refer to *Primary Host Installation* on page 11.

Note: PPRS requires two (2) network interface cards to be installed on each host and configured; that is, they have been defined and configured with the network IP addresses that will be used for the redundant system.
If this is not done:

- The Informix database will be unable to start.
- After PPRS is installed, it will be impossible to install any other packages, or to start PPRS.

Follow these steps to install the software.

Prerequisite: The Primary host must already have the PPRS package installed and the system reboot completed.

1. Log on as `root` and open a terminal window.

   You should see a # prompt.

2. Type the following to shut down Picture Perfect:

   `. /cas/bin/profile` Enter
   `rc.pperf -k` Enter

3. Insert the Picture Perfect CD-ROM into the drive of the backup host.

Linux 4. The CD mounts automatically.

AIX Mount the CD by typing:

`mntCD` Enter

If this command is not found, type:

`mount -v cdrfs -o ro /dev/cd0 /mnt` Enter

5. To display a list of installation options, type:

Linux `/media/cdrom/INSTALL -o` Enter

AIX `/mnt/INSTALL -o` Enter

You will receive messages similar to those shown below, followed by a list of packages.

```
Picture Perfect CD-ROM Installation - 1.12 1/9/04
Copyright (C) 2004 GE Security
The following BASE_OPTIONS product(s) are available:
Prod #    Name and Descriptions
------  --------------------
0         base                Picture Perfect Base package
1         eif                 Picture Perfect External Interface package
2         graph               Graphics Monitoring and Control package
3         image               Picture Perfect Imaging package
4         impexp              Picture Perfect Import/Export package
5         netlan              Picture Perfect Network System - Host package
6         pprs                Picture Perfect Redundant System package
7         subhost             Picture Perfect Network System - Subhost package
8         tours               Picture Perfect Guard Tours package

Enter product number(s), separated by ',' to select, 'q'  to quit:
```

6. Type the corresponding product number, for example `6`, to install the Picture Perfect Redundant System (`pprs`) package and press Enter.

   Your package selection will now be displayed, and you will be asked to confirm it:

```
You have selected the following product(s):
6         pprs                  Picture Perfect Redundant System package
Is this correct (y/n)? [y]
```

7. To make a different selection, type `n`, and you will be returned to *step 5* where you will be prompted again for your selection. To continue the installation, type: `y` Enter

   The installation will begin, and messages similar to the following will appear on the screen:

```
Installing pprs...
Picture Perfect Multi-package Installation - 1.12 1/9/04
Copyright (C) 2004 GE Security
Installing from image in /mnt/pp ...
400 blocks
Do you want to install the Picture Perfect PPRS Package (y/n)? [y]
```

8. To confirm, type: `y` Enter

   Messages similar to the following will display.

```
Checking if need to save nls or help files...
Picture Perfect NLS Text Save - 1.16 1/19/04
Copyright (C) 2004 GE Security
Fri Feb 24 10:54:40 EDT 2004
Saving nls files ...
Saving nls files in /cas/nls/src/en_US ...
Saving nls files in /cas/nls/src/en_US/.devel ...
Saving help files ...
Saving help files in /cas/help/en_US ...
Saving help files in /cas/help/en_US/.devel ...
NLS Text Save Finished
PPRS.INST Picture Perfect Installation - Version 4.0 3/24/04
Copyright (C) 2004 GE Security
Loading Picture Perfect Redundant System Package...
Extracting files from media...
13200 blocks
The files have been read from the media.
**********************************************************
**********************************************************
***   Redundant Picture Perfect Does NOT Start       ***
***   Automatically When System Boots Up.            ***
**********************************************************
**********************************************************
Redundant Picture Perfect Network Configuration
Will andromeda be the Primary host (y/n)? [y]
```

CAUTION: Only one host should be designated as the primary host.

9. Make sure to type **n** and press Enter, as this host will be the backup host.

   You will be asked to confirm your answer.

   ```
   Are You Sure (y/n)? [y]
   ```

10. If the previous response is correct, type: y Enter

    You will be prompted for the name of the second interface to be used by Picture Perfect redundancy.

    ```
    Please enter Second BACKUP (LOCAL) System Name:
    ```

11. Enter the second name of the backup host (such as andromeda222), and press Enter.

    You will be prompted for the IP address of the second network interface.

    ```
    Enter its IP Address: [10.41.222.58]
    ```

12. If the IP address displayed is the correct IP address for the second network interface, accept it by pressing Enter, or enter the IP address of the second network interface, and press Enter.

    You will be asked to confirm your answer.

    ```
    Name of Second BACKUP (LOCAL) host is ......: andromeda222
    IP address of Second BACKUP (LOCAL) host is ...: 10.41.222.58
    Is the name and IP address correct (y/n)? [y]
    ```

13. If the name and IP address are correct, type: y Enter

    You will be prompted for the name of the primary host.

    ```
    Please enter First PRIMARY (REMOTE) System Name:
    ```

To enter the name of the primary host:

14. Type the name of the primary host (such as orion), and press Enter.

    You will be prompted for the IP address of the primary host.

    ```
    Enter its IP Address: [10.41.200.57]
    ```

15. If the IP address displayed is the correct IP address for the primary host, accept it by pressing Enter, or enter the IP address of the primary host and press Enter.

    You will be asked to confirm your answer.

    ```
    Name of first PRIMARY (REMOTE) host is ......: orion
    IP address of first PRIMARY (REMOTE) host is ...: 10.41.200.57
    Is the name and IP address correct (y/n)? [y]
    ```

16. If the name and IP address are correct, type: `y` Enter

    An entry will be added to your `/etc/services` file for the port used by Informix to communicate with the database of the primary host, and you will be prompted for the second name of the primary host.

```
Adding the following entry to /etc/services
orion_star  1960/tcp                #Informix REMOTEDB Port
Please enter Second PRIMARY (REMOTE) System Name:
```

17. Enter the second name of the primary host (such as `orion222`), and press Enter.

    You will be prompted for the IP address of the second network interface of the primary host.

```
Enter its IP address: [10.41.222.57]
```

18. If the IP address displayed is the correct IP address for the second network interface of the primary host, accept it by pressing Enter, or enter the IP address of the second network interface of the primary host and press Enter.

    You will be asked to confirm your answer.

```
Name of Second PRIMARY (REMOTE) host is ......: orion222
IP address of Second PRIMARY (REMOTE) host is ...: 10.41.222.57
Is the name and IP address correct (y/n)? [y]
```

19. If the name and IP address are correct, type: `y` Enter

    Messages will be displayed indicating the Informix `sqlhosts` and `onconfig` files are being updated with the information provided, as well as the Picture Perfect system configuration table.

```
Updating /cas/db/etc/sqlhosts file
REMOTE DB PORT IS orion_star
Updating /cas/db/etc/onconfig file
Updating host & system_config tables
```

20. You will then be prompted for the port numbers used by Picture Perfect on the backup host to communicate with Picture Perfect on the primary host. Each port number MUST be four or more digits long, greater than 9000, and not already in use (the installation script will check the `/etc/services` file to ensure that existing port numbers are not used).

Note: Make sure the primary port numbers and the backup port numbers on both hosts match, otherwise there will be no communication between the two hosts.

```
Enter BACKUP [andromeda] Local PORT Number (i.e., 9002): [9002]
Enter PRIMARY [orion] Remote PORT Number (i.e., 9001): [9001]
```

To check if specified ports are correct:

1. Press Enter to accept it, or type the port of your choice, and press Enter.

   You will be asked to confirm your answer.

```
BACKUP [andromeda] Local PORT Number: [9002]
PRIMARY [orion] Remote PORT Number: [9001]
Are these ports correct (y/n)? [y]
```

2. If the ports are correct, type: `y` Enter

   An entry will be added to your `/etc/services` file for the ports and other updates performed to the Picture Perfect database.

```
Setting Ports...Please Wait
Adding the following entry to /etc/services
pprs:
          PPRS    9002/tcp                #PPRS monitor port
Adding the following entry to /etc/services
pprs:
          PPRS    9001/tcp                #PPRS monitor port
Building .mwmrc and dtwmrc

Adding alternate-servers in /usr/lib/X11/fs/config
pptimed successfully installed
```

3. The installation is now complete. You will see messages similar to the following.

```
Adding Sweeper Alarm/Input_group to System
Creating PPRS Sweeper Failure alarm record.
Creating PPRS Sweeper Failure input group record.

Do you want to configure Secured shell for this system (y/n)?: [n] y
```

4. If you choose not to enable SSH, skip to *step 3*.
   If you want to enable SSH authentication, type: `y` Enter
   Messages similar to the following display:

```
Starting secured shell(SSH) configuration...

Generating DSA key, Enter 'y' for any overwrite prompts:
Generating public/private dsa key pair.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
```

5. As prompted, enter a passphrase and enter it again to confirm. Messages similar to the following display:

```
Your identification has been saved in /root/.ssh/id_dsa.
Your public key has been saved in /root/.ssh/id_dsa.pub.
The key fingerprint is:
cf:fa:58:71:c0:a7:6d:e4:e3:d7:88:42:7c:8e:47:96 root@bctgto
```

```
Restarting ssh-agent
Key in SAME PASSPHRASE as entered above
Enter passphrase for /root/.ssh/id_dsa:
```

