

# StorageWorks™ Solutions

---

## Network Storage Array Addendum

Part Number: EK-SWXNA-AD. A01

### **March 1998**

This document summarizes new features and changes to the SWXNA Network Storage Array that are not covered elsewhere in the documentation. This addendum should be used in conjunction with the *Getting Started with the StorageWorks Network Storage Array* manual.

**Revision/Update Information:** This is a new manual.

---

**March 1998**

Digital Equipment Corporation makes no representations that the use of its products in the manner described in this publication will not infringe on existing or future patent rights, nor do the descriptions contained in this publication imply the granting of licenses to make, use, or sell equipment or software in accordance with the description.

Possession, use, or copying of the software described in this publication is authorized only pursuant to a valid written license from Digital or an authorized sublicensor.

© Digital Equipment Corporation 1998. All rights reserved.

The following are trademarks of Digital Equipment Corporation: DEClaser, Digital, OpenVMS, PATHWORKS, VAX DOCUMENT, and the DIGITAL logo.

The following are third-party trademarks:

Adobe and PostScript are registered trademarks of Adobe Systems, Incorporated.

Helvetica and Times are registered trademarks of Linotype Co.

Microsoft and MS-DOS are registered trademarks and Windows is a trademark of Microsoft Corporation.

---

# Table of Contents

- 1 SWXNA Addendum.....1-1**
  - 1.1.1 Intended Audience ..... 1-1
  - 1.1.2 Topics Covered..... 1-1
  - 1.2 Operating System Software..... 1-1
  - 1.3 DIGITAL OpenVMS Disk Services for Windows NT..... 1-1
  - 1.4 Year 2000 Enhancement Kit ..... 1-2
  - 1.5 HSD50 Array Controller ..... 1-3
    - 1.5.1 Setting HSD50 Parameters ..... 1-3
  - 1.6 AlphaServer 1000A ..... 1-5
  - 1.7 Software Customization Procedure Version 2.2 ..... 1-8

## Figures

- Figure 1 External Cache Battery Location ..... 1-3
- Figure 2 AlphaServer 1000A Front View..... 1-5
- Figure 3 AlphaServer 1000A locations and cabling ..... 1-6
- Figure 4 SWXNA-Ex and SWXNA-Jx Adapter Card Locations ..... 1-6
- Figure 5 SWXNA-Ax and SWXNA-Fx Adapter Card Locations ..... 1-7
- Figure 6 SWXNA-Bx and SWXNA-Gx Adapter Card Locations ..... 1-7



---

## Preface

This addendum provides new information for the SWXNA Network Storage Array and is meant to supplement the *Getting Started with the StorageWorks Network Storage Array* (EK-SWXNA-IG) manual.



---

# SWXNA Addendum

This addendum provides new information for the SWXNA Network Storage Array and is meant to supplement the *Getting Started with the StorageWorks Network Storage Array* (EK-SWXNA-IG) manual.

Read this entire document before installing or upgrading the Network Storage Array.

## 1.1.1 Intended Audience

This document is meant for individuals who are responsible for configuring, installing, and using the Network Storage Array and has been prepared for DIGITAL customers who have purchased an SWXNA Network Storage Array.

## 1.1.2 Topics Covered

These release notes cover the following topics:

- Operating System Support
- Year 2000 Enhancements
- DIGITAL OpenVMS Disk Services for Windows NT Version 1.0
- HSD50 Array Controller
- AlphaServer 1000A

## 1.2 Operating System Software

The SWXNA Network Storage Array presently is using OpenVMS Alpha Version 7.1.

## 1.3 DIGITAL OpenVMS Disk Services for Windows NT

Digital OpenVMS Disk Services for Windows NT agent is now loaded as part of the SCP (Software Customization Procedure) Version 2.2 during the installation process. Setup occurs as a result of the questions you answer while completing the SCP procedure. Section 1.7 shows an example of the SCP Version 2.2 output.

Digital OpenVMS Disk Services for Windows NT allows customers to store Windows NT data on an OpenVMS Cluster to take advantage of the economies of centralized storage and of the failover capabilities of OpenVMS Clusters.

OpenVMS Alpha nodes in the cluster serve virtual disks to Windows NT systems. The virtual disk behaves like a locally attached disk, although its data is actually stored on a disk in the OpenVMS Cluster. The virtual disk is formatted with a native Windows NT file system, such as NTFS, using standard Windows NT tools.

