

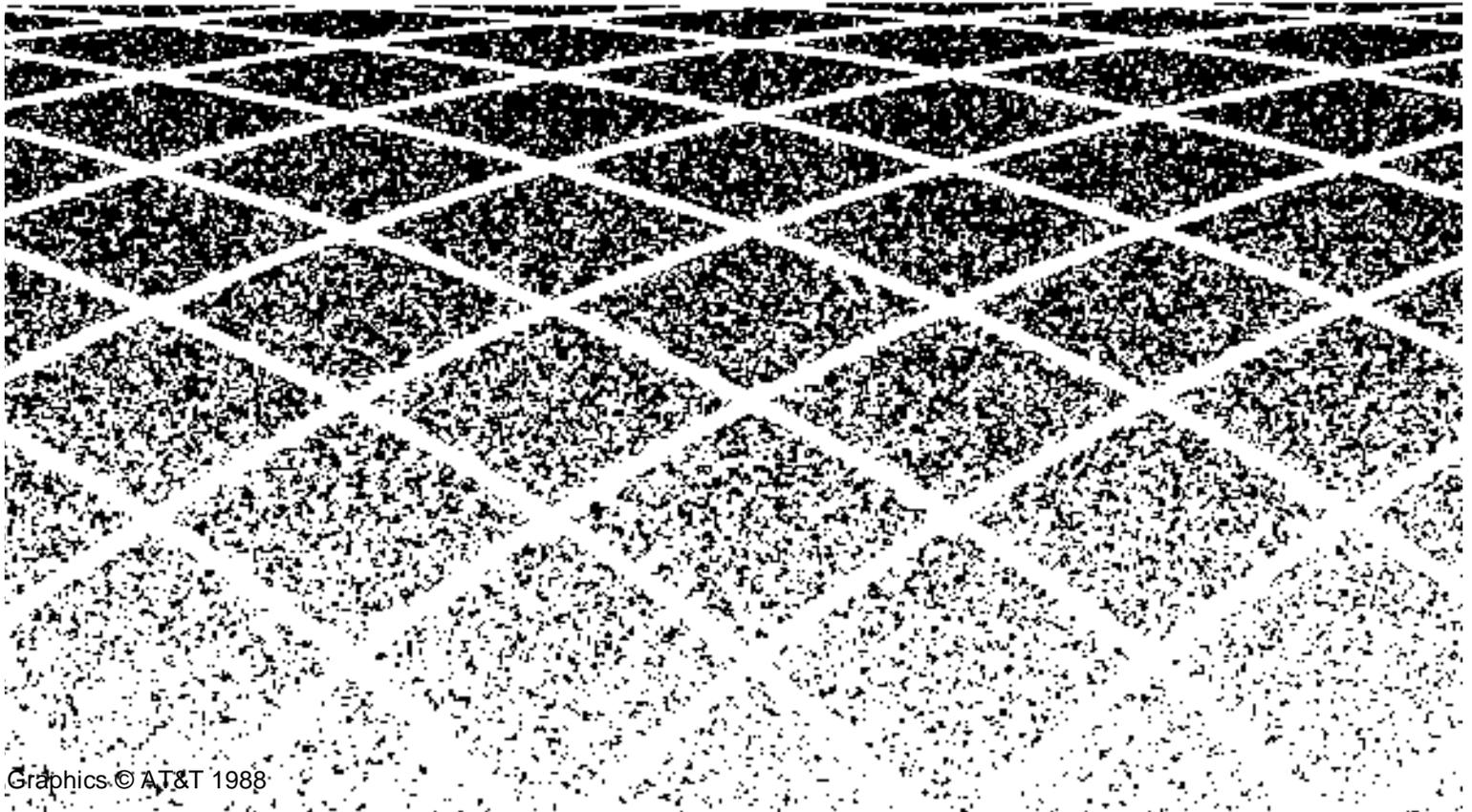


585-229-110

Issue 1

April, 1996

OneVision DEFINITY G3 Fault Management Installation and Integration for Cabletron SPECTRUM on a SunOS



