CHAPTER 10

Database Management

Saving System Parameters to the Database

Your StrataView Plus configurations are stored in the SV+ database when you execute a Save operation from a topology map menu bar. The HP OpenView window contains the save map for topology icons resident in the view area. Likewise, the Network Map window contains the save application for the icons resident on the map area.

To save, but not exit: Use the Save command of the Utility menu. This saves the current map, display, and node positions without logging you out of the system.

To exit the system: Use the Exit command of the File menu.

Note f you quit the network topology map without quitting StrataView Plus, StrataView Plus continues to collect data even though the windows are cleared from the display.

Additional Databases

You can load a non-default database by using item 6 of the SV+ Main Menu--Current db name--during a SV+ startup. You can also assign a different name for the default SV+ database during SV+ installation by using the StrataView Plus Automatic Installer (SPI). Doing so changes the default identifier from “StrataCom” to whatever you designate.

To create a new database, the SV+ system administrator issues the command line at a terminal window:

```
create_db -D databasename
```

To load the database, use the dump db data option of the SV+ Main Menu.

Note Additionally created databases share the same disk space as does the default StrataCom database. If the addition of other databases results in insufficient space, you may need to add another SV+ workstation to the network.

Database Name Search

This procedure is typically used when you cannot recall the name of a database that you need to load to the system.

1 at the workstation prompt:

```
su informix                    [RETURN]
<password> ********            [RETURN]
cd /usr/users/informix/bin     [RETURN]:
dbaccess                       [RETURN]
```

The dbaccess menu is presented.

2 In the dbaccess menu, select *Table* to display a list of existing tables.

3 Click on one of the tables to exit the dbaccess menu.

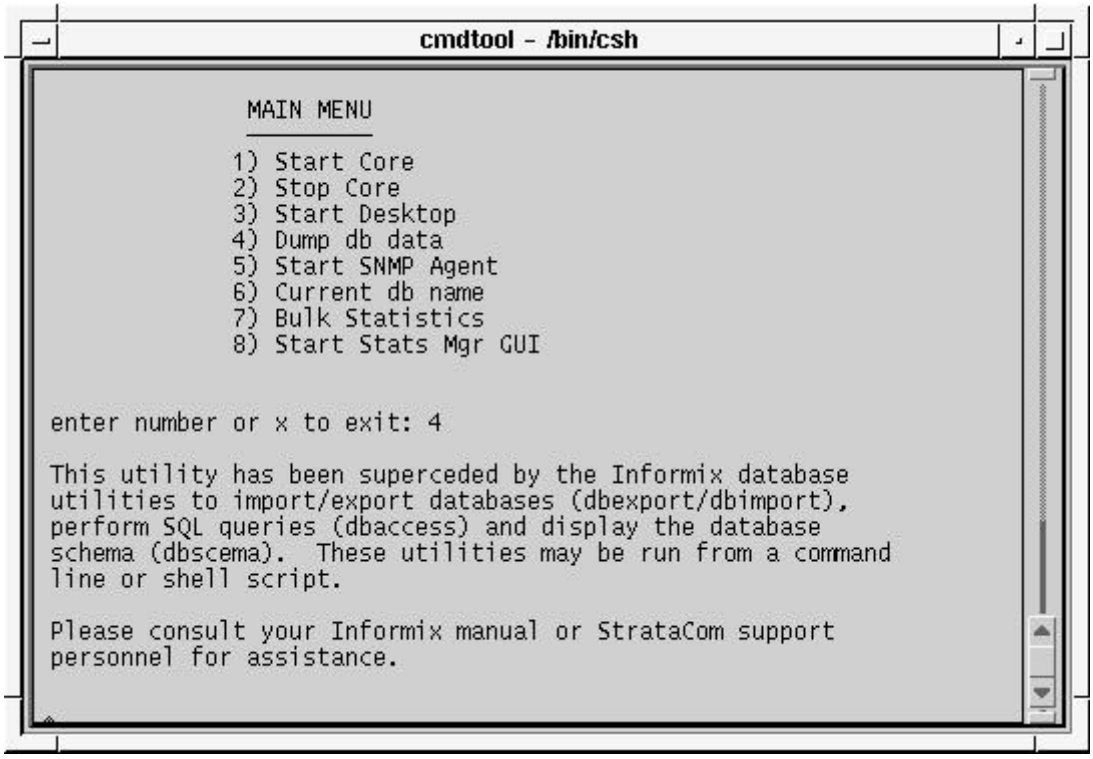
4 Select *exit* to return to the workstation prompt.