The Windows NT system can share the virtual disk out to user workstations or desktops via the standard Windows NT network sharing mechanisms.

Standby nodes in the OpenVMS Cluster provide automatic failover of disk services. The failover is transparent to Windows NT users accessing the virtual disk; they continue accessing the disk, unaware that a different node in the OpenVMS Cluster is serving it.

Digital OpenVMS Disk Services for Windows NT has a client component on Windows NT, and a server component on OpenVMS, and uses TCP/IP to communicate between them.

## 1.4 Year 2000 Enhancement Kit

The Year 2000 Enhancement Kit for OpenVMS Alpha Version 7.1 can be found on your system disk. The cover letter for the kit can be found at:

**SYS\$SYSDEVICE:[NSA\$KITS]ALPY2K01\_071\_CVRLET.TXT**

The kit itself can be found at:

**SYS\$SYSDEVICE:[NSA\$KITS]ALPY2K01\_071.A**

Even though DIGITAL believes that few customer sites will need these enhancements, all customer sites should install the Year 2000 kit. After you apply this kit, your OpenVMS Alpha Version 7.1 system will conform with DIGITAL's Year 2000 DIGITAL Product Warranty. The cover letter should be reviewed and the kit installed at your earliest convenience.

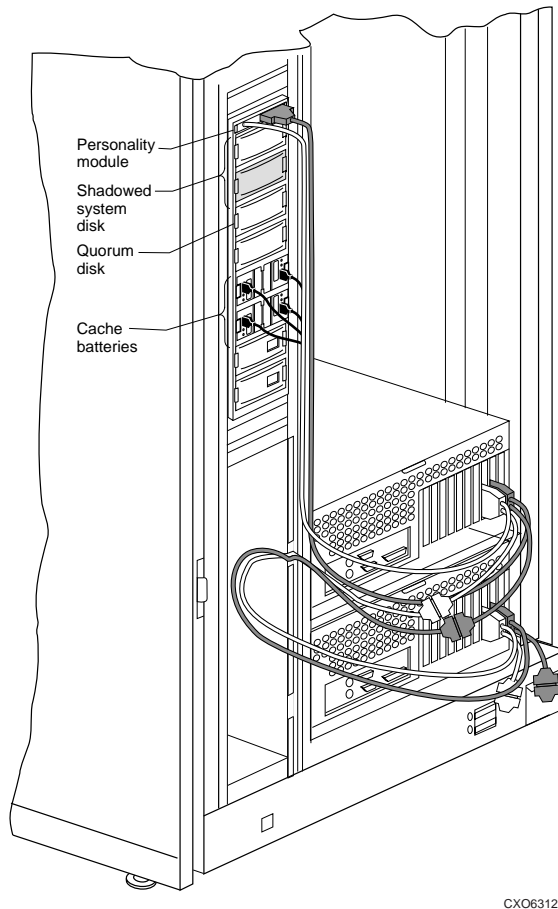


## 1.5 HSD50 Array Controller

The HS1CP Device Channel Processor has been replaced by the HSD50 Array Controller. All references to the HS1CP Device Channel Processor in the *Getting Started with the SWXNA Network Storage Array* manual should be replaced by HSD50 Array Controller.

The installation of the controller and its associated cache module are the same with the exception of the external cache batteries. The external cache batteries should be mounted as shown in figure 1.

**Figure 1 External Cache Battery Location**



CX06312A

### 1.5.1 Setting HSD50 Parameters

Complete the following sections to perform the initial setup for the HSD50 array controllers.

1. Use the following procedure to connect a terminal to the EIA terminal port of the *right* HSD50 Array Controller for initial parameter configuration:
  - Switch the circuit breaker on the front panel of the CDUs to the ON position.
  - Depress the power button on the front of the server processor.
  - Make sure the power switch on the back of the terminal is OFF
  - Connect one end of the terminal cable to the back of the terminal.

