A P P E N D I X **B**

VLAN Configuration File

A command-line configuration utility called catmlancfg sets up virtual LANs. By default, this utility is invoked on execution of the initialization script /etc/rc2.d/S69catm to start up the configured VLANs when the workstation session is booted.

The catmlancfg utility is installed in the /bin directory during the installation process. It uses the VLAN configuration text file as input. The configuration file must be written using an explicit syntax to define the virtual LAN (VLAN) configuration.

The "Configuration File Syntax" section of this appendix reviews the Virtual LAN initialization syntax of the catmlancfg utility. Each keyword/parameter pair is listed in the order they might appear in the file.

Initializing the Configuration

When the workstation is booted, the initialization script /etc/rc2.d/S69catm is automatically executed. The initialization script was copied to the /etc/rc2.d subdirectory during installation of the catm software. To automate configuration on startup, the following commands are executed by the script:

```
root@SYS1%echo "********** Starting ATM SIGNALLING **********"
root@SYS1%/bin/catmsig
root@SYS1%sleep 1
root@SYS1%echo "********** Starting ATM VLAN Configuration **********"
root@SYS1%/bin/catmlancfg /etc/catmlancfg.db
root@SYS1%echo "**********" Starting ATM ILMI "**********"
root@SYS1%/bin/catmilmid
```

If you change the name or location of the catmlancfg.db file, be sure to edit the S69catm initialization script in /etc/rc2.d directory to reflect your changes.

The /etc/catmlancfg.db file initializes the driver software, specifying the values to use for each connection. These values can be modified dynamically using the Cisco ATM SBus Adapter utility. Also, the /etc/catmlancfg.db file can be copied and modified to support multiple configurations.

Creating a Configuration File

A "template" configuration file (catmlancfg.db.sample) was copied to the /etc directory during installation of the catm software. This file provides a sample of the required syntax.

Caution: If a file already exists called /etc/catmlancfg.db, be sure to back it up so you do not lose important VLAN configuration information.

To create a new configuration file, perform the following steps:

Step 1   Copy the sample file to create a new configuration file, as follows:

```
root@SYS1%cp /etc/catmlancfg.db.sample /etc/catmlancfg.db
```

Step 2   Modify the new configuration file with a text editor, for example:

```
root@SYS1%vi /etc/catmlancfg.db
```

It is recommended that you do not directly modify the /etc/catmlancfg.db.sample file. The sample file may serve as a reference point in the event that you experience difficulty with the file syntax.

Default Configuration

The catmlancfg utility is invoked by the initialization script when the workstation session begins. The utility takes, as input, a configuration filename with an explicit structure defined in the following subsections. A template configuration file (a sample catmlancfg.db file) is installed in the /bin directory with a sample of the required syntax.

The /etc/catmlancfg.db file contains all the default values used during the initialization of the IP over ATM protocol. This file is passed as a parameter to the catmlancfg configuration program in the initialization script:

```
root@SYS1%  cd  /bin
root@SYS1%  add_drv
root@SYS1%  catmlancfg  /etc/catmlancfg.db
```

These values can be modified dynamically using the ATM SBus Adapter utility and saved so that the configuration file will be reloaded when the system is rebooted. Also, you can manually copy the /etc/catmlancfg.db file and modify it to support multiple configurations.

Note If you change the name and/or location of the /etc/clancfg.db file, be sure to edit the S69catm initialization script in the etc/rc2.d directory to reflect your changes.

Configuration File Syntax

The format and syntax of the configuration file are defined as follows:

```
BEGIN_LINK link_number
    BEGIN_VLAN vlan_number
            PROTOCOL: IPATM
            MYIPADDR: ip_host_name | ip_address
            IPARPSERVER_CONNECT METHOD: SVC | PVC | NONE | LOCAL
# [for SVCs]
            IPARPSERVER_CONNECT ATMADDR: atm_host_name | atm_addr
            IPATM_ADD:IPADDR = ip_host_name | ip_address, ?
                            ATMADDR = atm_host_name | atm_addr
# [for PVCs]
            IPARPSERVER_CONNECT: VPI=vpi_number, VCI=vci_number
            IPATM_ADD:IPADDR = ip_host_name | ip_address,
                            VPI=vpi_number,VCI=vci_number, peak
                            rate=nn,avgrate=nn,burst=nn
# Delete client ARP entry
            IPATM_DELETE:IPADDR = ip_host_name | ip_address
# Default VLAN Configuration Parameters
            IPATM_MAXMTU:intvalue
            IPATM_VCCTO:intvalue
            IPATM_INCOMPTO:intvalue
            IPATM_COMPTO:intvalue
            IPATM_SRVRIATO:intvalue
            IPATM_OPEAKRATE:intvalue
            IPATM_OAVGRATE:intvalue
            IPATM_OMAXBURST:intvalue
    END_VLAN
END_LINK
```

In the preceding example, *nn* for the peak rate and average represents the number of Mbits per second and *nn* for burst represents the number of cells per second. The following sections contains descriptions of the key words in the file.

