



OceanStor UltraPath 21.1.0 Release Notes

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Change History

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01	2018-03-06	This issue is the first official release.

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1 Version Requirements

This chapter describes the version mappings of the operating systems, HBA, or network adapters used on hosts, and storage products.

- [1.1 Product Version](#)
- [1.2 Related Storage System Product Versions](#)
- [1.3 OS Versions](#)
- [1.4 Virus Scan Result](#)

1.1 Product Version

Table 1-1 product version

Product Name	UltraPath
Product Version	21.1.0

1.2 Related Storage System Product Versions

See the *OceanStor UltraPath 21.1.0 Version Configuration Information Form 01.xls*.

1.3 OS Versions



NOTE

For details about supported operating systems, see the interoperability matrix specific to your storage product.

1.3.1 UltraPath for AIX

Table 1-2 Operating system versions

AIX Operating System	Supported Ports	Remarks
AIX 5300-03 and their later versions	Fibre Channel	In SAN Boot situation: 5300-08 need to install patch IZ66562; 5300-09 need to install patch IZ64005; 5300-10 need to install patch IZ64011; 5300-11 need to install patch IZ65325; 5300-12 need to install patch IZ65775.
AIX 6100-00 and their later versions	Fibre Channel	In SAN Boot situation: 6100-01 need to install patch IZ71807; 6100-02 need to install patch IZ64000; 6100-03 need to install patch IZ63159; 6100-04 need to install patch IZ64133; 6100-05 need to install patch IZ65870; 6100-06 need to install patch IZ66023.
AIX 7100-00 and their later versions	Fibre Channel	None.
AIX 7200-00 and their later versions	Fibre Channel	None.

Log on the website below to view the compatibility list:

<http://support-open.huawei.com/ready/pages/user/compatibility/support-matrix.jsf>

1.3.2 UltraPath for Windows

Table 1-3 Operating system versions

OS Version	Supported Ports	Remarks
Windows Server 2003 (X86/X64) SP2	Fibre Channel/iSCSI	If MSCS is required, the OS should have Service Pack 2.

OS Version	Supported Ports	Remarks
Windows Server 2003 R2 (X86/X64) SP2	Fibre Channel/iSCSI	Install a corresponding patch for the network adapter if iSCSI networking is adopted. Click http://support.microsoft.com/kb/970658 to download the patch.
Windows Server 2008 (X86/X64) SP1/SP2	Fibre Channel/iSCSI/F CoE	Install a corresponding patch for the network adapter if iSCSI networking is adopted. Click http://support.microsoft.com/kb/970658 to download the patch.
Windows Server 2008 R2 X64 SP1	Fibre Channel/iSCSI/F CoE	None
Windows 7 (X86/X64) SP1	Fibre Channel	None
Windows 8 (X86/X64)	Fibre Channel/iSCSI	None
Windows 8.1 (X86/X64)	Fibre Channel/iSCSI	None
Windows Server 2012 X64	Fibre Channel/iSCSI/F CoE	None
Windows Server 2012 R2 X64	Fibre Channel/iSCSI/F CoE	None
Windows Server 2016 X64	Fibre Channel/iSCSI/F CoE	None
Windows Small Business Server 2011 X64	Fibre Channel/iSCSI	None
Windows Server 2008 Core (X86/X64)	Fibre Channel/iSCSI/F CoE	None
Windows Server 2008 R2 Core X64	Fibre Channel/iSCSI/F CoE	None
Windows Server 2012 Core X64	Fibre Channel/iSCSI/F CoE	None
Windows Server 2016 Core X64	Fibre Channel/iSCSI/F CoE	None

1.3.3 UltraPath for Solaris

Table 1-4 Operating system versions

Operating System Version	Supported Ports	Remark
Solaris 10	Fibre Channel	Solaris 10 8/07 U4 or a later version (for the Sparc architecture) is supported.
Solaris 11 11/11	Fibre Channel	Sparc architecture
Solaris 11.1	Fibre Channel	Sparc architecture
Solaris 11.2	Fibre Channel	Sparc architecture
Solaris 11.3	Fibre Channel	Sparc architecture

1.3.4 UltraPath for Linux

Table 1-5 Operating system versions

Operating System Name	Supported Ports	Remark
SLES 9 SP2 (x86)	Fibre Channel/iSCSI/FCoE	The operating system only supports 201 kernel.
SLES 9 SP3 (x86, x86_64)	Fibre Channel/iSCSI/FCoE	None
SLES 9 SP4 (x86, x86_64)	Fibre Channel/iSCSI/FCoE	None
SLES 10 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
SLES 10 SP1(x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
SLES 10 SP2(x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
SLES 10 SP3(x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
SLES 10 SP4(x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
SLES 11(x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
SLES 11 SP1(x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
SLES 11 SP2(x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
SLES 11 SP3(x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
SLES 11 SP4(x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
SLES 12(x86_64)	Fibre Channel/iSCSI/FCoE	None
SLES 12 SP1(x86_64)	Fibre Channel/iSCSI/FCoE	None

Operating System Name	Supported Ports	Remark
SLES 12 SP2(x86_64)	Fibre Channel/iSCSI/FCoE	None
SLES 12 SP3(x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 4.4(x86, x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 4.5(x86, x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 4.6(x86, x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 4.7(x86, x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 4.8(x86, x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 5(x86, x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 5.1(x86, x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 5.2(x86, x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 5.3(x86, x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 5.4(x86, x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 5.5(x86, x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 5.6(x86, x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 5.7(x86, x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 5.8(x86, x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 5.9(x86, x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 5.10(x86, x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 5.11(x86, x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 6(x86, x86_64)	Fibre Channel/iSCSI/FCoE	None

Operating System Name	Supported Ports	Remark
RedHat Enterprise Server 6.1(x86, x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 6.2(x86, x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 6.3(x86, x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 6.4(x86, x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 6.5(x86, x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 6.6(x86, x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 6.7(x86, x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 6.8(x86, x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 6.9(x86, x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 7(x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 7.1(x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 7.2(x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 7.3(x86_64)	Fibre Channel/iSCSI/FCoE	None
RedHat Enterprise Server 7.4(x86_64)	Fibre Channel/iSCSI/FCoE	None
CentOS 5 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
CentOS 5.1 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
CentOS 5.2 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
CentOS 5.3 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
CentOS 5.4(x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
CentOS 5.5 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
CentOS 5.6 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
CentOS 5.7 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
CentOS 5.8 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None

Operating System Name	Supported Ports	Remark
CentOS 5.9 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
CentOS 5.10 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
CentOS 5.11 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
CentOS 6 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
CentOS 6.1 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
CentOS 6.2 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
CentOS 6.3 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
CentOS 6.4 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
CentOS 6.5 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
CentOS 6.6 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
CentOS 6.7 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
CentOS 6.8 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
CentOS 6.9 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
CentOS 7 (x86_64)	Fibre Channel/iSCSI/FCoE	None
CentOS 7 .1 (x86_64)	Fibre Channel/iSCSI/FCoE	None
CentOS 7 .2 (x86_64)	Fibre Channel/iSCSI/FCoE	None
CentOS 7 .3 (x86_64)	Fibre Channel/iSCSI/FCoE	None
Asianux Server 2.0 SP2 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	release version:Asianux release 2.0 (Trinity SP2)
Asianux Server 2.0 SP3 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	release version:Asianux release 2.0 (Trinity SP3)
Asianux Server 3 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	release version:Asianux Server 3 (Quartet)
Asianux Server 3.0 SP1 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	release version:Asianux Server 3 (Quartet SP1)
Asianux Server 3.0 SP2 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	release version:Asianux Server 3 (Quartet SP2)

Operating System Name	Supported Ports	Remark
Asianux Server 3.0 SP3 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	release version:Asianux Server 3 (Quartet SP3)
Asianux Server 3.0 SP4 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	release version:Asianux Server 3 (Quartet SP4)
Asianux Server 4 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	release version:Asianux Server 4 (Hiranya)
Asianux Server 4.1 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	release version:Asianux Server 4 (Hiranya SP1)
Asianux Server 4.2 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	release version:Asianux Server 4 (Hiranya SP2)
Asianux Server 4.4 (x86_64)	Fibre Channel/iSCSI/FCoE	release version:Asianux Server 4 (Hiranya SP4)
Kylin 3.0 (x86_64)	Fibre Channel/iSCSI/FCoE	release version:Kylin release 3.0
NeoKylin 3.2.1 (x86_64)	Fibre Channel/iSCSI/FCoE	release version:NeoKylin 3.2.1 (Carambola)
NeoKylin 3.2.2 (x86_64)	Fibre Channel/iSCSI/FCoE	release version:NeoKylin 3.2.2 (Carambola)
NeoKylin 3.2.3 (x86_64)	Fibre Channel/iSCSI/FCoE	release version:NeoKylin Linux Server release 3.2 (Carambola)
NeoKylin 3.2.4 (x86_64)	Fibre Channel/iSCSI/FCoE	release version:NeoKylin Linux Server release 3.2 (Carambola) release:KYLIN release 3