- Connect the other end of the terminal cable to the EIA terminal port on the front of the array controller .
  - Turn the terminal power switch to the ON position.
  - Set the terminal's communication setup to 9600 baud, with 8 data bits, 1 stop bit, and no parity. Refer to your terminal documentation for terminal setup instructions.
  - Press the Return key if no prompt is visible on the screen. This brings you to the array controller's command line interpreter (CLI) prompt.
2. Use the following procedure to set the initial parameters of the Array Controller:
    - Set the HSD50 Array Controller node name:
    - CLI> SET THIS\_CONTROLLER SCS\_NODENAME="HSD1"
    - Enable the path from the HSD50 Array Controller to the server processor with the following command:
    - CLI> SET THIS\_CONTROLLER PATH
    - Set the array controller identification:
    - CLI> SET THIS\_CONTROLLER ID=1
    - Set the prompt:
    - CLI> SET THIS\_CONTROLLER PROMPT="HSD1>"
  3. Repeat this process for the *left* HSD50 using "HSD2" as the SCS\_NODENAME, CONTROLLER\_ID=2 and "HSD2>" as the prompt.

This completes the setting of initial parameters.

## 1.6 AlphaServer 1000A

The SWXNA Network Storage Array now uses the AlphaServer 1000A as the Server Processor. All references in the *Getting Started with the SWXNA Network Storage Array* manual to the AlphaServer 1000 should be replaced with AlphaServer 1000A.

The AlphaServer 1000A is functionally equivalent to the AlphaServer 1000. In fact, they can function together as partner server processors in a single storage array. SCP Version 2.2 should be used with all AlphaServer 1000A's. Section 1.7 shows a sample output of SCP Version 2.2.

Figure 2 shows the location of a single AlphaServer 1000A server processor in the Network Storage Array cabinet.

**Figure 2 AlphaServer 1000A Front View**

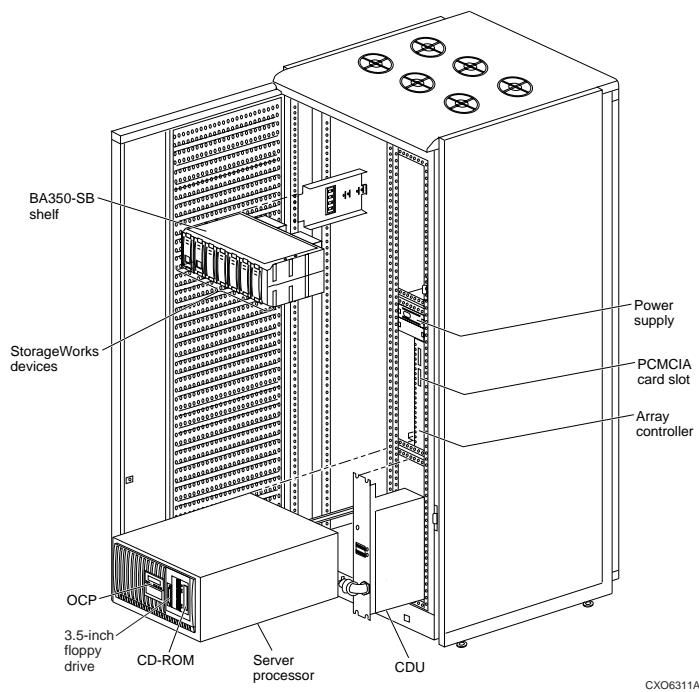
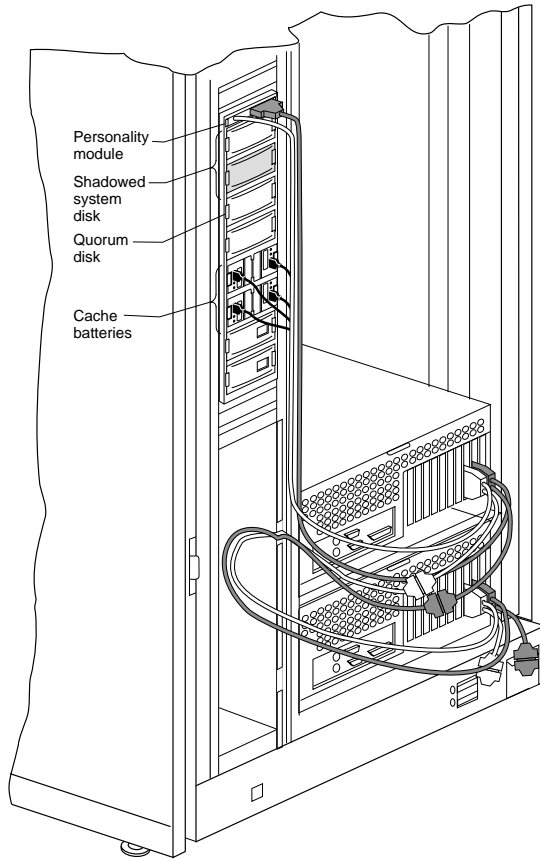


Figure 3 shows the position and cabling for a dual server processor system using the AlphaServer 1000A.

