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DEChub 900 MultiSwitch Release Notes
Firmware Version 4.2
May 1996
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These release notes contain firmware and software requirements, and list known conditions and restrictions of the DEChub 900 MultiSwitch (also referred to as the Hub Manager). Current release note information can be found online. Refer to Appendix C of the _DEChub 900 MultiSwitch Owner's Manual_ for information about retrieving release notes.

CONTENTS

Firmware Requirements

DEChub 900 MultiSwitch firmware version V4.2 or higher is required to manage the following versions of network modules:

Table 1: Firmware Requirements Summary

Product	Firmware Version (Or Later)	Image_Name
DECbridge 90, 90FL	V3.9	dewgb390.sys
DECconcentrator 900MX	V3.2.4	def6x324.bin
DECconcentrator 900TH	V3.2.4	defhu324.bin
DECconcentrator 900FH	V3.2.4	defhm324.bin
DEChub 900 MultiSwitch	V4.2	dmhub420.bin
DECmau 900TH	V1.2.1	dtmxm121.bin
DECrepeater 90FS	V2.1.1	defmi211.bin
DECrepeater 90TS	V2.1.1	detmi211.bin
DECrepeater 900GM	V2.0.0	dettm200.bin
DECrepeater 900TM	V2.0.0	detmm200.bin
DECswitch 900EE	V1.1.1	debmp111.bin
DECswitch 900EF	V1.5.2	defba152.bin
PEswitch 900TX	V1.1.1	desbf111.bin
PORTswitch 900CP	V2.1.1	decpm211.bin
PORTswitch 900FP	V2.2.0	defmm220.bin
PORTswitch 900TP	V2.1.1	detpj211.bin

Digital requires that you update your network modules to the latest revision.

Software Requirements

Hub Manager firmware version V4.2 may be managed by clearVISN MultiChassis Manager V5.0 or HUBwatch V4.1.

Changes in this Release

This release contains the following bug fixes to the V4.2 release:

- Handling of failed power supplies

  V4.1.1 added automatic failover to battery backup in the event of loss of AC power, and a switch back to use of the AC source when AC power was restored. Configurations without battery backup, however, were not handled correctly when individual power supplies failed. In V4.2, when power modules fail, the Hub Manager will reallocate the remaining power to hub modules in the manner described in the *DEChub 900 MultiSwitch Owner's Manual*, *Chapter 5*, entitled: *Hub Power System.*

- Handling of backplane LAN interconnections

  The Hub Manager can lose its current knowledge of all the LAN connections on its backplane when a hub module resets while the Hub Manager is handling the addition or removal of a connection. In V4.1, resetting the Hub Manager restores the connections. V4.2 will prevent the loss of connections from occurring.

Known Conditions and Restrictions

The following is a list of DEChub 900 MultiSwitch Version V4.2 conditions and restrictions.

- When updating the DEChub 900 along with network modules, update the Hub Manager to Version 4.2 before updating network modules.
- ClearVISN MultiChassis Manager V5.0 manages the Hub Manager Version V4.2. HUBwatch Version V4.1 also manages Hub Manager V4.2. HUBwatch version V3.x manages only Hub Manager firmware version V3.x.
- When you update your DEChub 900 to version V4.x from version V3.0 or higher, all nonvolatile data stored in the Hub Manager is retained.
- If FDDI Auto Healing is enabled, it must be disabled from the HUBwatch LAN Interconnect window while you are upgrading any FDDI network modules.
- When FDDI Auto Healing is enabled and you are replacing an FDDI network module with one that is not identical, the Hub Manager deletes the network module and its FDDI connections from the FDDI configuration.
- The Remote Monitor (RMON) Alarms and Events MIB objects, alarmOwner, eventCommunity and eventOwner, support up to 32 characters. MIB object eventDescription supports up to 80 characters.
- When you create a new RMON event, Digital recommends setting all rows in one command.
- You can remove network modules from the DEChub while the power is either on or off.
- When connecting a terminal to the setup port, configure the terminal for jump scroll because the Hub Manager does not support flow control.
- When removing more than one operational power supply from the DEChub 900, wait at least 10 seconds between removing each power supply in order to give the Hub Manager sufficient time to recalculate available power.
- If you are using a DECserver 90TL or a DECserver 90M as a SLIP server on the OBM port, disable AUTOBAUD and enable AUTOCONNECT
- Some network modules do not support the Hub Manager's setup port redirect mode option. Refer to your product documentation for further information.
- When using the DECrepeater 900TM with firmware version V1.0G as your IP services module, a Hub Manager firmware update cannot be performed in-band unless the DECrepeater 900TM has its own IP address assigned. The DECrepeater 900TM with firmware version V2.0 does not have this requirement.
- To manage a DECserver 90TL or DECserver 90M using HUBwatch, you must add the module's IP address to the HUBwatch agent's file. For further information, refer to the HUBwatch Installation and Configuration manual, part number AA-Q3S8E-TE.
- Wait 15 seconds after making LAN connections before doing a Hub Manager firmware update. This allows the changes to be written to nonvolatile storage.