Operating System Name	Supported Ports	Remark
		(Carambola)
NeoKylin 3.2.5 (x86_64)	Fibre Channel/iSCSI/FCoE	release version:NeoKylin release 3.2 (Carambola)
NeoKylin 3.2.8 (x86_64)	Fibre Channel/iSCSI/FCoE	release version:NeoKylin release 3.2 (Carambola) kernel version:2.6.32-642.k b5.ky3.x86_64
NeoKylin 6.5 (x86_64)	Fibre Channel/iSCSI/FCoE	release version:NeoKylin Linux Advanced Server release 6.5 (Beryllium)
NeoKylin 6.7 (x86_64)	Fibre Channel/iSCSI/FCoE	release version:NeoKylin Linux Advanced Server release 6.7 (magnesium)
NeoKylin 6.8 (x86_64)	Fibre Channel/iSCSI/FCoE	release version:NeoKylin Linux Advanced Server release 6.8 (Calcium) kernel version:2.6.32-642.e l6.x86_64
NeoKylin 7.2 (x86_64)	Fibre Channel/iSCSI/FCoE	release version:NeoKylin Linux Advanced Server release V7Update2 (Potassium)
Kylin Trusted V6.0 (x86_64)	Fibre Channel/iSCSI/FCoE	release version:NeoKylin Linux Trusted OS V6.0 (Final) kernel version: 2.6.32-504.el6.x86_64
Rocky4.2.35 (x86_64)	Fibre Channel/iSCSI/FCoE	None

Operating System Name	Supported Ports	Remark
Rocky4.2.39 (x86_64)	Fibre Channel/iSCSI/FCoE	None
Rocky4.2.40 (x86_64)	Fibre Channel/iSCSI/FCoE	None
Rocky6.0.3 (x86_64)	Fibre Channel/iSCSI/FCoE	None
Rocky6.0.60.4 (x86_64)	Fibre Channel/iSCSI/FCoE	kernel version:2.6.32-5-lin x-amd64
iSoft 3.0 SP1(x86_64)	Fibre Channel/iSCSI/FCoE	kernel version:2.6.32-504.e l6.isoft.x86_64 / 2.6.32-696.3.2.el6.1. x86_64
deepin 15(x86_64)	Fibre Channel/iSCSI/FCoE	None
EulerOS 2.2(x86_64)	Fibre Channel/iSCSI/FCoE	kernel version:3.10.0-327.4 4.58.35.x86_64 / 3.10.0-327.55.58.94. h9.x86_64
EulerOS 2.2(aarch64)	iSCSI	kernel version:4.1.38-05.34 .vhulk1702.1.1.aarc h64
Oracle Linux5.7 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
Oracle Linux5.8 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
Oracle Linux5.9 (x86,x86_64)	Fibre Channel/FCoE	None
Oracle Linux5.10 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
Oracle Linux5.11 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
Oracle Linux6.1 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
Oracle Linux6.2 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
Oracle Linux6.3 (x86_64)	Fibre Channel/iSCSI/FCoE	None
Oracle Linux6.4 (x86_64)	Fibre Channel/iSCSI/FCoE	None
Oracle Linux6.5 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
Oracle Linux6.6 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
Oracle Linux6.7 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
Oracle Linux6.8 (x86,x86_64)	Fibre Channel/iSCSI/FCoE	None
Oracle Linux6.9 (x86_64)	Fibre Channel/iSCSI/FCoE	None
Oracle Linux7 (x86_64)	Fibre Channel/iSCSI/FCoE	None

Operating System Name	Supported Ports	Remark
Oracle Linux7.1 (x86_64)	Fibre Channel/iSCSI/FCoE	None
Oracle Linux7.2 (x86_64)	Fibre Channel/iSCSI/FCoE	None
Oracle Linux7.3 (x86_64)	Fibre Channel/iSCSI/FCoE	None

For an actual operating system, run the **uname -a** command to check whether it is 32- or 64-bit.

1.3.5 UltraPath for vSphere

Table 1-6 Operating system versions

Operating System Name	Supported Ports	Remark
vSphere 5.0	Fibre Channel/iSCSI	None
vSphere 5.1	Fibre Channel/iSCSI	None
vSphere 5.5	Fibre Channel/iSCSI	None
vSphere 6.0	Fibre Channel/iSCSI	None
vSphere 6.5	Fibre Channel/iSCSI	None

1.3.6 UltraPath for FusionSphere

Table 1-7 Operating system versions

Operating System Name	Supported Ports	Remark
UVPV2R1C00	Fibre Channel/iSCSI/FCoE	The operating system supports xen/default kernel.
UVPV2R2C00	Fibre Channel/iSCSI/FCoE	The operating system supports xen/default kernel.
UVPV2R3C00	Fibre Channel/iSCSI/FCoE	None
UVPV2R5C00	Fibre Channel/iSCSI/FCoE	None

1.4 Virus Scan Result

The package and supporting documents is scanned by Symantec, McAfee, Kav, Avira and OSCE virus software, found no virus. The details are as follows:

Antivirus Software Name	Antivirus Software Version	Antivirus Database Version	When to Scan	Result
Kav	10.2.5.3201	20180112-060510	2018-01-12 10:15:47.293	OK
McAfee	5900:7806	8771:0	2018-01-12 10:15:47.293	OK
Avira	8.03.48.142	7.14.42.240	2018-01-12 10:18:29.236	OK
Symantec	12.1.7004.6500	2018-01-10r8	2018-01-12 10:15:47.293	OK
OSCE	9.850.1008	1389700	2018-01-12 10:15:37.262	OK

2 Version Compatibility

This chapter describes the compatibility between the earlier versions and the current version in Table 2-1.

Table 2-1 Version compatibility

Target Version	Source Version	Compatibility with Live Network Products
OceanStor UltraPath for Linux 21.1.0	OceanStor UltraPath for Linux V100R008C00 and SPC version OceanStor UltraPath for Linux V100R008C20 and SPC version OceanStor UltraPath for Linux V100R008C30 and SPC version OceanStor UltraPath for Linux V100R008C50 and SPC version OceanStor UltraPath for Linux 21.0.1 and RC version OceanStor UltraPath for Linux 21.0.2	N/A
OceanStor UltraPath for AIX 21.1.0	OceanStor UltraPath for AIX V100R008C00 and SPC version OceanStor UltraPath for AIX V100R008C20 and SPC version OceanStor UltraPath for AIX V100R008C30 and SPC version OceanStor UltraPath for AIX V100R008C50 and	N/A

Target Version	Source Version	Compatibility with Live Network Products
	SPC version OceanStor UltraPath for AIX 21.0.1 and RC version OceanStor UltraPath for AIX 21.0.2	
OceanStor UltraPath for Solaris 21.1.0	OceanStor UltraPath for Solaris V100R008C00 and SPC version OceanStor UltraPath for Solaris V100R008C20 and SPC version OceanStor UltraPath for Solaris V100R008C30 and SPC version OceanStor UltraPath for Solaris V100R008C50 and SPC version OceanStor UltraPath for Solaris 21.0.1 and RC version OceanStor UltraPath for Solaris 21.0.2	N/A
OceanStor UltraPath for Windows 21.1.0	OceanStor UltraPath for Windows V100R008C00 and SPC version OceanStor UltraPath for Windows V100R008C20 and SPC version OceanStor UltraPath for Windows V100R008C30 and SPC version OceanStor UltraPath for Windows V100R008C50 and SPC version OceanStor UltraPath for Windows 21.0.1 and RC version OceanStor UltraPath for Windows 21.0.2	N/A
OceanStor UltraPath for vSphere 21.1.0	OceanStor UltraPath for vSphere V100R008C00 and SPC version OceanStor UltraPath for vSphere V100R008C20 and SPC version	N/A

Target Version	Source Version	Compatibility with Live Network Products
	<p>OceanStor UltraPath for vSphere V100R008C30 and SPC version</p> <p>OceanStor UltraPath for vSphere V100R008C50 and SPC version</p> <p>OceanStor UltraPath for vSphere 21.0.1 and RC version</p> <p>OceanStor UltraPath for vSphere 21.0.2</p>	

3

Notes and Cautions for Using the Version

- [3.1 UltraPath for AIX](#)
- [3.2 UltraPath for Windows](#)
- [3.3 UltraPath for Solaris](#)
- [3.4 UltraPath for Linux](#)
- [3.5 UltraPath for vSphere](#)
- [3.6 UltraPath for FusionSphere](#)

3.1 UltraPath for AIX

Table 3-1 Notes and cautions for using the version

No.	Caution Item	Description
1	Before UltraPath installation	Ensure that an HBA compatible with the UltraPath driver is installed on the host. A host supports HBAs from different vendors and various models from each vendor. On each server, however, the same model of HBAs from the same vendor should be installed.
2	Before UltraPath installation	If the host is connected to a storage device, and restarts or the cfgmgr command is run to scan disks, you need to delete the physical disks reported from the storage device before installation.
3	After UltraPath installation	On a SAN, if you change attribute fc_err_recov of the HBA to fast_fail after installation, it is recommended that you also change attribute dyntrk to yes . Before changing an attribute of the HBA, you must delete the devices under the card.
4	UltraPath uninstallation	You must delete virtual disks before uninstallation.
5	Virtual disk scanning	If you fail to view the disks connected to the