Contents

About This Book	vii
■ Audience	vii
■ Prerequisites	vii
■ Conventions	ix
■ Trademarks	x
■ Credentials	x
■ Your Fault Management Documentation Package	xi
Online Documentation	xi
■ Reader Comments	xii

1 Before You Begin	1
■ Overview	1
Fault Management	2
Standard Network Management Components	2
Network Connectivity	4
■ Installation and Setup Task List	5
■ Requirements for Fault Management Installation	7
Certification	7

2 Installation	9
■ Installation Prerequisites	9
■ Installation Procedures	10

Contents

Accessing the Installation Software	10
Configuring the Installation	11
■ Changing the Environment	13

3	Integration	15
■	Adding DEFINITY G3 PBX Nodes	16
	Node Limitations	16
	Adding a PBX as a Managed Node	16
	Adding a PBX Icon	16
■	Adding DEFINITY G3 Proxy Agent Nodes	19
	Node Limitations	19
	Adding a Proxy Agent as a Managed Node	19
	Adding a Proxy Agent Icon	19
	Associating a PBX with a Proxy Agent	21

4	Starting the Applications	23
■	Starting Fault Management	23
■	Opening the Online User Guide	24
	Opening from the Network Map	25
	Opening from a Shell Prompt	25
■	DynaText Documentation	25

Contents

5	Alarm States	27
■	States of the DEFINITY G3 Icons	28
	Icon States	28
	Conditions Causing Change of State	29
■	States of the Proxy Agent Icons	30
	Icon States	30
	Conditions Causing Change of State	31
■	Verifying Connectivity	32
	Icon State	32
	Startup Messages	32
	Startup Screen	33
	Switch View	34
	Warning Messages	34
	Data Refreshes	35
	Refreshing Data Manually	35
	The MIB	35
	TroubleShooting Disconnects	36

A	Advanced Customization	37
■	Changing Default Values	37
	The Setup Screen	38
	The Application Resource File	38
	Accessing the Resource File	38
	Default Values	39
	Editing the File	39
■	Other Options	40

Contents

Changing the Application Directory	40
------------------------------------	----

B	Telnetting to the Proxy Agent	41
■	Overview of the Proxy Agent	41
■	Why Should You Access the Proxy Agent?	42
■	Telnetting to the Proxy Agent	43

IN	Index	45
-----------	--------------	----

About This Book

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

Audience

This book is intended for AT&T's DEFINITY Generic 3 customers who use DEFINITY G3 Fault Management (referred to hereafter as Fault Management) to manage their PBXs on the the Cabletron SPECTRUM® Release 3.0 Rev 2 or later.

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 states, alarms, polls, and masks, for DEFINITY G3 PBXs and for DEFINITY Proxy Agents.
- Appendix A Describes how to change polling intervals and default colors.
- Appendix B Explains how to telnet to the Proxy Agent.

This book also contains an Index.

Conventions

This book contains the following typographic conventions:

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

Example: Installation complete.

- 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 **Install**.

 Means type **Install** 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

The following trademarked products are mentioned in this document:

- DEFINITY is a registered trademark of AT&T
- DynaText is a registered trademark of Electronic Book Technologies, Inc.
- All SPARC trademarks are trademarks or registered trademarks of Sun Microsystems, Inc.
- UNIX is a registered trademark of Novell in the United States and other countries, licensed exclusively through X/Open Company Limited
- OpenWindows and SunOS are trademarks of Sun Microsystems, Inc.
- SPECTRUM, SpectroGRAPH, and SpectroSERVER are a registered trademarks of Cabletron Systems, Inc.
- X Window System is a trademark of X Consortium, Inc.

Credentials

DEFINITY G3 Fault Management is ISO 9001 certified.

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 *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.

Reader Comments

Please fill out the reader comment card that is behind the title page. 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: *DEFINITY G3 Fault Management Installation and Integration for AT&T OneVision*
- Your platform: SunOS™
- Your network management system (NMS): Cabletron SPECTRUM

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.

