Configuring IBM TotalStorage FAStT for use with Veritas Dynamic Multi-Pathing DMP

Ver. 1.0

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Table of Contents

Overview

The Dynamic Multipathing (DMP) feature of the Veritas Volume Manager provides a path failover mechanism. In the event of the loss of one connection to the disk array, DMP selects the next I/O path for the I/O requests dynamically. This allows the host system to continue to access critical data over the other functioning connections to the disk array.

Starting with Veritas Volume Manager 3.1, the DMP feature recognizes and supports the IBM FAStT Storage Arrays. The purpose of this document is to describe how to install and set up IBM FAStT Storage Arrays for use with Veritas Volume Manager with the DMP in Windows NT, Windows 2000, Windows Server 2003 and Solaris environments. This interim DMP solution can be applied to any installation of FAStT Storage Manager 8.3x or 8.4x for Windows NT, Windows 2000, Windows Server 2003 and Solaris. The DMP solution includes pre-configured NVSRAM HetHost regions, NVSRAM scripts and instructions.

The functionality of DMP is very similar to that of the developed RDAC failover driver that is provided as part of the FAStT Storage Manager Storage Manager package. Both drivers assume a primary path to each volume and do not move to the alternate path until there is a problem with primary path access. DMP and RDAC are substitutes for each other, not complementary products. While DMP can be used for non-IBM FAStT arrays concurrently with RDAC, concurrent use of RDAC and DMP on multiple IBM FAStT arrays is not supported.

Configuration for FAStT Storage Manager (FSM) 8.3x

The following instructions and procedures should be used when using FAStT 200, 500, 600, 600 Turbo, 700, and 900 storage subsystems running FAStT Storage Manager 8.3x client and controller firmware 05.3x.xx.

FSM 8.3x Base Procedures

Installation and setup consists of the following procedures:

1. Properly attach IBM FAStT storage array to the host computer.
2. Install FAStT Storage Manager Client software version 8.30 or later.
3. Update controller firmware to version 5.30.xx as provided.
4. Run the DMP installation NVSRAM script.
5. Configure the IBM FAStT Storage Array using the FAStT Storage Manager Client software.
6. Install Veritas Volume Manager (VxVM) software package. (Beyond the scope of this document.)
7. Configure and initialize VxVM. (Beyond the scope of this document.)

These instructions apply to installations with the following characteristics:

- FAStT 200, 500, 700, 600, 600 Turbo, 900 storage array running FAStT Storage Manager 8.30 and controller firmware 5.30.xx. The array must report standard IBM

FAStT vendor and product types in the Inquiry data. Arrays that report OEM-modified inquiry information will not work.

- Microsoft Windows NT and Windows 2000 host operating systems.
- RDAC should not be installed on any Windows or Solaris system running Veritas DMP
- All hosts of the same type (i.e. Windows NT, Windows NT Clustered, Windows 2000, Windows 2000 Clustered or Solaris) must use the DMP function. Mixing RDAC and DMP hosts of the same host type are not supported.
- If NVSRAM is re-downloaded to the controllers you MUST re-run the proper DMP enable scripts as by default the NVSRAM will disable it.

Configuring IBM FAStT Storage Arrays for use with Veritas DMP

Properly attach the IBM FAStT storage array(s) to the host machine(s).

If FAStT Storage Manager 8.30 is not already installed, follow the FAStT Storage Manager Storage Manager Installation and User Guide to install the FAStT Storage Manager Client (SMclient) software. Do not install the RDAC driver, as it is incompatible with the DMP feature. If RDAC has already been installed, remove it at this time.

Using the FAStT Storage Manager Storage Manager Client, configure the IBM FAStT Storage Array:

1. Release 05.30.02.00 or higher firmware and the associated NVSRAM should be downloaded to the IBM FAStT storage array controllers. See the FAStT Installation and User's Guide and the Firmware/NVSRAM README for more details on how to download firmware and NVSRAM.
2. Define the host and its HBA's to the FAStT in Storage Partitioning. At this time, configure the host to use the operating system of the host (i.e. Windows 2000, Window NT Non-Clustered, etc..) Details for defining and configuring Storage Partitioning are defined in the IBM TotalStorage FAStT Storage Manager Client 8.30 Installation and User's Guide.

3. Modify the appropriate Host Type on the IBM FAStT storage array controllers for compatibility with DMP. To perform this operation, run the appropriate DMP setup script provided (See Table 1.) using the SMClient Script Editor. This script performs a reset of the array controllers and it is not recommended to run while normal I/O is in progress.

Table 1: Enable DMP Scripts

Host Type	Enable DMP script
Windows Non-Clustered (SP5 or Higher)	Enable_VxVM_DMP_NT_NoClus.scr
Windows Clustered (SP5 or Higher)	Enable_VxVM_DMP_NT_Clus.scr
Windows 2000 Non-Clustered	Enable VxVM_DMP_W2K_NoClus.scr
Windows 2000 Clustered	Enable_VxVM_DMP_W2K_Clus.scr
Solaris	Enable_Vx_VM_DMP_Solaris.scr

a. In the FAStT Storage Manager Client window, highlight the storage array where you want to run the script on. An example of the Enterprise Management Window is shown in Figure 1.

Figure 1: FAStT Client Enterprise Management Window

b. A script editor window will pop up.

c. Click on **F**ile → Load Script…

d. A load script window will pop up. In the Look in: section, go to the drive and folder where the appropriate setup script is located. Highlight the script file and hit the Open button. This will load the script onto the script editor. Figure 2 shows an example of the Enable_VxVM_DMP_NT_NoClus.scr script file loaded into the script editor.

Figure 2: Script Editor Window

   e.   In the menu bar, select **T**ools → **V**erify and Execute Script.
   f.   The script will execute. The lower half of the script editor window is the results
        window. When the window says "DMP Enable complete" the controller is ready for
        DMP to access the FAStT.

4.   Ensure the Host Type has been changed by examining the Host Profile. The Profile can
     be obtained by opening the Subsystem Management Window and choosing Vie**w** →
     Storage Subsystem Profile. From the Mappings Tab you can see whether or not the host
     type has changed to reflect that DMP is enabled. See Table 2 for details of what DMP
     Enabled host types look like and Figure 3 for an example of the Subsystem Profile
     Mappings View.

Table 2: DMP Enabled Storage Partitioning Names

Host Type (normal)	Host Type (DMP Enabled)
Windows Non-Clustered (SP5 or Higher)	NT40-NoClus DMP
Windows Clustered (SP5 or Higher)	NT40-Clus DMP
Windows 2000 Non-Clustered	W2K-NoClus DMP
Windows 2000 Clustered	W2K-Clus DMP
Solaris	Solaris DMP
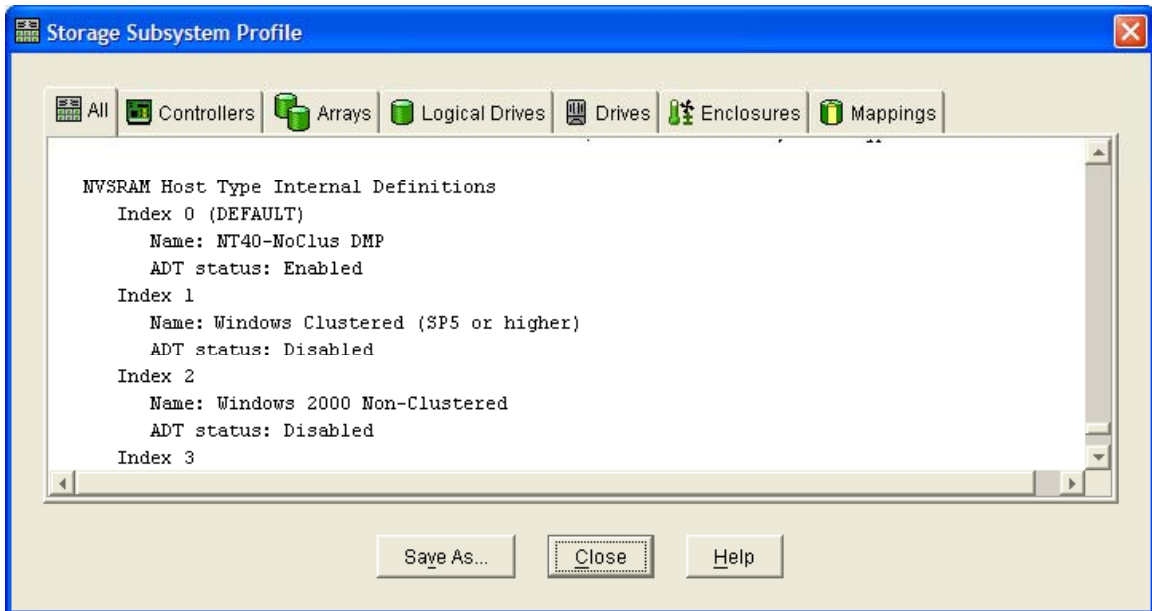
Figure 3: Profile showing host type enabled for DMP

5. Assign LUNs to the host. Remember that all LUN numbers must be sequential and begin at zero except for the Access Logical Drive which is always 31. The access logical drive is only needed for in-band management.