No.	Caution Item	Description
		system using the lspv command after running the cfgmgr command to scan disks, run the lsdev grep disk command to list all the disks, run the rmdev -dl disk name command to delete all the disks except the system disk, and then run the cfgmgr command to scan disks.
6	HBA compatibility	When you start a switch or insert or remove an optical cable, the optical port of the AIX host connected to the switch is abnormal, or the HBA port of the host is abnormal. This is caused by incompatibility between the AIX host and the HBA. Specifically, the microcode of the HBA is not in the latest version or is incompatible with the host. This problem seldom recurs when the HBA is delivered along with the AIX host and the microcode is in the latest version.
7	LUN mapping operation	In the storage device side, removed or replaced LUN mapping, modify the host LUN id, you must first delete the corresponding virtual disk in host side, then re-scan disk; If not removed virtual disk before scan disk, may cause the LUN read information is not normal in host-side;
8	Virtual disk scanning	If remove the fiber and inserted into the other port, you must first delete the original port mapping of the path, and then re-scan path using the cfgmgr ; Must be noted that if all the fiber ports have been changed to other port, you must delete the virtual disk, then re-scan disk using the cfgmgr . If not delete the original port mapping path or virtual disk, perform cfgmgr may cause the system to hang or cannot generate a new link.
9	UltraPath upgrade	When update from lower version to the current version, if the virtual disk drive letter is updiskX, and the host not use LVM or VxVM manage the virtual disk, you must modify the configuration of application for identify the new disk drive letter (hdiskX).
10	Path status	Ensure that the physical connection is normal and run lspath to check that the status of the normal path is Enabled before the service is started. If the status of the normal path of the disk is Failed , run chpath -l hdiskX -s enable to change the status to Enabled . If the status change failed, check the physical connection.
11	Path exception alarming	In the event that the UltraPath is installed and services are running, you are not allowed to terminate the alarm_server process by running the kill -9 XXX command or in any other ways. If the alarm_server process is terminated, path

No.	Caution Item	Description
		disconnection alarms may be automatically cleared, preventing users from receiving path disconnection alarm notifications.
12	File deletion	After the UltraPath is successfully installed, do not manually delete <code>/usr/lib/methods/UltraPath_pcmrtl,/usr/lib/drivers/UltraPath_pcmke,/usr/lib/drivers/UltraPath_pcmextA,/etc/up.conf,/etc/user_cfg.xml,/usr/lib/drivers/UltraPath_pcmextB</code> . Otherwise, the operating system may fail to work properly.
13	Use of commands	To prevent system resources from being excessively occupied by too many commands, UltraPath sets a limit on the number of commands used concurrently. To be more specific, the number cannot be more than 16. When the number of commands used concurrently exceeds this limit, the following message will be displayed: system is busy now, please try again later!

3.2 UltraPath for Windows

Table 3-2 Notes and cautions for using the version

No.	Caution Item	Description
1	Requirements for HBAs	Make sure the HBAs installed on the server is supported by the UltraPath for Windows driver. Only HBAs of the same model from the same manufacturer can be installed on a host. Make sure to the disable failover and fallback functions of HBAs.
2	Existence of physical LUNs	Make sure the HBA driver is properly installed before installing the UltraPath for Windows driver. The physical LUNs should be correctly detected even without the UltraPath. If the physical LUNs cannot be detected, uninstall the HBA driver and then reinstall it. Make sure the HBA driver does not bring a PnP problem.
3	Windows patches	Make sure patch SP2 for Windows Server 2003 had been installed. Make sure patch SP1 for Windows 7 had been installed.
4	Notes and cautions for using the	The version of iSCSI with 2.08 can be suggestion

No.	Caution Item	Description
	iSCSI	and the UltraPath driver of the iSCSI cannot be installed when installing the initiator.
5	Requirements for installing, uninstalling, and upgrading the UltraPath	Restart the computer after the UltraPath is installed or uninstalled. Upgrade the UltraPath as prompted.
6	Software requirements for UltraPath management	JRE and JAR files are required for the UltraPath. They are automatically loaded to the system after installation and cannot be manually deleted.
7	User permission for installing the UltraPath	A user who needs to install and use the UltraPath must have the administrator's permissions.
8	Alarm Management	You can clear the alarm manually. However, if the fault persists, the alarm will continue to be generated. The alarm file cannot be modified.
9	Log backup	Both kernel logs and history alarms support dumping. If the capacity in drive C is insufficient, the dumping function will be affected. Users can delete dumping files manually.
10	Compatibility problem	You cannot upgrade from version V100R003 to the current version.
11	Use of commands	To prevent system resources from being excessively occupied by too many commands, UltraPath sets a limit on the number of commands used concurrently. To be more specific, the number cannot be more than 16. When the number of commands used concurrently exceeds this limit, the following message will be displayed: system is busy now, please try again later!

3.3 UltraPath for Solaris

Table 3-3 Notes and cautions for using the version

No.	Caution Item	Description
1	Requirements for HBAs	Make sure that an HBA supported by UltraPath for Solaris is installed on the server. HBAs installed on one host must be of the same model from the same vendor. UltraPath for Solaris is incompatible with the HBA that supports failover/failback.

No.	Caution Item	Description
2	Existence of physical LUNs	Before you install UltraPath for Solaris, ensure that an HBA is properly installed. Even though there is no UltraPath for Solaris installed, physical LUNs still need to be detected. If physical LUNs cannot be detected, reinstall the HBA to prevent problems caused by PNP.
3	Requirements for installing, uninstalling, and upgrading the UltraPath	After installing or uninstalling UltraPath for Solaris, you need to restart the system to take the operation effect. After uninstalling UltraPath for Solaris, do not reinstall it immediately. Reinstall it after the system restarts. Perform operations as prompted after upgrading UltraPath.
4	Detection of LUN changes	You can run <i>upRescan</i> to manually refresh UltraPath for LUN changes such as adding/deleting a LUN and setting a controller online/offline.
5	Requirements on the host	The installation package can only be installed on Solaris 10 or Solaris 11 that supports a sparc architecture.
6	Compatibility with third-party multipathing software	UltraPath for Solaris is compatible with the Solaris-supplied STMS. Install PowerPath before UltraPath for Solaris; otherwise, UltraPath for Solaris may be unavailable.
7	purview	Users must use the root account originally built in the system to install or uninstall.
8	Alarm Management	You can clear the alarm manually. However, if the fault persists, the alarm will continue to be generated. The alarm file cannot be modified.
9	Log backup	Both kernel logs and history alarms support dumping. If the capacity in the <i>/opt/</i> directory is insufficient, the dumping function will be affected. Users can delete dumping files manually.
10	upgrade	You cannot upgrade from version V100R003 to the current version.
11	Use of commands	To prevent system resources from being excessively occupied by too many commands, UltraPath sets a limit on the number of commands used concurrently. To be more specific, the number cannot be

No.	Caution Item	Description
		<p>more than 16.</p> <p>When the number of commands used concurrently exceeds this limit, the following message will be displayed: system is busy now, please try again later!</p>

3.4 UltraPath for Linux

Table 3-4 Notes and cautions for using the version

No.	Caution Item	Description
1	HBA model	Make sure that HBAs on the server are supported by the UltraPath driver.
2	HBA driver	<p>Before users install the UltraPath, make sure that the HBA driver has been installed. If the driver supports failover, configure the driver to work in NON-Failover mode.</p> <p>The following describes standard HBA drivers:</p> <p>For QLogic HBAs, the standard and host drivers are qla2xxx and qla2300 respectively.</p> <p>For LSI Logic HBAs, the port driver is mptbase, and the host driver is mptscsi or mptscsih by version.</p> <p>For IBM Emulex HBAs, the standard driver is lpfcdd or lpfc by version.</p> <p>For Emulex HBAs, the standard driver is lpfcdd or lpfc by version.</p>
3	File system	<p>Users are recommended to use reiserfs file systems on SLES.</p> <p>For RedHat, Ext3 file systems are recommended.</p> <p>NOTE</p> <ul style="list-style-type: none"> Given Ext2 file systems may become unresponsive during file copying, users are recommended to use Ext3 file systems. For RedHat Ext3 file systems, removing all the cables interrupts I/Os and may damage those file systems. If this happens, users need to reconstruct them.
4	Fibre Channel driver for RedHat AS 4.4	<p>On RedHat AS 4.4 (with kernel 2.6.9-42.ELsmp), the default version of the employed QLogic Fibre Channel QLA2340 driver is 8.01.04-d7. However, the dynamic LUN scanning script for that driver contains a bug, which disables the UltraPath upRescan function.</p> <p>To fix the bug, download the qla2xxx-v8.01.07.15 version of QLA driver from the QLogic official website http://driverdownloads.qlogic.com/QLogicDriverDownloads_UI/d</p>