6. As prompted, enter the passphrase entered in *step 4*. Messages similar to the following display:

```
Identity added: /root/.ssh/id_dsa (/root/.ssh/id_dsa)

Transferring public key to remote host bctcobalt2
Key in 'yes'for 'continue connecting' prompts
Enter root password for bctcobalt2, when asked for it.
The authenticity of host 'bctcobalt2 (172.16.4.196)' can't be established.
RSA key fingerprint is b0:10:37:d7:e9:cd:b7:6a:89:30:10:e4:99:b3:c3:4b.
Are you sure you want to continue connecting (yes/no)? yes
```

7. Type `yes` to continue the authentication setup.

```
Warning: Permanently added 'bctcobalt2,172.16.4.196' (RSA) to the list of known host
root@bctcobalt2's password:

The 'PPRS.INST' installation has completed successfully.
Checking if need to update nls files...
Picture Perfect NLS Check - 2.0 1/19/04
Copyright (C) 2004 GE Security
Fri Feb 24 11:05:07 EDT 2004
Updating nls files...
Picture Perfect NLS Text Update - 1.30 1/19/04
Copyright (C) 2004 GE Security
Fri Feb 24 11:05:07 EDT 2004
Comparing nls files in /cas/nls/src/en_US/.devel ...
Updating nls files in /cas/nls/src/en_US ...
Comparing help files in /cas/help/en_US/.devel ...
Updating help files in /cas/help/en_US ...
Building en_US ...
NLS Text Update Finished
Running /cas/bin/fixperm on /tmp/pprs.perm file...
No errors detected
/cas/bin/fixperm finished.
Installing BASE_OPTIONS product(s) was successful.
```

Note: If you did not have a successful PPRS installation, do not press Enter. Instead contact your GE Customer Support representative for additional instructions.

```
The INSTALLation has completed.
The system needs to be rebooted for the changes to take effect.
Reboot the system (y/n)? [y]
```

8. Press Enter (defaults to `y`) to reboot the system. Remember to remove the installation CD after the reboot is complete.

Note: In a redundant system, interface (Alarm, CCTV, Firepanel, and Intercom) packages are installed onto the primary host and then copied automatically from the primary to the backup host. Therefore, before installing these packages, both hosts must be a fully operational redundant system and a recovery must be performed to synchronize the two databases.

9. To verify your configuration, if problems are encountered, please refer to *Chapter 4 Verifying the configuration* for troubleshooting details.

Chapter 3 Configuration and Operation

This chapter describes how to begin using your redundant system.

In this chapter:

Overview

A Picture Perfect redundant system consists of two hosts with PPRS configured and invoked on both hosts.

To keep the two hosts synchronized, consider alternating the primary/backup modes of the host computers every month. For example, allow host A to run in primary mode for a month. At the end of the month, perform a Manual Failover to make host B assume primary mode (See *page 31* for an explanation of Manual Failover). Bring up host A in backup mode. Allow host B to run in primary mode for a month before repeating this process.

By alternating primary and backup modes each month you will have the highest probability that both hosts maintain good communications to all terminals and micros, refresh the failover process for the operators, and catch potential failover problems under controlled and planned circumstances. Each time you add a client station you should ensure it connects to both machines. Also by switching roles for the hosts your operators would remain educated and not panic when the roles of the machines changed due to a failure. This avoids operators developing a habit of connecting only to a particular host and reminds them that they must connect to whichever host is running as primary. This would also ensure that their passwords stay in sync across both hosts.

This chapter discusses:

- Initial Setup steps
- Operations such as Starting PPRS
- Navigating the PPRS Main Window
- Database Synchronization and Recovery
- The PPRS Command Line Utility
- Micro Configuration

Initial Setup

PPRS consists of two hosts with PPRS configured and invoked on both hosts.

Note: If SSH authentication is desired, it must be selected during the installation of PPRS.

There is a specific order in which the primary and backup hosts must be configured and started. Follow the sequence below to set up your redundant Picture Perfect system.

1. Complete Picture Perfect and PPRS installation on both hosts.

   1a. Refer to the *Picture Perfect 4.0 Installation Manual* to install the `base` Picture Perfect package on both hosts.

   1b. Refer to *Chapter 2 Installing PPRS*, of this manual, to install the `pprs` package on both hosts.

2. Configure PPRS on the primary host.

   2a. From the console, log on to the primary host as `root`.

   2b. To display the PPRS window:

Linux
- Open a new terminal window and at the system prompt, type:
  ```
  cd /cas/bin
  startpprs local.
  ```

AIX
- Left-click on the desktop and from the resulting menu, select **Redundant PP**.

2c. In the **PPRS** window, select **Configuration**.

2d. In the **PPRS Configuration** window, make sure the **System Mode** is set to **Primary**, then click **Save**.

3. Start PPRS on the primary host.

3a. In the PPRS window, open the **Commands** menu and select **Start PPRS App**.

3b. The Starting message appears. The System Status field of the PPRS window will temporarily display Invalid, then Starting Comm.

4. Resave any existing operators on the primary host.

This is necessary to correctly set up your operator's environments. You will need to resave only the primary host operator records. Perform these steps from a client workstation connected to the primary host.

4a. From the Picture Perfect primary navigation menu, select **Control**, then **Operators**.

4b. Click **Find** to view all of the operator records.

4c. Review each one and set their password.

4d. Click **Save**.

5. Configure PPRS on the backup host.

5a. From the console, log on to the backup host as `root`.

5b. To display the PPRS window:

Linux

- Open a new terminal window and at the system prompt, type:
```
cd /cas/bin
startpprs local
```

AIX

- Left-click on the desktop and from the resulting menu, select **Redundant PP**.

5c. In the PPRS window, select **Configuration**.

5d. In the PPRS Configuration window, make sure the **System Mode** is set to **Backup**, then click **Save**.

Note: Even though the settings appear correctly in the Configuration window when it displays, it is mandatory to click Save at this point.

6. Synchronize the databases.

Perform a database recovery procedure from the primary host to the backup host. See *Database Recovery* on page 35.

7. Start PPRS on the backup host

7a. In the PPRS window, open the **Commands** menu and select **Start PPRS App**.

7b. The Starting message appears. The System Status field of the PPRS window will temporarily display Invalid, then Starting Comm. After a few moments, the System Status fields on both hosts will display Ok. The system is now running in a redundant state.

Starting PPRS

Only a system administrator logged on as `root` can configure and start PPRS. To display the PPRS window:

Linux
- Open a new terminal window and at the system prompt, type:
  ```
  cd /cas/bin
  startpprs local
  ```

AIX
- Left-click on the desktop and from the resulting menu, select **Redundant PP**. If you log on as `root`, the desktop menu includes the Redundant PP option, while the standard operator login does not.

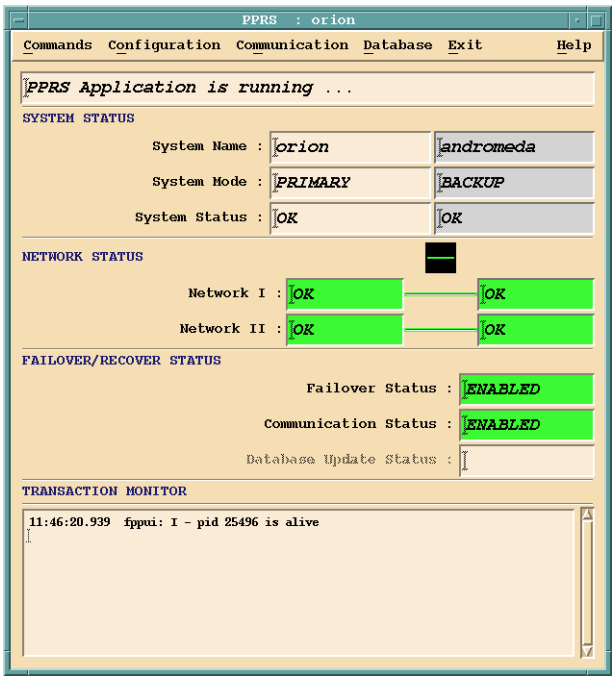
Note: If only a single network is operational, the PPRS user interface (on the primary or backup host) takes approximately three minutes to appear.

The PPRS Main Window

The Main window has four basic functions:

- It contains menus for commands and options.
- It displays the status of the two hosts in the PPRS environment.
- It displays the status of the communication links between the two hosts.
- It displays error and transaction messages.

