



**COMSPHERE 6800 Series Network Management System
SNMP Trap Export Feature
Feature Number 6801-C4-020
Installation and Enabling/Disabling Instructions**

Document Number 6800-A2-GZ45-10

December 1996

Overview

The 6800 Series Network Management System (NMS) SNMP (Simple Network Management Protocol) Trap Export feature enhances the interoperability between the 6800 Series NMS and most industry-standard, SNMP-based network management systems. This feature exports native 6800 Series NMS alerts as standard SNMP traps. All traps are generated as enterprise specific.

Variable Bindings Information

The 6800 Series NMS alert information is packed into the variable bindings. The fields from the Common Alert Format of the 6800 Series NMS that are put into the variable bindings are the following:

- Device Type
- Device Address
- Alert Type
- Alert Text

Each of these fields is handled as a separate MIB (Management Information Base) variable. (The entire MIB definition is registered formally.) These SNMP alerts are forwarded on the TCP/IP network. In this context, the term TCP/IP network refers to the entire internet suite of protocols. Traps can be forwarded to any specified SNMP Manager on the network. The SNMP Manager may require a formal definition of the variable bindings to be parsed into its MIB definitions. Also, users must specify the internet address of the SNMP Manager on the 6800 Series NMS host. Both of these requirements are discussed in the installation instructions provided in this document. The traps community string will always be public.

Object Identifier

The SNMP traps forwarded from the 6800 Series NMS contain a single object identifier, the **6800 NMS**, which is registered under the att-management sub-tree. The fully distinguished name for this object is the following:

`iso(1).identified-organization(3).dod(6).internet(1).private(4).enterprise(1).att-2(74).att-mgmt(2).paradyneNMS(23)`

User Features

For users requiring the flexibility to turn trap forwarding on and off and to provide a more customized filtering mechanism for traps, the following user features are provided.

- User facility to turn the trap forwarding on/off.
- Forwarding ability for selected alerts using the UAI (Uniform Alarm Interface) Filter; that is, any new alerts passing the UAI filter are forwarded as an SNMP trap. Existing alerts will not be forwarded on start-up. Alert clears and alert updates will never be sent.
- Ability to view alerts on the SNMP Manager from the X-workstation. Refer to the *COMSPHERE 6800 Series Network Management System User's/System Administrator's Guide*, Appendix I, for more information on X-window cut-through for the SNMP Manager and the *COMSPHERE 6800 Series Network Management System Installation and Maintenance Guide* for more information on connecting the components.

NOTE

In the device profile, the ability to turn the forwarding mechanism within UAI on/off is not supported for SNMP traps. That is, alerts for SNMP will always be sent at the device level.

Network Interface

The SNMP Trap Export feature assumes that the SNMP Manager is connected to the 6800 Series NMS via the TCP/IP network. There is no limitation on the physical medium. It could be Ethernet, which is the most commonly used physical interface. The SNMP trap forwarding server will use the Transport Layer Interface (TLI) to access the network services. It will use the User Datagram Protocol (UDP) as the transport layer. This is a connection-less service without guaranteed delivery. This is the standard requirement for all SNMP PDUs (Protocol Data Units).

Installation Notes

The SNMP Trap Export feature is contained on three diskettes:

1. NMS 6800 install diskette
2. DOS MIB diskette
3. UNIX MIB diskette

The first diskette contains the install script which enables the trap forwarding server. The remaining diskettes provide the variable binding MIB definition, one for UNIX and the other for DOS. Typically, any two of these three diskettes are used during installation. The installation must be done in the super-user mode. Hence, before starting the installation, you must login as root and change the directory to **/tmp**.

After installing the software, you must enable the feature using the **trpEnable** command described later in this document. This document describes the **TrpDisable** command for disabling the feature as well.

Installation and User Commands

This section provides installation instructions and descriptions of the commands for enabling and disabling the trap forwarding feature. The installation procedure must be used by both new users and users upgrading their system with the trap forwarding feature. New users must install the 6800 Series NMS before installing this feature. The required base version of the 6800 Series NMS must be Release 4.1 or greater installed with PTF 4.1.1 or greater.

The enable and disable commands can be run from the system command line. You must restart the 6800 Series NMS each time this feature is either enabled or disabled.

Installing Trap Forwarding

NOTE

It is recommended that you shut down the 6800 Series NMS before starting this installation process. Refer to the *COMSPHERE 6800 Series Network Management System User's/System Administrator's Guide* for this procedure.

To install the trap forwarding feature, use the following steps:

1. Login as root.
2. Insert the install diskette into the floppy diskette drive on the host.
3. At the UNIX prompt:

```
TYPE: cd /tmp
```

```
tar -xvf /dev/fd0
```

```
/tmp/trpInstall
```

4. (*OPTIONAL STEP*). Enable the SNMP Trap Export feature to initiate trap forwarding during feature installation. Refer to *Enabling Trap Forwarding* later in this document. To defer enabling this feature to a later time, ignore this step.
5. (*OPTIONAL STEP*). Restart the 6800 Series NMS. You must restart the NMS for the trap forwarding feature to be in effect to send the traps to the node whose internet address was specified during the feature enable step. The procedure for observing traps on the SNMP Manager is documented in your SNMP Manager documentation.