Fault Management

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 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 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 applications use two groups from MIB-II and a specialized MIB called G3-MIB. Within the 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 Cabletron SPECTRUM.

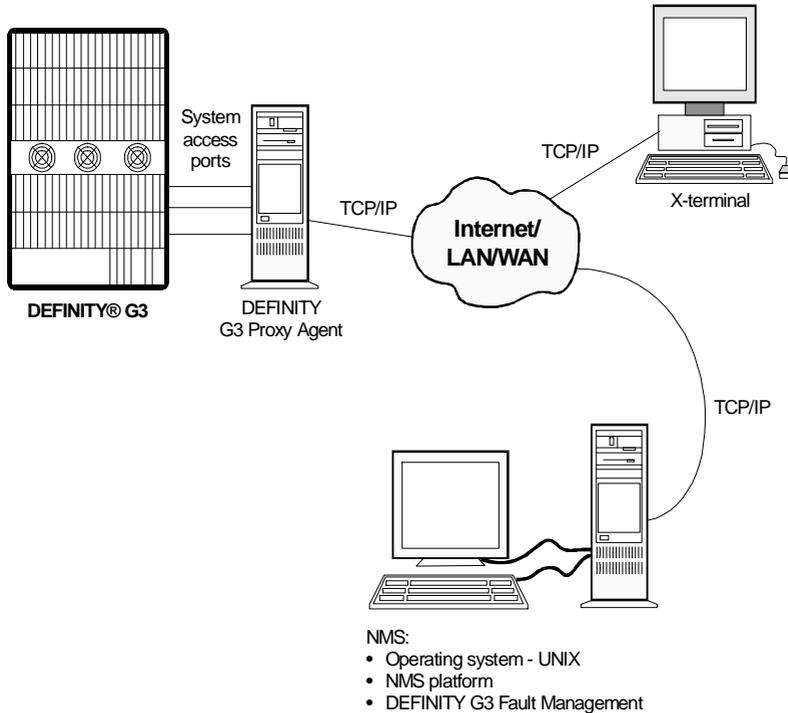
Fault Management resides on the NMS and provides functionality beyond the standard set of components: the ability to manage a PBX as a node on the network.

SEE ALSO:

For in depth information about Fault Management, refer to the online *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 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 Fault Management DEFINITY G3 Fault Management Release 1.2 tape?
 - Plan for the time needed to install the software (about ½ hour)
- 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 (if applicable)
- Customize Fault Management
 - Change polling intervals
 - Change user-interface characteristics

SEE ALSO:

For instructions on customizing Fault Management, refer to the *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

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

- Cabletron Release 3.1 Rev 0 or later
- A Sun MicroSystem SPARC™ workstation which meets all hardware requirements of Cabletron SPECTRUM software
- The SunOS 4.1 operating system
- The shared library libc
- A 1/4-inch tape drive
- 20 MB of random access memory
- At least 30 MB of free space on the hard drive

Certification

Fault Management is designed to run on the SunOS operating system. AT&T does not explicitly certify any hardware, but does support Fault Management on any Sun hardware that is certified by Cabletron SPECTRUM.

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).

To install Fault Management on the Cabletron SPECTRUM platform, you need to:

- Access the SPECTRUM installation software
- Configure the installation

Accessing the Installation Software

Use the following steps to access the SPECTRUM installation software:

1. If appropriate, install SpectroSERVER[®] and SpectroGRAPH[®].
2. Shut down SpectroSERVER and SpectroGRAPH.
3. Insert the Fault Management tape into the tape drive.
4. Log into the operating system as root.
5. Change to the directory where SPECTRUM is located.

Example: `cd /usr/spectrum`

6. Enter the following tar command.

```
tar xvf /dev/nrstN
```

N = the device number for the tape drive

7. Enter the following command:

```
./Install
```

SPECTRUM opens its installation software so you can configure the Fault Management installation.