Figure 3. PPRS Main Window



The Title Bar of the Main window displays the host name. Other sections of this window include the Menu Bar, Message Window, System Status, Network Status, Failover/Recover Status, and the Transaction Monitor:

Table 3. PPRS Form

Field	Description
Menu Bar	The Menu Bar runs across the top of the window and holds options such as pull-down menus and windows used to execute commands, configure the system, view the communication setup, invoke database recovery, and exit the application. For details on these options, see *The Menu Bar* on page 30.
Message Window	The Message Window displays application-specific messages, such as Application starting up or Configuration saved.
System Status	The System Status section indicates the current statuses of both hosts. The white fields refer to the local host, and the gray fields refer to the remote host. System Name Displays the name of each host (from the `/etc/hosts` file). System Mode Displays the mode of each host: Primary, Backup, or Invalid. System Status Displays the status of each host: OK, Failover, Disable, Takeover, or Start Communications (Start Comm).
Network Status	The Network Status section indicates the communication statuses of both networks (Network I and Network II) as perceived by the local host: OK or No Communication (No Comm).
Failover/Recover Status	The Failover/Recover Status section displays the present mode of the Failover and Communication Override commands for the local host. These commands are activated through the Commands pull-down menu. See *The Commands Menu* on page 30 for details. Failover Command Status Displays the present Failover mode of the local host: Enabled or Disabled. If the Failover Command Status displays Disabled, that field appears in red. Override Communication Status Displays the present status of the Communications Override feature of the local host: Enabled or Disabled (default). If the Override Communication Status displays Enabled, the PPRS system is capable of functioning with only one network instead of two. Database Update Status This field appears only in the user interface of the backup host. It displays the status of the database synchronization: In Progress or Not Running. This field helps you determine when it is all right to bring the backup host down for maintenance or test purposes. If this field displays In Progress, do not take the backup host down; wait until this field displays Not Running. Note: If you take the backup host down while database synchronization is in progress, the two databases will NOT be synchronized.
Transaction Monitor	The Transaction Monitor window displays a real-time scrolling list of error and execution messages. The messages are also written to the `/cas/log/ppr.MMDD` file, where MM=month and DD=day. Each message includes the transaction time, the routing that prints the message, the message type (E=error, I=informative, P=panic, W=warning), and the message itself.

The Menu Bar

There are six items on the Menu Bar. To select an item, point to it and left-click. If the selection has a pull-down menu, point to the menu option and release the mouse button to select it.

Table 4. Menu Bar

Menu Item	Description
Commands	This item displays a nine-option pull-down menu used to start/stop PPRS, override communication status, enable/disable failover, invoke manual failover, and enable/disable pop-up warning messages. For details on this menu, see *The Commands Menu* on page 30.
Configuration	This item displays a configuration window used to set system mode, polling frequency, allowable percentage of free shared memory in Picture Perfect, maximum allowable pending messages in Picture Perfect message queues, maximum allowable number of re-sent messages in Picture Perfect, micro communication timeout duration, and database update frequency. For details on this window, see *The Configuration Window* on page 32.
Communication	This item displays a communication window showing a map of the network connections between the two hosts. For details on this window, see *The Communication Window* on page 33.
Database	This item displays the database recovery window used to initiate a database recovery and synchronize the databases on the two hosts. For details on this window, see *Database Synchronization and Recovery* on page 34.
Exit	This item closes the PPRS user interface.
Help	This item displays a help window which provides information on various topics related to PPRS and Picture Perfect.

The Commands Menu

The Commands pull-down menu contains all the commands for the PPRS application. The command options currently selected as well as the current system mode determine which commands are available for selection. For example, if an option is currently enabled, its disable counterpart would be available as an option, but the enable option would be grayed out and unavailable for selection since the option is already in that state.

The Commands menu includes the following options:

Table 5. Commands Menu

Menu Item	Description
Start PPRS App	Starts the PPRS application. Issue this command only after PPRS configuration is complete.
Stop PPRS App	Stops the PPRS application.
Disable Comm Status	Disables the Enable Comm Status option. In this communications mode, two working networks must be operational in order to start the PPRS application. When you select this option, Disabled appears in the Override Communication Status field of the PPRS Main window.

Table 5. Commands Menu (continued)

Menu Item	Description
Enable Comm Status	Allows start-up of the application with only one functioning network between the two hosts. (PPRS anticipates two functional networks when it starts.) Use this command only when one of two installed networks is not functional. When you select this option, Enabled appears in the Override Communication Status field of the PPRS Main window. If one of the networks fails while PPRS is running, a pop-up communication warning window appears periodically (three times per polling period). To stop this warning window from continuing, select this command.
Enable Failover	Enables the local host to failover (if it is the primary host) or takeover (if it is the backup host) when required. When you select this option, Enabled appears in the Failover Command Status field of the PPRS Main window.
Disable Failover	Disables the Failover/Takeover option. When you select this option, Disabled appears in the Failover Command Status field of the PPRS Main window to indicate that the host is not in redundant mode.
Manual Failover	Causes a manual failover to the backup host. This command can be used for testing the PPRS application and for maintenance purposes.
Enable Warning Msg	Enables warning messages to pop-up when Picture Perfect reaches critical limits.
Disable Warning Msg	Disables subsequent pop-up warning messages.

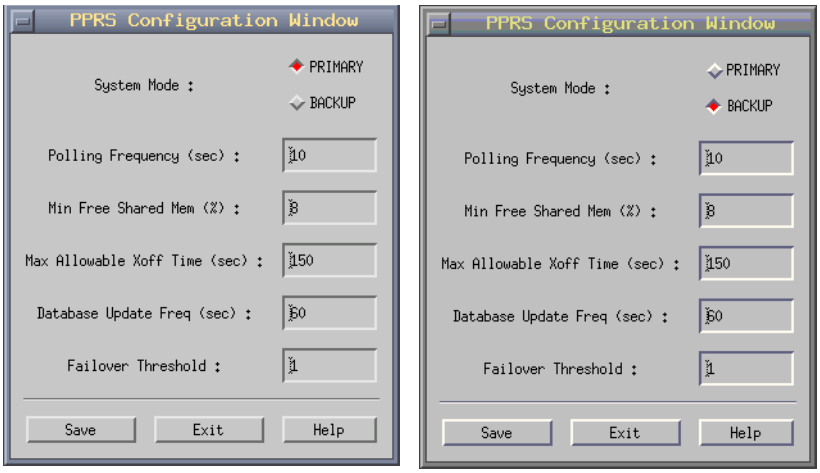
The Configuration Window

Use the Configuration window to configure the PPRS environment.

To display the Configuration window:

1. Click the **Configuration** option in the Menu Bar of the PPRS Main window.

Figure 4. PPRS Configuration Window



2. Set the following PPRS configuration parameters for each host:

   Note: If it is necessary to change a configuration parameter while the PPRS application is running, do the following:

   - Stop the application by selecting **Stop PPRS App** from the **Commands** menu.
   - Click **Configuration** to display the **Configuration** window.
   - Change the required parameter and click **Save**.
   - Restart the application by selecting **Start PPRS App** from the **Commands** menu.:

Table 6. Configuration Window

Menu Item	Description
System Mode	Click one of the radio buttons to select whether this host's mode is Primary or Backup. The default is backup mode.
Polling Frequency (sec)	Enter the frequency (in seconds) at which status messages are sent from the local host to the remote host. Tune this heartbeat (polling frequency) to meet the requirements of each installation. Default is 10 seconds.
Min Free Shared Mem (%)	Enter the minimum allowable percentage of free shared memory in Picture Perfect. If Failover/Takeover is enabled and the percentage of free memory falls below this value, a host in primary mode executes failover; a host in backup mode executes the disable failover procedure. When the percentage of free shared memory is equal to 1.5 times the user-defined value, a warning pop-up window appears (if warning messages are enabled). Default value is 8 percent. The warning message says: Free shared memory approaching minimum limit.

Table 6. Configuration Window (continued)

Menu Item	Description
Max Allowable Xoff Time (sec)	Enter the maximum allowable Xoff time (in seconds) for asynchronous communications to remain suspended when the host has not received a message from a micro. If Failover/Takeover is enabled and Xoff remains set past the maximum allowable time, a host in primary mode executes failover; a host in backup mode executes the disable failover procedure. Default value is 150 seconds.
Database Update Frequency (sec)	Enter the frequency (in seconds) at which the backup host copies (downloads) primary-host updates. Default value is 60 seconds. This parameter may be tuned for each site if more or less time between updates is required.
Failover Threshold	Enter the number of retries before a failover occurs.
Save	Click this button to save the current parameters to a configuration file and *copy* the same parameters to the backup host. (The copied parameters are not automatically saved on the backup host.) To save the copied configuration, on the backup host, select Backup as the System Mode, then click Save. Note: If there is only one network operational when you click Save on the primary configuration, this window remains open (about a minute) until the configuration is saved.
Help	Click this button to display a help screen for PPRS.
Exit	Click this button to close the Configuration window and return to the Main Window.

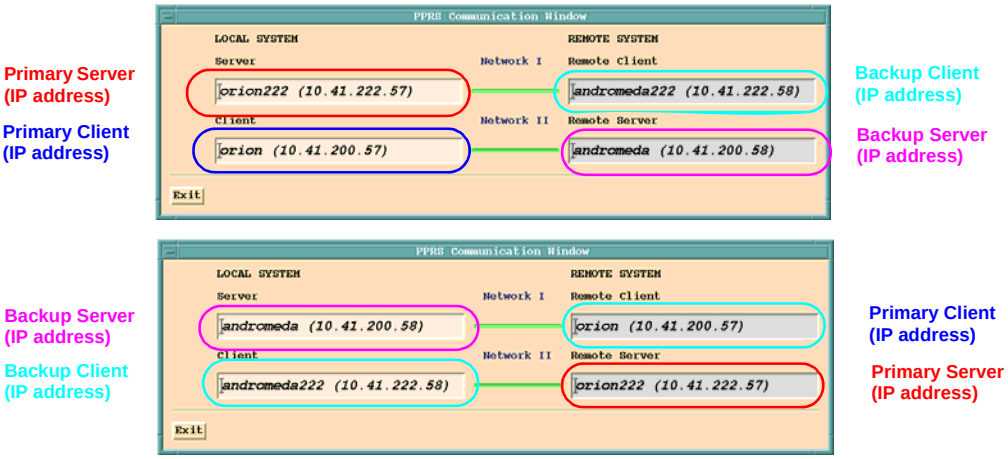
The Communication Window

Use the Communication window to view the PPRS network connections. This window is for viewing purposes only, and will not accept input.