6. At this point Veritas DMP is ready to be installed on the host. Please follow the directions included with Veritas DMP and in Veritas knowledgebase article http://seer.support.veritas.com/docs/258594.htm for information on configuring Veritas DMP for Windows and http://seer.support.veritas.com/docs/255597.htm for information on configuration Vertias DMP for Solaris.

Disabling Veritas DMP Support for FAStT Arrays.

1.   Select the proper script from Table 3:

Table 3: Host Type to Script Naming Table

Host Type	Enable DMP script
Windows Non-Clustered (SP5 or Higher)	Disable_VxVM_DMP_NT_NoClus.scr
Windows Clustered (SP5 or Higher)	Disable_VxVM_DMP_NT_Clus.scr
Windows 2000 Non-Clustered	Disable_VxVM_DMP_W2K_NoClus.scr
Windows 2000 Clustered	Disable_VxVM_DMP_W2K_Clus.scr
Solaris	Disable_VxVM_DMP_Solaris.scr

2.   In the FAStT Storage Manager Client window, highlight the storage array where you want to run the script on. An example of the Enterprise Management Window is shown in Figure 4.
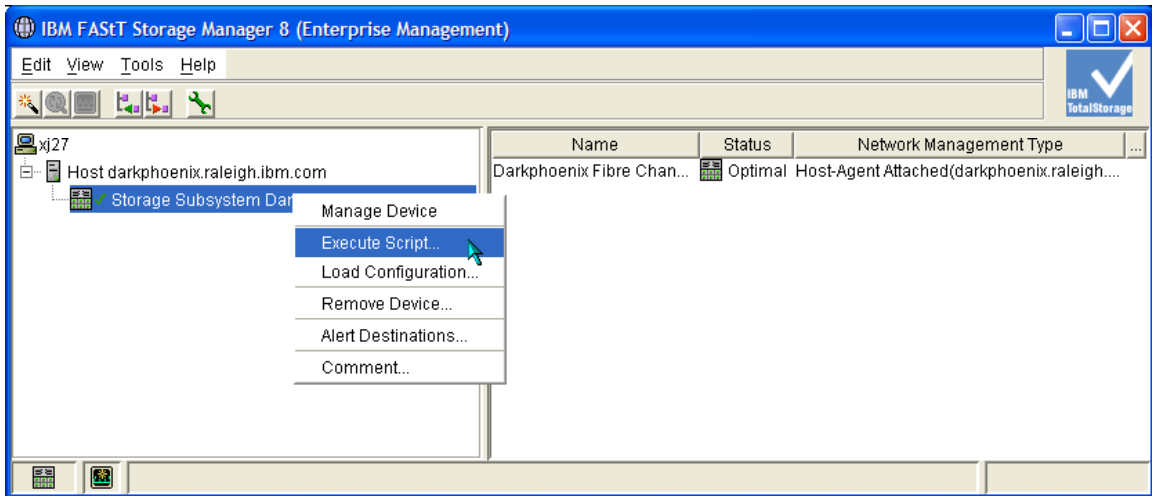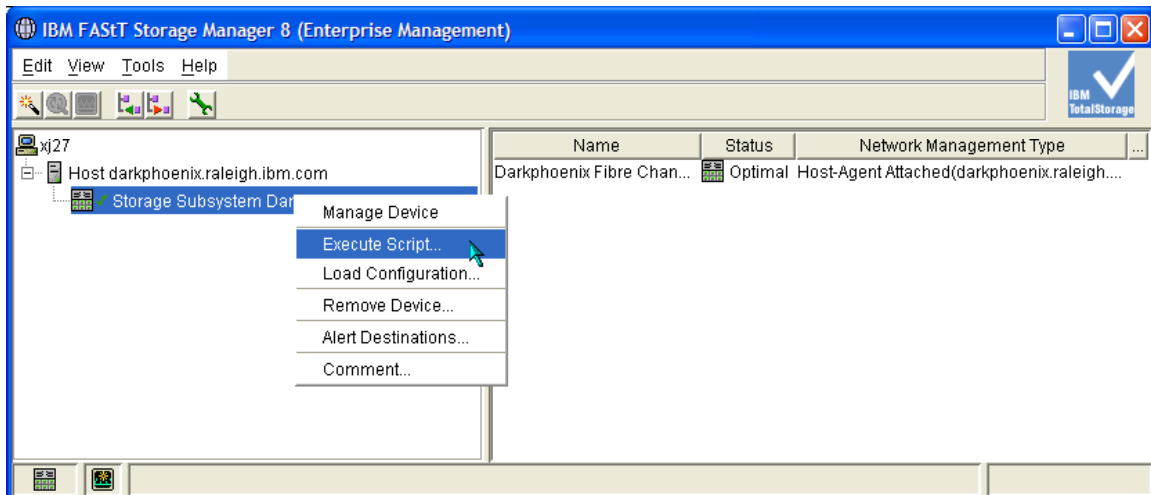
Figure 4: FAStT Client Enterprise Management Window

3.   A script editor window will pop up.

4.   Click on **F**ile → Load Script…

5.   A load script window will pop up. In the Look in: section, go to the drive and folder where the appropriate setup script is located. Highlight the script file and hit the Open button. This will load the script onto the script editor. Figure 5 shows an example of the Disable_VxVM_DMP_NT_NoClus.scr script file loaded into the script editor.
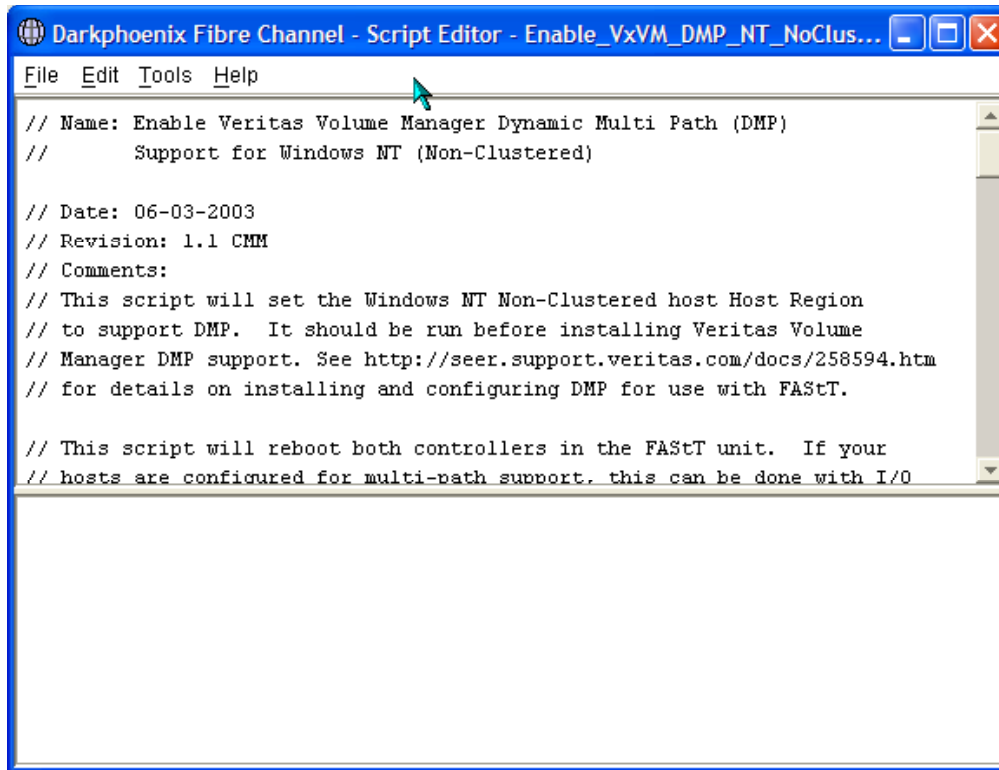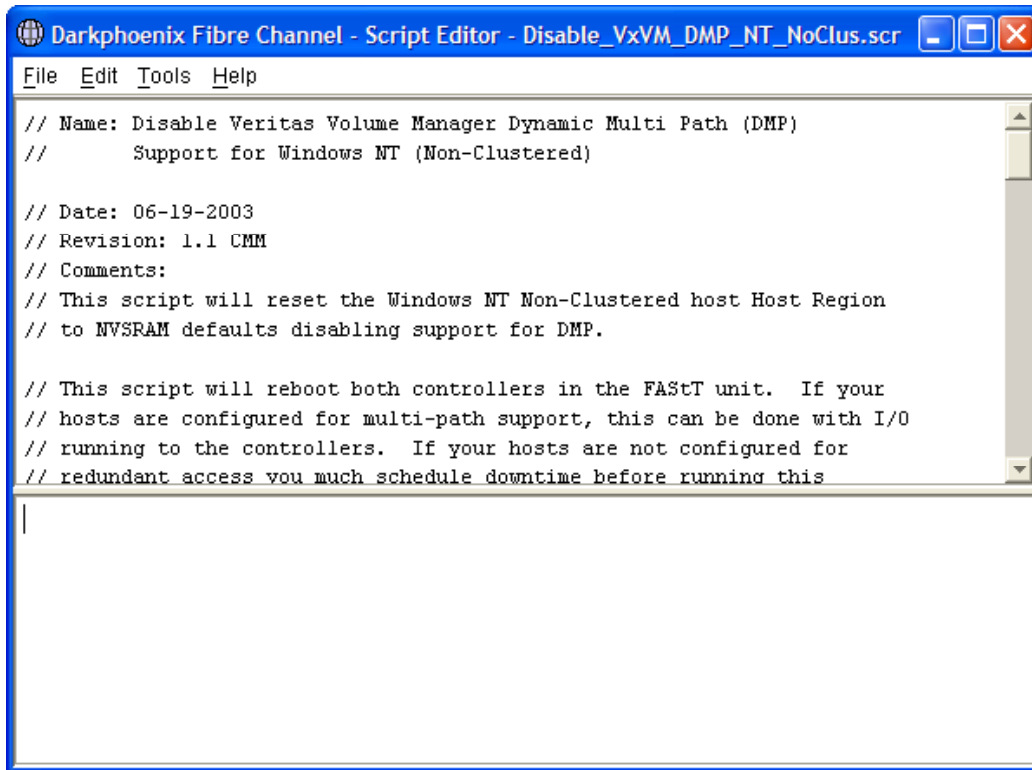
Figure 5: Script Editor Window