No.	Caution Item	Description
		efault.aspx for upgrade.
5	iSCSI port on RedHat AS 4 or SLES 9 SP4	<p>Check that an iSCSI initiator has been installed by running the following command:</p> <pre># rpm -qa grep iscsi</pre> <p>For example, the output is linux-iscsi-4.0.1-88.26.</p> <p>Edit the /etc/iscsi.conf file:</p> <p>DiscoveryAddress=xxx (service IP address by port)</p> <p>Multipath=portal</p> <p>ConnFailTimeout=1</p> <p>If users stop the iSCSI service by running the /etc/init.d/iscsi stop or service iscsi stop command, run the rmmod scsi_transport_iscsi command additionally. Running only the /etc/init.d/iscsi start or service iscsi start command to restart the iSCSI service may incur Oops errors on the scsi_transport_iscsi module.</p>
6	Using iSCSI on SLES 9 SP3	<p>Due to iSCSI initiators' own flaws, the UltraPath dynamic LUN scanning function limits the upadm start hotscan command to refresh only virtual LUNs while physical LUNs must be refreshed by iSCSI initiators. For this reason, users must run rciscsi reload and then upadm start hotscan commands when adding or removing LUN mappings and run rciscsi restart and then upadm start hotscan commands, which interrupt services, when changing LUN mappings.</p> <p>Note that changing LUN mappings here refers to three steps: create a mapping for a host, remove the created mapping without refreshing mapping information on the host, and create another mapping for the same host.</p>
7	iSCSI port	<p>Set the iSCSI service as a system service by running the chkconfig --add open-iscsi or chkconfig --add iscsi command. If users have to manually start the iSCSI service on SLES 10, stop the service by running the /etc/init.d/open-iscsi stop or /etc/init.d/iscsi stop command before powering off the operating system; otherwise, users may encounter power-off failures.</p>
8	iSCSI port on RedHat AS 5 series	<ol style="list-style-type: none"> 1. Upgrade the iSCSI driver to version 2.0-870.3. 2. Follow additional iSCSI usage instructions, which are the same as those on SLES 10.
9	iSCSI port on RedHat AS 5	<ol style="list-style-type: none"> 1. Run the /etc/init.d/iscsi restart stop start rather than the open-iscsi restart stop start command to control iSCSI initiators. 2. Retain the accompanying iSCSI initiator and follow additional iSCSI usage instructions, which are the same as those on SLES 10.
10	Running the upadm start hotscan command on	<p>The default driver version of the QLogic Fibre Channel QLE2462 used on Red Flag DC Server Release 5.0 (kernel version 2.6.9-42.7) is 8.01.04-d7. The dynamic scanning LUN interface of this driver is faulty, which prevents the upadm start hotscan</p>

No.	Caution Item	Description
	Red Flag DC Server release 5.0	<p>function from functioning properly.</p> <p>To fix the bug, download the qla2xxx-v8.01.07.15 version of QLA driver from the QLogic official website http://driverdownloads.qlogic.com/QLogicDriverDownloads_UI/default.aspx for upgrade.</p> <p>Additionally, when the system resource usage is high (for example when the I/O traffic is heavy) on that operating system, make sure that users can scan for complete information about physical and virtual LUNs by running the upadm start hotscan command. If this is false, repeat running that command until users obtain complete information about both types of LUNs.</p>
11	Fibre Channel port and QLogic driver on SLES 10 SP3	<p>Given the QLogic driver accompanied with SLES 10 SP3 contains flaws, users cannot enjoy failback after restarting controllers and suffer from the following disadvantages after upgrading the driver to version 8.02.23:</p> <ol style="list-style-type: none"> 1. Adding paths or removing and reinserting cables does not enable automatic LUN scanning. 2. Swapping cables or manually scanning for LUNs incurs bus reset or host reset errors. 3. Connecting the same port to different storage systems incurs mapping disorder. <p>To fix those bugs, upgrade the QLogic HBA driver to v8.03.01.13.10.3-k4, which is available on the QLogic official website.</p> <p>SLES 10 SP3 also supports Emulex HBAs, which are free of the preceding bugs.</p>
12	Fibre Channel port and QLogic driver on Asianux 2.0 SP4	<p>Asianux 2.0 SP4 uses the 2.6.9-89.5 version of RedHat 4.8 kernel. Due to the flaws of the accompanying QLogic driver, running the upRescan command scans for incomplete LUNs.</p> <p>To fix the bug, upgrade the QLogic driver from version 8.02.09.02.04.08-d to 8.02.23, which is available on the QLogic official website.</p>
13	Use of commands	<p>To prevent system resources from being excessively occupied by too many commands, UltraPath sets a limit on the number of commands used concurrently. To be more specific, the number cannot be more than 16.</p> <p>When the number of commands used concurrently exceeds this limit, the following message will be displayed:</p> <p>system is busy now, please try again later!</p>

3.5 UltraPath for vSphere

Table 3-5 Notes and cautions for using the version

No.	Caution Item	Description
1	Use of commands	<p>To prevent system resources from being excessively occupied by too many commands, UltraPath sets a limit on the number of commands used concurrently. To be more specific, the number cannot be more than 16.</p> <p>When the number of commands used concurrently exceeds this limit, the following message will be displayed: system is busy now, please try again later!</p>
2	Security	<p>Default security protocols configured for vCenter 6.x include SSLv3. In this case, security risks exist. Therefore, you are advised to select the TLS security protocol.</p>

3.6 UltraPath for FusionSphere

Table 3-6 Notes and cautions for using the version

No.	Caution Item	Description
1	Use of commands	<p>To prevent system resources from being excessively occupied by too many commands, UltraPath sets a limit on the number of commands used concurrently. To be more specific, the number cannot be more than 16.</p> <p>When the number of commands used concurrently exceeds this limit, the following message will be displayed: system is busy now, please try again later!</p>
2	HBA model	<p>Make sure that HBAs on the server are supported by the UltraPath driver.</p>

4 UltraPath 21.1.0 Feature Description

This chapter describes updates in different versions of the UltraPath.

If this chapter does not describe updates in an official version, the version is the same as the last version.

[4.1 What's New](#)

[4.2 Resolved Issues](#)

[4.3 Known Issues](#)

4.1 What's New

This chapter describes improvements of functions and features in UltraPath 21.1.0.

This version inherits all features in UltraPath 21.0.1.

4.1.1 New Features

New Features

No.	Description	Purpose
1	The column No. of Paths (Available/Total) is added to the output of the show vlun command.	After running the show vlun command, you can check the number of available logical paths and total number of logical paths.
2	UltraPath supports the EFI boot mode on Linux operating systems.	Supports EFI boot mode of UltraPath on Linux operating systems to expand application scope of UltraPath. Supported Linux operating systems: RHEL 6.0 (64-bit) and later, Oracle Linux 6.0 (64-bit) and later, CentOS 6.0 (64-bit) and later, SUSE 11 SP0 (64-bit) and later, and Euler OS 2SP2 (64-bit) .
3	Batch configure primary array of	On FusionSphere OpenStack, you can batch configure primary array of HyperMetro to improve usability.

No.	Description	Purpose
	HyperMetro On FusionSphere OpenStack.	
4	Round robin load balance path selection algorithm is added for HyperMetro arrays	Absolute balance of load between HyperMetro arrays can be achieved without strong dependency on LBA addresses.
5	CLI association function of UltraPath	CLI commands for UltraPath can be automatically associated on Windows, Linux, AIX, and Solaris platforms. The functions are as follows: Tab for automatic association, Up/Down key for displaying history commands, Left and right arrow keys for moving the cursor, Backspace/Delete key for deleting a character.
6	The Linux operating system supports creating disk aliases	The Linux operating system supports creating aliases for disks taken over by UltraPath. Supported Linux operating systems: RHEL 6.0 and later, Oracle Linux 6.0 and later, CentOS 6.0 and later, SUSE 11 SP0 and later.

4.1.2 Modified Features

Modified Features

No.	Description	Cause	Impact
1	Supports CENTOS 6.9, REDHAT 6.9	New requirements.	N/A
2	Supports Rocky 6.0.60.4	New requirements.	N/A
3	Supports Kylin Trusted V6.0	New requirements.	N/A
4	Supports EulerOS 2.2	New requirements.	N/A
5	Supports kernel of Isoft 3.0 SP1 upgraded to 2.6.32-696.3.2.el6.1.x86_64	New requirements.	N/A
6	Supports Kylin 3.2.8.x86_64	New requirements.	N/A
7	Supports Euler2SP2RC3.aarch64	New requirements.	N/A
8	Supports REDHAT 7.4	New requirements.	N/A
9	Supports Kylin 6.8	New requirements.	N/A
10	Supports ORACLE6.9.x86_64	New requirements.	N/A
11	Supports SUSE12SP3.x86_64	New requirements.	N/A

No.	Description	Cause	Impact
12	Supports UVPV2R5C00	New requirements.	N/A
13	Disables the function of recording important I/O delay events by default. Users can enable this function as required.	Internal optimization.	N/A

4.1.3 Deleted Features

None.

4.2 Resolved Issues

None.

4.3 Known Issues

None.

5

UltraPath 21.0.2 Feature Description

This chapter describes updates in different versions of the UltraPath.

If this chapter does not describe updates in an official version, the version is the same as the last version.

[5.1 What's New](#)

[5.2 Resolved Issues](#)

[5.3 Known Issues](#)

5.1 What's New

This chapter describes improvements of functions and features in UltraPath 21.0.2.

This version inherits all features in UltraPath 21.0.1.

5.1.1 New Features

New Features

None.

5.1.2 Modified Features

Modified Features

None.

5.1.3 Deleted Features

Deleted Features

None.

5.2 Resolved Issues

No.	Description	Cause	Impact
1	The compatibility problem between 21.0.1 version UltraPath and Oracle 6.8, Oracle6.9, Oracle 7.3, Suse12 SP2 systems.	Bug fix.	System crash.

5.3 Known Issues

None.

6 UltraPath 21.0.1 Feature Description

This chapter describes updates in different versions of the UltraPath.

If this chapter does not describe updates in an official version, the version is the same as the last version.

