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Support of Whistler Beta 2 on Compaq ProLiant Cluster Servers and Solutions

Abstract: Compaq wants to facilitate the experience of customers who want to test the pre-release versions of the new Microsoft Windows operating system (Microsoft® Windows® Codename “Whistler”) on Compaq server and cluster products. Compaq began providing support for non-production deployments of the pre-release kits, beginning with the Whistler Beta 1 release.

This document describes the level of support available for the Whistler Advanced Server Beta 2 version of this operating system for Compaq x86 ProLiant Clusters including:

- Supported Compaq x86 ProLiant cluster products
- Installation procedures for cluster services
- Support limitations for Whistler Beta 2 and known issues with workarounds for cluster support

This document does not describe support for Whistler Server, Whistler Datacenter Server, Whistler Advanced Server for Intel Itanium 64-bit systems, or Whistler Datacenter Server for Intel Itanium 64-bit systems.

Compaq continues to test its server and cluster products with the Whistler Beta 2 release. At the time of publication, the information in this document was complete and accurate.

In addition to this Compaq integration note and for current information regarding the Whistler Beta 2 release, you might also visit the Compaq support page for Whistler at, <http://www5.compaq.com/partners/microsoft/whistler/index.html> and the Microsoft website <http://www.microsoft.com/>.

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Support of Whistler Beta 2 on Compaq ProLiant Cluster Servers and Solutions
Integration Notes prepared by High Availability Group

First Edition (March 2001)
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Introduction to Whistler Clustering

This document is focused on the 32-bit edition of Whistler Advanced Server cluster implementations. This document does not address Whistler Server, Whistler Datacenter Server, Whistler 64/Advanced Server, or Whistler 64/Datacenter Server.

The Whistler operating system has cluster functionality improvements over previous versions of Windows. The cluster services are no longer provided as an add-on component of the operating system. Instead, the cluster services are installed as part of the base operating system installation for the Advanced Server and Datacenter Server editions. In Whistler, a server cluster can consist of up to four nodes using Advanced Server, and up to eight nodes with Datacenter Server. You can use a shared SCSI or Fibre Channel device for cluster storage on two node server clusters running Whistler Advanced Server. For clusters with more than two nodes running Whistler Advanced Server you can only use Fibre Channel hardware on the shared storage bus.

Some of the new features offered by Whistler cluster services include:

- Improved cluster network monitoring
- Simplified cluster installation
- Generic Script resource
- 4-Node cluster support for Advanced Server
- 8-Node cluster support for Datacenter Server
- Central administration for creating and adding nodes to a cluster
- Feasibility analysis during the cluster setup process to ensure proper installation

Supported Products and Solutions

The following Compaq cluster products and solutions will be supported for use with the Whistler Advanced Server Beta 2 edition.

- ProLiant CL1850
- ProLiant CL380
- ProLiant HA/F100
- ProLiant HA/F500 Single Path Configurations

For more information about specific Compaq server and options support for Whistler Beta 2, please refer to the *Support of Whistler Beta 2 on Compaq Servers* white paper found on visit the Compaq support page for Whistler at <http://www5.compaq.com/partners/microsoft/whistler/index.html>.

Non-Supported Products and Solutions

The following Compaq cluster products and solutions will not be supported for use with the Whistler Advanced Server Beta 2 edition.

- ProLiant HA/F200
- ProLiant HA/F500 Enhanced Dual Path Configurations
- Compaq SANworks Secure Path for Windows Version 3.1
- Compaq SANworks Secure Path for Windows 2000 on RAID Array 4000/4100 Version 3.1

General Storage Configuration Tips

Drive Letter Assignment

Before adding or removing hardware from a cluster, make sure the drive letter assigned to the Whistler system partition (typically C or D) is fixed. The drive letter assignment must remain constant because references to this drive letter are recorded in the Whistler registry, and your cluster is affected by these references.

Consistent Drive Letters For Each Cluster Node

It is also necessary for drive letters on the cluster shared storage device to remain constant and for the drive letter assignments to be the same on each cluster node. In addition, drive letters for the cluster shared storage device must not conflict with any local drive letters.