BEGIN_LINK...END_LINK

The BEGIN_LINK...END_LINK block must be repeated for each physical link. Thus, for persistent initialization (initialization that occurs each time the workstation is booted), each adapter in the workstation must have a corresponding LINK defined using the BEGIN_LINK...END_LINK block.

The BEGIN_LINK keyword accepts a link number in the range <0-3>. Therefore, up to four physical links may be configured.

```
Example:
BEGIN_LINK 0
...
END_LINK
BEGIN_LINK 1
...
END_LINK
...
```

BEGIN_VLAN...END_VLAN

The BEGIN_VLAN...END_VLAN block may be repeated for each virtual LAN to be defined for the parent physical link. For persistent initialization (initialization that occurs each time the workstation is booted), each physical link should have corresponding VLAN(s) defined using the BEGIN_VLAN...END_VLAN block.

The BEGIN_VLAN keyword accepts a VLAN number <0-255>. Therefore, up to 256 virtual LANs may be configured.

When configuring many virtual LANs, do not deplete the full complement of VLANs. Be sure to reserve some for future LAN Emulation VLANs, which may comprise a portion of the total addressable VLANs.

Normal operation of IP over ATM requires at least one BEGIN_VLAN...END_VLAN block.

```
Example:
BEGIN_LINK 0
     BEGIN_VLAN 1
     ...
     END_VLAN
     BEGIN_VLAN 2
     ...
     END_VLAN
...
END_LINK
...
```

PROTOCOL

The PROTOCOL keyword currently only accepts a value of IPATM (IP over ATM). In the future, a value of LANE (LAN emulation) will be made available using this keyword.

```
Example:
PROTOCOL:   IPATM
```

MYIPADDR

The MYIPADDR keyword corresponds to the local IP address of the physical connection. This may be entered as either an IP hostname or an explicit IP address. The catmlancfg utility will attempt to locate the ip_host_name in the /etc/hosts file or in the NIS database. If an IP address is entered, it must be decimal in dotted notation <a.b.c.d>.

```
Example1:
MYIPADDR:   hostname_ip17
Example2:
MYIPADDR:   90.90.90.17
```

IPARPSERVER_CONNECT METHOD

The IPARPSERVER_CONNECT METHOD keyword corresponds to the Connection Type entry in the Set ATM ARP Server option in the ATM Status Utility.

The value specified for this keyword will determine which other aspects of the syntax will be available. For example, use the IPARPSERVER_CONNECT ATMADDR keyword if the connection method is SVC and use the IPARPSERVER_CONNECT keyword if the method is PVC.

The IPARPSERVER_CONNECT METHOD must be entered as one, and only one, of the following values:

- SVC

- PVC

- LOCAL

- NONE

```
Example:
IPARPSERVER_CONNECT METHOD:  SVC
```

IPARPSERVER_CONNECT ATMADDR

This keyword is only applicable to SVC connections. The IPARPSERVER_CONNECT ATMADDR keyword corresponds to the Server ATM Address entry in the Set ATM ARP Server option in ATM Status Utility with the exception that specification of an atm_host_name is not available in atmstat.

When an ATM hostname is specified, catmlancfg will attempt to locate the atm_host_name in the /etc/atms file.

```
Example1:
IPARPSERVER_CONNECT ATMADDR:  hostname_atm1
Example2:
IPARPSERVER_CONNECT ATMADDR: 39:00:00:00:00:00:
   14:12:00:00:00:12:00:00:00:3F:00:23:00:00
```

IPARPSERVER_CONNECT

This keyword is only applicable to PVC connections. The IPARPSERVER_CONNECT keyword corresponds to the VPI/VCI entries in the Set ATM ARP Server option in atmstat.