[6.1 What's New](#)

[6.2 Resolved Issues](#)

[6.3 Known Issues](#)

6.1 What's New

This chapter describes improvements of functions and features in UltraPath 21.0.1.

This version inherits all features in UltraPath V100R008C50.

6.1.1 New Features

New Features

No.	Description	Purpose
1	Proactively replace FRUs without affecting services.	Services are not affected if FRU components are replaced using the tool.
2	LUN information query tool.	Used to query LUN information on Huawei devices when UltraPath is not installed.
3	Performance data record function.	Record performance data in the performance logs for problem location.
4	silent installation in Windows	Installing UltraPath For Windows requires no interactions with customers.
5	Clearing statistics about physical paths	Used to clear statistics about physical paths.
6	Windows, AIX,	Windows, AIX, Solaris, and Linux operating systems

No.	Description	Purpose
	Solaris, and Linux operating systems can send information about host HBA to arrays.	send information about host HBA to arrays regularly. The information includes Port WWN, Model, Driver Version, and Firmware Version.

6.1.2 Modified Features

Modified Features

No.	Description	Cause	Impact
1	Supports ESXi 6.5,CENTOS 7.3,REDHAT 7.3,Oracle Linux 7.3,NeoKylin 6.7,NeoKylin 7.2,SLES 12 SP2	New requirements.	N/A
2	Supports Solaris 11.3.	New requirements.	N/A

6.1.3 Deleted Features

None.

6.2 Resolved Issues

None.

6.3 Known Issues

None.

7

UltraPath V100R008C50SPC500 Feature Description

This chapter describes updates in different versions of the UltraPath.

If this chapter does not describe updates in an official version, the version is the same as the last version.

[7.1 What's New](#)

[7.2 Resolved Issues](#)

[7.3 Known Issues](#)

7.1 What's New

This chapter describes improvements of functions and features in UltraPath V100R008C50SPC500.

This version inherits all features in UltraPath V100R008C50SPC300.

7.1.1 New Features

New Features

No.	Description	Purpose
1	Added SAN Boot in VMware 5.5/6.0.	Added SAN Boot in VMware 5.5/6.0.
2	Windows Server 2008/2012 SANBoot in the FCoE network.	SAN Boot in the FCoE network is supported in the Windows system.
3	Fault scenarios can be rapidly switched.	Services in some fault scenarios can be rapidly switched.
4	UltraPath for HP-UX	Path selection for NMP on HP-UX 11iV3.
5	Support for exporting	Performance data can be exported in reports and saved.

No.	Description	Purpose
	performance data.	
6	Support for LDOM virtualization on Solaris 10.11.	The support for LDOM virtualization is added.
7	Support for intermixing of mainstream HBAs on the AIX system.	The software compatibility is enhanced.

7.1.2 Modified Features

Modified Features

No.	Description	Cause	Impact
1	1. UltraPath for vCenter 6.0 provides one-click installation program.	New requirements	N/A
2	Supports UVPV2R3C00 ,Solaris 11.2, Windows Server2016,KYLIN-3.2.4(2.6.32-35 8.11.1.2.ky3.1),NeoKylin 3.2.5.	New requirements	N/A

7.1.3 Deleted Features

None.

7.2 Resolved Issues

Problem Description	<p>Conditions:</p> <ol style="list-style-type: none"> 1. UltraPath earlier than V1R8C50SPC500 has installed. 2. The array is not connected to the host through controller 0A. 3. The array returns new auto-negotiation error codes to the host. <p>Symptom:</p> <p>UltraPath delivers the auto-negotiation error codes that should be sent to the host to the array again.</p> <p>Impact:</p> <p>New auto-negotiation error codes cannot be handled correctly as negotiated.</p>
Severity	Minor

Root Cause	The auto-negotiation error codes should be handled in the negotiation information reported by controller 0A but the environment is only connected to controller B. UltraPath cannot handle these error codes correctly and therefore takes the default measures.
Solution	Handle auto-negotiation error codes on the correct controller.
Impact	Service functions.

Problem Description	<p>Conditions:</p> <ol style="list-style-type: none">1. Install UltraPath and deliver I/Os.2. Run the show iostat command on UltraPath.3. Disconnect the physical path. <p>Symptom</p> <p>After the physical path is disconnected, a great IOPS output is displayed.</p> <p>Impact</p> <p>Output of performance data for once.</p>
Severity	Minor
Root Cause	The performance data queried for the first time is not handled properly. Therefore, when the physical path is reconnected, the discrepancy between the two query results is large, indicating a great IOPS value.
Solution	Display the correct performance data after the physical path is reconnected.
Impact	Service functions.

7.3 Known Issues

None.

8

UltraPath V100R008C50SPC300 Feature Description

This chapter describes updates in different versions of the UltraPath.

If this chapter does not describe updates in an official version, the version is the same as the last version.

[8.1 What's New](#)

[8.2 Resolved Issues](#)

[8.3 Known Issues](#)

8.1 What's New

This chapter describes improvements of functions and features in UltraPath V100R008C50SPC300.

This version inherits all features in UltraPath V100R008C50.

8.1.1 New Features

New Features

No.	Description	Purpose
1	The running status of threads in UltraPath can be displayed. Critical events that cause long host I/O latency can be queried. Number of I/Os that fail to be written to disks or returned can be calculated.	To improve the software maintainability.
2	Support for VCSA 6.0	UltraPath for vCenter supports the VCSA 6.0.

8.1.2 Modified Features

Modified Features

No.	Description	Cause	Impact
1	<ol style="list-style-type: none"> 1. The log dump policies are optimized. 2. The HyperMetro reliability is enhanced and the risk of replacing LUN mappings is reduced. 	New requirements	N/A
2	Supports RedHat 6.8, CentOS 6.8, Oracle Linux 6.8, Oracle Linux 7.1, Asianux Server 4.4, iSoft 3.0 SP1, deepin 15, NeoKylin 6.5, AIX7100-TL4, AIX7200.	New requirements	N/A

8.1.3 Deleted Features

None.

8.2 Resolved Issues

Problem Description	<p>Conditions:</p> <ol style="list-style-type: none"> 1. UltraPath earlier than V1R8C50 has been installed. 2. The UltraPath graphical interface has been opened. 3. The UltraPath interface has been running for at least one month. <p>Symptom</p> <p>The UltraPath interface shows a black screen.</p> <p>Impact</p> <p>The UltraPath interface cannot be used normally.</p>
Severity	Major
Root Cause	Memory leakage occurs in UltraPath user-mode codes. Therefore, the graphical interface does not have enough memory to load resources.
Solution	Release the memory.
Impact	Reliability.

8.3 Known Issues

None.

9 UltraPath V100R008C50 Feature Description

This chapter describes updates in different versions of the UltraPath.

If this chapter does not describe updates in an official version, the version is the same as the last version.

[9.1 What's New](#)

[9.2 Resolved Issues](#)

[9.3 Known Issues](#)

9.1 What's New

This chapter describes improvements of functions and features in UltraPath V100R008C50.

This version inherits all features in UltraPath V100R008C30.

9.1.1 New Features

New Features

No.	Description	Purpose
1	Silent installation.	UltraPath is deployed and installed automatically based on configuration items and default parameter settings without manual intervention. This mode is applicable to large-scale centralized deployment.
2	Batch deployment based on the FusionSphere OpenStack.	UltraPath can be batch deployed and upgraded based on the FusionSphere OpenStack upgrade framework. This can reduce the number of restarts and meet the requirement for upgrade time window.
3	Support for InfiniBand cards by UltraPath for Linux.	UltraPath for Linux supports InfiniBand cards.

9.1.2 Modified Features

Modified Features

No.	Description	Cause	Impact
1	<ol style="list-style-type: none"> 1. UltraPath does not need to be reinstalled after SUSE, RedHat, and CentOS upgrade system kernels. 2. On the CLI, UltraPath can query the VRC version. 3. The host does not need to be restarted after an offline UltraPath upgrade. 	New requirements	N/A
2	Supports RedHat7.2, CentOS 7.1, CentOS 7.2, SUSE 11 SP4 x86, SUSE 12 SP1, Oracle Linux 6.7	New requirements	N/A

9.1.3 Deleted Features

None.

9.2 Resolved Issues

Problem Description	<p>Conditions:</p> <ol style="list-style-type: none"> 1. AIX6.1 TL9, AIX 7.1 TL3, or later is used. 2. UltraPath V1R8C30 ODM has been installed. 3. Disk path selection algorithm shortest_queue needs to be configured. <p>Symptom:</p> <p>The path selection algorithm cannot be configured.</p> <p>Impact: The path selection algorithm cannot be used.</p>
Severity	Minor
Root Cause	The shortest_queue algorithm has been added in the properties of the path control module in November 2013, but the ODM for MPIO software does not support the algorithm.
Solution	Configure the ODM for MPIO software to make it support the shortest_queue algorithm.
Impact	Service functions.