6.   In the menu bar, select **T**ools → **V**erify and Execute Script.
7.   The script will execute. The lower half of the script editor window is the results window. When the window says "DMP Disable complete" the controller has disabled DMP support.

Configuration for FAStT STORAGE MANAGER 8.4x

The following instructions and procedures should be used when using FAStT 600, 600 Turbo, 700, and 900 storage subsystems running FAStT Storage Manager 8.4x client and controller firmware 05.4x.xx.

FSM 8.4x Base Procedures

Installation and setup consists of the following procedures:

1. Properly attach IBM FAStT storage array to the host computer.
2. Install FAStT Storage Manager Client software version 8.40 or later.
3. Update controller firmware to version 5.40.xx as provided.
4. Configure the IBM FAStT Storage Array using the FAStT Storage Manager Client software.
5. Configure the HetHost Mappings to use the proper NVSRAM HetHost region for the OS being used.
6. Install Veritas Volume Manager (VxVM) software package. (Beyond the scope of this document.)

7. Configure and initialize VxVM. (Beyond the scope of this document.)

These instructions apply to installations with the following characteristics:

- FAStT 600, 600 Turbo, 700, 900 storage array running FAStT Storage Manager 8.4x and controller firmware 5.4x.xx. The array must report standard IBM FAStT vendor and product types in the Inquiry data. Arrays that report OEM-modified inquiry information will not work.
- Microsoft Windows 2000 and Windows Server 2003 host operating systems.
- RDAC should not be installed on any system running Veritas DMP
- All hosts of the same type (i.e. Windows 2000, Windows 2000 Clustered, Windows Server 2003 or Solaris) must use the DMP function. Mixing RDAC and DMP hosts of the same host type are not supported.

Configuring IBM FAStT Storage Arrays for use with Veritas DMP

Properly attach the IBM FAStT storage array(s) to the host machine(s).

If FAStT Storage Manager 8.4x is not already installed, follow the FAStT Storage Manager Storage Manager Installation and User Guide to install the FAStT Storage Manager Client (SMclient) software. Do not install the RDAC driver, as it is incompatible with the DMP feature. If RDAC has already been installed, remove it at this time.

Using the FAStT Storage Manager Storage Manager Client, configure the IBM FAStT Storage Array:

1. Release 05.40.xx.xx or higher firmware and the associated NVSRAM or higher should be downloaded to the IBM FAStT storage array controllers (see table below for NVSRAM versions with associated FAStT controllers). See the FAStT Installation and User's Guide and the Firmware/NVSRAM README for more details on how to download firmware and NVSRAM.

Table 4: NVSRAM Versions

FAStT Controller	NVSRAM File Name
FAStT600, 600 Turbo	N1722F600R840V04.dlp
FAStT700	N1742F700R840V03.dlp
FAStT900	N1742F900R840V02.dlp

2. Define the host and its HBA's to the FAStT in Storage Partitioning. At this time, configure the host to use the operating system of the host. Details for defining and configuring Storage Partitioning are defined in the IBM TotalStorage FAStT Storage Manager Client 8.40 Installation and User's Guide.

Table 5: NVSRAM HetHost Regions

NVSRAM HetHost Region	NVSRAM HetHost Name	Notes
9	W2KNETNCLDMP	Non-Clustered
14	SOLAVT	
15	W2KNETCLDMP	Clustered

3. Assign LUNs to the host. Remember that all LUN numbers must be sequential and begin at zero except for the Access Logical Drive which is always 31. The access logical drive is only needed for in-band management.

4. At this point Veritas DMP is ready to be installed on the host. Please follow the directions included with Veritas DMP and in Veritas knowledgebase article http://seer.support.veritas.com/docs/258594.htm for information on configuring Veritas DMP for Windows and http://seer.support.veritas.com/docs/255597.htm for information on configuration Vertias DMP for Solaris.

Proper SAN and Switch Zoning for FAStT and Veritas DMP

Fibre Channel Switch Zoning can be done in the following manner.

Direct Connection

A Host with 2 HBA's can be directly connected to the FAStT. In this configuration, each HBA in the host will connect to the A or B controller.

In Veritas Enterprise Administrator this type of zoning will show as 2 paths to a disk.

Dual HBA Host Connection to a SAN

Configure with one big zone which include the following:
> Host HBA1 connection
> Host HBA2 connection
> FAStT Controller A (1 minihub only)
> FAStT Controller B (1 minihub only)

In Veritas Enterprise Administrator this type of zoning will show as 4 paths to a disk.

Obtaining Support for Veritas DMP and FAStT

IBM supports the use of Veritas Dynamic Multipathing on FAStT controllers. IBM does not, however, provide installation or configuration services as part of the normal warranty packages.

Customers who need Veritas DMP support assistance may purchase a Support Line contract in such assistance from IBM. Contact your local IBM representative for details on Support Line Contracts.

Customer should contact Veritas first if a problem is suspected between the interaction of Veritas DMP and the FAStT products. IBM Support will work with Veritas Support to resolve any issues with Veritas DMP and FAStT products once provided with the Veritas Support case number and contact information.