Configuring the Installation

The steps for configuring the Fault Management installation are described below. Start on the Copyright screen that displays after you complete the previous procedure.

SEE ALSO:

You use SPECTRUM to configure this installation. If you need help using this software, see the appropriate SPECTRUM installation guide.

1. Click **OK** on the Copyright screen.

Result: The Host Evaluation screen displays.

2. Click **OK**.

Result: If you have both X Window System™ and OpenWindows™ installed, an informational window displays. If you see this window, Click **OK** again.

The Installation Configuration screen displays. The system uses information from the tar command to pre-fill the fields on this screen.

3. Verify that your configuration settings are accurate.

If you need help, refer to the appropriate SPECTRUM installation guide.

4. Click **start**.

Result: 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 DEFINITY G3 MIB into the existing MIB and updates the database
- Installs the DynaText online documentation

 **NOTE:**

The installation takes a few minutes. While you are waiting, you can use the following steps to check on its progress. These steps are optional.

- a. On the Installation Configuration screen, select the host line.
- b. Click on **Host Detail**.

Result: A pop-up window displays messages that either describe the current process or alerts you to a processing error.

- c. Click **OK** to close the window and return to the Installation Configuration screen.

When the installation finishes, the following message displays:

```
Install completed successfully
```

5. Click **OK** to clear the message from your screen.
6. Click **Exit** on the Installation Configuration screen.

Result: A message box asks you to verify the exit command.

7. Click **OK**.
8. Restart SpectroSERVER and SpectroGRAPH.

SEE ALSO:

If you need help restarting SpectroSERVER and SpectroGRAPH, see your System Administration Guide.

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:

1. Open your `.profile` file.
2. Add the following to your PATH variable:

```
:/usr/OneVision/bin
```

3. Write the file, then exit the editor.
4. Execute the following:

```
. ./profile
```


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

SEE ALSO:

Refer to the Cabletron SPECTRUM documentation 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.

Adding a PBX Icon

Use the following steps to add a DEFINITY G3 icon to the network map:

1. Display the appropriate view.
2. Select **File**, then **Edit** from the menu bar.

Result: The system changes to the Edit mode.

3. Select **Edit**, then **New Model** from the menu bar.

Result: The Select New Model window displays.

4. Select **DEFINITY_G3**.

5. Click **OK**.

Result: The Creating DEFINITY_G3 window displays.

6. Enter the following information:

Field	What you enter
Model Name	The name of the PBX
Network Address	The IP address of the Proxy Agent that is assigned to this PBX.
Community Name	The community name in the following format: <public>!g3mgt!<client string> <ul style="list-style-type: none">■ The community string (<i>public</i>) must match the name in the Community String field on the Proxy Agent's Managers form.■ Do not change <i>!g3mgt!</i>■ The "client string" must be the same as the client string on the Proxy Agent's Clients form.

Optional: You can also enter information in the other fields in this window. See your SPECTRUM installation guide if you need help.

7. Click **OK**.

Result: The system polls the PBX and adds the following icon to the network map.



8. Use one of the following methods of saving your work:

- Select **File**, then **Save & Close** from the menu bar.
- Press the right mouse button.

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 SPECTRUM NMS you need to:

- Add a Proxy Agent icon to the view
- Associate a PBX with a Proxy Agent

Adding a Proxy Agent Icon

Use the following steps to add the Proxy Agent icon to the network map:

1. Display the appropriate view.
2. Select **F**ile, then **E**dit from the menu bar.
Result: The system changes to the Edit mode.
3. Select **E**dit, then **N**ew **M**odel from the menu bar.
Result: The Select New Model window displays.
4. Select **G3ProxyAgent**.

5. Click **OK**.

Result: The Creating G3ProxyAgent window displays.

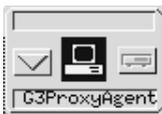
6. Enter the following information:

Field	What you enter
Model Name	The name of the Proxy Agent
Network Address	The IP address of the Proxy Agent
Community Name	public The client string identifies the PBX as a node on the network map. The community name is user-defined.