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6. Install the appropriate MIB software on the SNMP Manager. Use one of the following command lines, depending on whether the concerned SNMP Manager is DOS-based or UNIX-based, to copy the file from the floppy diskette onto the machine running the SNMP Manager. Then, refer to your SNMP Manager documentation for details on how a MIB module definition in ASN.1 can be parsed into the internal data representation of the concerned SNMP Manager.
 - For DOS-based SNMP Managers:
 - a. Insert the DOS MIB diskette into the machine running the SNMP Manager.
 - b. At the DOS prompt:

TYPE: copy <drive specification>:nms.asn C:

Where: <drive specification> is the floppy drive containing the diskette and *nms.asn* is the name of the MIB file which will be copied into the root directory of the C: drive.
 - For UNIX-based SNMP Managers:
 - a. Insert the UNIX MIB diskette into the machine running the SNMP Manager.
 - b. At the UNIX prompt:

TYPE: tar-xvf /dev/fd0 (current directory needs to be writeable)
 7. Use the **ping** command to confirm that the SNMP Manager can communicate with the 6800 Series NMS host. A positive echo from this command confirms that the SNMP Manager is responding. If an error message(s) appears, the TCP/IP connectivity must be debugged. You can refer to the ALTOS TCP/IP documentation for the appropriate procedures.

Enabling Trap Forwarding

Use the following steps to enable trap forwarding if the feature package is already installed. If you are enabling the feature during installation, use Steps 2 and 3 only.

NOTE

The `trpEnable` command must be executed every time an installation or de-installation is performed. Once the 6800 Series NMS is shutdown, the installation or de-installation can be done. After the installation or de-installation is completed, execute the `trpEnable` command and then restart the 6800 Series NMS.

1. Shutdown the 6800 Series NMS. Refer to the *COMSPHERE 6800 Series Network Management System User's/System Administrator's Guide* for this procedure. Although this step is not required, it is strongly recommended.
2. Login as a super-user.
3. At the super-user prompt:

TYPE: /usr/nms/RNMS/bin/Platform/trpEnable.

This command will prompt the user for a destination host for the traps. At the prompt enter the internet address of the node on which the SNMP Manager is installed. The internet address must be entered in standard notation (e.g., 135.20.40.6).

NOTE

You must avoid causing an infinite loop consisting of traps being forwarded back to the host that is sending them. You can cause these loopbacks either directly by forwarding traps back to the local host (making the *ip_address* the address of the local host) or indirectly by forwarding traps to another host that is already forwarding traps to the local host.

4. Restart the 6800 Series NMS. This step is required to enable trap forwarding. The traps will be forwarded to the node specified by the internet address in the previous step. Refer to your SNMP Manager documentation for the procedure for observing traps on the SNMP Manager.

Disabling Trap Forwarding

Use the following steps to disable trap forwarding.

1. Shutdown the 6800 Series NMS. Refer to the *COMSPHERE 6800 Series Network Management System User's/System Administrator's Guide* for this procedure. Although this step is not required, it is strongly recommended.
2. Login as a super-user.
3. At the super-user prompt:

TYPE: /usr/nms/RNMS/bin/Platform/trpDisable

4. Restart the 6800 Series NMS. This step is required to disable trap forwarding. Once the 6800 Series NMS is restarted, NMS 6800 traps will not be forwarded to the SNMP Manager.

MIB Definition

The following listing describes the MIB definitions. The language used for the MIB definition is the industry-standard ASN.1 (Abstract Syntax Notation). The macros used for the MIB definitions are defined in the *Structure of Management Information*, RFC (Request For Comments) 1155. The defined objects are assigned object identifiers and are registered appropriately. There are four objects packed into the variable bindings. The following listing shows the definitions of these four objects.

```
NMS6800-MIB{isoorg(3)dod(6)internet(1)private(4)enterprises(1)att-2(74)att-mgmt(2) }
```

```
DEFINITIONS ::= BEGIN
```

```
IMPORTS
```

```
    enterprises, OBJECT-TYPE, NetworkAddress, IpAddress, Gauge, TimeTicks
    FROM RFC1155-SMI;
```

```
att-2 OBJECT IDENTIFIER ::= { enterprises 74 }
```

```
att-mgmt OBJECT IDENTIFIER ::= { att-2 2 }
```

```
paradyneNMS OBJECT IDENTIFIER ::= { att-mgmt 23 }
```

```
deviceType OBJECT-TYPE
```

```
    SYNTAX DisplayString
```

```
    ACCESS read-write
```

```
    STATUS mandatory
```

```
    ::= { paradyneNMS 1 }
```

```
deviceId OBJECT-TYPE
```

```
    SYNTAX DisplayString
```

```
    ACCESS read-write
```

```
    STATUS mandatory
```

```
    ::= { paradyneNMS 2 }
```

```
alertType OBJECT-TYPE
```

```
    SYNTAX DisplayString
```

```
    ACCESS read-write
```

```
    STATUS mandatory
```

```
    ::= { paradyneNMS 3 }
```

```
alertDesc OBJECT-TYPE
```

```
    SYNTAX DisplayString
```

```
    ACCESS read-write
```

```
    STATUS mandatory
```

```
    ::= { paradyneNMS 4 }
```

```
END;
```

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