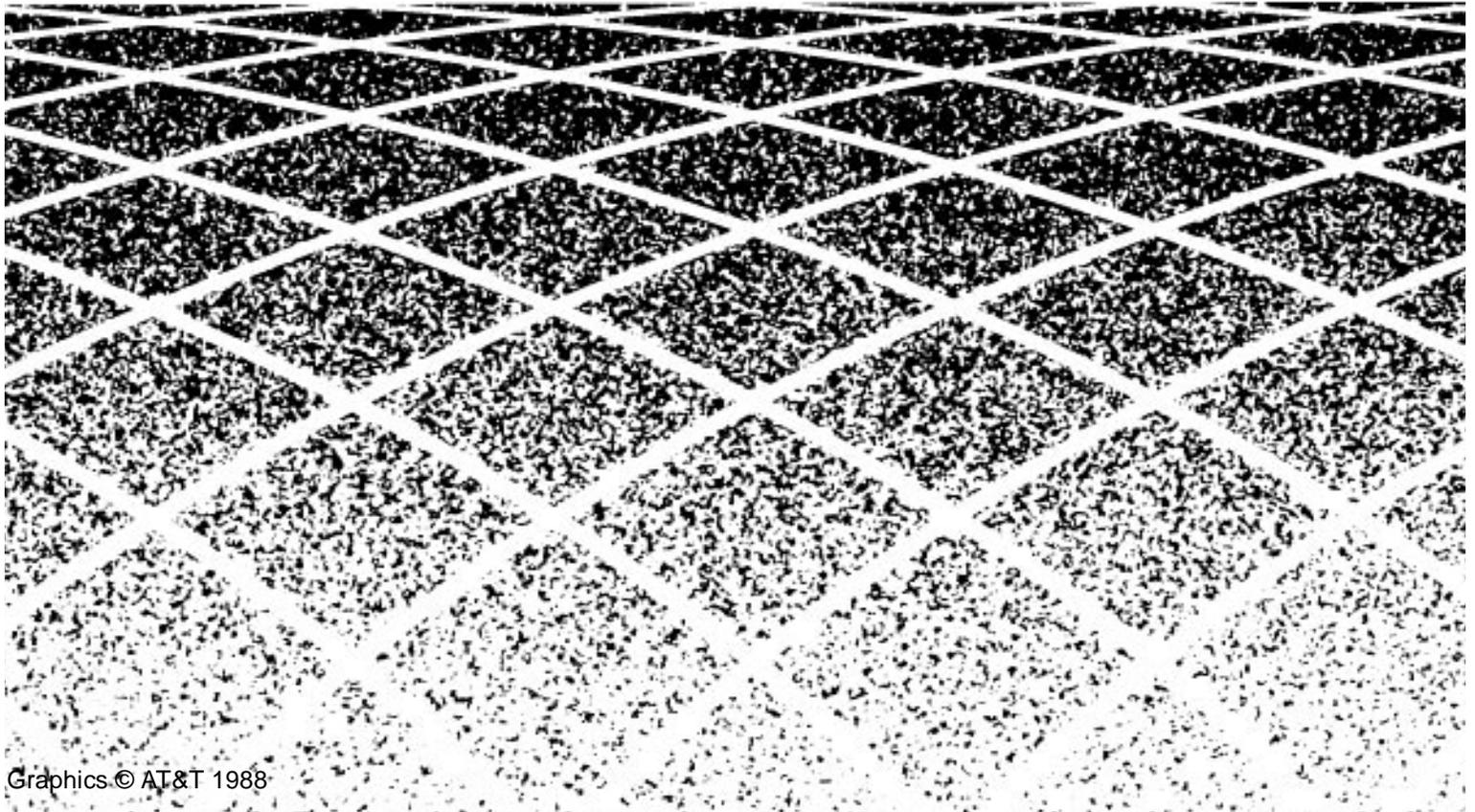




585-229-109
Issue 1
October, 1995

**OneVision™ DEFINITY® G3
Fault Management
Installation and Integration
for AT&T OneVision™**



Contents

About This Book	vii
■ Intended Audiences	vii
■ Prerequisites	vii
■ How This Book Is Organized	viii
■ Conventions Used in This Book	ix
■ Trademarks and Service Marks	x
■ How to Use This Book	xi
■ Your Fault Management Documentation Package	xii
Online Documentation	xii
■ How to Make Comments About This Book	xiii

1	Before You Begin	1-1
■	Overview	1-1
	OneVision Management Solutions DEFINITY	
	G3 Fault Management	1-2
	Standard Network Management Components	1-2
	Network Connectivity	1-4
■	Installation and Setup Task List	1-5
■	Requirements for Fault Management Installation	1-7
	Certified Hardware	1-7

Contents

2	Installing Fault Management	2-1
	■ Installation Prerequisites	2-1
	■ Installation Procedures	2-2
	■ Changing the Environment	2-3
3	Integrating OneVision Fault Management	3-1
	■ Adding DEFINITY G3 PBX Nodes	3-2
	Node Limitations	3-2
	Adding a PBX as a Managed Node	3-2
	Adding PBX Icons	3-3
	Configuring PBX Objects	3-4
	■ Adding DEFINITY G3 Proxy Agent Nodes	3-7
	Node Limitations	3-7
	Adding a Proxy Agent as a Managed Node	3-7
	Adding Proxy Agent Icons	3-7
	Configuring Proxy Agent Objects	3-9
4	Starting the Applications	4-1
	■ Starting Fault Management	4-1
	Starting from the Network Map	4-1
	Starting with the Mouse	4-2
	■ Opening the Online User Guide	4-3
	Opening from the Network Map	4-3

Contents

- Opening from a Shell Prompt 4-4
- DynaText Documentation 4-4

5	Alarm States	5-1
■	States of the DEFINITY G3 Icons	5-2
	Icon States	5-2
	Conditions Causing Change of State	5-3
■	States of the Proxy Agent Icons	5-4
	Icon States	5-5
	Conditions Causing Change of State	5-5
■	Verifying Connectivity	5-7
	Icon State	5-7
	Startup Messages	5-7
	Startup Screen	5-8
	Switch View	5-9
	Warning Messages	5-9
	Data Refreshes	5-10
	Refreshing Data Manually	5-10
	The MIB	5-10
	TroubleShooting Disconnects	5-11

A	Advanced Customization	A-1
■	Changing the Polling Interval	A-2
■	Changing Default Values	A-2

Contents

The Setup Screen	A-3
The Application Resource File	A-3
Accessing the Resource File	A-3
Default Values	A-4
Editing the File	A-4
■ Other Options	A-5
Changing Script Files	A-5
Changing the Application Directory	A-6
Changing the MIB	A-6

B	Telnetting to the Proxy Agent	B-1
■	Overview of the Proxy Agent	B-1
■	Why Should You Access the Proxy Agent?	B-2
■	Telnetting to the Proxy Agent	B-3

IN	Index	IN-1
-----------	--------------	------

About This Book

This book provides information about OneVision DEFINITY G3 Fault Management and Proxy Agent connectivity and tells you how to install and initially set up your OneVision DEFINITY G3 application.