Optional: You can also enter information in the other fields in this window. See your SPECTRUM installation guide if you need help.

7. Click **OK**.

Result: The system polls the PBX and adds the following icon to the network map.



8. Select **File**, then **save & Close** from the menu bar.

Associating a PBX with a Proxy Agent

Fault Management cannot receive any trap data from the PBX until you associate the PBX with the Proxy Agent. You do this by making PBXs clients of the Proxy Agent. Use the following procedure to make this association:

1. Complete the procedures for adding a PBX icon and a Proxy Agent icon.
2. On the network map that displays after you add the Proxy Agent icon, select a client PBX as follows:
 - To select one PBX, use the left mouse button and click on the DEFINITY G3 icon.
 - To select several PBXs at one time, hold down shift and click on the DEFINITY G3 icons.
3. Select **File**, then **Edit** to open the Edit view.
4. Select **Edit**, then **Copy**.



NOTE:

If your clipboard already contains data, the Confirm window displays. Click OK to overwrite the old clipboard data with your PBX selection.

5. Select **File**, then **save & Close** from the menu bar.
6. Using the middle mouse button click on the G3 Proxy Agent icon. Then select **Clients**.
7. Select **File**, then **Edit**.
8. Select **Edit**, then **Paste**.
9. Use one of the following methods of saving your work:
 - Select **File**, then **save & Close** from the menu bar.
 - Press the right mouse button.

Starting the Applications

4

This chapter provides information for

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

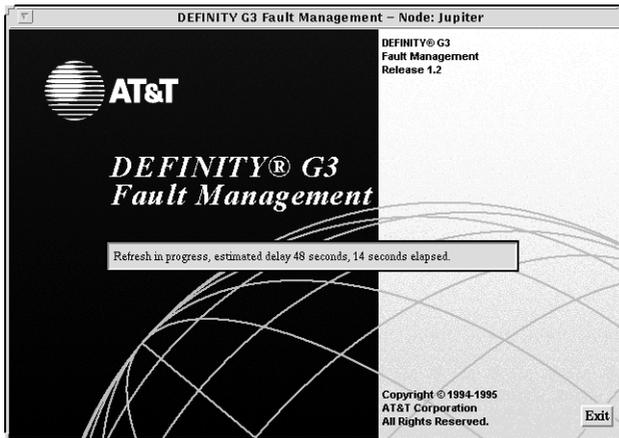
This chapter assumes you have already installed the Fault Management application and added DEFINITY G3 nodes to your map, as described in Chapter 2 and Chapter 3. If not, complete the procedures in those chapters before you continue.

Starting Fault Management

Use the following procedure to start Fault Management:

1. Access the appropriate network map.
2. On the appropriate DEFINITY G3 icon, do *one* of the following:
 - Double click on the icon's device button (the button on the right side of the icon.)
 - Use the middle mouse button to select the icon. Then select DEFINITY_G3FM from the pull-down menu.

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



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, *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. Access the appropriate network map.
2. Use the middle mouse button to select a DEFINITY G3 icon.
3. Select **DEFINITY_Doc** from the pull-down menu.

The system opens a DynaText window that contains a list of collections at the left. A collection is a set of books that are specific to one application or topic.

4. In the Collection area of the window, select the collection **AT&T Documentation**.

When you select the collection, DynaText displays on the right side of the screen 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
- 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	Color	Definition
Initial	Blue	The Proxy Agent does not recognize the name of the PBX.
Good	Green	Contact has been established. Operations are normal.
Warning	Yellow	The Proxy Agent is communicating with the PBX and is receiving indication of one or more warning alarms on the PBX.
Minor	Orange	The Proxy Agent is communicating with the PBX and is receiving indication of one or more minor alarms on the PBX.
Major	Red	The Proxy Agent is communicating with the PBX and is receiving indication of one or more major alarms on the PBX.
Unknown	Grey	The Proxy Agent lost contact with the PBX and cannot indicate the status or health of the PBX. (Your SPECTRUM platform uses red to indicate that it lost contact with an external device.)