Instructions for Updating your DEChub System

> **NOTE:** These instructions do not apply to HUBwatch for SunOS V3.1.

When You are Updating Your DEChub System

When you are updating your DEChub system, follow these steps:
- Update the Hub Manager to version V4.2.
- Install clearVISN MultiChassis Manager V5.0 or HUBwatch V4.1.
- Update all the network modules to the latest firmware using HUBloader.
  > **NOTE:** Be sure to leave Auto Healing disabled until all your network modules are updated.

Installing or Replacing FDDI Network Modules in a Version V4.2 System

Adding a New FDDI Network Module

When you are adding a new FDDI network module, follow these steps:

1. Install the network module by following the product's installation documentation.
2. Ensure that the module contains the latest firmware. Update the module, if necessary.
3. Ensure that Auto Healing is disabled.
4. Configure the new FDDI connections.
5. Enable FDDI Auto Healing, if you desire.

Replacing an Existing FDDI Network Module with an Identical One

When you are replacing an existing FDDI network module with an identical
one, follow these steps:

1. Do not change the state of FDDI Auto Healing.
2. Remove the existing FDDI network module.
3. Replace the network module you removed with an identical module. For example, replace a DECswitch 900EF with a DECswitch 900EF.
4. Ensure that the module contains the latest firmware. Update the module, if necessary.
5. If Auto Healing was not enabled before you replaced your module or if you had to disable Auto Healing in order to update the module, you must configure the replacement network module. If Auto Healing was enabled, all the FDDI connections will be restored.

Updating the Hub Manager Firmware

You can perform a firmware update to the Hub Manager in either of two ways:

1. By using the HUBloader Utility supplied with HUBwatch and the firmware consolidated kit.

2. By selecting the Downline Upgrade option [9] on the Hub Manager installation menu and the firmware consolidated kit.

> **NOTE:** Before performing a firmware update using either of these methods, read through the next section, titled Downline Upgrade (DLU) Process. The section contains a detailed process description of how the Hub Manager behaves during and after a firmware update.

For instructions on using HUBloader to perform an update, refer to the HUBloader online help.

For detailed instructions on performing an update from the Hub Manager installation menu, refer to the section entitled Updating the Hub Manager Firmware using the Setup Port.

The Downline Upgrade (DLU) Process

The Downline Upgrade Process occurs when you perform a firmware update by using the Downline Upgrade (DLU) option [9] from the setup port. The DLU process consists of four stages:

- Stage 1 - Transferring Firmware Image
- Stage 2 - Verifying Firmware Image
- Stage 3 - Writing New Firmware Image into Nonvolatile Storage
- Stage 4 - Module Reset and Self-Test

Table 2 describes what happens during each stage of the DLU Process.

Table 2:   DLU Process Description

Stage	What Happens
1	The new firmware image from the TFTP load host is transported

across the network and placed into a temporary storage buffer in the Hub Manager.

Indications that this stage is in progress include:

- Hub Manager status - functional and manageable.
- Hub Manager can respond to management requests.
- Hub Manager display:

```
 ┌─SW─Loaded──────────┐
 │ IP:  1.1.1.1       │
 │                    │
 └────────────────────┘
```

- ~~Typical time to complete th~~is stage - 1 minute. However, because of variances in network configurations (load path, bit rate, and traffic levels), this stage of the DLU process can take up to 10 minutes to complete.