Dumping Database Data

Note The Dump db data command is now accomplished by using the dbexport command under Informix.

If you choose Item 4, “Dump db data” in the StrataView Plus Main Menu screen, you will be prompted to use the dbexport command.

Figure 10-1 SV+ Main Menu: Dumping Database Data



Software/Firmware Downloading

System software and card firmware can be downloaded to the BPX/IPX network by entering SuperUser commands in the Node Administration Window. Refer to the *SuperUser Commands Reference Manual* for details on these commands.

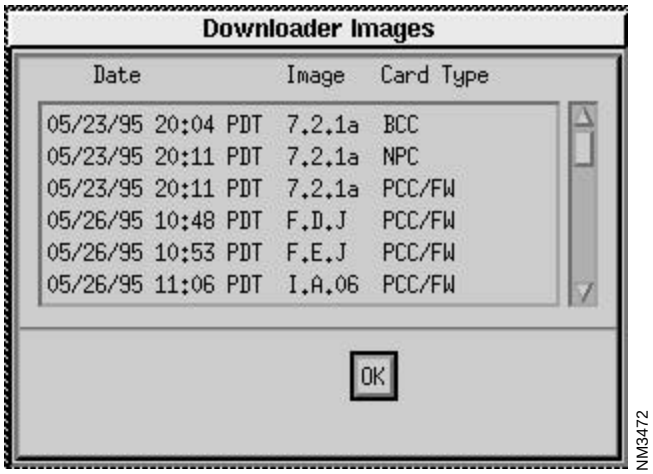
A listing of the BPX/IPX software releases and card firmware versions stored by StrataView Plus can be viewed by selecting the SW/FW option in the Images pulldown menu in the Network Topology Window.

New updates as well as current BPX/IPX software releases and card firmware versions can be stored in StrataView Plus from tape using the standard file administration commands used to read from tape. These commands are accessed from a standard workstation Motif window.

Downloading BPX

Note BPX Software and Firmware configurations should only be done by the System Administrator with StrataCom ISC assistance.

Figure 10-2 Downloading Software/Firmware Images



Loading SW Downloader or FW Images

BPX/IPX software downloader and card firmware images are loaded from tape onto the StrataView Plus hard disk. There is a set of files for IPX nodes using PCC cards, for IPX nodes using NPC cards, and for BPX nodes using BCC cards. The following example shows the use of the **tar** utility to load BPX/IPX software downloader files from tape:

1. Log in as **root** (superuser).
2. Change to the /usr/users/svplus directory so that the BPX/IPX software will be loaded into the /usr/users/svplus directory, by entering:

   ```
   cd /usr/users/svplus
   ```

3. Then insert the tape cartridge containing the desired BPX/IPX software release into the tape drive, and type in the **tar tv** command to list the image files on the tape cartridge. The image itself is made up of several files, for example, when the **tar** command is entered:

Note Image version numbers do not necessarily correspond to file names, and the number of files can change with each release.

```
tar tvf /dev/rst0
 svB800.img                                  {A listing of BCC files}
 svB800.000
 svB800.001
 svB800.002
 svB800.003
 svB800.004
 ....
 ....
 ....
 svB800.031
 svB800.032
 ....
 ....
 ....
 svN800.img                                  {A listing of NPC files}
 svN800.000
 svN800.001
 svN800.002
 svN800.003
 svN800.004
 svN800.005
 svN800.006
....
....
....
svN800.031
svN800.032
```

4 After verifying from the list of files on the tape that the tape contains the desired IPX /BPX software version, use the **tar xvf** command to load the IPX software into the **/usr/users/svplus** directory:

```
# tar xvf /dev/rst0
```

Where /dev/rst0 is the name of the device containing the IPX software.