To display the Communication window:

1. Click the **Communication** option in the Menu Bar of the PPRS Main window.
2. Verify that the local and remote hosts are connected to the networks as intended.

Figure 5. PPRS Communication Window



Database Synchronization and Recovery

When a host that was removed from the redundant environment becomes operational again, the databases of the two hosts must be synchronized. Depending on the system activity level during one host's absence from the redundant environment, that host may also require a database recovery.

A database recovery is needed when a host is brought back online after a crash or after being taken offline for maintenance. Use the backup host to perform Database Recovery. For better efficiency, run this procedure during off-peak activity hours.

Note: In order to ensure secure transmission of the authentication information between the two hosts, SSH should be enabled. This option must be selected during installation.

Database Synchronization

When a failed backup host or a failed primary host recovers, the backup host requires deletions and/or insertions to its database in order to match (synchronize with) the database of the primary host. Use the Database Recovery function to synchronize the two databases, otherwise the databases will not be identically matched.

Database Recovery updates records which have been modified on the primary host databases, inserts missing data into the backup host database (from the primary host database), and deletes backup host data that does not exist on the primary host database.

There are two methods for synchronizing the databases:

PPRS Database Synchronization

This is the preferred method for database synchronization if one host has been down for less than a day (unless your system has a high activity rate). Use the Database Recovery function (select the **Database** option on the PPRS Main window menu bar) to synchronize the databases of the two hosts. When the database recovery process is complete, invoke the PPRS application on the repaired host. Configuration changes are saved in the file: `/cas/db/text/pprs/fppcfgfile`

Backup/Restore

This is the preferred method for database synchronization if one host has been down for a day or more (or if your system has a high activity rate). Use a backup tape (or diskfile) to restore the backup host using the **Restore** function available in Picture Perfect.

Note: This method only inserts records onto the backup host. You will also need to run a PPRS Database Synchronization to synchronize any records which might have been updated or deleted.

Database Recovery

Note: In order to ensure secure transmission of the authentication information between the two hosts, SSH should be enabled. This option must be selected during installation.
With SSH enabled, the first time you perform a recovery, it MUST be done from the command line, using the command:
`pprscmd recover yyyymmdd`
Any subsequent recovery operations may be performed either from the command line or from the user interface.

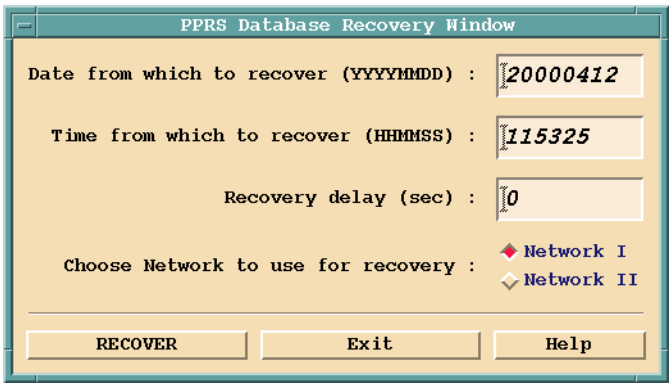
Before you start:

1. Use the backup host as the recovery server (the primary host must be running on the other server).
2. Picture Perfect must not be running on the recovery server.
3. Determine the last online date for the host that requires data recovery.
4. Verify that the primary host is up and running prior to the actual recovery process.

To perform the database recovery:

1. Activate the PPRS Main window on the backup host. (Do not start PPRS.)
2. Select **Database** from the menu bar of the Main window to display the Database Recovery window.

Figure 6. Database Recovery Window



3. Enter the recovery start date, using the date format of YYYYMMDD. This entry tells the recovery process to restore data from this date to present. If the system crashed or was brought down on the same day as the recovery is being performed, enter that date (the current date). If the system crashed or was brought down on any day other than the current day, enter the date immediately prior to the down date to ensure capture of all that day's data.

   Note: For example, if the system was brought down at 11:30 PM on March 29, 2004 and the recovery is run at 11:45 PM on March 29, you would enter a recovery start date of March 29 (20040329). If the system was brought down at 11:30 PM on March 29, 2004 and the recovery is run at 1:00 AM March 30, you would enter a recovery start date of March 28 (20040328).

4. Enter the recovery start time. This entry should be set to 0.
5. Enter the recovery-delay time (in seconds). This amount corresponds to a pause duration (sleep time) that occurs between the recovery of each table. The recommended value is 0 seconds.
6. Select the network to be used for recovery. This setting defaults to the first network.
7. Click **Recover** to start the recovery process. The length of time it takes to perform a database recovery is directly proportional to the recovery date and the number of records modified or inserted from that time.

8. A Working pop-up window appears. If an error occurs during recovery, an Error pop-up window appears.
9. When the recovery is complete, start the PPRS application using the **Start PPRS App** option of the **Command** menu.
10. Click **Exit** to remove the Database Recovery Window and return to the PPRS Main window.

Note: The database recovery process updates all Picture Perfect database tables except the following:

- system_config
- system_history
- micro_update
- Database Dictionary
  (Tables such as table_desc, field_desc, and field_type are static.)
- host

Rolled History Table

To prevent the loss of badge, alarm, or operator history, the system performing the Database Recovery will roll a history table if the history count on the primary host is less than that on the recovering host. The following message will appear in the `ppr` log file when this occurs.

```
14:22:10.654 fppifx: I - WARNING...Rolling alarm_history
```

In this example, the alarm history has been rolled over to the alarm history temporary table. If you do not want to lose the history in the temporary table, archive the history table.

PPRS Command Line Utility

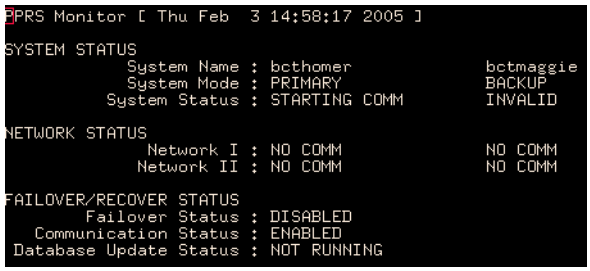
The `pprscmd` program is a utility which allows the system administrator to start, stop, recover, and monitor PPRS in a non-windowed environment, such as when the system administrator is dialed into the system. Prior to the `pprscmd,` the only way to start and stop PPRS was to use the PPRS user interface. Now, these administrative operations can be performed from the command line.

- To start PPRS in primary mode, type: `pprscmd start primary`
- To perform a database recovery on a backup host, type:
  `pprscmd recover 20030313`

  Note: The date used for a database recovery must be in YYYYMMDD format (Year, Month, Day). For example, 20040313 represents March 13, 2004.
- To start PPRS in backup mode, type: `pprscmd start backup`
- To stop PPRS, type: `pprscmd stop`
- To monitor PPRS, type: `pprscmd monitor`

  The information displayed here is similar to that shown in the PPRS user interface. However, no operations can be performed. You can use the ESC key to quit out of this monitor.

Figure 7. PPRS Monitor



- To monitor PPRS recovery, type: `tail -f /cas/log/ppr.MMDD`

  This will display the information being logged by the PPRS recovery process.

Micro Configuration

Port Configuration for Dial-up Micros

In a PPRS environment, dial-up micros can be configured in one of two ways. The configuration used will depend upon the location of the primary and secondary hosts.

- If the distance between the hosts is relatively short, then a single modem can be connected to a signal splitter. See *Figure 8* below.
- If the distance between the hosts is too great to use a signal splitter, then two modems will have to be used with one modem directly connected to each host. See *Figure 9* on the following page.