Appendix A. DMP Setup Script for Windows NT 4.0 SP6 Non-Clustered Host

```
// Name: Enable Veritas Volume Manager Dynamic Multi Path (DMP)
//       Support for Windows NT (Non-Clustered)

// Date: 06-03-2003
// Revision: 1.1 CMM
// Comments:
// This script will set the Windows NT Non-Clustered host Host Region
// to support DMP.  It should be run before installing Veritas Volume
// Manager DMP support. See http://seer.support.veritas.com/docs/258594.htm
// for details on installing and configuring DMP for use with FAStT.

// This script will reboot both controllers in the FAStT unit.  If your
// hosts are configured for multi-path support, this can be done with I/O
// running to the controllers.  If your hosts are not configured for
// redundant access you much schedule downtime before running this
// script.

// Change name of Host Type to Reflect DMP Support - "NT40-NoClus DMP"
show "Changing Host Type Name to 'NT40-NoClus DMP'";
set controller [a] HostNVSRAMByte[0x0,0x00]=0x4e;
set controller [a] HostNVSRAMByte[0x0,0x01]=0x54;
set controller [a] HostNVSRAMByte[0x0,0x02]=0x34;
set controller [a] HostNVSRAMByte[0x0,0x03]=0x30;
set controller [a] HostNVSRAMByte[0x0,0x04]=0x2d;
set controller [a] HostNVSRAMByte[0x0,0x05]=0x4e;
set controller [a] HostNVSRAMByte[0x0,0x06]=0x6f;
set controller [a] HostNVSRAMByte[0x0,0x07]=0x43;
set controller [a] HostNVSRAMByte[0x0,0x08]=0x6c;
set controller [a] HostNVSRAMByte[0x0,0x09]=0x75;
set controller [a] HostNVSRAMByte[0x0,0x0a]=0x73;
set controller [a] HostNVSRAMByte[0x0,0x0b]=0x20;
set controller [a] HostNVSRAMByte[0x0,0x0c]=0x44;
set controller [a] HostNVSRAMByte[0x0,0x0d]=0x4d;
set controller [a] HostNVSRAMByte[0x0,0x0e]=0x50;
set controller [a] HostNVSRAMByte[0x0,0x0f]=0x00;

set controller [b] HostNVSRAMByte[0x0,0x00]=0x4e;
set controller [b] HostNVSRAMByte[0x0,0x01]=0x54;
set controller [b] HostNVSRAMByte[0x0,0x02]=0x34;
set controller [b] HostNVSRAMByte[0x0,0x03]=0x30;
set controller [b] HostNVSRAMByte[0x0,0x04]=0x2d;
set controller [b] HostNVSRAMByte[0x0,0x05]=0x4e;
set controller [b] HostNVSRAMByte[0x0,0x06]=0x6f;
set controller [b] HostNVSRAMByte[0x0,0x07]=0x43;
set controller [b] HostNVSRAMByte[0x0,0x08]=0x6c;
set controller [b] HostNVSRAMByte[0x0,0x09]=0x75;
set controller [b] HostNVSRAMByte[0x0,0x0a]=0x73;
```

```
set controller [b] HostNVSRAMByte[0x0,0x0b]=0x20;
set controller [b] HostNVSRAMByte[0x0,0x0c]=0x44;
set controller [b] HostNVSRAMByte[0x0,0x0d]=0x4d;
set controller [b] HostNVSRAMByte[0x0,0x0e]=0x50;
set controller [b] HostNVSRAMByte[0x0,0x0f]=0x00;

// return 12 bytes of WWN in inquiry
show "Setting Controller to return 12 bytes on WWN inquiry";
set controller [a] HostNVSRAMByte[0,0x1a]=0x01,0x01;
set controller [b] HostNVSRAMByte[0,0x1a]=0x01,0x01;

// enable "Report Preferred Path"
show "Enabling 'Report Preferred Path'";
set controller [a] HostNVSRAMByte[0,0x23]=0x01,0x01;
set controller [b] HostNVSRAMByte[0,0x23]=0x01,0x01;

// enable AVT
show "Enabling AVT";
set controller [a] HostNVSRAMByte[0,0x24]=0x01,0x01;
set controller [b] HostNVSRAMByte[0,0x24]=0x01,0x01;

// enable DMP support
Show "Enabling DMP Support";
set controller [a] HostNVSRAMByte[0,0x25]=0x80,0x80;
set controller [b] HostNVSRAMByte[0,0x25]=0x80,0x80;

// Reset Controllers to make changes active

show "Resetting controller A";

reset Controller [a];

show "Resetting controller B";

reset Controller [b];

show "DMP enable is complete.";
```

Appendix B. DMP Setup Script for Windows NT 4.0 SP6 Clustered Host

```
// Name: Enable Veritas Volume Manager Dynamic Multi Path (DMP)
//        Support for Windows NT (Clustered)

// Date: 06-04-2003
// Revision: 1.2 CMM
// Comments:
// This script will set the Windows NT Clustered host Host Region
// to support DMP.  It should be run before installing Veritas Volume
// Manager DMP support. See http://seer.support.veritas.com/docs/258594.htm
// for details on installing and configuring DMP for use with FAStT.

// This script will reboot both controllers in the FAStT unit.  If your
// hosts are configured for multi-path support, this can be done with I/O
// running to the controllers.  If your hosts are not configured for
// redundant access you much schedule downtime before running this
// script.

// Change name of Host Type to Reflect DMP Support - "NT40-Clus DMP"
show "Changing Host Type Name to 'NT40-Clus DMP'";
```

```
set controller [a] HostNVSRAMByte[0x1,0x00]=0x4e;
set controller [a] HostNVSRAMByte[0x1,0x01]=0x54;
set controller [a] HostNVSRAMByte[0x1,0x02]=0x34;
set controller [a] HostNVSRAMByte[0x1,0x03]=0x30;
set controller [a] HostNVSRAMByte[0x1,0x04]=0x2d;
set controller [a] HostNVSRAMByte[0x1,0x05]=0x43;
set controller [a] HostNVSRAMByte[0x1,0x06]=0x6c;
set controller [a] HostNVSRAMByte[0x1,0x07]=0x75;
set controller [a] HostNVSRAMByte[0x1,0x08]=0x73;
set controller [a] HostNVSRAMByte[0x1,0x09]=0x20;
set controller [a] HostNVSRAMByte[0x1,0x0a]=0x44;
set controller [a] HostNVSRAMByte[0x1,0x0b]=0x4d;
set controller [a] HostNVSRAMByte[0x1,0x0c]=0x50;
set controller [a] HostNVSRAMByte[0x1,0x0d]=0x00;
set controller [a] HostNVSRAMByte[0x1,0x0e]=0x00;
set controller [a] HostNVSRAMByte[0x1,0x0f]=0x00;

set controller [b] HostNVSRAMByte[0x1,0x00]=0x4e;
set controller [b] HostNVSRAMByte[0x1,0x01]=0x54;
set controller [b] HostNVSRAMByte[0x1,0x02]=0x34;
set controller [b] HostNVSRAMByte[0x1,0x03]=0x30;
set controller [b] HostNVSRAMByte[0x1,0x04]=0x2d;
set controller [b] HostNVSRAMByte[0x1,0x05]=0x43;
set controller [b] HostNVSRAMByte[0x1,0x06]=0x6c;
set controller [b] HostNVSRAMByte[0x1,0x07]=0x75;
set controller [b] HostNVSRAMByte[0x1,0x08]=0x73;
set controller [b] HostNVSRAMByte[0x1,0x09]=0x20;
set controller [b] HostNVSRAMByte[0x1,0x0a]=0x44;
set controller [b] HostNVSRAMByte[0x1,0x0b]=0x4d;
set controller [b] HostNVSRAMByte[0x1,0x0c]=0x50;
set controller [b] HostNVSRAMByte[0x1,0x0d]=0x00;
set controller [b] HostNVSRAMByte[0x1,0x0e]=0x00;
set controller [b] HostNVSRAMByte[0x1,0x0f]=0x00;

// return 12 bytes of WWN in inquiry
show "Setting Controller to return 12 bytes on WWN inquiry";
set controller [a] HostNVSRAMByte[0x1,0x1a]=0x01,0x01;
set controller [b] HostNVSRAMByte[0x1,0x1a]=0x01,0x01;

// enable "report preferred path"
show "Enabling 'Report Preferred Path'";
set controller [a] HostNVSRAMByte[0x1,0x23]=0x01,0x01;
set controller [b] HostNVSRAMByte[0x1,0x23]=0x01,0x01;

// enable AVT
show "Enabling AVT";
set controller [a] HostNVSRAMByte[0x1,0x24]=0x01,0x01;
set controller [b] HostNVSRAMByte[0x1,0x24]=0x01,0x01;

// enable DMP support
Show "Enabling DMP Support";
set controller [a] HostNVSRAMByte[0x1,0x25]=0x80,0x80;
set controller [b] HostNVSRAMByte[0x1,0x25]=0x80,0x80;

show "Resetting controller A";

reset Controller [a];

show "Resetting controller B";

reset Controller [b];

show "DMP enable is complete.";
```