Deleting SW Downloader and Card FW Images:

Note Deleting BPX/IPX Software and Card firmware images should only be done by the StrataView Plus System Administrator.

Software downloader and firmware images should be deleted from the StrataView Plus internal hard disk drive after a network has been revised upwards and has been running properly for some reasonable amount of time. They consume hard disk space unnecessarily. However, do not be in a hurry to do this as you may want to reload an errant node.

One BPX/IPX downloader image is a composite of several files. To delete an image, you must delete all of the associated files with the **rm** command. There is a set of files for IPX nodes using NPC cards, and for BPX nodes using BCC cards. Deletion of these files can be done using a wild card file designation for each set of files:

```
rm svN800.*          {Delete the 800 set of NPC files}
rm svB800.*          {Delete the 800 set of BCC files}
```

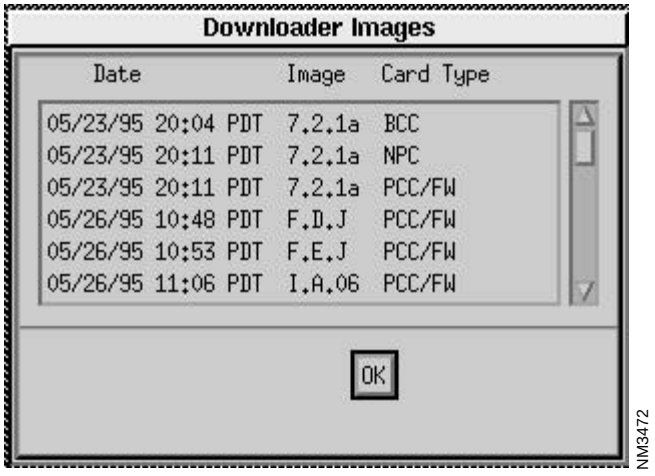
Similarly for a card firmware image, to delete an image, you must delete all of the associated files with the **rm** command. For example:

```
rm NCA.*
```

BPX/IPX BRAM Configuration Save/Restore

The save and restore process may be used to restore a node or nodes to a prior configuration. If for any reason a node should lose its configuration, the configuration stored in StrataView Plus can be downloaded to a replacement node.

Figure 10-3 Downloader Images



Note The following example is for IPX nodes, but the save/restore process is similar for BPX nodes.

Saving and Restoring BPX/IPX BRAM Configurations

Each BPX/IPX node stores network configuration information in BRAM of the control card (e.g., BCC or NPC, as applicable). The node configuration includes data about trunks, circuit lines, jobs, terminated connections, etc.

A typical node has 2 control cards for redundancy. In the event of the failure of the active control card, the standby card takes over, using the identical configuration. As an additional safety precaution, the configurations of all nodes in a network can be saved to the StrataView Plus workstation by executing the **savecnf** command.

Savecnf

This command should be executed periodically and after configuration changes to the network.

Use the following save command for each feeder node in the network:

```
savecnf BKUPID <nodename> <nodename.IP address>
```

Use the following save command for network routing nodes:

```
savecnf BKUPID <*|nodename> <SV+ attached nodename>
```

The saved configuration can then be restored to the BPX/IPX node or nodes, by executing the **loadcnf** and **runcnf** commands.