Figure 8. Single Modem Configuration

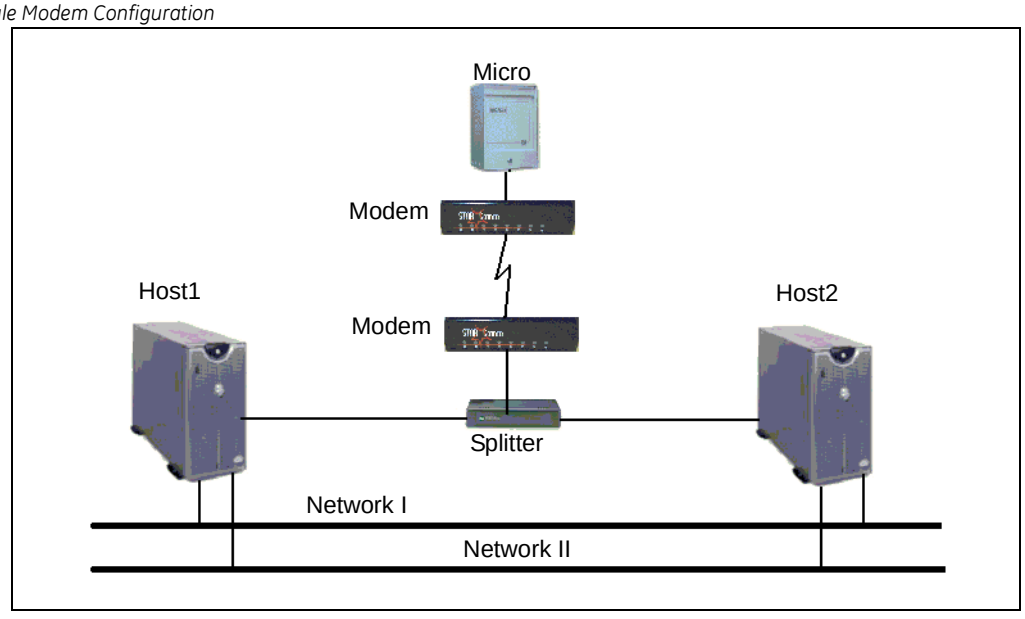
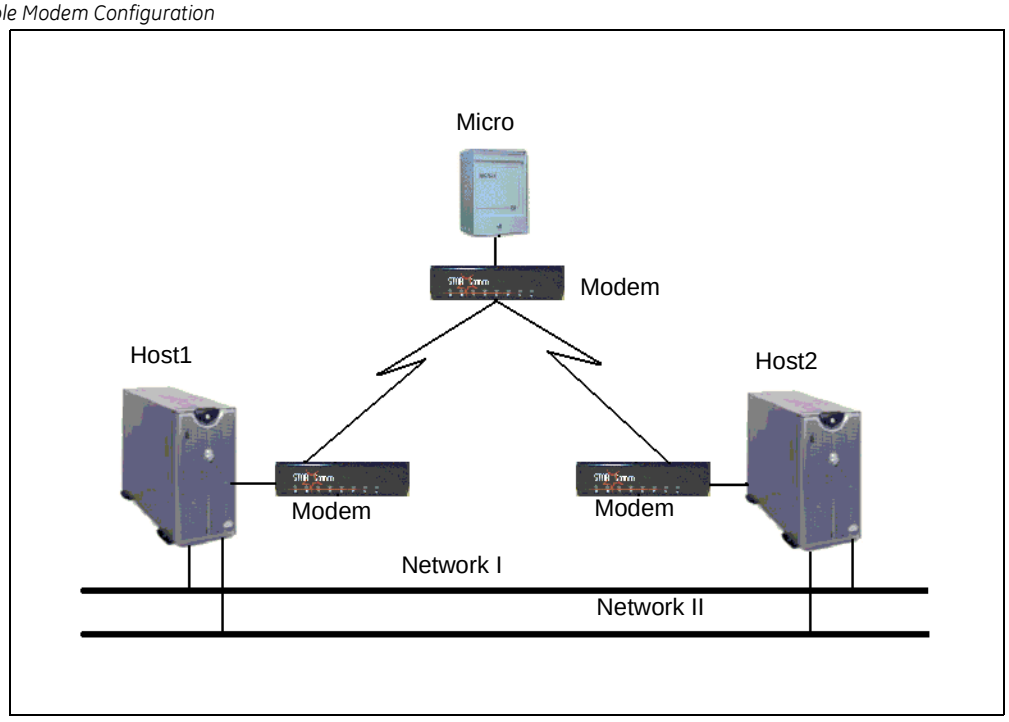
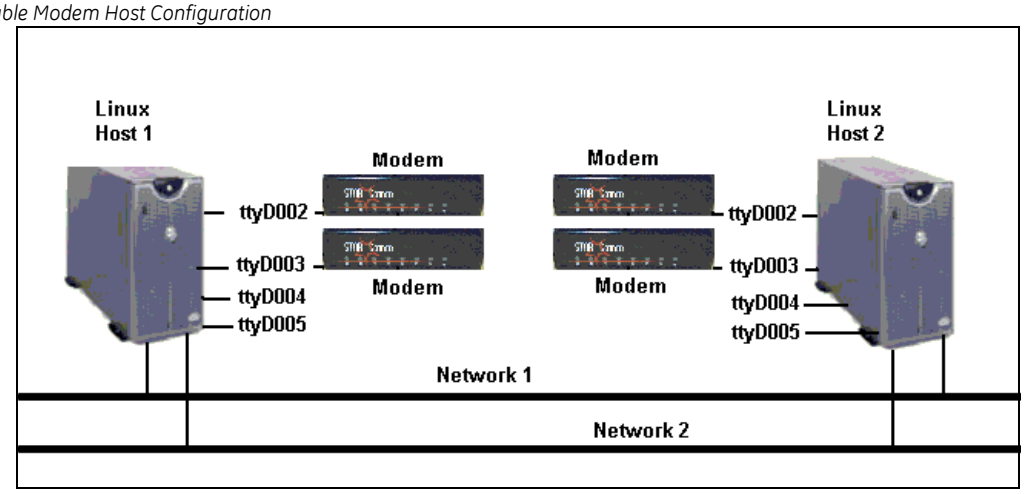


Figure 9. Double Modem Configuration



The double modem configuration will also require a unique setup, both from a physical connection and a software standpoint, because the database is replicated on both hosts. The port table, which is one of the tables replicated, contains the fields which define a tty line, phone number, and type of modem connected. As you can see from *Figure 9*, the two modems connected to the hosts will require two different phone numbers. This requires the Ports form to configure two sets of phone numbers. One number will be for the primary host and the second phone number will be for the backup host. See *Figure 10* for an example of a Linux host double modem configuration.

Figure 10. Double Modem Host Configuration



In addition, three new fields will appear on the Ports form: Double Modem, Primary Phone, and Backup Phone (*Figure 11* shows these fields and their descriptions follow.)

Figure 11. Ports Form

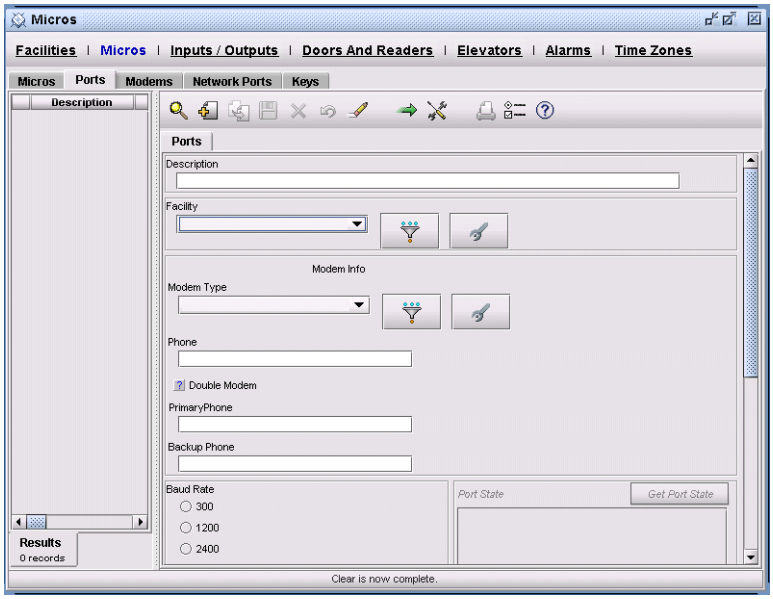


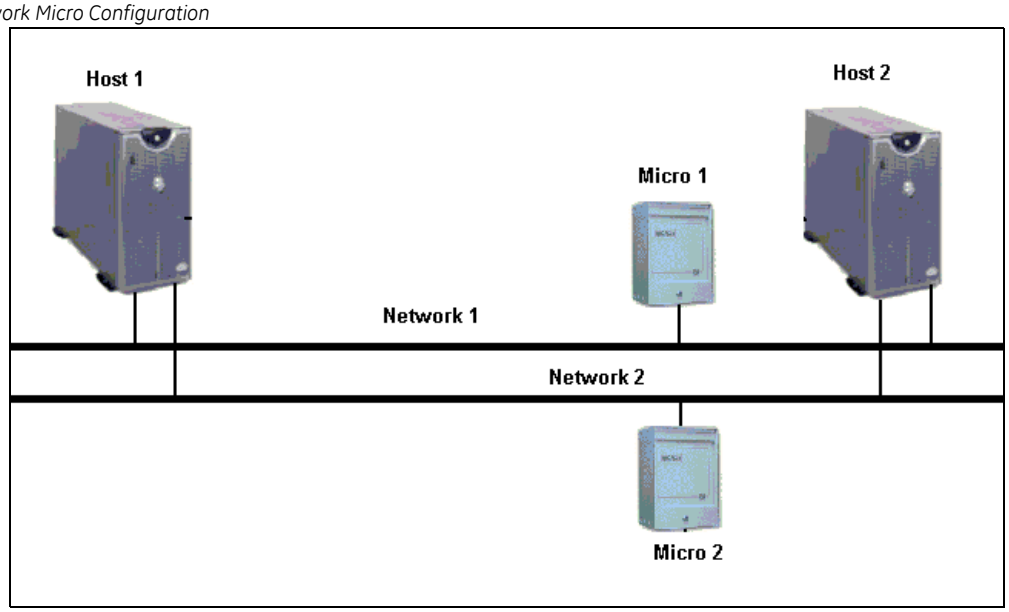
Table 7. Double Modem Host Configuration