Appendix C. DMP Setup Script for Windows 2000 Non-Clustered Host

```
// Name: Enable Veritas Volume Manager Dynamic Multi Path (DMP)
//       Support for Windows 2000 (Non-Clustered)

// Date: 06-04-2003
// Revision: 1.2 CMM
// Comments:
// This script will set the Windows 2000 Non-Clustered host Host Region
// to support DMP.  It should be run before installing Veritas Volume
// Manager DMP support. See http://seer.support.veritas.com/docs/258594.htm
// for details on installing and configuring DMP for use with FAStT.

// This script will reboot both controllers in the FAStT unit.  If your
// hosts are configured for multi-path support, this can be done with I/O
// running to the controllers.  If your hosts are not configured for
// redundant access you much schedule downtime before running this
// script.

// Change name of Host Type to Reflect DMP Support - "W2K-NoClus DMP"
show "Changing Host Type Name to 'W2K-NoClus DMP'";

set controller [a] HostNVSRAMByte[0x2,0x00]=0x57;
set controller [a] HostNVSRAMByte[0x2,0x01]=0x32;
set controller [a] HostNVSRAMByte[0x2,0x02]=0x4b;
set controller [a] HostNVSRAMByte[0x2,0x03]=0x2d;
set controller [a] HostNVSRAMByte[0x2,0x04]=0x4e;
set controller [a] HostNVSRAMByte[0x2,0x05]=0x6f;
set controller [a] HostNVSRAMByte[0x2,0x06]=0x43;
set controller [a] HostNVSRAMByte[0x2,0x07]=0x6c;
set controller [a] HostNVSRAMByte[0x2,0x08]=0x75;
set controller [a] HostNVSRAMByte[0x2,0x09]=0x73;
set controller [a] HostNVSRAMByte[0x2,0x0a]=0x20;
set controller [a] HostNVSRAMByte[0x2,0x0b]=0x44;
set controller [a] HostNVSRAMByte[0x2,0x0c]=0x4d;
set controller [a] HostNVSRAMByte[0x2,0x0d]=0x50;
set controller [a] HostNVSRAMByte[0x2,0x0e]=0x00;
set controller [a] HostNVSRAMByte[0x2,0x0f]=0x00;


set controller [b] HostNVSRAMByte[0x2,0x00]=0x57;
set controller [b] HostNVSRAMByte[0x2,0x01]=0x32;
set controller [b] HostNVSRAMByte[0x2,0x02]=0x4b;
set controller [b] HostNVSRAMByte[0x2,0x03]=0x2d;
set controller [b] HostNVSRAMByte[0x2,0x04]=0x4e;
set controller [b] HostNVSRAMByte[0x2,0x05]=0x6f;
set controller [b] HostNVSRAMByte[0x2,0x06]=0x43;
set controller [b] HostNVSRAMByte[0x2,0x07]=0x6c;
set controller [b] HostNVSRAMByte[0x2,0x08]=0x75;
set controller [b] HostNVSRAMByte[0x2,0x09]=0x73;
set controller [b] HostNVSRAMByte[0x2,0x0a]=0x20;
set controller [b] HostNVSRAMByte[0x2,0x0b]=0x44;
set controller [b] HostNVSRAMByte[0x2,0x0c]=0x4d;
set controller [b] HostNVSRAMByte[0x2,0x0d]=0x50;
set controller [b] HostNVSRAMByte[0x2,0x0e]=0x00;
set controller [b] HostNVSRAMByte[0x2,0x0f]=0x00;

// return 12 bytes of WWN in inquiry
show "Setting Controller to return 12 bytes on WWN inquiry";
set controller [a] HostNVSRAMByte[0x2,0x1a]=0x01,0x01;
set controller [b] HostNVSRAMByte[0x2,0x1a]=0x01,0x01;

// enable "report preferred path"
show "Enabling 'Report Preferred Path'";
```

```
set controller [a] HostNVSRAMByte[0x2,0x23]=0x01,0x01;
set controller [b] HostNVSRAMByte[0x2,0x23]=0x01,0x01;

// enable AVT
show "Enabling AVT";
set controller [a] HostNVSRAMByte[0x2,0x24]=0x01,0x01;
set controller [b] HostNVSRAMByte[0x2,0x24]=0x01,0x01;

// enable DMP support
Show "Enabling DMP Support";
set controller [a] HostNVSRAMByte[0x2,0x25]=0x80,0x80;
set controller [b] HostNVSRAMByte[0x2,0x25]=0x80,0x80;

show "Resetting controller A";

reset Controller [a];

show "Resetting controller B";

reset Controller [b];

show "DMP enable is complete.";
```

Appendix D. DMP Setup Script for Windows 2000 Non-Clustered Host

```
// Name: Enable Veritas Volume Manager Dynamic Multi Path (DMP)
//       Support for Windows 2000 (Clustered)

// Date: 06-04-2003
// Revision: 1.2 CMM
// Comments:
// This script will set the Windows 2000 Clustered host Host Region
// to support DMP.  It should be run before installing Veritas Volume
// Manager DMP support. See http://seer.support.veritas.com/docs/258594.htm
// for details on installing and configuring DMP for use with FAStT.

// This script will reboot both controllers in the FAStT unit.  If your
// hosts are configured for multi-path support, this can be done with I/O
// running to the controllers.  If your hosts are not configured for
// redundant access you much schedule downtime before running this
// script.

// Change name of Host Type to Reflect DMP Support - "W2K-Clus DMP"
show "Changing Host Type Name to 'W2K-Clus DMP'";

set controller [a] HostNVSRAMByte[0x3,0x00]=0x57;
set controller [a] HostNVSRAMByte[0x3,0x01]=0x32;
set controller [a] HostNVSRAMByte[0x3,0x02]=0x4b;
set controller [a] HostNVSRAMByte[0x3,0x03]=0x2d;
set controller [a] HostNVSRAMByte[0x3,0x04]=0x43;
set controller [a] HostNVSRAMByte[0x3,0x05]=0x6c;
set controller [a] HostNVSRAMByte[0x3,0x06]=0x75;
set controller [a] HostNVSRAMByte[0x3,0x07]=0x73;
set controller [a] HostNVSRAMByte[0x3,0x08]=0x20;
set controller [a] HostNVSRAMByte[0x3,0x09]=0x44;
set controller [a] HostNVSRAMByte[0x3,0x0a]=0x4d;
set controller [a] HostNVSRAMByte[0x3,0x0b]=0x50;
set controller [a] HostNVSRAMByte[0x3,0x0c]=0x00;
set controller [a] HostNVSRAMByte[0x3,0x0d]=0x00;
set controller [a] HostNVSRAMByte[0x3,0x0e]=0x00;
set controller [a] HostNVSRAMByte[0x3,0x0f]=0x00;
```

```
set controller [b] HostNVSRAMByte[0x3,0x00]=0x57;
set controller [b] HostNVSRAMByte[0x3,0x01]=0x32;
set controller [b] HostNVSRAMByte[0x3,0x02]=0x4b;
set controller [b] HostNVSRAMByte[0x3,0x03]=0x2d;
set controller [b] HostNVSRAMByte[0x3,0x04]=0x43;
set controller [b] HostNVSRAMByte[0x3,0x05]=0x6c;
set controller [b] HostNVSRAMByte[0x3,0x06]=0x75;
set controller [b] HostNVSRAMByte[0x3,0x07]=0x73;
set controller [b] HostNVSRAMByte[0x3,0x08]=0x20;
set controller [b] HostNVSRAMByte[0x3,0x09]=0x44;
set controller [b] HostNVSRAMByte[0x3,0x0a]=0x4d;
set controller [b] HostNVSRAMByte[0x3,0x0b]=0x50;
set controller [b] HostNVSRAMByte[0x3,0x0c]=0x00;
set controller [b] HostNVSRAMByte[0x3,0x0d]=0x00;
set controller [b] HostNVSRAMByte[0x3,0x0e]=0x00;
set controller [b] HostNVSRAMByte[0x3,0x0f]=0x00;

// return 12 bytes of WWN in inquiry
show "Setting Controller to return 12 bytes on WWN inquiry";
set controller [a] HostNVSRAMByte[0x3,0x1a]=0x01,0x01;
set controller [b] HostNVSRAMByte[0x3,0x1a]=0x01,0x01;

// enable "report preferred path"
show "Enabling 'Show Preferred Path'";
set controller [a] HostNVSRAMByte[0x3,0x23]=0x01,0x01;
set controller [b] HostNVSRAMByte[0x3,0x23]=0x01,0x01;

// enable AVT
show "Enabling AVT";
set controller [a] HostNVSRAMByte[0x3,0x24]=0x01,0x01;
set controller [b] HostNVSRAMByte[0x3,0x24]=0x01,0x01;

// enable DMP support
Show "Enabling DMP Support";
set controller [a] HostNVSRAMByte[0x3,0x25]=0x80,0x80;
set controller [b] HostNVSRAMByte[0x3,0x25]=0x80,0x80;

show "Resetting controller A";

reset Controller [a];

show "Resetting controller B";

reset Controller [b];

show "DMP enable is complete.";
```