Use Mountpoints To Access More Than 23 Devices

If you assign drive letters to the cluster shared storage devices, Whistler limits the total number of such devices to 23. Mounted drives are not subject to this limit, so you can use mounted drives to access more than 23 cluster shared storage devices in your cluster.

Installing Cluster Services

Since the cluster services are installed as part of the operating system, the user must simply configure the cluster service by setting up a cluster profile.

Adding Node1:

After the Whistler Advanced Server operating system has been installed, add Node1 to the cluster:

1. Open Cluster Administrator. To open Cluster Administrator, click **Start** → **Programs** → **Administrative Tools** → **Cluster Administrator**.
2. On the **File** menu, click **New**, and then click **Cluster**.
3. Once the Cluster Configuration wizard appears, step through the wizard to add Node1. Upon completion of the Cluster Configuration wizard, click **Finish**.
4. Reboot the Node.

IMPORTANT: It is of vital importance that you power on, start the operating system, and complete the configuration only on the first node in your cluster before you power on and add additional nodes to the cluster. If you start the operating system on a second server before the cluster is configured on the first node, the cluster disks can become corrupted.

Adding additional Nodes:

Note:

1. You must be an administrator on a node to add it to an existing cluster.
 2. You can safely cancel and restart the installation process.
 3. If the node you are logged onto is already a node in an existing cluster, Cluster Administrator will connect to that cluster by default.
-

To add additional nodes to the cluster:

1. Open Cluster Administrator. To open Cluster Administrator, click **Start**, point to **Programs**, point to **Administrative Tools**, and then click **Cluster Administrator**.

2. On the **File** menu, click **Open Connection** to connect to an existing cluster.
3. On the **File** menu, click **New**, then click **Node**.
4. The Add Cluster Computers wizard appears and displays a list of available nodes that you can join to the existing cluster.
5. To add nodes to the cluster, type the name of one or more nodes on the same domain, or click **Browse** to search for available nodes.
6. Upon completion of the Add Cluster Computers wizard, click **Finish**.

Removing Cluster Services

In Whistler Advanced Server Beta 2, the Cluster Administrator utility does not offer the ability to remove the cluster services from a node that is part of an existing cluster. This functionality will be included in the final version of Whistler. The following procedures will effectively remove the cluster services from a node in an existing cluster.

To remove the cluster services from a node:

1. Open a Command Prompt.
2. Type “cluster node /force”. This command will forcibly remove any cluster related services from the server node.
3. Repeat steps 1-2 on each node in which the cluster services must be removed.

Cluster Administration via Cluster.exe

The Cluster command is an alternative to using Cluster Administrator to administer clusters. You can also call Cluster.exe from command scripts to automate many cluster administration tasks. The cluster command is executed from a command prompt window and is used to create a new cluster or administer an existing cluster. Used without parameters, **cluster** displays help.

Syntax

cluster **[[/cluster:]cluster name] /option**

Parameters

cluster name **/create**

/ipaddr:*static IP address[,subnet mask,network connection name]*

/password:*password*

/domain:*domain name*

/node:*node name*

/user:*domain\username*

/verbose

Creates a cluster.

/create:*answerfile*

Creates a cluster using data from a file.

cluster name **/add:***nodename1, nodename2, ...*

/password:*password*

Adds one or more nodes to an existing cluster.

/rename:*cluster name*

Renames a cluster.

/version

Displays the Cluster service version number.

/quorum[resource][:resource name] [/path:path] [/maxlogsize:maximum size in kilobytes]

Changes the name or location of the quorum resource or the size of the quorum log.

/list:*[domain name]*

Displays a list of node in the computer's domain or a specified domain. Do not use the cluster name with this command-line option.

/properties *[property list]*

Views or sets cluster common properties.

/privproperties *[property list]*

Views or sets cluster private properties.

[cluster name] **node** *node name* **/forcecleanup**

Forcibly removes the cluster configuration from an evicted node.