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 one minute.
- The NMS polls the Proxy Agent for the *g3healthMinor* object. If the value of the model polling interval 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 one minute.
- 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 one minute.
- 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 one minute.

- 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 one minute.

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	Color	Definition
Good	Green	The Proxy Agent is communicating with the NMS and that the G3 Peer process is registered with the SMUX agent process.
Warning	Yellow	The Proxy Agent is communicating with the NMS and that the NMS has received an authentication failure trap sent by the Proxy Agent.
Major	Red	There is a communication problem between the NMS and the Proxy Agent.
Critical	Orange	The Proxy Agent has failed to forward alarms to its administered destination (either a Trouble Tracker or the TSO).



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 is failed, then the icon's state is set to Critical. The default polling interval for this object is one minute.
- The NMS polls the Proxy Agent for the *smuxProxyName* 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 this object is every five minutes.
- The NMS polls the Proxy Agent for the *sysDescr* object 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 one minute.

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 Bulletin Board**
 - **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.

TroubleShooting Disconnects

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

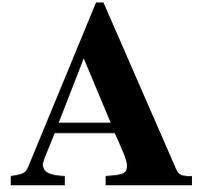
- Can the Proxy Agent dial out?
 - Is the modem working?
 - Is the phone line connected and do you get a dial tone?
- Does the Proxy Agent have a current, correct login and password for the DEFINITY PBX? Are the permissions correct?

You can reset the login and password on the Proxy Agent Communications form. For more information, see Chapter 4 in the *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?
- Is the data communications device set at the right speed in the Devices file?
- Is the dial string set correctly in the Dialers file?
- Is a maintenance command running on the PBX? (This type of command can take a long time to execute.) For a list of who is logged in and what commands are currently running, enter the status login command.
- 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:

- Default Colors

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



CAUTION:

Do not remove the G3AlarmsMajor, G3AlarmsMinor, G3AlarmsWarn, G3Reach, G3Timer G3_peer, and G3AlarmFwd polls.

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
BackgroundColor	Grey
ForegroundColor	Black
MajorAlarmColor	Red
MinorAlarmColor	Orange
WarningAlarmColor	Yellow
HighlightColor	Green
SelectColor	Cyan
MenubarColor	Blue
MenubarForegroundColor	Yellow
AlarmErrorRefresh	60
CircuitPackRefresh	8
AlarmPolling	10
RefreshOnStart	TRUE
SNMPRetries	4

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 original default setting for the invalid value.

3. Write the file.

Other Options

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

- The application directory

Changing the Application Directory

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

We recommend that you do not change its location.

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.

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.

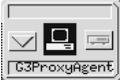
Why Should You Access the Proxy Agent?

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.

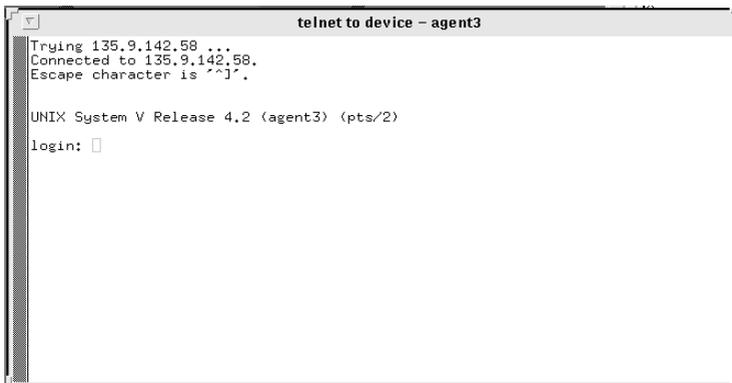
Telnetting to the Proxy Agent



To telnet to the Proxy Agent from the SPECTRUM NMS:

1. From the main map, use the middle mouse button to select a Proxy Agent icon.
2. Do one of the following:
 - Double click on the icon's device button (the button on the right side of the icon.)
 - Use the middle mouse button to select the icon. Then select **Telnet_PA** from the pull-down menu.