Appendix E. DMP Setup Script for Solaris

```
// Name: Enable Veritas Volume Manager Dynamic Multi Path (DMP)
//       Support for Solaris

// Date: 05-30-2003
// Revision: 1.0 CMM
// Comments:
// This script will set the Solaris host Host Region to support DMP.  It
// should be run before installing Veritas Volume Manager DMP support.
// See http://seer.support.veritas.com/docs/255597.htm for details on
// installing and configuring DMP for use with FAStT.
```

```
// This script will reboot both controllers in the FAStT unit.  If your
// hosts are configured for multi-path support, this can be done with I/O
// running to the controllers.  If your hosts are not configured for
// redundant access you much schedule downtime before running this
// script.

// Change name of Host Type to Reflect DMP Support - "Solaris DMP"

show "Changing Host Type Name to 'Solaris DMP'";
set controller [a] HostNVSRAMByte[0x8,0x00]=0x53;
set controller [a] HostNVSRAMByte[0x8,0x01]=0x6f;
set controller [a] HostNVSRAMByte[0x8,0x02]=0x6c;
set controller [a] HostNVSRAMByte[0x8,0x03]=0x61;
set controller [a] HostNVSRAMByte[0x8,0x04]=0x72;
set controller [a] HostNVSRAMByte[0x8,0x05]=0x69;
set controller [a] HostNVSRAMByte[0x8,0x06]=0x73;
set controller [a] HostNVSRAMByte[0x8,0x07]=0x20;
set controller [a] HostNVSRAMByte[0x8,0x08]=0x44;
set controller [a] HostNVSRAMByte[0x8,0x09]=0x4d;
set controller [a] HostNVSRAMByte[0x8,0x0a]=0x50;
set controller [a] HostNVSRAMByte[0x8,0x0b]=0x00;
set controller [a] HostNVSRAMByte[0x8,0x0c]=0x00;
set controller [a] HostNVSRAMByte[0x8,0x0d]=0x00;
set controller [a] HostNVSRAMByte[0x8,0x0e]=0x00;
set controller [a] HostNVSRAMByte[0x8,0x0f]=0x00;

set controller [b] HostNVSRAMByte[0x8,0x00]=0x53;
set controller [b] HostNVSRAMByte[0x8,0x01]=0x6f;
set controller [b] HostNVSRAMByte[0x8,0x02]=0x6c;
set controller [b] HostNVSRAMByte[0x8,0x03]=0x61;
set controller [b] HostNVSRAMByte[0x8,0x04]=0x72;
set controller [b] HostNVSRAMByte[0x8,0x05]=0x69;
set controller [b] HostNVSRAMByte[0x8,0x06]=0x73;
set controller [b] HostNVSRAMByte[0x8,0x07]=0x20;
set controller [b] HostNVSRAMByte[0x8,0x08]=0x44;
set controller [b] HostNVSRAMByte[0x8,0x09]=0x4d;
set controller [b] HostNVSRAMByte[0x8,0x0a]=0x50;
set controller [b] HostNVSRAMByte[0x8,0x0b]=0x00;
set controller [b] HostNVSRAMByte[0x8,0x0c]=0x00;
set controller [b] HostNVSRAMByte[0x8,0x0d]=0x00;
set controller [b] HostNVSRAMByte[0x8,0x0e]=0x00;
set controller [b] HostNVSRAMByte[0x8,0x0f]=0x00;

// Return 12 bytes of WWN in inquiry
show "Setting Controller to return 12 bytes on WWN inquiry";
set controller [a] HostNVSRAMByte[0x8,0x1a]=0x01,0x01;
set controller [b] HostNVSRAMByte[0x8,0x1a]=0x01,0x01;

// Enable "report preferred path"
show "Enabling 'Show Preferred Path'";
set controller [a] HostNVSRAMByte[0x8,0x23]=0x01,0x01;
set controller [b] HostNVSRAMByte[0x8,0x23]=0x01,0x01;

// Enable AVT
show "Enabling AVT";
set controller [a] HostNVSRAMByte[0x8,0x24]=0x01,0x01;
set controller [b] HostNVSRAMByte[0x8,0x24]=0x01,0x01;

// Enable DMP support
Show "Enabling DMP Support";
set controller [a] HostNVSRAMByte[0x8,0x25]=0x80,0x80;
set controller [b] HostNVSRAMByte[0x8,0x25]=0x80,0x80;
```

```
show "Resetting controller A";

reset Controller [a];

show "Resetting controller B";

reset Controller [b];

show "DMP enable is complete.";
```

Appendix F. DMP Disable Script for Windows NT 4.0 SP6 Non-Clustered Host

```
// Name: Disable Veritas Volume Manager Dynamic Multi Path (DMP)
//       Support for Windows NT (Non-Clustered)

// Date: 06-19-2003
// Revision: 1.1 CMM
// Comments:
// This script will reset the Windows NT Non-Clustered host Host Region
// to NVSRAM defaults disabling support for DMP.

// This script will reboot both controllers in the FAStT unit.  If your
// hosts are configured for multi-path support, this can be done with I/O
// running to the controllers.  If your hosts are not configured for
// redundant access you much schedule downtime before running this
// script.

// Resetting the Host Type name back to it's default
show "Resetting Host Type Name to 'Windows Non-Clustered (SP5 or higher)'";
set controller [a] HostNVSRAMByte[0x0,0x00]=0x57;
set controller [a] HostNVSRAMByte[0x0,0x01]=0x4e;
set controller [a] HostNVSRAMByte[0x0,0x02]=0x54;
set controller [a] HostNVSRAMByte[0x0,0x03]=0x4e;
set controller [a] HostNVSRAMByte[0x0,0x04]=0x43;
set controller [a] HostNVSRAMByte[0x0,0x05]=0x4c;
set controller [a] HostNVSRAMByte[0x0,0x06]=0x53;
set controller [a] HostNVSRAMByte[0x0,0x07]=0x50;
set controller [a] HostNVSRAMByte[0x0,0x08]=0x35;
set controller [a] HostNVSRAMByte[0x0,0x09]=0x00;
set controller [a] HostNVSRAMByte[0x0,0x0a]=0x00;
set controller [a] HostNVSRAMByte[0x0,0x0b]=0x00;
set controller [a] HostNVSRAMByte[0x0,0x0c]=0x00;
set controller [a] HostNVSRAMByte[0x0,0x0d]=0x00;
set controller [a] HostNVSRAMByte[0x0,0x0e]=0x00;
set controller [a] HostNVSRAMByte[0x0,0x0f]=0x00;

set controller [b] HostNVSRAMByte[0x0,0x00]=0x57;
set controller [b] HostNVSRAMByte[0x0,0x01]=0x4e;
set controller [b] HostNVSRAMByte[0x0,0x02]=0x54;
set controller [b] HostNVSRAMByte[0x0,0x03]=0x4e;
set controller [b] HostNVSRAMByte[0x0,0x04]=0x43;
set controller [b] HostNVSRAMByte[0x0,0x05]=0x4c;
set controller [b] HostNVSRAMByte[0x0,0x06]=0x53;
set controller [b] HostNVSRAMByte[0x0,0x07]=0x50;
set controller [b] HostNVSRAMByte[0x0,0x08]=0x35;
set controller [b] HostNVSRAMByte[0x0,0x09]=0x00;
set controller [b] HostNVSRAMByte[0x0,0x0a]=0x00;
set controller [b] HostNVSRAMByte[0x0,0x0b]=0x00;
set controller [b] HostNVSRAMByte[0x0,0x0c]=0x00;
set controller [b] HostNVSRAMByte[0x0,0x0d]=0x00;
set controller [b] HostNVSRAMByte[0x0,0x0e]=0x00;
```

```
set controller [b] HostNVSRAMByte[0x0,0x0f]=0x00;

// Do not return 12 bytes of WWN in inquiry
show "Reset Controller to not return 12 bytes on WWN inquiry";
set controller [a] HostNVSRAMByte[0x0,0x1a]=0x01,0x00;
set controller [b] HostNVSRAMByte[0x0,0x1a]=0x01,0x00;

// Disable "Report Preferred Path"
show "Disable 'Report Preferred Path'";
set controller [a] HostNVSRAMByte[0x0,0x23]=0x01,0x00;
set controller [b] HostNVSRAMByte[0x0,0x23]=0x01,0x00;

// Diable AVT
show "Disabling AVT";
set controller [a] HostNVSRAMByte[0x0,0x24]=0x01,0x00;
set controller [b] HostNVSRAMByte[0x0,0x24]=0x01,0x00;

// Disable DMP support
Show "disabling DMP Support";
set controller [a] HostNVSRAMByte[0x0,0x25]=0x80,0x00;
set controller [b] HostNVSRAMByte[0x0,0x25]=0x80,0x00;

// Reset Controllers to make changes active

show "Resetting controller A";

reset Controller [a];

show "Resetting controller B";

reset Controller [b];

show "DMP disable is complete.";
```