**Figure 3 AlphaServer 1000A locations and cabling**



CXO6312A

Figure 4 shows the required location of the FDDI network adapter (DEFPA) and the bus adapter cards (KFPSA) in the single server processor models, SWXNA-Ex and SWXNA-Jx.

**Figure 4 SWXNA-Ex and SWXNA-Jx Adapter Card Locations**

SWXNA-Ex and SWXNA-Jx

Primary PCI slots			Secondary PCI slots			
J9	J10	J11	J12	J13	J14	J15
D E F P A			K F P S A	K F P S A		K Z P A A

CXO6313A

Figure 5 shows the required location of the FDDI network adapter (DEFPA) and the bus adapter cards (KFPSA) in the dual server processor models, SWXNA-Ax and SWXNA-Fx.

**Figure 5 SWXNA-Ax and SWXNA-Fx Adapter Card Locations**

SWXNA-Ax and SWXNA-Fx

Primary PCI slots			Secondary PCI slots			
J9	J10	J11	J12	J13	J14	J15
D E F P A			K F P S A	K F P S A	K Z P A A	K Z P A A

CXO6314A

Figure 6 shows the required location of the FDDI network adapter (DEFPA) and the bus adapter cards (KFPSA) in the dual server processor models, SWXNA-Bx and SWXNA-Gx.

**Figure 6 SWXNA-Bx and SWXNA-Gx Adapter Card Locations**

SWXNA-Bx and SWXNA-Gx

Primary PCI slots			Secondary PCI slots			
J9	J10	J11	J12	J13	J14	J15
D E F P A	K F P S A	K F P S A	K F P S A	K F P S A	K Z P A A	K Z P A A

CXO6315A

All other functions of the Network Storage Array will remain the same with the addition of the AlphaServer 1000A server processor.

## 1.7 Software Customization Procedure Version 2.2

The Software Customization Procedure Version 2.2 output will look like the following example.

```
OpenVMS (TM) Alpha Operating System, Version V7.1
```

```
%SHADOW-I-VOLPROC, DSA100: shadow master has changed. Dump file WILL be  
written if system crashes. Volume Processing in progress.
```

```
Copyright (c) 1998 Digital Equipment Corporation. All rights reserved.
```

```
+-----+  
|                               |  
|           Welcome to the     |  
|           StorageWorks (TM) Network Storage Array           |  
|           Software Customization Procedure                   |  
+-----+
```

This Network Storage Array has two server processors.

### W A R N I N G

The Software Customization Procedure (SCP) must be invoked from only one of the server processors. Executing the SCP simultaneously on both server processors will result in data corruption on the network array system disk.

If the other server processor is currently executing or has executed the SCP, you must power off this server processor now. This server processor can then be powered on and booted after the other server processor has completed its second boot.

Press Return to continue:

Please wait while the Software Customization Procedure initializes the system. This will take less than one minute.

```
+-----+  
|           Software Customization Procedure                   |  
|           Introduction                                         |  
+-----+
```

The Software Customization Procedure will ask you to enter the information required for the factory installed software to be

custom configured for your site.

To answer a question, type the requested information and press Return.

To get help at any time, type a question mark (?) and press Return.

Press Return to continue:

No OpenVMS licenses have been registered on this system.

To register your license PAKs, type the following command after the system restarts and you have logged into the SYSTEM account:

```
# @SYS#UPDATE:VMSLICENSE
```

Press Return to continue:

The following information is essential to customize the network array.

You cannot complete the Software Customization Procedure if you do not have all the essential information. If you do not have this information, you can obtain it from your system manager or network administrator.

Default values for the cluster parameters are provided. These values can be taken if this network array is installed on a network which does not have existing DECnet nodes or VMScluster systems.

- o The current date and time
- o The password for the system manager's account on the network array
- o Cluster Information
  - The DECnet node names and addresses
  - The cluster group number and password
  - The value of the allocation class parameter for disk and tape
  - The name of a quorum disk if a quorum disk will be installed on the network array (this disk cannot be a shadow set or a member of a shadow set)
  - The number of votes each server node will contribute toward quorum
  - The number of expected votes in the cluster
  - The shadow unit number for the network array system disk

Are you ready to proceed with the Software Customization? (Y/N) [YES]

At the end of the Software Customization Procedure, the server processor will restart itself. Then it will be ready for use.