Stage	What Happens
2	The Hub Manager verifies that the firmware image is correct after Stage 1 is complete.
	Indications that this stage is in progress include:
	• Hub Manager status - functional but not manageable.
	• Hub Manager cannot respond to management requests.
	• Hub Manager display:

```
SW Loaded
Checking Image
```

- Typical time to complete this stage -- 5 seconds.

Stage	What Happens
3	The new firmware image is transferred from the Hub Manager's temporary storage buffer to the nonvolatile Flash memory, overwriting the old firmware image.

> **CAUTION /!** If power is interrupted during Stage 3 of the DLU process, the firmware image can become corrupted. Do not turn off power to the unit or perform any action that can cause the unit to lose power during Stage 3 of the DLU process.

Indications that this stage is in progress include:

- Hub Manager status - not functional.
- Hub Manager cannot respond to management requests.
- Hub Manager display:

```
Image OK         followed by   Image Stored.
Writing Image                   Booting New Image
```

- Typical time to complete this stage - 75 seconds.

Stage	What Happens
4	The Hub Manager resets, runs self-test, and then begins executing the new firmware image.

Indications that this stage is in progress include:

- Hub Manager status - not functional.
- Hub Manager cannot respond to management requests.
- Hub Manager may display:

```
Software Upgraded,      Always          Selftest Complete
Configuration Reset     followed by     Start Main Firmware
```

- Typical time to complete this stage - 45 seconds.
- At the completion of self-tests, the Hub Manager starts the main firmware, and the setup port screen displays the DEChub 900 MultiSwitch installation menu.

Stage 1 - Transferring Firmware Image

This stage begins when the new firmware image is transferred across the network and placed into the Hub Manager's temporary storage buffer. During this stage, the Hub Manager is functional and can respond to management requests.

> **NOTE**: Because of variances in network configurations (load path, bit rate, and traffic levels), this stage of the DLU process can take up to 10 minutes to complete.

During this time, the Hub Status Display displays the following (example) message:

```
SW Loaded from
IP:  16.20.40.155
```

When the TFTP load transfer is complete, and the TFTP image is verified, the device becomes nonfunctional and the flash load process begins. (The flash load process can take up to 10 minutes to complete.)

Stage 2 - Verifying Firmware Image

After the new firmware image is loaded into the Hub Manager's temporary storage buffer, the new firmware image is checked. During this stage, the Hub Manager is functional but cannot respond to management requests.

When the TFTP load transfer is complete, the Hub Manager verifies the TFTP image. During this time, the Hub Status Display displays the following message:

```
SW Loaded,
Checking Image
```

This stage takes approximately 5 seconds to complete, then Stage 3 of the DLU process begins.

Stage 3 - Writing New Firmware Image into Nonvolatile Storage

After the new firmware image is validated the DLU process overwrites the old firmware image, in the Hub Manager's nonvolatile Flash memory, with the new firmware image. During this stage the Hub Manager is not functional and cannot respond to management requests. During this time, the Hub Status Display displays the following message:

```
Image OK,
Writing Image
```

> **CAUTION /!** If power is interrupted during Stage 3 of the DLU process, the firmware image can become corrupted. Do not turn off power to the unit or perform any action that can cause the unit to lose power during Stage 3 of the DLU process.

After the Hub Manager stores the image into flash memory, it boots the new image. During this time, the Hub Status Display displays the following message:

```
Image Stored,
Booting New Image
```

This stage takes approximately 75 seconds to complete, then Stage 4 of the DLU process begins.

Stage 4 - Hub Manager Reset and Self-test

This stage begins after the new firmware image is written into the Hub Manager's nonvolatile Flash memory. The Hub Manager resets, then runs self-test. During the reset and self-test of this stage, the Hub Manager is not functional and cannot respond to management requests.

This stage takes approximately 45 seconds to complete.