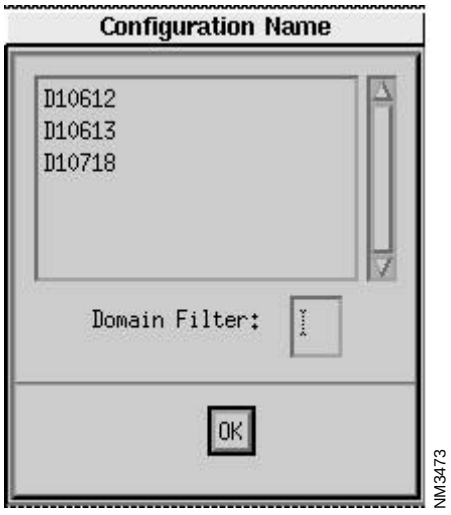
The **loadcnf** command downloads the configuration from StrataView Plus to the selected node(s). The **runcnf** command causes the node(s) to rebuild with the restored configuration image. This rebuild takes a few minutes for each node. Further description about the **loadcnf**, **runcnf**, **savecnf**, **dspcnf** commands are provided in Appendix A.

Displaying the Configurations Stored on StrataView Plus

You can view a list of BPX/IPX configuration images by selecting the **Config** option from the Images pulldown menu in the Network Topology Window.

The Configuration Name dialog box appears.

Figure 10-4 Configure Name Dialog Box



Click on one of the names in the Configuration Name dialog box to present the screen which lists the associated node's date and time of configuration save, the BRAM ID (BPX/IPX software version), and the node name.

Disk Space for Storing BPX/IPX BRAM Configurations

StrataView Plus requires approximately 256 Kbytes of disk storage space for each node's BPX/IPX BRAM Configuration Image. Therefore, to calculate the amount of StrataView Plus disk space required for a network, multiply 256 Kbytes times the number of nodes. This should give a close approximation. For example, for a 40 node network, the StrataView Plus disk space required would be:

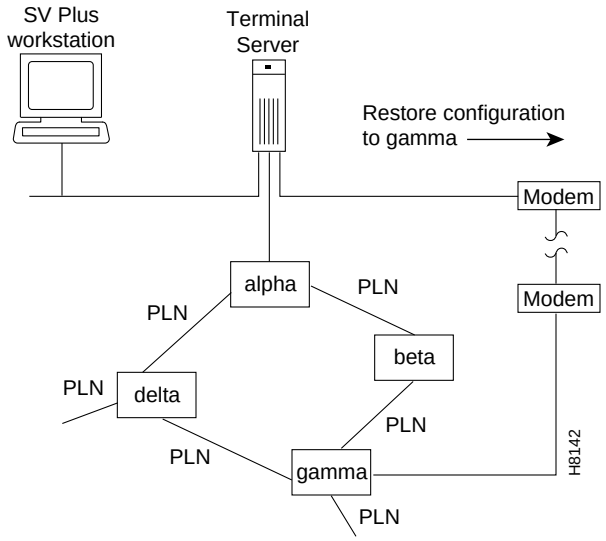
40 X 256 Kbytes = 10,240 Kbytes or approximately 10.2 MBytes.

The system administrator should check for unneeded configuration files in the /usr/users/svplus directory and remove them if no longer applicable. These files are stored in directories that all have the following name format: *configuration name*_Cfgdir. For example, the directory for a configuration saved as nw1bk1 would be stored as /usr/users/svplus/nw1bk1_Cfgdir.

Example 1—Saving and Restoring Configuration of a Node

Figure 10-5 shows an example of node configuration restoration to "gamma" which has been put out of service. A major alarm is generated over the network because gamma is unreachable. The trunks going from "gamma" to other nodes should not be deleted, so as to preserve the configuration information about gamma at these other nodes.

Figure 10-5 Node Configuration



This section describes SuperUser commands which should be performed only by personnel who have received the appropriate StrataCom training, and who are authorized to access nodes at privilege level 0.

For details on the configuration commands, refer to Appendix A.

The network configuration was previously saved as follows:

1. Enter the following command to verify that the savecnf/loadcnf buffer does not have a firmware image stored in it:

   ```
   dspcnf
   ```

   If a firmware image is present, use the **getfwrev 0.0** command to clear the savecnf/loadcnf buffer

2. Save the configuration for all nodes in the network via the StrataView Plus destination node, alpha:

   ```
   savecnf nw1bk1 * alpha
   ```

3. Enter the **savecnf** command with the **clear** argument to free gamma's PCC/NPC configuration buffer for future use.