Problem Description	<p>Conditions:</p> <ol style="list-style-type: none">1. UltraPath V1R8C30 has been installed on the ESXi host.2. UltraPath has been interconnected with active-active storage devices.3. The SCSI-2 cluster software has been installed on the VMs on the ESXi host (SCSI-2 cluster VCS for Windows 2003 and Linux).4. The SCSI-3 reservation of the quorum LUN is on the secondary disk storage device. <p>Symptom:</p> <p>After the replication link between disk storage devices is disconnected, the Windows 2003 cluster software on the ESXi host switches over.</p> <p>Impact: Cluster services switch over.</p>
Severity	Major
Root Cause	<ol style="list-style-type: none">1. The Windows 2003 cluster software sends the SCSI-2 reservation command every three seconds. The first reservation command converts to SCSI-3 reservation at the UltraPath layer through a path on the secondary disk storage device.2. The subsequent SCSI-2 reservation commands convert to SCSI-3 reservation through the reserved path. The success information is returned.3. When the replication link is disconnected, 5501 is returned when the reserved path is used. The reservation command is sent through a path on the primary disk storage device. Reservation conflict is returned and the conflict of the original SCSI-2 reservation is returned to the upper-layer application, causing cluster switchover.
Solution	When UltraPath sends the SCSI-3 PR-IN command to query reservation, if the reservation is of the cluster nodes, success is returned.
Impact	Cluster services switch over.

9.3 Known Issues

None.

10 UltraPath V100R008C30 Feature Description

This chapter describes updates in different versions of the UltraPath.

If this chapter does not describe updates in an official version, the version is the same as the last version.

[10.1 What's New](#)

[10.2 Resolved Issues](#)

[10.3 Known Issues](#)

10.1 What's New

This chapter describes improvements of functions and features in UltraPath V100R008C30.

This version inherits all features in UltraPath V100R008C20.

10.1.1 New Features

New Features

Number	Description	Purpose
1	Added the support for SLES11 SP4, RedHat Linux 6.7, RedHat Linux 7.1, CentOS 6.7 operating systems.	Added the support for SLES11 SP4, RedHat Linux 6.7, RedHat Linux 7.1, CentOS 6.7 operating systems.
2	Added the vSphere vVol feature.	Added the vSphere vVol feature.
3	Added automatic disk detection on an InfiniBand network in Linux.	Added automatic disk detection on an InfiniBand network in Linux.
4	Added SAN Boot in FusionSphere.	Added SAN Boot in FusionSphere.
5	Added SAN Boot in Windows.	Added SAN Boot in Windows.
6	Added SAN Boot in AIX.	Added SAN Boot in AIX.

10.1.2 Modified Features

None.

10.1.3 Deleted Features

None.

10.2 Resolved Issues

None.

10.3 Known Issues

None.

11 UltraPath V100R008C20 Feature Description

This chapter describes updates in different versions of the UltraPath.

If this chapter does not describe updates in an official version, the version is the same as the last version.

[11.1 What's New](#)

[11.2 Resolved Issues](#)

[11.3 Known Issues](#)

11.1 What's New

This chapter describes improvements of functions and features in UltraPath V100R008C20.

This version inherits all features in UltraPath V100R008C00.

11.1.1 New Features

New Features

Number	Description	Purpose
1	Linux extension: Oracle Linux 5.11, Oracle Linux 6.6, Oracle Linux 7.0, CentOS 5.11, CentOS 6.6, CentOS 7.0, RHEL 5.11, RHEL 6.6, and SUSE Linux Enterprise Server 12.	Linux extension: Oracle Linux 5.11, Oracle Linux 6.6, Oracle Linux 7.0, CentOS 5.11, CentOS 6.6, CentOS 7.0, RHEL 5.11, RHEL 6.6, and SUSE Linux Enterprise Server 12.
2	Active-active self-developed disk storage devices.	Active-active self-developed disk storage devices.
3	Online takeover of disk storage devices.	Online takeover of disk storage devices.
4	Disk storage device mirroring.	Disk storage device mirroring.

Number	Description	Purpose
5	Solaris storage query tool.	Solaris storage query tool.
6	OEM white machine.	OEM white machine.
7	VMware PDL.	VMware PDL.

11.1.2 Modified Features

None.

11.1.3 Deleted Features

None.

11.2 Resolved Issues

Description	<p>Conditions:</p> <ol style="list-style-type: none"> 1.AIX5307 operating system and earlier versions. 2.Performing I/O operations on LUNs mapped to the host. 3.Frequently changing LUN mapping (deleting and adding mapping for 40 LUNs every five minutes). 4.Frequently scanning for disks on the host (randomly and intermittently scanning for disks in 1-600 seconds). 5.Running for a long time (over 24 hours). 6.Meeting all the preceding conditions. <p>Symptom:</p> <p>The AIX operating system is dumped and restarted.</p> <p>Impact:</p> <ol style="list-style-type: none"> 1.Services are interrupted in a single AIX host environment. 2.Services fail over to other nodes in a cluster environment.
Severity	Major
Root cause	MPIO architecture has defects. Memory problems occur, such as the wild pointer and overwriting.
Solution	<p>This problem is positioned as a third-party problem.</p> <p>Workarounds:</p> <ol style="list-style-type: none"> 1.Update the compatibility list, and better to upgrade AIX5307 to AIX5312. 2.Elaborate how to change LUN mapping in the user guide. Stop services first, delete LUN mapping, delete disks on the host, add LUN mapping, and scan for new disks.

Solution impact	Third-party issue, no impact involved.
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Description	<p>Conditions:</p> <p>Error codes of LUNs at the active-active and non-preferred site are returned when storage devices are abnormal (the root cause is unknown). The UltraPath sets the LUNs into faulty state. LUNs can be recovered after troubleshooting.</p> <p>Symptom:</p> <p>After communication becomes normal between storage device A and storage device B, the status of LUNs on the storage device B remains Fault for 8 minutes after disk scanning.</p> <p>Impact:</p> <p>No impact on services. Latency occurs when the status of LUNs on the active-active and secondary storage device changes from Fault to Normal.</p>
Severity	Minor
Root cause	After receiving I/Os, active-active sub-LUNs on storage device B constantly return the error code 5501 to the host. According to the interaction protocol (version 2.4) between the UltraPath and the product, the UltraPath sets the LUN status to Fault after receiving 5501 . If the error code 5501 is not returned 8 minutes later, the UltraPath successfully sets the LUN status.
Solution	The problem is suspended as a non-UltraPath problem. If a similar problem occurs on the storage device, resolve it again.
Solution impact	Non-UltraPath issue, no impact involved.

Description	<p>Conditions:</p> <p>During online migration, perform the following operations :</p> <p>Step1 Change a Fibre Channel daughter card for a controller on the target storage device.</p> <p>Step2 Quickly insert and remove optical fibres between the source storage device and the host.</p> <p>Step3 Insert optical fibres to a controller on the target storage device.</p> <p>Step4 Change the optical module of the switch on the target storage device to an 8 GB optical module.</p> <p>Symptom:</p> <p>One of paths on the source storage device mistakenly reports a fault to the target storage device, causing online migration failure.</p> <p>Impact:</p> <p>Online migration fails. The UltraPath may mistakenly push alarms, for example, no redundant links.</p>
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Severity	Minor
Root cause	The problem is positioned as an HBA driver problem after collaborative negotiation among the HBA vender, driver, UltraPath, and product.
Solution	1.Upgrade the HBA driver before migration. 2.Update the compatibility list. 3.Update the UltraPath maintenance collection.
Solution impact	Third-party issue, no impact involved.

Description	<p>Conditions:</p> <p>If the UltraPath is not installed, mapping 512 LUNs through 64 paths generates 7 million block devices on the device tree after device tree reconstruction is complete. If the UltraPath is installed, only 270,000 block devices are generated. Since the information collection tool is a user-mode tool, it accesses devices one by one on the device tree. Therefore, it takes a longer time to query more devices.</p> <p>Symptom:</p> <p>Without the UltraPath installed, mapping 512 LUNs through 64 paths is time-consuming because the tool takes a long time to collect disk information (30 minutes in total).</p> <p>Impact:</p> <p>When a large number of LUNs need to be mapped, the tool takes a long time to collect disk information.</p>
Severity	Minor
Root cause	Accessing system APIs and invalid devices is time-consuming.
Solution	1.Add the function of determining which one is an invalid device. 2.Change system APIs.
Solution impact	The query time of the disk information collection tool is shortened.

11.3 Known Issues

None.

12 UltraPath V100R008C00 Feature Description

This chapter describes updates in different versions of the UltraPath.

If this chapter does not describe updates in an official version, the version is the same as the last version.

[12.1 What's New](#)

[12.2 Resolved Issues](#)

[12.3 Known Issues](#)

12.1 What's New

This chapter describes improvements of functions and features in UltraPath V100R008C00.

This version inherits all features in UltraPath V100R006.

12.1.1 New Features

New Features

No.	Description	Purpose
1	Supports vSphere 5.0, 5.1, and 5.5.	Supports vSphere 5.0, 5.1, and 5.5.
2	Supports VIS-based active-active DR solution for Windows, Linux, vSphere, and Solaris.	Supports VIS-based active-active DR solution for Windows, Linux, vSphere, and Solaris.
3	UltraPath V100R008C00 and later SPC versions support the online upgrade function for	UltraPath V100R008C00 and later SPC versions support the online upgrade function for Windows and Linux.

No.	Description	Purpose
	Windows and Linux.	

12.1.2 Modified Features

None.

12.1.3 Deleted Features

None.