After the Hub Manager completes booting the new image, it may reset the configuration settings. If a reset occurs during this time, the Hub Status Display displays the following message:

```
Software Upgraded,
Configuration Reset
```

Next, the Hub Manager initiates self-test. When self-test completes it starts the main firmware. During this time, the Hub Status Display displays the following message:

```
Selftest Complete,
Start Main Firmware
```

After the Hub Manager starts the main firmware, the setup port screen displays the DEChub 900 MultiSwitch installation menu, confirming the downline load is complete.

When You Update Your Hub Manager

When you update your Hub Manager from version V3.0 or later, all nonvolatile data stored in the Hub Manager is retained. When you update your DEChub 900 from a version prior to V3.0, all nonvolatile data stored in the Hub Manager is cleared.

If you are updating your Hub Manager from a version prior to V3.0, record your backplane LAN configuration before upgrading. After updating, the HUBwatch LAN interconnect view reflects an initialized backplane. All backplane flexible channel connections are deleted and default backplane connections to the ThinWire are established. Connections made to the front panel are unchanged.

After you install HUBwatch version V4.1 or higher, perform your firmware update by using the HUBloader utility or by selecting the downline upgrade option.

After you complete and verify the update, perform the following steps:

1. Select option 5, Dump Error Log, from the DEChub 900 MultiSwitch main menu. The error log should contain a configuration entry. Two examples follow:

SW	V2.2.1	V4.2	Config cleared.
SW	V4.1.0	V4.2	Config retained.

2. If the Dump Error Log message (shown above) indicates that the Config cleared, perform the following:

   - From the DEChub 900 MultiSwitch main menu, select Set In-Band Interface IP Address option and enter your in-band IP address.
   - If you are using the OBM port, select the Set Out-Of-Band Interface IP Address option and enter your out-of-band IP address and set the speed, if necessary.

3. Update your network modules, as appropriate.

4. You can now use clearVISN MultiChassis Manager V5.0 or HUBwatch version V4.1 or higher to manage your hub. If you loaded HUBwatch version 4.1 prior to performing this firmware update procedure, you must restart HUBwatch.

Updating the Hub Manager Firmware Using the Setup Port

You can use the Setup Port to downline load new firmware to the Hub Manager. Once the firmware is loaded into the Hub Manager, you can verify that you have version V4.2 installed by selecting the Show Current Settings option from the main installation menu.

The Hub Manager firmware image name is dmhub420.bin. This file is located in the DEChub Consolidated Firmware Kit V4.1C for OpenVMS and MS-DOS and in the firmware subdirectory of the Internet directory.

Updating Firmware from the Hub Setup Port Menu

The downline upgrade option allows you to upgrade the Hub Manager firmware and network module firmware (in nonvolatile Flash memory). It prompts you to enter the IP address of your Trivial File Transfer Protocol (TFTP) load host and the image file name.The format of the image file name is specified according to the conventions used by your TFTP load server.

You can update the Hub Manager's firmware by selecting the Downline Upgrade option from the DEChub 900 MultiSwitch Installation Menu.

When you select the option, the initial setup screen display appears (see the following example display). This screen identifies the option and alerts you to be sure that the power to the device is not interrupted during the downline load.

```
=========================================================================
                        Enter selection : 9
DEChub 900 MultiSwitch


=========================================================================
                        DOWNLINE UPGRADE
          This process upgrades the specified device's firmware
          (in nonvolatile Flash memory).  Enter the IP address
          of your TFTP (Trivial File Transfer Protocol) load host
          and the image file name when prompted.
      * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
      *      IMPORTANT!        IMPORTANT!         IMPORTANT!      *
      * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
      *    If power is interrupted during the downline load, the   *
      *    firmware image can be corrupted. Do not turn off power   *
      *    to the unit or perform any action that can cause the    *
      *    unit to lose power during a downline upgrade.           *
      * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
=======================================================================
        ... Press Return Key to Continue...
```

The following events occur after you: (1) select the option, (2) enter the slot number to be upgraded, enter the load file name, and enter the load host IP address, and (3) press Return when prompted. The example that follows shows the setup port screen display dialog using a network module with IP services in Hub slot 8.