- VPI

  — Range: <0-3>

  — Default: 0

- VCI

  — Range: <0-4095>

  — Default: 100

```
Example:
IPARPSERVER_CONNECT ATMADDR:  VPI=0, VCI=1101
```

IPATM_ADD

The IPATM_ADD keyword corresponds to the Set Client ARP Table Entry option in atmstat, with the exception that the ATM hostname option is not available in atmstat. As in atmstat, this keyword allows specification of an ATM address or an IP address.

When an ATM hostname is specified, catmlancfg will attempt to locate the atm_host_name in the /etc/atms file.

When an IP hostname is specified, catmlancfg will attempt to locate the ip_host_name in the /etc/hosts file or in the NIS database. If an IP address is entered, it must be in dotted decimal notation <a.b.c.d>.

```
SVC Example1:
IPATM_ADD: IPADDR = host_ip3, ATMADDR = host_atm3
SVC Example2:
IPATM_ADD: IPADDR = 90.90.90.17, ATMADDR = host_atm17
PVC Example1:
IPATM_ADD: IPADDR = host_ip3, VPI = 0, VCI = 1103
PVC Example2:
IPATM_ADD: IPADDR = 90.90.90.17, VPI = 0, VCI = 1117
```

IPATM_DELETE

The IPATM_DELETE keyword corresponds to the Delete Client ARP Table Entry option in atmstat.

```
Example:
IPATM_DELETE:  IPADDR = ip_host_name | ip_address
```

Default VLAN Configuration Parameters

These parameter values correspond to the Set Configuration Parameters option in atmstat. Furthermore, by selecting Get Configuration Parameters in atmstat, the values that have been set in this configuration file (for the specified VLAN number) will be retrieved. This allows dynamic modification of VLAN parameters and persistent storage of this information (i.e., in the catmlancfg.db file).

Note The catmlancfg.db file may be copied and modified to allow specification and retrieval of multiple configurations.

The following parameter values can be configured for the specified VLAN:

- IPATM_MAXMTU –(Maximum MTU Size) The maximum number of bytes in a data packet

    — Range: <0-9188>

    — Default: [9188]

- IPATM_VCCTO –(VCC Timeout) The number of seconds before a a VCC entry is deleted from the connection table

    — Range: <120-3600>

    — Default: [1200]

- IPATM_INCOMPTO –(Incomplete Timeout) The number of seconds without a response before a request for an ATM address is determined to be unknown

  — Range: <5-300>

  — Default: [60]

- IPATM_COMPTO –(Complete Timeout) The number of seconds before the ARP table for the virtual LAN is forced to verify each ATM address

  — Range: <120-3600>

  — Default: [1200]

- IPATM_SRVRIATO –(Server Inactive Timeout) The number of seconds of inactivity before the connection to the ARP server is terminated

  — Range: <15-3600>

  — Default: [60]

- IPATM_OPEAKRAT –(Peak Data Rate) The maximum data rate (in Mbps) that can be supported by the connection

  — Range: <1-136>

  — Default: [136]

- IPATM_OAVGRATE –(Average Data Rate) The average data rate (in Mbps) that can be sent (must be less than or equal to the peak rate)

  — Range: <1-136>

  — Default: [136]

- IPATM_OMAXBURST –(Burst at the Peak Rate in Cells) The maximum number of cells that can be sent at the peak rate

  — Range: <1-255>

  — Default: [10]

```
Example:
IPATM_MAXMTU:9188
IPATM_VCCTO:1200
IPATM_INCOMPTO:60
IPATM_COMPTO:1200
IPATM_SRVRIATO:1200
IPATM_OPEAKRATE:136
IPATM_OAVGRATE:136
IPATM_OMAXBURST:10
```

ILMI Configuration File

If the switch does not support ILMI, the catmilmi.db file can be configured to automate the specification of ATM addresses (for example, when configuring VLANs). In this way, the Cisco ATM SBus adapter software can be informed of a default network prefix. To specify the network prefix for your location, modify the /etc/catmilmi.db configuration data base using a text editor (for example, vi).

This file is used for configuring the network prefix to register and deregister ATM addresses with a switch that does not support ILMI. If not obtained from the network, the network prefix will be obtained from this static configuration file. The format is as follows:

```
BEGIN_LINK link_number
    NET_PREFIX: prefix_number
END_LINK

Example
BEGIN_LINK 1
    NET_PREFIX: 39:00:00:00:00:00:14:12:00:00:00:12:00
END_LINK
```