12.2 Resolved Issues

Problem Description	Condition: This problem occurs when Solaris has insufficient DMA memory resources or encounters other logical issues. Symptom: The Solaris API (scsi_init_pkt) returns NULL constantly and the multipathing system fails to invoke the Solaris API. Impact: Services are interrupted.
Severity	Major
Root Cause	When UltraPath attempts to invoke the Solaris API, NULL is returned. Error code is sent to the upper layer after a specific number of retries on all paths fail. As a result, upper-layer services are interrupted.
Solution:	After the Solaris API (scsi_init_pkt) returns NULL, UltraPath extends the retry time to 180 seconds. If the Solaris API (scsi_init_pkt) returns NULL constantly in the 180 seconds, a dump file is generated and sent to Oracle, which analyzes why the Solaris API returns NULL.
Solution Impact	After this problem occurs, the time required by I/O retries on Solaris increases.

Description	Condition: This problem occurs when the AIX operating system disk has I/Os that are not returned and the disk driver requests UltraPath to shut down the disk. Symptom: The VG of AIX shows that the disk status is missing and the disk cannot be accessed. The output of the bootinfo -s hdiskXX command shows that the disk capacity is 0. Impact: The disk status is abnormal and the disk cannot be accessed. Services cannot be started.
Severity	Minor
Root Cause	When the AIX operating system disk driver requests UltraPath to shut down the disk, UltraPath detects that the disk has I/Os not returned. UltraPath sends error code 16 to the disk driver. The error code indicates a BUSY error. Then the disk driver and UltraPath consider that the disk

	is abnormal. As a result, upper-layer applications cannot access the disk.
Solution	When the disk driver requests UltraPath to shut down the disk, a success message is returned no matter whether there are I/Os not returned.
Impact	AIX operating system disk status is managed.

Description	<p>Condition: This problem occurs on Solaris, an SCSI2 reservation policy is configured in a SUN cluster environment and All node hosts in the cluster are started at the same time.</p> <p>Symptom: After node hosts are started, services in the cluster cannot be started correctly. A reservation conflict is printed in system logs.</p> <p>Impact: SCSI2 cluster services cannot be started correctly.</p>
Severity	Major
Root Cause	When all nodes in the cluster are powered off unexpectedly and restarted, UltraPath detects that disks have reserved information on the storage system and mistakenly determines that the current host is a standby node. As a result, all nodes return reservation conflicts to the storage system in accordance with the standby node process.
Solution	UltraPath compares reserved key values of disks with the values saved in configuration files. If these values are equal, the fault is rectified in accordance with the active node process and I/O requests are forwarded as usual. Otherwise, the fault is rectified in accordance with the standby node process and reservation conflicts are returned.
Impact	Impact all nodes in the cluster and restart the SCSI2 cluster for processing reservation conflicts.

12.3 Known Issues

None.

13 Upgrade Impact

This section describes the possible impact on the current system during upgrading.

- [13.1 UltraPath for AIX](#)
- [13.2 UltraPath for Windows](#)
- [13.3 UltraPath for Solaris](#)
- [13.4 UltraPath for Linux](#)
- [13.5 UltraPath for vSphere](#)
- [13.6 UltraPath for FusionSphere](#)

13.1 UltraPath for AIX

13.1.1 Impact on the System During the Upgrade

13.1.1.1 Impact on Services

You must stop the services or migrate them to other servers before performing an offline upgrade.

For an online upgrade of the UltraPath, stopping services is unnecessary.

13.1.1.2 Impact on Network Communication

The operating system not restart during the upgrade the UltraPath and communications with the host are not interrupted.

13.1.2 Impact on the System After the Upgrade

In an upgrade from a version lower than V100R005 to the current version, if the disk before upgrading is updiskX, and not using LVM or VxVM, you need to modify the service configuration after upgrading to fit the new drive letter hdiskX.

If not in SAN Boot situation, the OceanStor UltraPath for AIX upgraded from a lower version to the current version takes effect without the need to restart the operating system.

If in SAN Boot situation, upgrade from a lower version to the current version takes effect only after the operating system is restarted.

The system will not restart during an online upgrade of the UltraPath.

13.2 UltraPath for Windows

13.2.1 Impact on the System During the Upgrade

13.2.1.1 Impact on Services

The system will restart during an offline upgrade of the UltraPath. Therefore, stop services or migrate services to another service before performing an offline upgrade. The system will not restart during an online upgrade of the UltraPath. No need to stop services.

13.2.1.2 Impact on Network Communication

The system restarts during the offline upgrade the UltraPath and communications with the host are interrupted. The system not restart during the online upgrade the UltraPath and communications with the host are not interrupted.

13.2.2 Impact on the System After the Upgrade

After upgrade, the system kernel loads a new kernel driver, which does not affect the system startup. There is no need to modify the OS configuration file.

13.3 UltraPath for Solaris

13.3.1 Impact on the System During the Upgrade

13.3.1.1 Impact on Services

The system will restart during an offline upgrade of the UltraPath. Therefore, stop services or migrate services to another service before performing an offline upgrade.

13.3.1.2 Impact on Network Communication

The system restarts during the offline upgrade the UltraPath and communications with the host are interrupted.

13.3.2 Impact on the System After the Upgrade

After upgrade, the system kernel loads a new kernel driver, which does not affect the system startup. There is no need to modify the OS configuration file.

13.4 UltraPath for Linux

13.4.1 Impact on the System During the Upgrade

13.4.1.1 Impact on Services

The system or UltraPath service will restart during an offline upgrade of the UltraPath. Therefore, stop services or migrate them to another server before performing an offline upgrade. The system will not restart during an online upgrade of the UltraPath. No need to stop services.

13.4.1.2 Impact on Network Communication

If the host is restarted to enable UltraPath to take effect after the offline upgrade, all links to the host will be interrupted. If UltraPath is restarted to enable it to take effect after the offline upgrade or the system is not restarted after the online upgrade, all links to the host will not be interrupted.

13.4.2 Impact on the System After the Upgrade

After upgrade, the system kernel loads a new kernel driver, which does not affect the system startup. There is no need to modify the OS configuration file.

13.5 UltraPath for vSphere

13.5.1 Impact on the System During the Upgrade

13.5.1.1 Impact on Services

The system will restart during an offline upgrade of the UltraPath for ESXi. Therefore, stop services or migrate services to another service before performing an offline upgrade. The system will not restart during an online upgrade of the UltraPath for ESXi. No need to stop services.

13.5.1.2 Impact on Network Communication

If UltraPath for ESXi is upgraded offline by using the CLI, the system is restarted and all network communications of hosts are interrupted. If UltraPath for ESXi is upgraded online or offline by using scripts, the system is not restarted and network communications of hosts are not interrupted.

13.5.2 Impact on the System After the Upgrade

After upgrade, the system kernel loads a new kernel driver, which does not affect the system startup. There is no need to modify the OS configuration file.

13.6 UltraPath for FusionSphere

13.6.1 Impact on the System During the Upgrade

13.6.1.1 Impact on Services

Upgrading the UltraPath will restart the system or UltraPath services. Therefore, before the upgrade, stop the services or migrate the services to other servers.

13.6.1.2 Impact on Network Communication

Upgrading UltraPath in batch will disconnect all networks to hosts. However, if you upgrade UltraPath offline and make UltraPath take effect by restarting UltraPath services, you do not need to restart the system and therefore the networks to hosts will not be disconnected.

13.6.2 Impact on the System After the Upgrade

After upgrade, the system kernel loads a new kernel driver, which does not affect the system startup. There is no need to modify the OS configuration file.

14 Related Documentation

This chapter lists a suite of documentation related to this version and describes how to obtain the documentation.

[14.1 UltraPath 21.1.0 Documentation](#)

[14.2 Updates to Related Documentation](#)

[14.3 Obtaining Documentation](#)

14.1 UltraPath 21.1.0 Documentation

This table lists the documents for the UltraPath 21.1.0.

Table 14-1 List of documents for the UltraPath 21.1.0

No.	Document	Description	Delivery Mode
-	OceanStor UltraPath for AIX 21.1.0 User Guide.pdf	Provides information about the installation, configuration, maintenance, and trouble shooting of the Ultrath.	PDF document, provided with the software
-	OceanStor UltraPath for Linux 21.1.0 User Guide.pdf	Provides information about the installation, configuration, maintenance, and trouble shooting of the Ultrath.	PDF document, provided with the software
-	OceanStor UltraPath for Solaris 21.1.0 User Guide.pdf	Provides information about the installation, configuration, maintenance, and trouble shooting of the Ultrath.	PDF document, provided with the software
-	OceanStor UltraPath for Windows 21.1.0 User Guide.pdf	Provides information about the installation, configuration, maintenance, and trouble	PDF document, provided with the software

No.	Document	Description	Delivery Mode
		shooting of the Ultrapath.	
-	OceanStor UltraPath for vSphere 21.1.0 User Guide.pdf	Provides information about the installation, configuration, maintenance, and trouble shooting of the Ultrapath.	PDF document, provided with the software
-	AIX ODM for MPIO User Guide.pdf	Provides information about the installation, configuration, maintenance, and trouble shooting of the Ultrapath.	PDF document, provided with the software
	AIX ODM for Non-MPIO User Guide.pdf	Provides information about the installation, configuration, maintenance, and trouble shooting of the Ultrapath.	PDF document, provided with the software
-	OceanStor UltraPath 21.1.0 Version Configuration Information Form.xls	Version mapping list.	XLS document, provided with the software
-	OceanStor UltraPath 21.1.0 Upgrade Guide.doc	Provides upgrade policies for UltraPath.	DOC document, provided with the software
-	OceanStor UltraPath 21.1.0 Release Notes.doc	Provided a version description and precautions.	DOC document, provided with the software

14.2 Updates to Related Documentation

None.