Field	Description
Double Modem (Redundant Only)	This toggle button is visible only in a Picture Perfect Redundant System. It should be set only if the primary and backup hosts are separated by distances which require a different phone number for the modem connected to the TTY. This toggle button should not be set if your modem is connected to a splitter. If this toggle button is set, then the Phone field is disabled. If this toggle button is not set, then the Primary Phone and Backup Phone fields are disabled.
Primary Phone (Redundant Only)	With dial-up micros in a double modem configuration on a Redundant System, this is the dial-in line phone number for the TTY on the host which was installed as Primary. This field can be accessed only if the Double Modem toggle is set.
Backup Phone (Redundant Only)	With dial-up micros in a double modem configuration on a Redundant System, this is the dial-in line phone number for the TTY on the host which was installed as Backup. This field can be accessed only if the Double Modem toggle is set.

Network Micros

When using a network micro in a redundant environment, although the host is connected to two network lines, a micro must be connected to only one of the network lines, **not** both. Refer to the figure below where Host 1 and Host 2 are both connected to Network I and Network II. Micro 1 is connected only to Network I and Micro 2 is connected only to Network II.

Figure 12. Network Micro Configuration



Chapter 4 Verifying the configuration

This chapter includes information needed to verify that your redundant system is configured properly.

In this chapter:

chkredundant

To verify that the Redundant System is configured properly, the `chkredundant` utility is executed on the either the primary or backup host while the database is running on both hosts.

Note: If Picture Perfect is running, the database will be running so it will not be necessary to start it.

To verify the configuration:

1. On both hosts, log on as `root` and open a terminal window.

   A command prompt will be displayed.

2. If Picture Perfect is not running, manually start the database on each host by typing: `oninit` Enter

   You will be returned to the command prompt.

3. At the command prompt on the primary or backup host, type: `chkredundant` Enter

   Messages similar to the following will be displayed:

```
Redundant Host Local [orion]:
    Verifying Operating System Type...                [ Linux ]
    Verifying TPS is running...                       [ OK ]
    Verifying Informix is running...                  [ OK ]
    Verifying /etc/hosts...
              orion                                   [ OK ]
              orion222                                [ OK ]
              andromeda                               [ OK ]
              andromeda222                            [ OK ]
    Verifying /etc/hosts.equiv...
              orion                                   [ OK ]
              orion222                                [ OK ]
              andromeda                               [ OK ]
              andromeda222                            [ OK ]
    Verifying /root/.rhosts...
              orion                                   [ OK ]
              orion222                                [ OK ]
              andromeda                               [ OK ]
              andromeda222                            [ OK ]
    Verifying system_config count...                  [ OK ]
    Verifying table id consistency...                 [ OK ]
    Verifying host table against /etc/hosts...
              SERVER_HOST = orion                     [ OK ]
              REMOTE_CLIENT = andromeda               [ OK ]
              HOST orion IP=3.112.70.43               [ OK ]
              HOST orion ALT IP=192.68.0.100          [ OK ]
              HOST andromeda IP=3.112.70.42           [ OK ]
              HOST andromeda ALT IP=192.68.0.101      [ OK ]
    Verifying /etc/hosts Pri & Sec Consistency...
              PRI SERVER_HOST = SEC REMOTE_SERVER     [ OK ]
              PRI CLIENT_HOST = SEC REMOTE_CLIENT     [ OK ]
              PRI REMOTE_CLIENT = SEC CLIENT_HOST     [ OK ]
              PRI REMOTE_SERVER = SEC SERVER_HOST     [ OK ]
    Verifying Seed Counter Settings...                [ ENABLED ]
    Verifying /etc/services...
              orion                                   [ OK ]
              andromeda                               [ OK ]
Redundant Host Remote [andromeda]:
    Verifying Network Connection [andromeda]...       [ OK ]
    Verifying Network Connection [andromeda222]...    [ OK ]
```

```
    Verifying Remote Connectivity via rsh...          [ OK ]
    Verifying Operating System Type...                [ Linux ]
    Verifying TPS is running...                       [ OK ]
    Verifying Informix is running...                  [ OK ]
    Verifying Remote Database Connectivity...         [ OK ]
    Verifying /etc/hosts...
              andromeda222                            [ OK ]
              andromeda                               [ OK ]
              orion222                                [ OK ]
              orion                                   [ OK ]
    Verifying /etc/hosts.equiv...
              andromeda222                            [ OK ]
              andromeda                               [ OK ]
              orion222                                [ OK ]
              orion                                   [ OK ]
    Verifying /root/.rhosts...
              andromeda222                            [ OK ]
              andromeda                               [ OK ]
              orion222                                [ OK ]
              orion                                   [ OK ]
    Verifying system_config count...                  [ OK ]
    Verifying table id consistency...                 [ OK ]
    Verifying host table against /etc/hosts...        [ OK ]
              REMOTE_SERVER = orion                   [ OK ]
              CLIENT_HOST = andromeda                 [ OK ]
              HOST orion IP=3.112.70.43               [ OK ]
              HOST orion ALT IP=192.68.0.100          [ OK ]
              HOST andromeda IP=3.112.70.42           [ OK ]
              HOST andromeda ALT IP=192.68.0.101      [ OK ]

    Verifying /etc/hosts Pri & Sec Consistency...
              PRI SERVER_HOST = SEC REMOTE_SERVER     [ OK ]
              PRI CLIENT_HOST = SEC REMOTE_CLIENT     [ OK ]
              PRI REMOTE_CLIENT = SEC CLIENT_HOST     [ OK ]
              PRI REMOTE_SERVER = SEC SERVER_HOST     [ OK ]
    Verifying Seed Counter Settings...                [ ENABLED]
    Verifying /etc/services...
              orion                                   [ OK ]
              andromeda                               [ OK ]
Results: Passed [ 64 ], Failed [ 0 ], Blocked [ 0 ]
```

4. Take note of the Results line listed at the end of the output. If the Failed column lists a number greater than 0, then there are problems in your configuration. Please see the sections that follow for troubleshooting details for each test. If the Failed column lists 0, then the installation is successful.
5. When satisfied with the results, if you manually started the database, stop it on both hosts, by typing: `onmode -ky` Enter

Table 1-1: Verification Tests

Test	Description
Verifying Network Connection	This test will fail if a remote host cannot be reached using the ping command. If this test fails, then there is either a networking configuration problem on the local host or on the target remote host or both. See *Verifying Network Connections* on page 45.
Verifying Remote Connectivity by rsh	This test will fail if a remote host cannot be reached by rsh. Rsh is required for chkredundant to verify conditions on a remote host. Please enable rsh access to the remote host and try again. See *File Setup of .rhosts* on page 50.
Verifying Operating System Type	This test can fail only if chkredundant is being executed on a system that is neither Linux nor AIX. Currently, PPRS is supported only on the Linux and AIX operating systems.
Verifying TPS is running	See *Verifying Picture Perfect* on page 45.
Verifying Informix is running	See *Verifying Picture Perfect* on page 45.
Verifying Remote Database Connectivity	This test can fail only if either the /cas/db/etc/sqlhosts file or the /etc/services file is configured incorrectly. Failure indicates that the local host cannot remotely access the remote host database. See *Verifying Remote Database Access Configuration* on page 51.
Verifying Seed Counter Settings	This test determines whether or not Seed Counter is enabled or disabled. Both hosts in a redundant system must have the same Seed Counter settings. If a setting mismatch is detected, then a warning will be displayed indicating that both hosts in the redundant system must have identical Seed Counter settings in order for the system to function normally. To correct this problem, it will be necessary to reinstall the mismatched host.
Verifying /etc/hosts	See *File Setup of /etc/hosts* on page 48.
Verifying /etc/hosts.equiv	See *File Setup of /etc/hosts.equiv* on page 49.
Verifying /root/.rhosts	See *File Setup of .rhosts* on page 50
Verifying system_config count	See *Verifying Table IDs* on page 51
Verifying table id consistency	See *Verifying Table IDs* on page 51
Verifying host table against /etc/hosts	This test can fail only if there is an inconsistency in the host names stored in the host table relative to the host names stored in the /etc/hosts file for the primary and backup servers. Either one or both, the host table and the /etc/hosts file, must be corrected. See *File Setup of /etc/hosts* on page 48.
Verifying /etc/hosts Pri & Sec Consistency	See *File Setup of /etc/hosts* on page 48.
Verifying /etc/services	See *Verifying Remote Database Access Configuration* on page 51.

Verifying Network Connections

Use the `ping` command from each host to check all network connections of the remote host.