Intended Audiences

This book is intended for AT&T's DEFINITY Generic 3 customers who use OneVision DEFINITY G3 Fault Management (referred to hereafter as Fault Management) to manage their switches on the AT&T OneVision and Network Node Manager 3.3 network management system (NMS) .

Prerequisites

The level of information provided in this book is based on the assumption that users have fulfilled the following prerequisites:

- Customers must understand the network management system (NMS) on which Fault Management resides. It is not within the scope of this or other Fault Management documentation to describe how to use the NMS beyond what the Fault Management software requires.
- Customers must understand their DEFINITY G3 PBX configuration and must be familiar with basic PBX alarm and error functionality.

How This Book Is Organized

This book is organized as follows:

- Chapter 1 Lists the hardware and software that is certified to run Fault Management and provides preparatory steps.
- Chapter 2 Gives you the procedures for installing the software.
- Chapter 3 Provides information for integrating Fault Management and Proxy Agent into the NMS.
- Chapter 4 Explains how to start Fault Management and the online user guide.
- Chapter 5 Describes the OneVision states, alarms, polls, and masks, for DEFINITY G3 PBXs and for DEFINITY Proxy Agents.
- Appendix A Helps you troubleshoot Fault Management in the event a problem occurs. This appendix also has guidelines for NMS configuration and system administration for use with Fault Management.
- Appendix B Explains how to telnet to the Proxy Agent.

This book also contains an Index.

Conventions Used in This Book

This book contains the following typographic conventions:

- Information that is displayed on your screen is shown in typewriter-style constant-width type.

Example: Please remove the installation
diskette and continue when ready.

- Information that you enter from your keyboard or select from a menu is shown in bold type.

Example: Enter **attov_doc**.
Click **OK**.

- Keys that you press are indicated by small type.

Example: Press Enter.

- The word "Enter" means to type the word shown in bold text, then press the Enter key.

Example: Enter the command **ovinstall**.
Means type **ovinstall** and then press Enter.

- Brackets indicate values that you supply.

Example: **public!g3mgt!<client string>** means that
you determine the value of the client string.

Trademarks and Service Marks

The following trademarked products are mentioned in this document:

- DEFINITY[®] is a registered trademark of AT&T
- OneVision[™] is a trademark of AT&T
- DynaText[®] is a registered trademark of Electronic Book Technologies, Inc.
- UNIX[®] is a registered trademark of Novell in the United States and other countries, licensed exclusively through X/Open Company Limited

How to Use This Book

This book is designed to help you quickly get the information you need to install and set up Fault Management. You likely will not need to use the entire book, but will need particular information in it to meet your requirements.

We recommend you read all of Chapter 1 first because it provides important basic information. Then use the following table to determine which chapters you need:

To do this:	Use:
Prepare your computer environment	Chapter 1
Perform prerequisite UNIX system administration	Chapter 2
Install Fault Management software	Chapter 2
Set up switches as nodes on the NMS	Chapter 3
Set up the Proxy Agent node on the NMS	Chapter 3
Troubleshoot problems encountered while installing or running Fault Management	Appendix A
Launch Fault Management	Chapter 4
Read the online user guide	Chapter 4
Understand the DEFINITY G3 alarm states	Chapter 5
Telnet to the Proxy Agent	Appendix B

Your Fault Management Documentation Package

Your Fault Management documentation package includes two parts:

- The installation guide (this book)
- Online documentation

Online Documentation

Two types of online documentation are available with Fault Management:

- Online help provides information about the Fault Management screen that is currently active when you request help.
- The *OneVision Network Management Solutions DEFINITY G3 Fault Management* user guide provides an overview of Fault Management features, tells you about menus and window elements, and provides detailed information on how to use the software. You can move easily around the guide, and can display it on your monitor while Fault Management is running.

This user guide, which is external to the Fault Management software, is delivered online by DynaText software. DynaText is a text browser that allows you to move easily through a document. The document appears online in book format.

How to Make Comments About This Book

A reader comment card is behind the title page. While we have tried to make this book fit your needs, we are interested in your suggestions for improvements and urge you to fill out a card.

If the comment card has been removed, please send your comments to the following address:

AT&T
Product Documentation Development
Room 22-2C11
11900 North Pecos Street
Denver, Colorado 80234
Fax: (303) 538-1741

Please include the following information:

- The name of this document: *OneVision DEFINITY G3 Fault Management Installation and Integration for AT&T OneVision*
- Your platform: SVR4

Before You Begin

1

This chapter covers information you need to know before you begin installing and setting up Fault Management, including:

- Overview of Fault Management
- Requirements for Fault Management installation
- Supported Systems
- Hardware and Software Requirements for Fault Management
- Installation and Setup Task List

Overview

This section is a high-level overview of Fault Management. It also gives users who are new to network management systems a brief description of the components of Fault Management's functionality, including how it fits into the network management picture.

OneVision Management Solutions DEFINITY G3 Fault Management

OneVision Management Solutions DEFINITY G3 Fault Management allows you to manage a DEFINITY G3 PBX as a node on your network similar to other devices on your network. Fault Management receives PBX data via your network management system (NMS).

The NMS receives the PBX data from the OneVision G3 Proxy Agent. The purpose of the Proxy Agent is to receive PBX data and to translate that data, which is in DEFINITY's OSSI (Operating Support System Interface) format, to the SNMP (Simple Network Management Protocol) format required by the NMS. In addition, the Proxy Agent receives alarms data from the PBX and translates that data into SNMP. It also provides administrative access to the PBX.

With the PBX data available to the NMS, you can see alarm conditions on any PBX that is a node on your NMS exactly as with other devices. From the node map you can execute Fault Management to get data on the PBX. Fault Management provides a graphical interface to that information, so that you can quickly see where on a PBX fault conditions exist and display reports about those fault conditions.

Standard Network Management Components

The standard SNMP-based management system consists of the following:

- An object or objects to be managed, in this case one or more DEFINITY G3 PBXs
- An agent for managing the object(s)

It is the agent that communicates all management command responses and information between the managed object and the NMS. The agent can be implemented as part of the managed object, in which case it is known as a native agent, or it can be implemented on a separate computer, in which case it is known as a proxy agent. For DEFINITY G3 objects, the agent is a proxy agent because it is not built into the

DEFINITY G3 PBXs. Typically, there is one agent for each managed object. However, the OneVision DEFINITY G3 Proxy Agent can support up to a maximum of fifteen DEFINITY G3 PBXs. The exact number of PBXs the DEFINITY G3 Proxy Agent can support depends on the customer's system configuration and networking capability.

- A Management Information Base (MIB) resident on the agent and on the NMS

The MIB is a virtual data store used to transfer all information and commands between the NMS and the agent via the SNMP. MIB-II is a standard industry-wide MIB. The OneVision applications use two groups from MIB-II and a specialized MIB called G3-MIB. Within the OneVision DEFINITY G3 environment, *MIB* refers to the *system* and *snmp* groups from MIB-II plus the entire G3-MIB.

- One (or more) network management stations, where the management functions are performed using network management system (NMS) software

In this case, the NMS is AT&T OneVision.