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



```
telnet to device - agent3
Trying 135.9.142.58 ...
Connected to 135.9.142.58.
Escape character is '^]'.

UNIX System V Release 4.2 (agent3) (pts/2)
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. Enter `n` at the following prompt:
Display Desktop y/n?

6. 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.

7. 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.
8. 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, 2
 - See also Proxy Agent
- Alarms
 - changing color, 38
 - data, 2
 - states, 27 to 32
 - DEFINITY, 28
 - Proxy Agent, 30
- Application directory, 40
- AutoDiscovery, 16
- Autodiscovery, 16

C

- Certification, 7
- Client string, 17
- Community name
 - format, 17
- Connectivity
 - network, 4
 - verifying, 32 to 36
- Conventions of book, ix
- Customization, advanced, 37 to 40

D

- Data storage, 3
- Data,refreshing, 35
- Default values, 37 to 40
- DG3FMdefaults, 38
- Disk space, 5

- DynaText, 12, 24
 - online browser, 25 to 26

F

- Fault Management
 - definition, 2
 - installing, 9 to 13
 - starting, 23 to 24, 33

G

- g3conectState, 30
- g3connectAlarmForward, 31
- g3healthMajor, 29
- g3healthMinor, 29
- g3healthWarning, 29
- G3-MIB, 3

H

- Hardware, 5

I

- Icons
 - DEFINITY PBX
 - adding, 16 to 18
 - states, 28 to 30, 32
 - Proxy Agent
 - adding, 19 to 20
 - states, 30 to 32
- Installation
 - procedure, 10 to 13
 - requirements, 7
 - task list, 5 to 6

Index

Integration, 15 to 21
 adding
 PBX nodes, 16
 Proxy Agent nodes, 19 to 21

L

Libraries, 7

M

Management Information Base (MIB)
 definition, 3
 verifying connectivity, 35
MIB
 See Management Information Base
MIB-II, 3

N

Network connectivity, 4, 5
Network management
 components, 2 to 3
Network management system (NMS), 2,
 3, 5, 29
Network map, 16
NMS. See Network management system
Node map, 2
 adding a PBX, 16
Node, number supported, 16, 19

O

Objects, 2
 changing color, 38

g3connectState, 30
g3connectAlarmForward, 31
g3healthMajor, 29
g3healthMinor, 29
g3healthWarning, 29
smuxProxyName, 31
sysDescr, 29, 31
OneVision
 applications, 3
 environment, 3
Online documentation, xi
 installing, 12
 starting, 24 to 25
 using DynaText, 25 to 26
Operating Support System Interface
 (OSSI), 2
Operating system, 7, 10
OSSI. See Operating Support System
 Interface

P

PBX
 as a node, 2
 adding to networks, 16
 number supported, 3, 16, 19
Polls, 29, 31
Proxy Agent, 28
 as a node
 adding to networks, 19 to 21
 definition, 2, 41
 icon states, 30
 number supported, 16, 19
 telnetting
 benefits, 42
 procedure, 43 to 44
Proxy Agent string, 17

R

Random access memory (RAM), 7
Refresh color, 38
Refreshing data, 35
Requirements
 installation, 7
Resource file, 38

TCP/IP, 4
Telnetting to the Proxy Agent
 benefits, 42
 procedure, 43 to 44
Traps, 29

S

Setup screen, 38
Setup task list, 5 to 6
Simple Network Management Protocol (SNMP), 2
 colors for retry values, 38
 network connectivity, 4
 standard management system, 2
smuxProxyName, 31
SNMP. See Simple Network Management Protocol
Standard network management. See Network management
Starting
 Fault Management, 23 to 24, 33
 online documentation, 24 to 25
Strings
 client, 17
 community, 17
 name, 17
 Proxy Agent, 17
SunSPARC, 7
Switch. See PBX
sysDescr, 29, 31

T

Tape drive, 7, 10