Cluster Service Commands

You can use cluster service commands to troubleshoot or debug the cluster service from the command prompt. The cluster service command line can only be run locally from the cluster directory. The **clussvc** command should not be used under normal conditions, but only as a temporary diagnostic tool if the cluster service fails to start (e.g. a system-related error occurs).

The command line for starting the cluster service has the following syntax:

```
clussvc -debug [command]
```

The cluster service runs in the command prompt window and displays all output recorded in the cluster log in the window.

Cluster service command	Action
-debugresmon	Enables the debugging of the resource dynamic-link libraries (DLLs) that are loaded by the resource monitor process.
-fixquorum	Lets the cluster service start up despite problems with the quorum device.
-resetquorumlog	If the quorum log file is not found or is corrupted, creates a new quorum log file based on information in the local node's cluster database file. If the quorum log file is found and is not corrupted, this command has no effect.
-norepvtlogging	Allows no replication of event log entries.

Support Limitations for Whistler Advanced Server Beta 2 on ProLiant Clusters

The CR3500 Found New Hardware Popup Wizard appears after login

Product: CL380/CL1850

Solution: Perform the following:

1. Select "Install from a list or specific location (Advanced)".
2. Select "Don't search. I will choose the driver to install".
3. Select "SCSI and RAID Controllers" from the list of devices.
4. Select "Unknown Manufacturer" and "SCSI/RAID Host Controller".
5. Select YES at the Update Driver Warning Prompt.
6. Select Finish.

When using a Remote Insight Lights-Out board on any node in a CL380, the node can only operate in standard VGA (16 colors).

Product: CL380

Solution: The Remote Insight Lights-Out board must be installed in PCI slot 1 (the primary bus) in order to properly load the video driver.

The shared logical drives will not be seen from any node connected to an MA6000, MA8000, or EMA12000 storage box if the HSG60 or HSG80 storage controllers are set with SCSI-2 mode.

Product: HA/F500

Solution: To resolve this problem the HSG60/HSG80 storage controllers must be set to SCSI-3 mode. Please refer to the HSG60/HSG80 controller user guides for more information about configuring these controllers. Perform the following steps to ensure proper settings:

1. Connect to one of the HSG60/HSG80 storage controllers using a Hyperterminal session.
2. Type "Set this_controller SCSI_Version=SCSI-3" to change the controller SCSI mode to SCSI-3.
3. Type "Restart this_controller" to restart the controller (it takes about 1 minute to restart).
4. Type "Show this_controller" to display the controller settings.
5. Verify the controller is set to SCSI-3 mode.
6. Now move the maintenance cable to the other HSG60/HSG80 controller.

7. Open a Hyperterminal session.
8. Type "Set this_controller SCSI_Version=SCSI-3" to change the controller SCSI mode to SCSI-3.
9. Type "Restart this_controller" to restart the controller (it takes about 1 minute to restart).
10. Type "Show this_controller" to display the controller settings.
11. Verify the controller is set to SCSI-3 mode.

The Cluster Administrator incorrectly reacts to a private network fault condition in a 4-Node cluster. When the private (interconnect/heartbeat) network connection is removed from Node1 of a 4-Node cluster, all nodes except Node1 are marked as failed within Cluster Administrator.

Product: Microsoft Cluster Services

Solution: Compaq is working with Microsoft to resolve this issue.

When a fibre cable is removed from the active Host Bus Adapter (HBA) on one of the cluster nodes, the Cluster Administrator utility reports the node as failed (Red X on Node name). However, before the fault condition is repaired the Red X goes away. At this point the user is unaware that the cluster node is in a failed state.

Product: Microsoft Cluster Services

Solution: Compaq is working with Microsoft to resolve this issue.

The quorum resource does not allocate the cluster resources properly when simultaneously rebooting all nodes in the cluster.

Product: Microsoft Cluster Services

Solution: To avoid any potential problems, it has been recommended that the boot delay times on the Microsoft Cluster Services members be modified so that they are not the same. This will give one member enough time to allocate the quorum resource in the event of a simultaneous reboot of all the nodes in the cluster.