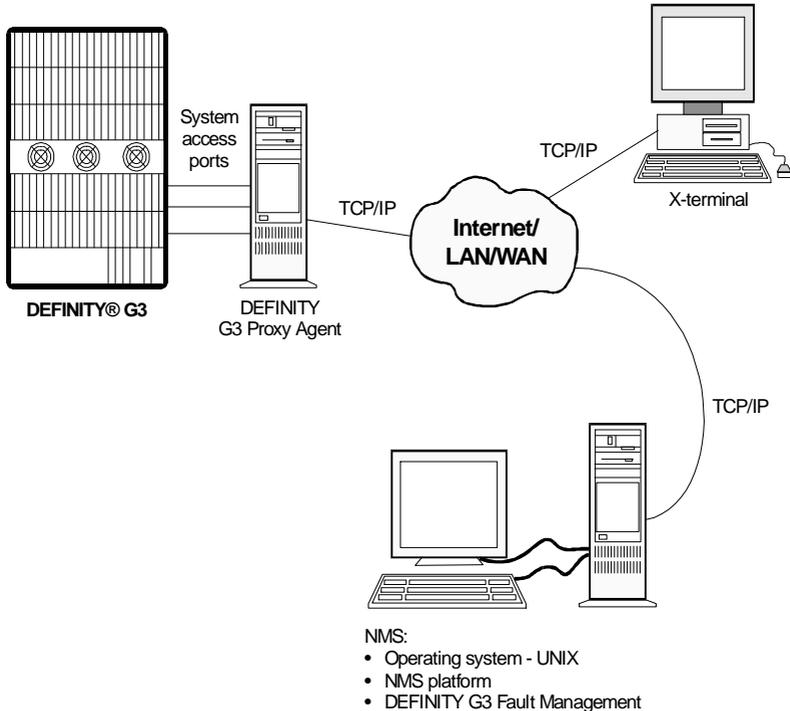
The OneVision DEFINITY G3 Fault Management product resides on the NMS and provides functionality beyond the standard set of components: the ability to manage a PBX as a node on the network.

bd SEE ALSO:

For indepth information about Fault Management, refer to the online *OneVision Network Management Solutions DEFINITY G3 Fault Management* user guide.

Network Connectivity

The SNMP runs on a TCP/IP link. Therefore, the connection between the NMS and the Proxy Agent is a TCP/IP network. The following figure illustrates the SNMP connections between the NMS, Fault Management, and the Proxy Agent.



This diagram illustrates the connection between the DEFINITY G3 PBX and the DEFINITY G3 Proxy Agent via system access ports, the connection between the Proxy Agent and the NMS via the Internet, a LAN, or a WAN with TCP/IP, and the connection of an X-terminal network management station and the NMS via the same network.

Installation and Setup Task List

This section provides a list of tasks, in the recommended order, to perform while installing and setting up Fault Management. Use this list to check off your installation activities as you complete them. You may want to make your own task list based on this one, and include persons or organizations responsible and dates to be completed.

 **NOTE:**

These procedures assume that installation of OneVision Management Solutions DEFINITY G3 Proxy Agent has occurred or will occur shortly. You can install Fault Management without the Proxy Agent being installed, but without the Proxy Agent up and running properly and until the full connectivity is established, the NMS will not receive any PBX data. Furthermore, communication between the Proxy Agent and Fault Management requires correlation between values in specific fields on the Proxy Agent and NMS administration. Therefore, you should plan some coordination for installing these two applications.

- Verify the environment is correct (Chapter 1)

Make sure you have the required operating system and network connectivity already set up.

- Verify hardware (Chapter 1)

Make sure you have all the required hardware and that the hardware meets the certification requirements. Also make sure you have enough space on the hard drive.

- Verify existing software (Chapter 1)

Make sure the versions of your operating system and the NMS are correct

- Prepare for software installation
 - Do you have the OneVision DEFINITY G3 Fault Management Release 1.0.1 tape?
 - Plan for the time needed to install the software (about ½ hour)
 - Perform prerequisite operating-system administration
- Install the software (Chapter 2)
- Make changes to the environment, such as updating the PATH variable (Chapter 2)
- Restart your NMS
- Add the DEFINITY PBXs as nodes on the NMS (Chapter 3)
- Add the Proxy Agent(s) as a node(s) on the NMS (Chapter 3)
- Run Fault Management from the appropriate menu on your NMS (Chapter 4). Verify that Fault Management
 - Executes properly
 - Is receiving data from the Proxy Agent
- Run the `Test INADS` command on the PBX to test alarm reception.
- Customize Fault Management
 - Change polling intervals
 - Change user-interface characteristics

SEE ALSO:

For instructions on customizing Fault Management, refer to the *OneVision Network Management Solutions DEFINITY G3 Fault Management* user guide.

- Run the online guide to verify it is installed and executes correctly (Chapter 4)

Requirements for Fault Management Installation

In order for Fault Management to be installed and to run properly, your NMS must be set up with the following:

- AT&T OneVision Network Node Manager Release 3.3
- AT&T GIS workstation that meets all hardware requirements of the AT&T OneVision Network Node Manager Release 3.3 software
- The SVR4 version 3 operating system
- The shared library libc
- A 1/4-inch tape drive
- 20 MB of random access memory
- At least 28 MB of free space on the hard drive

The approximate amount of disk space required by Fault Management is 24 MB.

Certified Hardware

Fault Management is designed to run on any computer hardware and operating system that is certified to run your AT&T OneVision Network Node Manager Release 3.3.

Installing Fault Management

2

This chapter provides the procedures to install your Fault Management software. The instructions in this chapter are designed for the system administrator. Procedures for setting up Fault Management within your NMS are in subsequent chapters.

This chapter covers:

- Installation Prerequisites
- The steps to install Fault Management
- Changing your Operating Environment

Installation Prerequisites

Before you install Fault Management, be sure you have read Chapter 1, and be sure that your computer environment meets all the stated hardware and software requirements.

Installation Procedures

The Fault Management installation is fully automated (however, after the installation is complete, you will need to make some basic changes to your operating environment). Once you execute the command to install the Fault Management application and all related software, the system completes the installation without any need for intervention on your part.

Use the following steps to install Fault Management on the AT&T OneVision platform.

1. Insert the tape into the tape drive.
2. Log into the operating system as root.
3. Change directory to `/usr/ov/bin`
4. Enter one of the following commands.

- To install Fault Management for the first time, enter:

```
./ovinstall -pDG3FM -- -d <device>
```

where `<device>` is the full path of the device from which you are installing the OneVision package.

Example:

```
./ovinstall -pDG3FM -- -d /dev/rmt/ctape1
```

- To reinstall Fault Management over existing filesets, use the `-r` option in the previous command.

Example:

```
./ovinstall -r -pDG3FM -- -d /dev/rmt/ctape1
```

The installation procedure completes the following:

- Registers the application name with the NMS
- Creates the necessary directory structure and copies all the necessary files, include the bitmap, MIB, default database, script, and application files

- Installs the Fault Management application
 - Incorporates the new fields
 - Compiles the new bitmaps
 - Incorporates the DEFINITY G3 MIB into the existing MIB
 - Installs the DynaText online documentation
5. Restart your NMS before accessing the OneVision application.