Appendix G. DMP Disable Script for Windows NT 4.0 SP6 Clustered Host

```
// Name: Disable Veritas Volume Manager Dynamic Multi Path (DMP)
//       Support for Windows NT (Clustered)

// Date: 06-19-2003
// Revision: 1.1 CMM
// Comments:
// This script will reset the Windows NT Clustered host Host Region
// to NVSRAM defaults disabling support for DMP.

// This script will reboot both controllers in the FAStT unit.  If your
// hosts are configured for multi-path support, this can be done with I/O
// running to the controllers.  If your hosts are not configured for
// redundant access you much schedule downtime before running this
// script.

// Resetting the Host Type name back to it's default
show "Resetting Host Type Name to 'Windows Clustered (SP5 or higher)'";
set controller [a] HostNVSRAMByte[0x1,0x00]=0x57;
set controller [a] HostNVSRAMByte[0x1,0x01]=0x4e;
set controller [a] HostNVSRAMByte[0x1,0x02]=0x54;
set controller [a] HostNVSRAMByte[0x1,0x03]=0x43;
set controller [a] HostNVSRAMByte[0x1,0x04]=0x4c;
set controller [a] HostNVSRAMByte[0x1,0x05]=0x53;
set controller [a] HostNVSRAMByte[0x1,0x06]=0x50;
set controller [a] HostNVSRAMByte[0x1,0x07]=0x35;
```

```
set controller [a] HostNVSRAMByte[0x1,0x08]=0x00;
set controller [a] HostNVSRAMByte[0x1,0x09]=0x00;
set controller [a] HostNVSRAMByte[0x1,0x0a]=0x00;
set controller [a] HostNVSRAMByte[0x1,0x0b]=0x00;
set controller [a] HostNVSRAMByte[0x1,0x0c]=0x00;
set controller [a] HostNVSRAMByte[0x1,0x0d]=0x00;
set controller [a] HostNVSRAMByte[0x1,0x0e]=0x00;
set controller [a] HostNVSRAMByte[0x1,0x0f]=0x00;

set controller [b] HostNVSRAMByte[0x1,0x00]=0x57;
set controller [b] HostNVSRAMByte[0x1,0x01]=0x4e;
set controller [b] HostNVSRAMByte[0x1,0x02]=0x54;
set controller [b] HostNVSRAMByte[0x1,0x03]=0x43;
set controller [b] HostNVSRAMByte[0x1,0x04]=0x4c;
set controller [b] HostNVSRAMByte[0x1,0x05]=0x53;
set controller [b] HostNVSRAMByte[0x1,0x06]=0x50;
set controller [b] HostNVSRAMByte[0x1,0x07]=0x35;
set controller [b] HostNVSRAMByte[0x1,0x08]=0x35;
set controller [b] HostNVSRAMByte[0x1,0x09]=0x00;
set controller [b] HostNVSRAMByte[0x1,0x0a]=0x00;
set controller [b] HostNVSRAMByte[0x1,0x0b]=0x00;
set controller [b] HostNVSRAMByte[0x1,0x0c]=0x00;
set controller [b] HostNVSRAMByte[0x1,0x0d]=0x00;
set controller [b] HostNVSRAMByte[0x1,0x0e]=0x00;
set controller [b] HostNVSRAMByte[0x1,0x0f]=0x00;

// Do not return 12 bytes of WWN in inquiry
show "Reset Controller to not return 12 bytes on WWN inquiry";
set controller [a] HostNVSRAMByte[0x1,0x1a]=0x01,0x00;
set controller [b] HostNVSRAMByte[0x1,0x1a]=0x01,0x00;

// Disable "Report Preferred Path"
show "Disable 'Report Preferred Path'";
set controller [a] HostNVSRAMByte[0x1,0x23]=0x01,0x00;
set controller [b] HostNVSRAMByte[0x1,0x23]=0x01,0x00;

// Diable AVT
show "Disabling AVT";
set controller [a] HostNVSRAMByte[0x1,0x24]=0x01,0x00;
set controller [b] HostNVSRAMByte[0x1,0x24]=0x01,0x00;

// Disable DMP support
Show "disabling DMP Support";
set controller [a] HostNVSRAMByte[0x1,0x25]=0x80,0x00;
set controller [b] HostNVSRAMByte[0x1,0x25]=0x80,0x00;

// Reset Controllers to make changes active

show "Resetting controller A";

reset Controller [a];

show "Resetting controller B";

reset Controller [b];

show "DMP disable is complete.";
```

Appendix H. DMP Disable Script for Windows 2000 Non-Clustered Host

```
// Name: Disable Veritas Volume Manager Dynamic Multi Path (DMP)
//       Support for Windows 2000 (Non-Clustered)

// Date: 06-19-2003
// Revision: 1.1 CMM
// Comments:
// This script will reset the Windows 2000 Non-Clustered host Host Region
// to NVSRAM defaults disabling support for DMP.

// This script will reboot both controllers in the FAStT unit.  If your
// hosts are configured for multi-path support, this can be done with I/O
// running to the controllers.  If your hosts are not configured for
// redundant access you much schedule downtime before running this
// script.

// Resetting the Host Type name back to it's default
show "Resetting Host Type Name to 'Windows 2000 Non-Clustered'";
set controller [a] HostNVSRAMByte[0x3,0x00]=0x57;
set controller [a] HostNVSRAMByte[0x3,0x01]=0x32;
set controller [a] HostNVSRAMByte[0x3,0x02]=0x4b;
set controller [a] HostNVSRAMByte[0x3,0x03]=0x4e;
set controller [a] HostNVSRAMByte[0x3,0x04]=0x45;
set controller [a] HostNVSRAMByte[0x3,0x05]=0x54;
set controller [a] HostNVSRAMByte[0x3,0x06]=0x4e;
set controller [a] HostNVSRAMByte[0x3,0x07]=0x43;
set controller [a] HostNVSRAMByte[0x3,0x08]=0x4c;
set controller [a] HostNVSRAMByte[0x3,0x09]=0x00;
set controller [a] HostNVSRAMByte[0x3,0x0a]=0x00;
set controller [a] HostNVSRAMByte[0x3,0x0b]=0x00;
set controller [a] HostNVSRAMByte[0x3,0x0c]=0x00;
set controller [a] HostNVSRAMByte[0x3,0x0d]=0x00;
set controller [a] HostNVSRAMByte[0x3,0x0e]=0x00;
set controller [a] HostNVSRAMByte[0x3,0x0f]=0x00;


set controller [b] HostNVSRAMByte[0x3,0x00]=0x57;
set controller [b] HostNVSRAMByte[0x3,0x01]=0x32;
set controller [b] HostNVSRAMByte[0x3,0x02]=0x4b;
set controller [b] HostNVSRAMByte[0x3,0x03]=0x4e;
set controller [b] HostNVSRAMByte[0x3,0x04]=0x45;
set controller [b] HostNVSRAMByte[0x3,0x05]=0x54;
set controller [b] HostNVSRAMByte[0x3,0x06]=0x4e;
set controller [b] HostNVSRAMByte[0x3,0x07]=0x43;
set controller [b] HostNVSRAMByte[0x3,0x08]=0x4c;
set controller [b] HostNVSRAMByte[0x3,0x09]=0x00;
set controller [b] HostNVSRAMByte[0x3,0x0a]=0x00;
set controller [b] HostNVSRAMByte[0x3,0x0b]=0x00;
set controller [b] HostNVSRAMByte[0x3,0x0c]=0x00;
set controller [b] HostNVSRAMByte[0x3,0x0d]=0x00;
set controller [b] HostNVSRAMByte[0x3,0x0e]=0x00;
set controller [b] HostNVSRAMByte[0x3,0x0f]=0x00;

// Do not return 12 bytes of WWN in inquiry
show "Reset Controller to not return 12 bytes on WWN inquiry";
set controller [a] HostNVSRAMByte[0x3,0x1a]=0x01,0x00;
set controller [b] HostNVSRAMByte[0x3,0x1a]=0x01,0x00;

// Disable "Report Preferred Path"
show "Disable 'Report Preferred Path'";
set controller [a] HostNVSRAMByte[0x3,0x23]=0x01,0x00;
set controller [b] HostNVSRAMByte[0x3,0x23]=0x01,0x00;

// Diable AVT
show "Disabling AVT";
set controller [a] HostNVSRAMByte[0x3,0x24]=0x01,0x00;
```

```
set controller [b] HostNVSRAMByte[0x3,0x24]=0x01,0x00;

// Disable DMP support
Show "disabling DMP Support";
set controller [a] HostNVSRAMByte[0x3,0x25]=0x80,0x00;
set controller [b] HostNVSRAMByte[0x3,0x25]=0x80,0x00;

// Reset Controllers to make changes active

show "Resetting controller A";

reset Controller [a];

show "Resetting controller B";

reset Controller [b];

show "DMP disable is complete.";
```