`ping` *`remote_hostname`* Enter

For example: `ping andromeda`

You should see output similar to the following:

```
64 bytes from 10.41.200.58: icmp_seq=0. time=2. ms
64 bytes from 10.41.200.58: icmp_seq=1. time=2. ms
64 bytes from 10.41.200.58: icmp_seq=2. time=2. ms
64 bytes from 10.41.200.58: icmp_seq=3. time=3. ms
```

Press Ctrl. **C** to stop the `ping` command and display the ping statistics:

```
----remote hostname PING Statistics----
4 packets transmitted, 4 packets received, 0% packet loss.
round-trip (ms) min/avg/max = 2/2/3
```

You should see `0% packet loss.` If packet loss is higher than this, troubleshoot your network. You may have to switch the network cable connections to the other network adapter.

Verifying Picture Perfect

AIX

Verify that Picture Perfect is running on the primary and the backup hosts by using the `ipcs` command. This command verifies that Informix and TPS are running (attached to shared memory).

To verify Picture Perfect, type: `ipcs` Enter

If Informix and TPS are running, the output would appear similar to the following:

Note: TPS is recognized by the KEY ending in 400 for shared memory and 401 for semaphore. For example: 0x00000400 and 0x00000401

```
IPC status from /de/mem as of Wed Sep 11 16:15:52 1993
T     ID      KEY         MODE        OWNER    GROUP
Message Queues:
q     524288  0x00000414 -Rrw-rw-rw-root     system
q     524289  0x00000405 -Rrw-rw-rw-root     system
q     524290  0x00000407 --rw-rw-rw-root     system
q     524291  0x00000404 --rw-rw-rw-root     system
q     524292  0x00000415 --rw-rw-rw-root     system
q     524293  0x0000040d -Rrw-rw-rw-root     system
q     524294  0x0000040e -Rrw-rw-rw-root     system
q     524295  0x00000413 -Rrw-rw-rw-root     system
q     524296  0x00000403 --rw-rw-rw-root     system
q     524297  0x0000040a -Rrw-rw-rw-root     system
```

tps

```
q     524298  0x00000411 -Rrw-rw-rw-root    system
q     524299  0x00000402 -Rrw-rw-rw-root    system
q     524300  0x00000401 -Rrw-rw-rw-root    system
q     524301  0x0000040c -Rrw-rw-rw-root    system
q     524302  0x00000406 -Rrw-rw-rw-root    system
q     524303  0x00000412 -Rrw-rw-rw-root    system
q     524304  0x0000040f --rw-rw-rw-root    system
q     524305  0x00000410 -Rrw-rw-rw-root    system
q     524306  0x0000040b -Rrw-rw-rw-root    system
q         19  0x4107001c -Rrw-rw-rw-root    printq
Shared Memory:
m          0  0x58059040 --rw-rw--rwroot    system
m     524289  0x52564801 --rw-rw----root    informix
m     524290  0x52564802 --rw-rw----root    informix
m     524291  0x52564803 --rw-rw----root    informix
m     262148  0xffffffff D-rw-rw-rw-root    system
m          5  0x0d0501fc --rw-rw-rw-root    system
m     131078  0x000000400--rw-rw-rw-root    system
Semaphores:
s     262144  0x58059040 --ra-ra-ra-root    system
s          1  0x4d080035 --ra-ra----root    system
s     655362  0xffffffff --ra-ra----root    informix
s          3  0x62050049 --ra-r--r--root    system
s     524292  0xffffffff --ra-ra----root    informix
s     524293  0xffffffff --ra-ra----root    informix
s     524294  0xffffffff --ra-ra----root    informix
s     524295  0x00000401 --ra-ra-ra-root    system
s          8  0x010500d6 --ra-------root    system
```

tps

Informix

tps

Informix

Informix

tps

When Picture Perfect is not running, there should be no Message Queues, Shared Memory, and Semaphores for TPS or Informix. If there are entries, then Shared Memory is corrupted.

Linux

Verify that Picture Perfect is running on the primary and the backup hosts by verifying that TPS and Informix are running (attached to shared memory.)

To verify that TPS is running:

In Linux, there are two steps to verify TPS:

1. Type the following command to check if the TPS processes are running:

   ```
   ps -e | grep tps
   ```
   Enter

   The output should appear similar to the following:

   ```
   [root@bcthomer root]# ps -e |grep tps
   4248 ?    00:00:00 tps
   4299 ?    00:00:00 tps
   4300 ?    00:00:00 tps
   4301 ?    00:00:00 tps
   4302 ?    00:00:00 tps
   4303 ?    00:00:00 tps
   4304 ?    00:00:00 tps
   4305 ?    00:00:00 tps
   4306 ?    00:00:00 tps
   4307 ?    00:00:00 tps
   4308 ?    00:00:00 tps
   4310 ?    00:00:00 tps
   12273 ?   00:00:00 tps
   12489 ?   00:00:00 tps
   12671 ?   00:00:00 tps
   12672 ?   00:00:00 tps
   21283 ?   00:00:00 tps
   21285 ?   00:00:00 tps
   21286 ?   00:00:00 tps
   ```

If no results are shown, TPS is NOT running.

2. Next, type the following command to check if TPS is attached to shared memory:

   ```
   ipcs | grep 0x000004
   ```
   Enter

   The output should appear similar to the following:

   ```
   0x00000400 688139     root      444        16384000   41
   ```

   If no results are shown, TPS is NOT running.

To verify that Informix is running:

In Linux, there are two steps to verify Informix:

1. Type the following command to check if the Informix processes are running:

   ```
   ps -e | grep oninit
   ```
   Enter

   The output should appear similar to the following:

```
2993 ?        00:00:07 oninit
2994 ?        00:00:00 oninit
2995 ?        00:00:00 oninit
3004 ?        00:00:00 oninit
3005 ?        00:00:00 oninit
3006 ?        00:00:00 oninit
```

If no results are shown, Informix is NOT running.

2. Next, type the following command to check if Informix is attached to shared memory:

   `ipcs -c | grep informix` Enter

   The output should appear similar to the following:

```
491524    660      root     informix     root      informix
524294    660      root     informix     root      informix
557063    660      root     informix     root      informix
589832    660      root     informix     root      informix
622601    660      root     informix     root      informix
655370    660      root     informix     root      informix
196609    660      root     informix     root      informix
```

   If no results are shown, Informix is NOT running.

Verifying Network Setup

The PPRS environment software must be installed in a dual-network configuration. This configuration requires some or all of the following verification procedures and modification of the `/etc/hosts`, `/etc/hosts.equiv`, and `.rhosts` files. The following sections provide file setup information for these files along with an example site.

File Setup of /etc/hosts

Host Names

In a dual network configuration, each server requires two host names (such as orion and orion222, andromeda and andromeda222).

Table 2. Host1 Host Names

Host1 Name	Network	Host2 Name	Network
orion	1	andromeda	1
orion222	2	andromeda222	2

Descriptions

The descriptions are required in order to configure the communication between the two hosts. Without these descriptions, the communication subhosts do not know the IP addresses of the other end of the communication.

The SERVER_HOST in the orion host receives messages from the REMOTE_CLIENT in the andromeda host, and the CLIENT_HOST in the orion222 host sends messages to the REMOTE_SERVER IP address in the andromeda222 host.

The file setup of `/etc/hosts` is done automatically during the installation (which is illustrated in the next section). The following two tables show the required entries in the `/etc/hosts` file for the Host1 (orion) and Host2 (andromeda) servers. Each line requires an entry for IP address, host name, and descriptions.

Table 3. Host1 /etc/hosts File

IP Address	Host Name	Description
10.41.200.57	orion	# SERVER_HOST
10.41.222.57	orion222	# CLIENT_HOST
10.41.200.58	andromeda	# REMOTE_CLIENT
10.41.222.58	andromeda222	# REMOTE_SERVER

Table 4. Host2 /etc/hosts File

IP Address	Host Name	Description
10.41.200.58	andromeda	# CLIENT_HOST
10.41.222.58	andromeda222	# SERVER_HOST
10.41.200.57	orion	# REMOTE_SERVER
10.41.222.57	orion222	# REMOTE_CLIENT

Notice that `orion` and `andromeda` have the same subdomain IP address (200) on the first network, and `orion222` and `andromeda222` have the same subdomain IP address (222) on the second network.

Note: The commented information following the # sign in the descriptions (for example, # CLIENT_HOST), is used by the primary and backup Picture Perfect servers and should not be altered.

File Setup of /etc/hosts.equiv

The `/etc/hosts.equiv` file for the primary host must contain two names for backup. Put host names on separate lines, for example:

```
orion
orion222
andromeda
andromeda222
```

Similarly, the `/etc/hosts.equiv` file for the backup host must contain two names for primary. Put host names on separate lines, for example:

```
andromeda
andromeda222
orion
orion222
```

File Setup of .rhosts

The `.rhosts` file for the primary host must contain the names for both primary and backup, for example:

```
orion root
orion222 root
andromeda root
andromeda222 root
```

Similarly, the `.rhosts` file for the backup host must contain the names for both primary and backup, for example:

```
andromeda root
andromeda222 root
orion root
orion222 root
```

Verifying Static Routing Table

Verify that the Static Routing Table is configured properly. This is one way to check that you have configured the `/etc/hosts` files correctly. Use the following command on each host to view the Static Routing Table:

```
netstat -r
```
Enter

If the data in the Static Routing Table does not match the following example (such as missing data in a field, extra entries, or duplicate entries), contact your Customer Support Representative for further instructions. There must be a unique entry for each destination, gateway, and interface.