Changing the Environment

After the installation is complete, you need to change your operating environment so you can run the online documentation from a shell prompt:

Add `/usr/OV/OneVision/bin` to your PATH variable.

Integrating OneVision Fault Management

3

This chapter provides information about integrating Fault Management with your NMS.

This chapter covers:

- Adding DEFINITY G3 PBX Nodes
- Adding DEFINITY G3 Proxy Agent Nodes

bd

SEE ALSO:

Refer to the AT&T OneVision user manual for complete instructions to add a node.

Adding DEFINITY G3 PBX Nodes

This section includes the procedures for adding a DEFINITY G3 PBX to the node map. These procedures are meant to enhance, not replace, your NMS's normal instructions for adding a node.

NOTE:

Autodiscovery, which normally identifies elements of the network and places them correctly on the network map, does not locate a DEFINITY PBX or accurately identify the Proxy Agents. Therefore, you must add PBXs and Proxy Agents manually to a network map.

Node Limitations

The number of PBX nodes you can have is limited by two capacities, whichever is the smaller capacity:

- The number of nodes allowed by the NMS
- The number of Proxy Agents you have to support connectivity with the PBXs; each Proxy Agent can support up to fifteen DEFINITY PBXs

Adding a PBX as a Managed Node

When you add a PBX as a managed node on the network, you can follow your NMS's standard procedures. The following steps briefly describe those procedures and include information specific to adding a DEFINITY G3 PBX as a node.

To add a PBX as a node on the AT&T OneVision Network Mode Manager, you must complete the following procedures:

- Add a PBX icon to the network map
- Configure each PBX object

Adding PBX Icons

Use the following steps to add an icon to the network map:

1. Display the appropriate network map.
2. From the menu bar, select **Edit**, then select **Add Object**.

Result: The Add Object Pallet window opens.

3. Click on the OneVision icon.

Result: The Add Object Pallet window displays the following icons under the heading Symbol Subclasses for Class OneVision: Generic, G3 PBX, and G3 Proxy.



4. Drag the G3 PBX icon shown at left onto the map.

Result: The system inserts the icon on the map and opens the Add Object window.

5. Verify that the Symbol Type is OneVision:G3 PBX.
6. In the Label field, enter a name or some form of ID that identifies the PBX. Do not use spaces in the name.

Result: This entry is automatically inserted into the Selection Name field. (See step 9.) It also labels the icon on the map and in OneVision DEFINITY G3 Fault Management.

7. In the Behavior panel, click on **Execute** to make the PBX object executable.

Result: The Application Action list box is added to the Add Object window. This list box contains a list of executable applications.

8. Select the application **DEFINITY G3 : Fault Management**. (You may need to scroll through the list.)

9. This step is optional. You can change the contents of the Selection Name field (populated when you completed step 6.)



CAUTION:

The Selection Name is a key field that must match the SNMP configuration name.

If you choose to change this field, follow these guidelines:

- a. Enter a name that matches the SNMP configuration name.
 - b. Do not use spaces in this field.
10. Click **OK**, located at the bottom of the window.
Result: The Add Object Pallet window redisplay.
 11. Repeat steps 4 through 10 for each additional PBX.
 12. Click **OK** on the Add Object Pallet window.
Result: The Add Object Pallet window closes and the network map redisplay with the newly added G3 PBX icon(s).

Configuring PBX Objects

A PBX object cannot receive any data until it is configured with the name of the Proxy Agent from which it will be receiving PBX data. To create the appropriate configuration, complete the following steps. Start on the network map that displays after you finished the preceding procedure.

1. From the menu bar, select **Options**, then select **SNMP Configuration**.

Result: The SNMP Configuration window opens. Existing nodes are listed at the top of the window.

2. In the OpenView SNMP Parameters panel in the lower half of the window, select the **Use Proxy to access Target** button.

This button enables the Proxy Agent.

3. Enter the following information:

Field	What you enter . . .
Proxy	The name or IP address of the Proxy Agent with which the PBX will be communicating
Target	The object's name. The name you enter in this field must match the name in the Selection Name field in step 9 of the previous procedure, Adding PBX Icons. These names must be spelled and capitalized exactly the same.
Community	The community name in the following format: <code><public>!g3mgt!<client string></code> <ul style="list-style-type: none"> ■ The community string (<code>public</code>) must match the name in the Community String field on the Proxy Agent's Managers form. ■ Do not change <code>!g3mgt!</code> ■ The "client string" must be the same as the client string on the Proxy Agent's Clients form.
Set Community	Usually the same value as the Community.

4. Complete the other fields as normal. We suggest you use the following values:

Field	What you enter . . .
Timeout	0.8
Retry	3
Port	(leave blank)
Polling	5m

5. Click **Add**.
6. Click **OK**.

The following table is an example of the parameters completed for a DEFINITY G3 PBX.

Field	Parameter
Proxy	agent_6
Target	mc3
Community	public!g3mgt!mc3
Set Community	public!g3mgt!mc3
Timeout	0.8
Retry Count	3
Remote Port	-
Status Polling	5m

Adding DEFINITY G3 Proxy Agent Nodes

This section includes the procedure for adding a Proxy Agent as a managed node.

Node Limitations

The number of Proxy Agent nodes that you can have on your NMS is limited only by the total number of nodes allowed by your NMS.

Adding a Proxy Agent as a Managed Node

When you add a Proxy Agent as a managed node on the network, you can follow your NMS's standard procedures. The following steps briefly describe those procedures and include information specific to adding a Proxy Agent as a node.

To add a Proxy Agent as a node on the AT&T OneVision NMS, complete the following procedures:

- Adding a Proxy Agent icon to the network map
- Configuring each Proxy Agent object

Adding Proxy Agent Icons

Use the following steps to add a Proxy Agent icon as a node on the AT&T OneVision NMS:

1. Display the appropriate network map.
2. From the menu bar, select **E**d*i*t, then select **A**dd **O**bject.

Result: The Add Object Pallet window opens.

3. Click on the OneVision icon.

Result: The Add Object Palette window displays the following icons under the heading Symbol Subclasses for Class OneVision: Generic, G3 PBX, and G3 Proxy.



4. Drag the G3 Proxy icon shown at left, onto the map.

Result: The system inserts the icon on the map and opens the Add Object window.

5. Verify that the Symbol Type is OneVision:G3 Proxy.
6. In the Label field, enter the name of the Proxy Agent machine on your network. Do not use spaces in the name.

Result: This entry is automatically inserted into the Selection Name field. (See Step 9.)

NOTE:

If you are not using a name server, or if you do not want to use the actual Proxy Agent name, you also need to specify the IP address of the Proxy Agent in the Selection Name field. See your platform documentation for more information.

7. In the Behavior panel, click on **Execute** to make the Proxy Agent object executable.

Result: The Application Action list box is added to the Add Object window. This list box contains a list of executable applications.

8. Select the application **DEFINITY G3:Telnet to G3 Proxy**. (You may need to scroll through the list.)

9. This step is optional. You can change the contents of the Selection Name field (populated when you completed step 6.)



CAUTION:

The Selection Name is a key field that must match the SNMP configuration name.