## SWXNA Addendum

```
+-----+
|               Set the system date and time               |
+-----+
```

In configuring the network array, you must set the system date and time.

Enter the date and time: [23-MAR-1998 14:56]

```
+-----+
|               Set the system password                     |
+-----+
```

The system password gives you access to the system manager's account on the network array. When the Software Customization Procedure completes, you will be able to login to the system manager's account at the array console by typing the user name SYSTEM, followed by the system password.

The system password that you specify must contain at least 8 characters. For security reasons, the characters you type are not displayed on the screen.

**IMPORTANT:** Do not forget the system password, otherwise you will be unable to login to the system manager's account.

Type the password for the SYSTEM account:

To verify that the password is correct, type it again now:

The password for the SYSTEM account has been verified.

```
+-----+
|               Configure Cluster                         |
+-----+
```

Do you wish to view default values for the cluster parameters? (Y/N) [YES]

Default cluster parameters are being generated. Please wait...

The following cluster parameters have been selected:

Node name for this node (SCSNODE) ..... NSTAR1  
System ID for this node (SCSSYSTEMID) ..... 1025 (1.1)

Node name for the other node (SCSNODE) ..... NSTAR2  
System ID for the other node (SCSSYSTEMID) ... 1026 (1.2)



```

Cluster group number ..... 61440

Automatically serve disks ..... YES
Disk allocation class (ALLOCLASS) ..... 13
Automatically serve tapes ..... NO
Tape allocation class (TAPE_ALLOCLASS) ..... 10

Quorum disk ..... #13#DKB200

Number of votes for each node ..... 1
Number of expected votes in the cluster ..... 3

Array shadow system disk unit number ..... 100

```

Would you like to change any of these parameters? (Y/N) no

Waiting for the cluster configuration to complete...

| 23-MAR-1998 15:01:44 |

Cluster configuration complete.

```

+-----+
|                OpenVMS Disk Services for Windows NT                |
+-----+

```

The installation of OpenVMS Disk Services for Windows NT will take about 2 minutes. Please wait...

OpenVMS Disk Services for Windows NT has been successfully installed.

Press Return to continue:

```

+-----+
|                Network File Serving Functionality                |
+-----+

```

The installation of the NFS software will take about 3 minutes. Please wait...

The Network File Serving software has been successfully installed.

Press Return to continue:

```
+-----+
|               Network File Serving ECO               |
+-----+
```

The installation of the NFS ECO will take about 1 minute.  
Please wait...

The Network File Serving ECO has been successfully installed.

Press Return to continue:

```
+-----+
|               Network Array Caching Functionality       |
+-----+
```

A customized version of PerfectCache (TM) by Raxco Software, Inc. is  
being installed on the network array.

This installation will take about 1 minute. Please wait...

PerfectCache has been successfully installed. Your PerfectCache license  
has been activated.

Included in the software already installed on this StorageWorks  
Network Storage Array is a derivative of PerfectCache, which is  
a copyrighted product and which contains proprietary and  
confidential information. Copyright Raxco Software, Inc. 1998.  
That product may be used only on this Network Storage Array, and  
may not be reproduced, transferred to any other processing unit,  
reverse engineered, decompiled or provided to any other person  
without the express prior consent of Raxco Software, Inc.

Press Return to continue:

```
+-----+
|               End of Data Entry                         |
+-----+
```

This is the end of the data entry part of the Software Customization  
Procedure. You do not need to provide any more information.

The server processor will now shut down and restart automatically. This  
reboot will attempt to form or join a VMScLuster using the parameters  
you have entered above and will be accessible to network clients. Do

not boot the other server processor until this boot is completed.

After both server processors have joined the VMScluster, you can login to the system manager's account using the user name SYSTEM and the password that you specified earlier. You may then install any license PAK's, configure the storage attached to the network array, add a command to the startup procedure to mount the quorum disk (if any), perform additional system customization, etc...

After the SYSUAF, RIGHTS LIST, and license database are defined, execute the following command to complete NFS and PerfectCache installation tasks: # @SYS#MANAGER:NSA#SCP\_POST\_CONFIG

Press Return to complete the Software Customization Procedure:

The server processor will now restart automatically. Please wait...