Table 5. Host1 Static Routing Table

Destination	Gateway	Flags	Refcnt	Use	Interface
10.41.200.0	orion	U	12	25345	en0
10.41.222.0	orion222	U	4	68790	en1
localhost	localhost	U	0	4	lo0

Table 6. Host2 Static Routing Table

Destination	Gateway	Flags	Refcnt	Use	Interface
10.41.200.0	andromeda	U	12	25345	en0
10.41.222.0	andromeda222	U	4	68790	en1
localhost	localhost	U	0	4	lo0

Destination..... The IP address includes destination addresses up to the subdomain level.

Gateway..... The gateway host name must reflect the corresponding host name from the `/etc/hosts` file.

Flags..... The Flags field must be set to U (up) for every table entry.

Interface..... The Interface field shows the corresponding network driver interface. Make sure that this interface assignment agrees with your TCP/IP setup.

Note: The interface name will vary depending on the operating system and adapter that you are using.

Verifying Remote Database Access Configuration

To synchronize the data from the primary to the backup host, the database must be configured correctly. Check the following files on both hosts to verify the configurations.

Make sure that the following entry appears in the `etc/services` file for each host. (If the entry is missing, type it in manually by using a text editor.)

Table 7. Required File Entries for Remote Database Access

Service Name	Port Number/Protocol	Name Aliases	Comments
<*local_host*>_star	1960/tcp	star1 star2	# *local_host* Informix istar Port
<*remote_host*>_star	1960/tcp		# Informix remote DB Port

Verifying Table IDs

Make sure the database is running before checking these tables.

To verify the database table IDs on the primary host:

1. Log on to the primary host as `root`, and open a terminal window.
2. Type the following command to start the database:

   `oninit` Enter
3. The primary's `host` table ID and `system_config` table ID must be the same on the primary host. Type these commands consecutively on the primary host:

   `query system_config` Enter
   `query host` Enter
4. Compare both outputs for the numbers circled below. The ID numbers in these two positions must match.

```
query system_config
1 NODE 1 0 65535 2500 3000 16000 805306368 805343248 256 10000 50000 1000 10000
2000 10000 2 1 2 2 2 2 0 2 3 0 1 00000 59 -99 25 50 eirs2cr -t0 -c180 -k Y Y Y
Y Y Y 1500 1 64 96 1 500 1 40 <last_name>,<first_name> 1 0 1 96 32 1 4 /cas/db/
backup 60 /cas/flash/eflash 20041108 233605


query host
1 9001 bcthomer 3.112.70.43 192.68.0.100 0 5 5 30 1440 1441 Y -1 20050202 144613
2 9002 bctmaggie 3.112.70.42 192.68.0.101 1 5 5 30 1440 1441 Y -1 20050202
144613
```

5. Type the following command to stop the database:

   `onmode -ky` Enter

To verify the database table IDs on the backup host:

1. Verify that the backup host is up and log on as `root` and open a terminal window.
2. Type the following command to start the database:

   `oninit` Enter

3. The backup's `host` table ID and `system_config` table ID must be the same on the backup host. Type these commands consecutively on the backup host:

   `query system_config` Enter
   `query host` Enter

4. Compare both outputs for the numbers circled below. The ID numbers in these two positions must match.

```
query system_config
2 NODE 1 0 65535 2500 3000 16000 805306368 805343248 256 10000 50000 1000 10000
2000 10000 2 1 2 2 2 2 0 2 3 0 1 00000 59 -99 25 50 Y Y Y Y Y Y 1500 1 64 96 1
500 1 40 <last_name>,<first_name> 1 0 1 96 32 1 4 /cas/db/backup 60 /cas/flash/
eflash 20041108 233605
query host
1 9001 bcthomer 3.112.70.43 192.68.0.100 0 5 5 30 1440 1441 Y -1 20050202 145126
2 9002 bctmaggie 3.112.70.42 192.68.0.101 1 5 5 30 1440 1441 Y -1 20050202 145126
```

5. Type the following command to stop the database:

   `onmode -ky` Enter

   If the IDs of either host do not match, contact your GE Customer Support Representative for further instructions.

chkdbsync

This utility lists the tables on the primary and backup hosts that are refreshed by the system. For each table, it lists the record count (COUNT) and the maximum value in the id field (MAXID). The respective numbers should be the same for the primary host and the backup host. For example, if the COUNT is 35 on the primary host, it should be 35 on the backup host. If there is a discrepancy, then that table is not in sync.

To run the chkdbsync utility:

1. Log onto the primary host as `root`.
2. At the command prompt, type:

   `. /cas/bin/profile` Enter
   `chkdbsync` Enter

   Messages similar to the following will be displayed:

```
Checking database refresher synchronization on Redundant System...
-------------------------------------------------------------
TABLE                                          COUNT   MAXID
-------------------------------------------------------------
Number of alarm on orion [Primary]             35      41
Number of alarm on andromeda [Backup]          35      41
-------------------------------------------------------------
Number of alarm_history on orion [Primary]     205     205
Number of alarm_history on andromeda [Backup] 205     205
-------------------------------------------------------------
Number of alarm_instruct on orion [Primary]    2       2
Number of alarm_instruct on andromeda [Backup]2       2
-------------------------------------------------------------
Number of alarm_response on orion [primary]    3       3
Number of alarm_response on andromeda [backup]6       5       <-- PROBLEM
-------------------------------------------------------------
.
.
.
-------------------------------------------------------------
Number of area_event_cat on orion [Primary]    2       2
Number of area_event_cat on andromeda [Backup]2       2
-------------------------------------------------------------
Number of person_user on orion [Primary]       2496    2499
Number of person_user on andromeda [Backup]    2496    2499
-------------------------------------------------------------
```

Chapter 5 Removing PPRS

This chapter includes information needed to remove the Picture Perfect Redundant System package. and offers technical support contacts in case you need assistance.

In this chapter:

Overview

If you intend to remove PPRS permanently (you do not intend to reinstall it), remove only the PPRS package. If, however, you intend to reinstall PPRS, you must remove any other packages installed on the system (with the exception of the `base` Picture Perfect package), then PPRS.

Removal

Follow these steps to remove PPRS:

1. Log on as `root` and open a terminal window.

   You will see a # prompt.

2. If PPRS is running, stop it by typing the command:

   `pprscmd stop` Enter

3. Type: `cd /` Enter

4. Start the removal program by typing:

   `ppr` Enter

   ```
   Messages similar to the following will display:
   Picture Perfect Package Removal - /custom_pp/bin/ppr 2.0 1/23/04
   Copyright (C) 2004 GE Security
   WARNING:  THIS PROGRAM WILL COMPLETELY REMOVE PICTURE PERFECT
   PACKAGES AND ANY DATABASES USED BY THE PACKAGE.
   SELECTING base OR all WILL REMOVE PICTURE PERFECT ENTIRELY
   ARE YOU SURE YOU WANT TO PROCEED?
   (Type 'yes' and press the ENTER key to proceed) yes
   ```

5. To continue, type: `yes` Enter

   If you entered **`yes`**, a list of the Picture Perfect packages currently installed will be displayed. You will then be asked which package you want to delete.

   ```
   base
   pprs
   Enter the name of the package to remove: pprs
   ```

6. Type: `pprs` Enter

   Messages similar to the following will be displayed:

   ```
   Removing the pprs package.
   Removing Picture Perfect Redundant System package.
   Starting up database...
   The removal process has completed. Program Exiting.
   The system needs to be rebooted for the changes to take affect.
   Reboot the system (y/n)? [y]
   ```

7. Press Enter to reboot the system.

   Note: Following the reboot, Picture Perfect will start automatically as a standalone configuration.

Contacting technical support

For assistance installing, operating, maintaining, and troubleshooting this product, refer to this document and any other documentation provided. If you still have questions, you may contact technical support and/or pre-sales.

For pre-sales and technical support assistance, we provide customers with several options (see *Table 8*). Our support phone number is available Monday through Friday, 8 a.m. to 7 p.m. Eastern Time. Protection plans are available for extended coverage.

Table 8. Pre-sales and support contact information

	Pre-sales	Technical support
Phone:	1 800 428 2733	1 888 GE SECURITY (437 3287)
Fax:	561 998 6160	561 998 6224
E-mail:	None	rs-bctsupport@ge.com

Note: Be ready at the equipment before calling for technical support.

Online publication library

Another great resource for assistance with your GE product is our online publication library, available to all of our customers. To access the library, go to our website at the following location:

`http://www.gesecurity.com`

In the **Tools** area at the top, click the *Publication Library* link. After you register and log on, you may search through our online library for the documentation you need.

Customer Survey

Title of this book: *Picture Perfect 4.0 Redundant Edition User Manual*

My overall rating of this book:

- ☐ Excellent
- ☐ Very good
- ☐ Good
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- ☐ Poor

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