If you choose to change this field, follow these guidelines:

- a. Enter a name that matches the SNMP configuration name.
 - b. Do not use spaces in this field.
10. Click **OK**, located at the bottom of the window.
Result: The Add Object Pallet window redisplay.
 11. Repeat steps 3 through 9 for each additional Proxy Agent.
 12. On the Add Object Pallet window, click **OK**.
Result: The Add Object Pallet window closes and the network map redisplay with the newly added Proxy Agent icon.

Configuring Proxy Agent Objects

A G3 Proxy object cannot receive any data until it is configured appropriately. To create the appropriate configuration, complete the following steps. Start on the network map that displays after you finished the preceding procedure.

1. From the menu bar, select **Options**, then select **SNMP Configuration**.
Result: The SNMP Configuration window opens. Existing nodes are listed at the top of the window.
2. Ensure that the **Use Proxy to access Target** button is turned off.

3. Enter the following information:

Field	What you enter . . .
Target	The Proxy Agent's name The name you enter in the Target field must match the name you entered in the following fields. These names must be spelled and capitalized exactly the same. <ul style="list-style-type: none">■ The Selection Name field in step 9 of the previous procedure, Adding Proxy Agent Icons■ The Proxy field described in your Proxy Agent installation guide.
Community	The community name for the Proxy Agent (usually <code>public</code>)
Set Community	Usually the same value as the Community

4. Complete the other fields as normal. We suggest you use the following values:

Field	What you enter . . .
Timeout	0.8
Retry	3
Port	(leave blank)
Polling	5m

5. Click Add, then click **OK**.

The following table is an example of entries made for a typical Proxy Agent.

Field	Parameter	Comments
Proxy	-	Not used
Target	The Proxy Agent name or IP address	<ul style="list-style-type: none">■ If your network has a name server, use the Proxy Agent name that you entered in the Label field.■ If your network does not have a name server or if you do not want to use the Proxy Agent's actual name, use the IP address as it displays in the Selection Name field.
Community	public	
Set Community	public	
Timeout	0.8	
Retry Count	3	
Remote Port	-	Not used
Status Polling	5m	

Starting the Applications

4

This chapter provides information for

- Starting Fault Management
- Starting Fault Management's online user guide

This chapter assumes you have already installed the Fault Management application and added DEFINITY G3 nodes to your map, as described in Chapter 2 and Chapter 3. If not, complete the procedures in those chapters before you continue.

Starting Fault Management

- Network map
- Mouse

Starting from the Network Map

Follow these steps to start Fault Management from the network map.



1. At the appropriate map, select the icon for which you want to run Fault Management.
2. At the menu bar on the same map, select **Monitor**, then select **DEFINITY**.

3. Select **G3 Fault Management** from the submenu.

Result: The system begins the Fault Management startup process.

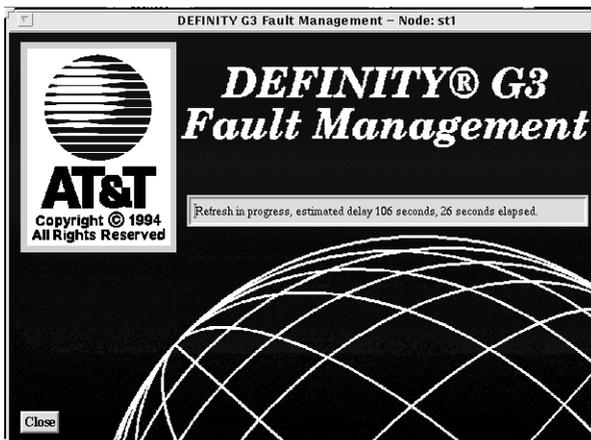
Starting with the Mouse

Follow these steps to start Fault Management with the mouse.



1. At the appropriate map, select the icon for which you want to run Fault Management.
2. Double-click on the left mouse button.

Result: The system starts up the Fault Management application, beginning with the startup screen shown below.



bd SEE ALSO:

For information about the complete Fault Management start-up process, including the start-up screen and messages, refer to the online *Management Solutions DEFINITY G3 Fault Management User Guide*.

Opening the Online User Guide

The online user guide, *OneVision Management Solutions DEFINITY G3 Fault Management*, describes how to use the Fault Management application. This guide is available in DynaText, an application automatically installed by Fault Management.

You can open this user guide from the:

- Network map
- Shell prompt

Opening from the Network Map

Follow these steps to open the user guide from the network map:



1. At the network map that contains one or more DEFINITY node(s), select any DEFINITY G3 icon.
2. From the menu bar on the map, select **Monitor**, then select **DEFINITY**.
Result: The DEFINITY submenu opens.
3. Select **AT&T OneVision Documentation**.
Result: DynaText opens a window that has a Collections list box at the left. A collection is a set of books that are specific to one application or topic.
4. In the Collections list box, select **OneVision Documentation**.
Result: The Books list box displays the book title DEFINITY G3 Fault Management.
5. Select the book **DEFINITY G3 Fault Management**.
6. Click **Open**.

Opening from a Shell Prompt

To access the online guide from a shell prompt, enter the command `attov_doc`.

DynaText Documentation

Along with the Fault Management online user guide, the online package includes the following information about DynaText.

- The *DynaText Tutorial* provides instructions for using the DynaText online browser.
- The *DynaText Reader Guide* is a reference for using the online browser.

For instructions about using DynaText:

1. Select the collection `DynaText Documentation`.
2. Select either `DynaText Tutorial` or `DynaText Reader Guide`.

This chapter provides information about the alarm states for the DEFINITY PBXs and the Proxy Agent.

This chapter covers:

- Understanding DEFINITY G3 PBX Icon States
- Understanding Proxy Agent Icon States
- Adjusting Polling Intervals for Network Traffic
- Verifying Connectivity

States of the DEFINITY G3 Icons

Each state of the DEFINITY G3 PBX icon represents one of the possible conditions that can exist on the PBX. An icon's state depends on whether the Proxy Agent is communicating with the PBX and if the SNMP connection between the Proxy Agent and the NMS is established.

Icon States

The states or conditions for DEFINITY G3 PBX icons are as follows:

State	Definition
Normal	The Proxy Agent is communicating with the PBX and there are no alarms on the PBX.
Warning	The Proxy Agent is communicating with the PBX and is receiving indication of one or more warning alarms on the PBX.
Minor	The Proxy Agent is communicating with the PBX and is receiving indication of one or more minor alarms on the PBX.
Major	The Proxy Agent is communicating with the PBX and is receiving indication of one or more major alarms on the PBX.
Unknown	One of the following conditions is true: <ul style="list-style-type: none">■ The Proxy Agent is having trouble communicating with the PBX, such that the Proxy Agent cannot indicate the status or health of the PBX.■ The NMS can not communicate with the Proxy Agent and, therefore, can not determine the status of the PBX.