Appendix I. DMP Disable Script for Windows 2000 Clustered Host

```
// Name: Disable Veritas Volume Manager Dynamic Multi Path (DMP)
//       Support for Windows 2000 (Clustered)

// Date: 06-19-2003
// Revision: 1.1 CMM
// Comments:
// This script will reset the Windows 2000 Clustered host Host Region
// to NVSRAM defaults disabling support for DMP.

// This script will reboot both controllers in the FAStT unit.  If your
// hosts are configured for multi-path support, this can be done with I/O
// running to the controllers.  If your hosts are not configured for
// redundant access you much schedule downtime before running this
// script.

// Resetting the Host Type name back to it's default
show "Resetting Host Type Name to 'Windows 2000 Clustered'";
set controller [a] HostNVSRAMByte[0x2,0x00]=0x57;
set controller [a] HostNVSRAMByte[0x2,0x01]=0x32;
set controller [a] HostNVSRAMByte[0x2,0x02]=0x4b;
set controller [a] HostNVSRAMByte[0x2,0x03]=0x4e;
set controller [a] HostNVSRAMByte[0x2,0x04]=0x45;
set controller [a] HostNVSRAMByte[0x2,0x05]=0x54;
set controller [a] HostNVSRAMByte[0x2,0x06]=0x43;
set controller [a] HostNVSRAMByte[0x2,0x07]=0x4c;
set controller [a] HostNVSRAMByte[0x2,0x08]=0x00;
set controller [a] HostNVSRAMByte[0x2,0x09]=0x00;
set controller [a] HostNVSRAMByte[0x2,0x0a]=0x00;
set controller [a] HostNVSRAMByte[0x2,0x0b]=0x00;
set controller [a] HostNVSRAMByte[0x2,0x0c]=0x00;
set controller [a] HostNVSRAMByte[0x2,0x0d]=0x00;
set controller [a] HostNVSRAMByte[0x2,0x0e]=0x00;
set controller [a] HostNVSRAMByte[0x2,0x0f]=0x00;

set controller [b] HostNVSRAMByte[0x2,0x00]=0x57;
set controller [b] HostNVSRAMByte[0x2,0x01]=0x32;
set controller [b] HostNVSRAMByte[0x2,0x02]=0x4b;
set controller [b] HostNVSRAMByte[0x2,0x03]=0x4e;
set controller [b] HostNVSRAMByte[0x2,0x04]=0x45;
set controller [b] HostNVSRAMByte[0x2,0x05]=0x54;
set controller [b] HostNVSRAMByte[0x2,0x06]=0x43;
```

```
set controller [b] HostNVSRAMByte[0x2,0x07]=0x4c;
set controller [b] HostNVSRAMByte[0x2,0x08]=0x00;
set controller [b] HostNVSRAMByte[0x2,0x09]=0x00;
set controller [b] HostNVSRAMByte[0x2,0x0a]=0x00;
set controller [b] HostNVSRAMByte[0x2,0x0b]=0x00;
set controller [b] HostNVSRAMByte[0x2,0x0c]=0x00;
set controller [b] HostNVSRAMByte[0x2,0x0d]=0x00;
set controller [b] HostNVSRAMByte[0x2,0x0e]=0x00;
set controller [b] HostNVSRAMByte[0x2,0x0f]=0x00;

// Do not return 12 bytes of WWN in inquiry
show "Reset Controller to not return 12 bytes on WWN inquiry";
set controller [a] HostNVSRAMByte[0x2,0x1a]=0x01,0x00;
set controller [b] HostNVSRAMByte[0x2,0x1a]=0x01,0x00;

// Disable "Report Preferred Path"
show "Disable 'Report Preferred Path'";
set controller [a] HostNVSRAMByte[0x2,0x23]=0x01,0x00;
set controller [b] HostNVSRAMByte[0x2,0x23]=0x01,0x00;

// Diable AVT
show "Disabling AVT";
set controller [a] HostNVSRAMByte[0x2,0x24]=0x01,0x00;
set controller [b] HostNVSRAMByte[0x2,0x24]=0x01,0x00;

// Disable DMP support
Show "disabling DMP Support";
set controller [a] HostNVSRAMByte[0x2,0x25]=0x80,0x00;
set controller [b] HostNVSRAMByte[0x2,0x25]=0x80,0x00;

// Reset Controllers to make changes active

show "Resetting controller A";

reset Controller [a];

show "Resetting controller B";

reset Controller [b];

show "DMP disable is complete.";
```

Appendix J. DMP Disable Script for Solaris

```
// Name: Disable Veritas Volume Manager Dynamic Multi Path (DMP)
//       Support for Solaris

// Date: 06-19-2003
// Revision: 1.1 CMM
// Comments:
// This script will reset the Solaris host Host Region to NVSRAM defaults
// disabling support for DMP.

// This script will reboot both controllers in the FAStT unit.  If your
// hosts are configured for multi-path support, this can be done with I/O
// running to the controllers.  If your hosts are not configured for
// redundant access you much schedule downtime before running this
// script.

// Resetting the Host Type name back to it's default
show "Resetting Host Type Name to 'Solaris (Sparc)'";
set controller [a] HostNVSRAMByte[0x8,0x00]=0x53;
```

```
set controller [a] HostNVSRAMByte[0x8,0x01]=0x4f;
set controller [a] HostNVSRAMByte[0x8,0x02]=0x4c;
set controller [a] HostNVSRAMByte[0x8,0x03]=0x00;
set controller [a] HostNVSRAMByte[0x8,0x04]=0x00;
set controller [a] HostNVSRAMByte[0x8,0x05]=0x00;
set controller [a] HostNVSRAMByte[0x8,0x06]=0x00;
set controller [a] HostNVSRAMByte[0x8,0x07]=0x00;
set controller [a] HostNVSRAMByte[0x8,0x08]=0x00;
set controller [a] HostNVSRAMByte[0x8,0x09]=0x00;
set controller [a] HostNVSRAMByte[0x8,0x0a]=0x00;
set controller [a] HostNVSRAMByte[0x8,0x0b]=0x00;
set controller [a] HostNVSRAMByte[0x8,0x0c]=0x00;
set controller [a] HostNVSRAMByte[0x8,0x0d]=0x00;
set controller [a] HostNVSRAMByte[0x8,0x0e]=0x00;
set controller [a] HostNVSRAMByte[0x8,0x0f]=0x00;

set controller [b] HostNVSRAMByte[0x8,0x00]=0x53;
set controller [b] HostNVSRAMByte[0x8,0x01]=0x4f;
set controller [b] HostNVSRAMByte[0x8,0x02]=0x4c;
set controller [b] HostNVSRAMByte[0x8,0x03]=0x00;
set controller [b] HostNVSRAMByte[0x8,0x04]=0x00;
set controller [b] HostNVSRAMByte[0x8,0x05]=0x00;
set controller [b] HostNVSRAMByte[0x8,0x06]=0x00;
set controller [b] HostNVSRAMByte[0x8,0x07]=0x00;
set controller [b] HostNVSRAMByte[0x8,0x08]=0x00;
set controller [b] HostNVSRAMByte[0x8,0x09]=0x00;
set controller [b] HostNVSRAMByte[0x8,0x0a]=0x00;
set controller [b] HostNVSRAMByte[0x8,0x0b]=0x00;
set controller [b] HostNVSRAMByte[0x8,0x0c]=0x00;
set controller [b] HostNVSRAMByte[0x8,0x0d]=0x00;
set controller [b] HostNVSRAMByte[0x8,0x0e]=0x00;
set controller [b] HostNVSRAMByte[0x8,0x0f]=0x00;

// Do not return 12 bytes of WWN in inquiry
show "Reset Controller to not return 12 bytes on WWN inquiry";
set controller [a] HostNVSRAMByte[0x8,0x1a]=0x01,0x00;
set controller [b] HostNVSRAMByte[0x8,0x1a]=0x01,0x00;

// Disable "Report Preferred Path"
show "Disable 'Report Preferred Path'";
set controller [a] HostNVSRAMByte[0x8,0x23]=0x01,0x00;
set controller [b] HostNVSRAMByte[0x8,0x23]=0x01,0x00;

// Diable AVT
show "Disabling AVT";
set controller [a] HostNVSRAMByte[0x8,0x24]=0x01,0x00;
set controller [b] HostNVSRAMByte[0x8,0x24]=0x01,0x00;

// Disable DMP support
Show "disabling DMP Support";
set controller [a] HostNVSRAMByte[0x8,0x25]=0x80,0x00;
set controller [b] HostNVSRAMByte[0x8,0x25]=0x80,0x00;

// Reset Controllers to make changes active

show "Resetting controller A";

reset Controller [a];

show "Resetting controller B";

reset Controller [b];

show "DMP disable is complete.";
```