   ```
   savecnf clear *
   ```

   The configuration is downloaded to a replacement node via a modem connection from StrataView Plus using the **loadcnf** command. Then the node is restored to operation using the **runcnf** command.

Restoring the replacement node:

1. Give the replacement node exactly the same name as the original.

   ```
   cnfname gamma
   ```

2. Since communication via trunk has not yet been restored to **gamma**, connect the StrataView Plus workstation to **gamma** via modem.

3. Execute the **loadcnf** command to download the saved nw1bk1 configuration to **gamma** from the StrataView Plus workstation via StrataView Plus source node **gamma**:

   ```
   loadcnf nw1bk1 gamma
   ```

   In this case, the source node and the node receiving the configuration download are one and the same node.

4. Execute the **runcnf** command to rebuild **gamma** with the downloaded configuration:

   ```
   runcnf nw1bk1 gamma
   ```

5. Execute the **loadcnf** command with the **clear** argument to free **gamma's** PCC/NPC configuration buffer for later use:

   ```
   loadcnf clear gamma
   ```

   Since the node **gamma** now has the same configuration as the nodes in the rest of the network, the trunks will come out of alarm, and the failed connections terminated at **gamma** will be restored.

Example 2—Restoring a Network to a Prior Configuration

In this example, an entire network is restored to a prior configuration named “orenwbk2” that is stored in a StrataView Plus workstation.

1. Execute the **loadcnf** command:

   ```
   loadcnf orenwbk2 * alpha
   ```

2. Execute the **runcnf** command:

   ```
   runcnf orenwbk2 *
   ```

3. Execute the **loadcnf** command with the **clear** argument to free the PCC temporary firmware and configuration buffer for later use:

   ```
   loadcnf clear *
   ```

Informix Database, Backup and Changing Size

Changing the size of the Informix database eradicates the data stored in the database. Therefore, before changing the size of the database, the data should be backed up. For detailed information on backing up and changing the size of the database, refer to Appendix D.

Even if you don’t want to change the size of the database, you should back it up periodically. The following is a synopsis of the procedure for just backing up the database, only:

The **tbmonitor** program provides an archiving facility that allows you to back up the database. Informix can be in on-line or quiescent mode to execute an archive. If you are archiving while the system is on-line be sure to choose an off-peak period.

1. Login as informix and enter the informix password.
2. Enter **`cd /usr/users/informix/bin`**
3. Run the tbmonitor program by entering: **`tbmonitor`**
4. Select the **Archive** option from the main menu by pressing A or spacing over to **Archive** on the menu and pressing **`<RETURN>.`**

5 Select the **Create** option from the Archive menu by pressing **C** or **<RETURN>**. You will be prompted to mount the tape.

6 Place a write-enabled tape in the tape drive. (Make sure the tape drive is on line.) Press **<RETURN>**

7 **INFORMIX-OnLine** then prompts you for the level of archiving you want. Level-0 copies all dbspaces to tape. Level-1 or Level-2 records changes since the last archive. If you've already done a level-0 archive, you can choose level-1, level-2, or level-0. If you haven't done a level-0 archive, you must enter 0. Wait while the archiving proceeds. (Tapes rewind automatically when full.) The percentage of the archive completed is displayed on the screen and updated at one-minute intervals. If there is a problem an error message will be displayed.

8 When the first tape is full, the following message will appear:

```
Please label this tape as number 1 in the archive sequence.
Please mount tape and press <RETURN> to continue."
```

9 Label the completed tape and place a new write-enabled tape in the tape drive. (Make sure the tape drive is online before pressing **<RETURN>**.) Repeat steps 8 and 9 until the backup is complete.

10 When the archive is complete, "Program over" appears.