Conditions Causing Change of State

Icons are in a certain state based on one of several events, either the NMS polling the Proxy Agent or the Proxy Agent sending traps to the NMS. The following events can change a PBX icon's state:

- The NMS polls the Proxy Agent for the *g3healthMajor* object. If the value of this object is greater than zero, then the icon's state is set to Major. The default polling interval for the *g3healthMajor* object is five minutes.
- The NMS polls the Proxy Agent for the *g3healthMinor* object. If the value of this object is greater than zero and if *g3healthMajor* is equal to zero, then the icon's state is set to Minor. The default polling interval for the *g3healthMinor* object is five minutes.
- The NMS polls the Proxy Agent for the *g3healthWarning* object. If the value of this object is greater than zero and value of the *g3healthMajor* object and *g3healthMinor* objects are equal to zero, then the icon's state is set to Warning. The default polling interval for the *g3healthWarning* object is five minutes.
- If the value of *g3healthMajor*, *g3healthMinor*, and *g3healthWarning* is equal to zero, the icon's state is set to Good.
- The Proxy Agent sends traps to the NMS. If the NMS receives a trap, it sets the state of the appropriate icon to the severity of the alarm represented by the trap, or it sets the state to the current state, whichever is more severe. For example, if the NMS receives a minor alarm trap and the current state of the icon is Warning, it changes the PBX icon's state to Minor. However, if the NMS receives a minor alarm trap and the current state for that icon is Major, it does not change the PBX icon's state.

- The NMS polls the Proxy Agent for the *sysDescr* object to determine if the Proxy Agent is running. If the NMS receives a response that the object does not exist or if the Proxy Agent does not respond, the icon's state is set to Unknown. The default polling interval for the *sysDescr* object is five minutes.
- The NMS polls the Proxy Agent for the *g3connectState* object. If the value is not "up," then the icon's state is set to Unknown. The default polling interval is five minutes.

States of the Proxy Agent Icons

Each state of the Proxy Agent icon represents one of the possible conditions that can exist between the Proxy Agent and the PBX.

Icon States

The states or conditions for Proxy Agent icons are as follows:

State	Definition
Normal	The Proxy Agent is communicating with the NMS and that the G3 Peer process is registered with the SMUX agent process.
Warning	The Proxy Agent is communicating with the NMS and that the NMS has received an authentication failure Trap sent by the Proxy Agent.
Major	There is a communication problem between the NMS and the Proxy Agent.
Critical	The Proxy Agent has failed to forward alarms to its administered destination.



CAUTION:

A Critical state for the Proxy Agent affects PBX maintenance and AT&T's ability to support the PBX. Therefore, when a Proxy Agent is in this state, you must contact the TSC immediately.

Conditions Causing Change of State

G3 Proxy Agent icons are in a certain state based on one of several events, either the NMS polling the Proxy Agent or the Proxy Agent sending traps to the NMS. The following events can change a G3 Proxy Agent icon's state:

- The NMS polls the Proxy Agent for the *g3connectAlarmForward* object. If the value of this object is failed, then the icon's state is set to Critical. The default polling interval for the *g3connectAlarmForward* object is five minutes.
- The NMS polls the Proxy Agent for the *smuxProxyName* columnar object. If it does not contain a single value of *g3mgt*, then the icon's state is set to Major. If the icon is in the Major state and a later poll finds

a single object containing the value *g3mgt*, the state of the icon returns to Normal. The default polling interval for the *smuxProxyName* object is every five minutes.

- The NMS polls the Proxy Agent for the *sysDescr* object (object ID 1.3.6.1.2.1.1.1) to determine if the Proxy Agent is responding. If the response indicates the object does not exist or if there is no response, the state of the icon is set to Major. If the icon is in the Major state and a subsequent poll finds a valid response, the state of the icon returns to Normal. The default polling interval for the *sysDescr* object is five minutes.
- You can configure the Proxy Agent to send an Authentication Failure trap to the NMS when it receives an SNMP message with an incorrect community string. When the NMS receives an Authentication Failure trap, it changes the Proxy Agent icon's state to Warning.

You can clear a Proxy Agent icon from the Warning state as follows:

1. At the appropriate map, select the Proxy Agent icon.
2. At the menu bar, select **Monitor**, then select **DEFINITY**.
3. Select one of the following commands:
 - **Clear Warning**
 - **Refresh Icon Colors**

Verifying Connectivity

You can use the following features to verify that the Proxy Agent is connected to a PBX:

- Icon states
- Fault Management startup messages
- Warning messages
- Data refreshes
- The Management Information Base (MIB)

Icon State

The DEFINITY G3 Proxy Agent maintains continuous contact with the DEFINITY PBXs that it serves. When the Proxy Agent and the PBX are connected, you can determine the status of the PBX by viewing the DEFINITY icons on the network map.

If the Proxy Agent is not in contact with the PBX, the state of the DEFINITY icon is Unknown.

Startup Messages

You can verify connectivity when you start Fault Management from the following screens:

- Startup
- Switch View

Startup Screen

Verify that the Proxy Agent is connected to the PBX when you start Fault Management as follows:

1. Follow your normal startup procedure.
2. When the Fault Management Startup screen displays, examine the startup message.

If the message is . . .	Then the connection is . . .
Refresh in progress, estimated delay nnn seconds, nnn seconds elapsed.	Up
Refresh on Startup Failed! Continuing with Cache Data.	Down

n = a number



NOTE:

Neither of these messages display if the Refresh Proxy Agent On Startup field on the Setup screen is set to FALSE. (You can access this screen from the Options menu on the Switch View screen.)

The startup screen displays for a brief time. So, if you cannot read these messages, you can verify connectivity by refreshing data while Fault Management is running. (This process is described in the next section.)

Do not rely on the following message that displays on the Switch View to verify connectivity:

```
SUCCESS all data retrieved from switch!...
```

Switch View

If the Proxy Agent has not established a connection to the PBX during startup, the following items display:

- The Startup Refresh pop-up window displays in the center of the Switch View. The message in this window informs you that the refresh failed.

NOTE:

This window displays only if the Refresh Proxy Agent On Startup field on the Setup screen is set to TRUE. (You can access this screen from the Options menu on the Switch View screen.)

- A warning message also displays near the bottom of the Switch View. This message is described below.

Warning Messages

If either of the following conditions are true, then the warning message shown below displays in the message area of the Switch and Cabinet views:

- The connection between the Proxy Agent and the PBX was not up when you started Fault Management
- The last refresh failed

WARNING: The data displayed is based on non-refreshed cached data and may be out of date.

This message:

- Displays regardless of how the Refresh Proxy Agent On Startup field on the Setup screen is set.
- Is cleared from your screen after a successful alarms and errors refresh (which indicates that the connection is up and new data has been received.)

Data Refreshes

You can verify that the Proxy Agent is connected to the PBX while Fault Management is running by refreshing the PBX data.

Fault Management can refresh PBX data only if the Proxy Agent is connected to the PBX. Therefore, if a refresh fails, the Proxy Agent may have lost contact with the PBX.

Refreshing Data Manually

Use the following steps to refresh data manually:

1. Access the Switch View screen.
2. Select one of the following options from the menu bar:
 - **Fault**, then select **Refresh Alarms and Errors**
 - **Configuration**, then select **Refresh Configuration Data**

If...	Then the connection is...
The refresh succeeds	Up
A pop-up window displays a message stating that the refresh has failed	Down

The MIB

You can verify that the Proxy Agent is connected to the PBX by viewing the status of the g3connectState field in your MIB.