When both in-band and out-of-band IP addresses are assigned, two network interfaces are available to choose from.

When the downline upgrade firmware reads more than one IP address (therefore more than one network interface), it prompts you to choose a network interface to use for the load request.

After you press Return, the setup screen displays the following:

```
        Load will be initiated over Hub Slot 8 network interface.
```

9

```
                Would you like to use a different interface? Y/[N]:
```

If you choose the default [N], the setup screen displays the following message:

```
        The device becomes nonfunctional for up to 10 minutes
        during the time that the flash load is in progress.

        Press Return Key to Start Load ...
```

Pressing Return initiates the load over the in-band network interface.

If you choose Y at the screen prompt, the setup screen displays the following:

```
        Interface                            Description
           1                                 OBM Port
           9                                 Hub Slot 8
        Enter the network interface to be used [9]:
```

Select the desired network interface, then press Return. The setup screen displays the following message:

```
        The device becomes nonfunctional for up to 10 minutes
        during the time that the flash load is in progress.

        Press Return Key to Start Load...
```

Pressing Return initiates the load over the selected network interface.

The following setup port screen is an example of the dialog you see when you update the Hub Manager using a network module with IP services in Hub slot 8.

```
     Enter the slot to be upgraded [9] (Hub Manager) :      |Return|
     Enter the load filename [ ] : filename.ext             |Return|
     Enter the Load Host IP address [ ] : 16.20.40.155      |Return|
     Load will be initiated over Hub Slot 8 network interface.
Would you like to use a different network interface Y/[N] :   Y   |Return|
     Interface Description
     1        OBM Port
     9        Hub Slot 8
Enter the network interface to be used [9] :  1  |Return|
        The module becomes nonfunctional for up to 10 minutes
        during the time that the flash load is in progress.
     ...Press Return Key to Start Load [Ctrl/C to abort] ...
DLU process started!
Transfer complete.
```

Verifying the Setup Port Firmware Update

You can verify the firmware update by selecting the DEChub 900 MultiSwitch Installation Menu, option 3, Show Current Settings. This option displays the current version of firmware installed in the Hub Manager. An example of the display follows.

Example: Show Current Settings display (screen 1 of 2)

```
===========================================================================
                       Enter selection : 3
DEChub 900 MultiSwitch
===========================================================================
DEChub900MultiSwitch,DEChub 900 MultiSwitch,HW=F,RO=V1.1.6,SW=V4.2.0
 SysUpTime                              : 11 days 18:52:25    29 resets
 SNMP Read/Write Community              : public
 SNMP Trap Addresses                    : Not Configured
 Status of last Downline Upgrade        : 00:40:39   27 resets
                                          Load Successful
 Out-of-Band (OBM) Management RTS       : Disabled


Interface     IP Address      Subnet Mask    Def.Gateway   Other Info
 ---------    ----------     -----------    -----------   ----------
OBM Port      16.20.156.20   255.255.0.0                  Speed 9600 bps
Hub Slot 6    16.20.156.26   255.255.0.0    16.20.156.56   Active
Hub Slot 7    16.20.156.27   255.255.0.0    16.20.156.57   Active
Hub Slot 8    16.20.156.28   255.255.0.0    16.20.156.58   Active
===========================================================================
           ... Press Return Key to Continue ..
```

Example: Show Current Settings display (screen 2 of 2)
```
DEChub 900 MultiSwitch
===========================================================================
 Hub Name                          :DEChub 900 MultiSwitch
 Hub Serial Number                 :
 Hub Location                      :
 Hub Contact                       :
===========================================================================
           Press Return for Main Menu ...
```

MIB and RFC Information

The DEChub 900 Hub Manager, when acting as a Hub Master, provides an SNMP proxy agent for DEChub 90 repeaters that do not contain their own SNMP agent. In this configuration, the following MIBs are supported:

- IETF repeater MIB, RFC 1516
- DEChub 900 IETF repeater MIB extension
- sysGroup of MIB II, RFC 1213

MIB and RFC information can be found online. Refer to Appendix C of the DEChub 900 MultiSwitch Owner's Manual for information about retrieving MIBs and RFCs.