To access the g3connectState field, follow these steps:

1. Starting on your configuration map, select the **DEFINITY** icon for the PBX that you want to check.
2. Select **Monitor** from the menu bar, then select **DEFINITY**.

3. Select **PBX MIB Values** from the DEFINITY pull-down menu.
4. Select **Connect Group...**

If the value in the Switch Connect State field is up, the PBX you selected is connected to the Proxy Agent.

Troubleshooting Disconnects

If the Proxy Agent is not in contact with a DEFINITY PBX, check the following common causes for a disconnect:

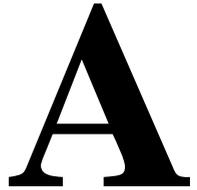
- Can the Proxy Agent dial out?
 - Is the modem working?
 - Is the phone line connected and do you get a dial tone?
- Does the Proxy Agent have a current, correct login and password for the DEFINITY PBX?

You can check the login and password on the Proxy Agent Communications form. For more information, see Chapter 4 in the *OneVision DEFINITY G3 Proxy Agent Installation and Connectivity* guide.

- Is a PBX management port available? Does it give a modem tone? (Call the modem from a voice station to check.)
- Can you log into the PBX management port from another terminal and modem?
- Can your NMS access the Proxy Agent? (Telnet to the Proxy Agent to find out.)
- Is the Proxy Agent running? (Telnet to the Proxy Agent and run g3stat.)

If the Proxy Agent is still disconnected from the PBX after you check all of these items, call the System Management Help Line at the Technical Service Center for assistance.

Advanced Customization



Your online user guide explains how to use the Setup screen to customize Fault Management. This appendix describes the advanced customization options for changing the following:

- Polling Intervals
- Default Colors

It also explains some customization options that are not recommended for Fault Management.

Changing the Polling Interval

You can change the responsiveness of network traffic by changing the polling intervals. If you:

- Increase the polling interval, network traffic may decrease
- Decrease the polling intervals, network traffic may increase

You need to find a balance between responsiveness and network traffic.

The polling interval determines the amount of time that Fault Management's polling program is in the sleep mode. You can change the polling interval by changing the following line in the shell script

```
/usr/OV/OneVision/bin/G3_Status_Poll:
```

```
sleep 120
```

This line (near the end of the script) causes Fault Management to restart polling every 120 seconds.

You change the polling interval by changing the number of seconds in this line. (The larger the number, the slower the polling rate.)

Changing Default Values

Fault Management allows you to change the default values that are delivered with your application. You can use either of the following items to change these values:

- The Setup screen
- The application resource file

The Setup Screen

The Setup screen allows you to change Fault Management defaults for:

- Alarms
- Highlighting
- Selecting objects
- Refresh and polling intervals
- Refresh on startup values
- SNMP retry values

When you save the changes that you make on this screen, Fault Management overwrites the information in the application resource file.

SEE ALSO:

The online guide delivered with Fault Management can help you use the Setup screen to change default values. For information about accessing this guide, see "Opening the Online User Guide."

The Application Resource File

The application resource file contains all the default settings that display on the Setup screen. In addition, it contains the default settings for the background and foreground colors of windows and menu bars. The colors for these items are set to match those on your NMS and can not be changed from the Setup screen.

Accessing the Resource File

Use the following path to access the resource file, DG3FMdefaults:

```
/usr/OV/OneVision/DG3FM/DG3FMdefaults
```

Default Values

When you first open the application resource file, it contains the following defaults:

Object	Default Color
BackgroundColor	Grey66
ForegroundColor	Black
MajorAlarmColor	Red
MinorAlarmColor	Orange
WarningAlarmColor	Yellow
HighlightColor	Green
SelectColor	Cyan
MenubarColor	#729ff
MenubarForegroundColor	Black
AlarmErrorRefresh	60
CircuitPackRefresh	8
AlarmPolling	10
RefreshOnStart	TRUE
SNMPRetries	2

Editing the File

To edit this file:

1. Shut down Fault Management, if it is running.

If Fault Management is running while you are editing DG3FMdefaults, the next time you use the Setup screen to make changes, Fault Management will overwrite any changes you make during this session.

2. Edit the file by entering a valid value. For colors, you can enter either a color name or a RGB value at the appropriate line.

**NOTE:**

If you enter an invalid color setting, Fault Management substitutes the invalid value with the original default setting.

3. Write the file.

Other Options

Changing the following customization options are not recommended as they may adversely affect the way Fault Management operates:

- Script files
- The application directory
- The MIB

Changing Script Files

Fault Management's integration with the NMS is based on the following scripts:

```
/usr/OV/OneVision/bin/G3_Proxy_Clear  
/usr/OV/OneVision/bin/G3_Proxy_Trap  
/usr/OV/OneVision/bin/G3_Status_Poll  
/usr/OV/OneVision/bin/G3_Status_Trap  
/usr/OV/OneVision/bin/G3_dg3fm_sh  
/usr/OV/OneVision/bin/G3_telnet
```

**CAUTION:**

You should not change these scripts in any way, with the exception of the script `G3_Status_Poll`, where you can change the polling interval. (See the instructions earlier in this Appendix.)

Changing the Application Directory

The application directory contains all executable and default parameter files. It is located at `/usr/OV/OneVision`.

We recommend that you do not change its location.

Changing the MIB

The Management Information Base (MIB) contains definitions of managed objects and associated management information. The MIB contains both standard information on all devices and vendor-specific information.

Fault Management does not recognize objects that are not defined in the MIB.

You cannot change the MIB.

Telnetting to the Proxy Agent

B

This appendix provides the following information about how to telnet to the Proxy Agent:

- Overview of the Proxy Agent
- Why you need access to the Proxy Agent
- Instructions on how to telnet



CAUTION:

Telnet is not a secure protocol; logins and passwords are not encrypted before they are transmitted. To protect your logins and passwords, perform the following actions only on a secure LAN:
Logging into the Proxy Agent
Using enhanced cut-throughs for PBX administration

Overview of the Proxy Agent

The OneVision DEFINITY G3 Proxy Agent (referred to as the Proxy Agent), which is part of your OneVision network management package, is a separate software application running on a separate computer from Fault Management and the NMS. The purpose of the Proxy Agent is to translate PBX data from DEFINITY's OSSI (Operating Support System Interface) into

SNMP (Simple Network Management Protocol). SNMP is the protocol format that the NMS requires in order to read network management data. The Proxy Agent also provides access to the PBX.

68 SEE ALSO:

For more information about the Proxy Agent and its functions and features, see *OneVision DEFINITY G3 Proxy Agent Installation and Connectivity* and *OneVision DEFINITY G3 Proxy Agent Online Help Guide*, which is available from the Proxy Agent's Main Menu.

Why Should You Access the Proxy Agent?

Fault Management provides you with the ability to telnet to the Proxy Agent computer and thereby have access to the Proxy Agent. There are two general reasons why you need this kind of interface access:

- To administer the Proxy Agent, administer client and manager information, and administer alarm forwarding
- To use enhanced cut through in order to conduct PBX maintenance and administration, especially for a case in which you recognize alarm conditions that need personal attention

Fault Management provides telnet access to the Proxy Agent so that you do not need to physically be at the Proxy Agent computer to make these kinds of administrative changes.

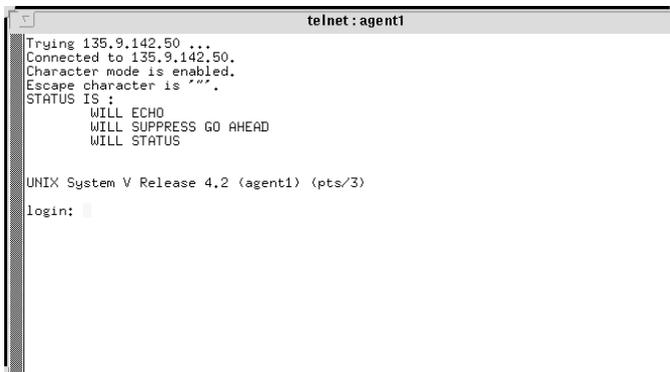
Telnetting to the Proxy Agent

To telnet to the Proxy Agent from the AT&T OneVision NMS:



1. From the main map, select the Proxy Agent icon.
2. Do one of the following:
 - Double click the Proxy Agent icon.
 - On the Monitor menu, select **DEFINITY**, then select **Telnet to G3 Proxy Agent...**

The system opens a telnet window similar to the one shown below.



```
telnet : agent1
Trying 135.9.142.50 ...
Connected to 135.9.142.50.
Character mode is enabled.
Escape character is '^Z'.
STATUS IS :
WILL ECHO
WILL SUPPRESS GO AHEAD
WILL STATUS

UNIX System V Release 4.2 (agent1) (pts/3)
login: 
```

3. Log into the Proxy Agent. You must have a valid Proxy Agent user login ID and password. When you have logged in correctly, the system prompts you for the term type.
4. Enter the term type. For example: `vt100`.
5. Once you have logged in, execute the Proxy Agent application by entering the command `g3-ma`. The system opens the G3-MA main screen.



NOTE:

The Proxy Agent is based on existing AT&T PBX management software called Generic 3 Management Applications (G3-MA). For

this reason, you enter commands and view screens that operate like the G3-MA interface. If you already have G3-MA, then you will be familiar with how to use the Proxy Agent.

6. Press `Return` to continue. The system then opens the Main Menu. If you do not press `Return`, the system opens the Main Menu on its own after a few seconds of waiting.
7. If you are new to G3-MA and the Proxy Agent, you should begin by reading the Proxy Agent online guide. To do so, enter `online-guide` at the command line prompt. Otherwise, enter `proxy-agent` at the command line prompt.



NOTE:

You can get help by entering `Ctrl-y` at any time.

Index

A

Agent, 1-2
 See also Proxy Agent
Alarms
 changing color, A-3
 data, 1-2
 states, 5-1–5-6
 DEFINITY, 5-2
 Proxy Agent, 5-5
Application directory, A-6
Autodiscovery, 3-2

C

Client string, 3-5
Community name
 format, 3-5
Community string
 format, 3-10
Connectivity
 network, 1-4
 verifying, 5-7–5-11
Conventions of book, ix
Customization, advanced, A-1–A-6

D

Data storage, 1-3
Data.refreshing, 5-10
Default values, A-3–??, A-4, ??–A-5
Default values, changing, A-2–??,
 A-3–A-5

DG3FMdefaults, A-3
Disk space, 1-5, 1-7
DynaText, 2-3, 4-3
 online browser, 4-4

F

Fault Management
 definition, 1-2
 installing, 2-1–2-3
 starting, 4-1–4-2, 5-8

G

g3conectState, 5-4
g3connectAlarmForward, 5-5
g3healthMajor, 5-3
g3healthMinor, 5-3
g3healthWarning, 5-3
G3-MIB, 1-3

H

Hardware, 1-5, 1-7

I

Icons
 DEFINITY PBX
 adding, 3-3–3-4
 states, 5-2–5-4, 5-7
 Proxy Agent
 adding, 3-7–3-9
 states, 5-5–5-6

Index

Installation

- procedure, 2-2-2-3
- requirements, 1-7

- task list, 1-5-1-6

Integration, 3-1-3-11

- adding

 - PBX nodes, 3-2-3-7

 - Proxy Agent nodes, 3-7-3-11

- IP address, 3-5

L

- Libraries, 1-7

M

Management Information Base (MIB),

- A-6

- definition, 1-3

- verifying connectivity, 5-10

MIB

- See Management Information Base

- MIB-II, 1-3

N

- Network connectivity, 1-4, 1-5

- Network management components,

 - 1-2-1-3

- Network management system (NMS),

 - 1-2, 1-3, 1-5, 5-3

- Network map, 3-2

- adding icons, 3-3-3-4, 3-7-3-9

- Network Node Manager, 1-7

- NMS. See Network management system

- Node map, 1-2

- adding a PBX, 3-2

- Node, number supported, 3-2, 3-7

O

Objects, 1-2

- changing color, A-3

- configuring, 3-4-3-6, 3-9-3-11

- g3connectState, 5-4

- g3connectAlarmForward, 5-5

- g3healthMajor, 5-3

- g3healthMinor, 5-3

- g3healthWarning, 5-3

- smuxProxyName, 5-5

- sysDescr, 5-4, 5-6

OneVision, 1-7

- applications, 1-3

- environment, 1-3

Online documentation, xii

- installing, 2-3

- starting, 4-3-4-4

- using DynaText, 4-4

Operating Support System Interface

- (OSS), 1-2

- Operating system, 1-7, 2-2

- OSSI. See Operating Support System Interface

P

PBX

- as a node, 1-2

 - adding to networks, 3-2-3-7

- configuring, 3-4-3-6

- number supported, 1-3, 3-2, 3-7

Polling intervals, A-2

- changing, A-2

- Polls, 5-3, 5-5

- Proxy Agent, 5-2

- as a node
 - adding to networks, 3-7–3-11
- configuring, 3-4–3-6, 3-9–3-10
- definition, 1-2, B-1
- icon states, 5-5
- IP address, 3-5
- number supported, 3-2, 3-7
- telnetting
 - benefits, B-2
 - procedure, B-3–B-4
- Proxy Agent string, 3-5

R

- Random access memory (RAM), 1-7
- Refresh color, A-3
- Refreshing data, 5-10
- Requirements
 - installation, 1-7
- Resource file, A-3

S

- Setup screen, A-3
- Setup task list, 1-5–1-6
- Simple Network Management Protocol (SNMP), 1-2
 - colors for retry values, A-3
 - network connectivity, 1-4
 - standard management system, 1-2
- Sleep mode, A-2
- smuxProxyName, 5-5
- SNMP. See Simple Network Management Protocol
- Standard network management. See Network management
- Starting
 - Fault Management, 4-1–4-2, 5-8

- online documentation, 4-3–4-4
- Strings
 - client, 3-5
 - community, 3-5, 3-10
 - name, 3-5
 - Proxy Agent, 3-5
- Switch. See PBX
- sysDescr, 5-4, 5-6

T

- Tape drive, 1-7, 2-2
- TCP/IP, 1-4
- Telnetting to the Proxy Agent
 - benefits, B-2
 - procedure, B-3–B-4
- Traps, 5-3