14.3 Obtaining Documentation

14.3.1 Support Enterprise Website

You can access to <http://support.huawei.com/enterprise/> to get the relevant document.

Step 1 Go to the homepage <http://support.huawei.com/enterprise/>.

Step 2 Click the "Log In", enter the account number, password to check code and login.

Step 3 After successful login, the "Support" page, select "Support -> Product Support -> IT -> Storage -> Unified Storage -> UltraPath".

Step 4 Select the right "Version", then click the right document link in the "Documentation" area, enter the product documentation download page.

Step 5 Click "Download" to download document.



NOTE

If the product documentation suffixes **.Hdx**, download and run HedEx Lite. You can obtain the software from Huawei service engineers.

----End

14.3.2 Support Carrier Website

You can view or download related documentation from <http://support.huawei.com/>.



NOTE

You must apply for permission to obtain documentation from the website. If you are using <http://support.huawei.com/> for the first time, first register with the website.

Registering with the Website

To register with <http://support.huawei.com/>, perform the following steps:

1. Access <http://support.huawei.com/>.
2. Click **Register**, and follow the instructions to complete the registration process.

If your registration is successful, you will be informed of your user name and password within two or three working days.

Viewing or Downloading Documentation

To view or download documentation from <http://support.huawei.com/>, perform the following steps:

1. Access <http://support.huawei.com/>, select the appropriate language
2. Click **Log In**. In the dialog box that is displayed, enter the user name, password, and verification code and click **Login**.
3. After a successful login, select "Product Support" in the "SUPPORT", input UltraPath in the "Product Name or Keywords", click on "Search". The system provides online product documentation

A Vulnerability Scanning Instructions

Vulnerability Scanning Instructions

This chapter describes vulnerability scanning instructions.

Vulnerabilities Discovered by NSFOCUS

The vulnerabilities are described and analyzed as follows:

Vulnerability Description 1

Vulnerability Name	Openssh MaxAuthTries limit bypass vulnerability (CVE-2015-5600)
Vulnerability Description	<p>OpenSSH (Secure Shell OpenBSD) is a set of OpenBSD planning group for the maintenance of a set of remote computer access to the security of the connection tool. The tool is an open source implementation of SSH protocol, support for all the transmission encryption, can effectively prevent eavesdropping, connection hijacking, and other network level attacks</p> <p>Openssh 6.9 and before version of the sshd auth2-chall.c file 'Kbdint_next_device the next device' function exists security vulnerabilities, the source of the vulnerability in the program is not correct limits for the treatment of single link keyboard-interactive equipment. The remote attacker can use the -oKbdInteractiveDevices SSH option in a long and repeated list to exploit the vulnerability to implement brute force attacks, or cause denial of service (CPU consumption).</p>
Solution	<p>Vendor patch:</p> <p>OpenSSH</p> <p>-----</p> <p>Currently manufacturers have released a patch to fix this security problem, please go to the manufacturer's home page to download:</p> <p>http://www.openssh.com/</p> <p>http://cvswweb.openbsd.org/cgi-bin/cvswweb/src/usr.bin/ssh/aut</p>

	h2-chall.c.diff?r1=1.42&r2=1.43&f=h
Threat Score	8
CVE Number	CVE-2015-5600
NSFOCUS	30549
CNNVD Number	CNNVD-201508-001
CNCVE Number	CNCVE-20155600
CVSS Score	8.5

Analysis result 1

The vulnerability is the vulnerability of OpenSSL, UltraPath is not involved, so will not be affected by the vulnerability.

Vulnerability Description 2

Vulnerability Name	OpenSSH J-PAKE Authorization problem vulnerability (CVE-2010-4478)
Vulnerability Description	OpenSSH is an open source implementation of SSH protocol. Non OpenBSD platform on openssh 7.0 before version, sshd monitor.c mm answer PAM CTX free function exists after the release of the vulnerability, which can make local users use UID sshd control and construct the send monitor req PAM free CTX request, obtain permission to upgrade.
Solution	Vendor patch: OpenSSH ----- Currently manufacturers have released a patch to fix this security problem, please go to the manufacturer's home page to download: http://www.openssh.com/txt/release-7.0 https://github.com/openssh/openssh-portable/commit/d4697fe9a28dab7255c60433e4dd23cf7fce8a8b http://seclists.org/fulldisclosure/2015/Aug/54
Threat Score	6
CVE Number	CVE-2015-6564
NSFOCUS	31294
CNNVD Number	CNNVD-201508-505

CNCVE Number	CNCVE-20156564
CVSS Score	6.9

Analysis result 2

The vulnerability is the vulnerability of OpenSSL, UltraPath is not involved, so will not be affected by the vulnerability.

Vulnerability Description 3

Vulnerability Name	Apache Tomcat denial Service Vulnerability (CVE-2014-0230)
Vulnerability Description	Apache Tomcat is a popular open source JSP application server program did not finish the request body is in response to the request returns to the user agent Tomcat default will trust the rest of the request body, then a connection request. There is no limit to the size of the Tomcat's request for trust. Tomcat will not close the connection, the processing thread will keep the connection, which can lead to limited denial of service.
Solution	Vendor patch: Apache Group ----- Currently manufacturers have released a patch to fix this security problem, please go to the manufacturer's home page to download: [1] http://tomcat.apache.org/security-8.html [2] http://tomcat.apache.org/security-7.html [3] http://tomcat.apache.org/security-6.html [4] http://www.openwall.com/lists/oss-security/2015/04/10/1
Threat Score	7
CVE Number	CVE-2014-0230
NSFOCUS	29825
CNNVD Number	CNNVD-201505-034
CNCVE Number	CNCVE-20140230
CVSS Score	7.8

Analysis result 3

The vulnerability is the vulnerability of Apache Tomcat, UltraPath is not involved, so will not be affected by the vulnerability.

B Vulnerability Repair for Third-Party Software

You can use Common Vulnerabilities and Exposures (CVE) IDs to query vulnerability information from the National Vulnerability Database (NVD), <http://web.nvd.nist.gov/view/vuln/search>.

Software Name	Software Version	CVE ID	Description	Solution
spring-framework	3.2.4	CVE-2013-6429	The Source HttpMessageConverter in Spring MVC in Spring Framework before 3.2.5 and 4.0.0.M1 through 4.0.0.RC1 does not disable external entity resolution, which allows remote attackers to read arbitrary files, which cause a denial of service, and conduct CSRF attacks via crafted XML, aka an XML External Entity (XXE) issue, and a different vulnerability than CVE-2013-4152 and CVE-2013-7315.	Upgrade the Software to version 4.03 released by Huawei in the PDM system.
Apache POI	3.9	CVE-2014-3574	Apache POI before 3.10.1 and 3.11.x before 3.11-beta2 allows remote attackers to cause a denial of service (CPU consumption and crash) via a crafted OOXML file, aka an XML Entity Expansion (XEE) attack.	Upgrade the Software to version 3.10.1 released by Huawei in the PDM system.
Apache POI	3.9	CVE-2014-3529	The OPC SAX setup in Apache POI before 3.10.1 allows remote attackers to read arbitrary files via an OpenXML file containing an XML external entity declaration in conjunction with an entity reference, related to an	Upgrade the Software to version 3.10.1 released by Huawei in the PDM system.

Software Name	Software Version	CVE ID	Description	Solution
			XML External Entity (XXE) issue.	

C Linux iSCSI Configuration

C.1 Scanning for LUNs Under iSCSI Environments

iSCSI initiators cannot issue any commands for querying LUN world wide names (WWNs) and cannot handle the changing of dynamic LUN mappings. For example, after a mapping to a host has been changed, running the **rciscsi reload** command on the host does not refresh the associated **scsi_device** object.

An iSCSI initiator generates **scsi_device** objects and adds tags for each of those objects. Also, the iSCSI initiator only deletes tags of its generated **scsi_device** objects. If users delete a **scsi_device** object using the UltraPath, the iSCSI initiator does not clear the object's tag and may not be able to generate a new **scsi_device** object by running the **rciscsi reload** command, because the initiator sees that the object exists.

For this reason, users must run **rciscsi reload** and then **upadm start hotscan** commands when removing LUNs dynamically.

This also disables the UltraPath from supporting the changing of dynamic LUN mappings, which requires the UltraPath to delete **scsi_device** objects with inconsistent WWNs as a prerequisite.

If users need to change LUN mappings, run **rciscsi restart** and then **upadm start hotscan** commands, where running the **rciscsi restart** command interrupts services.

A solution to this bug is to change the code of the iSCSI initiator. This clears the tag of a **scsi_device** object when users delete the object.

C.2 SLES 10 iSCSI Initiators

Upgrading Initiators

The accompanying iSCSI initiator of SLES 10 is open-iscsi 1.0-604, which cannot detect link down caused by defective **noop out** code under multipathing environments. For this reason, that iSCSI initiator cannot work in combination with the UltraPath.

- **Solution**

Download a stable version of iSCSI initiator code, which is **open-iscsi-2.0-865.15.tar.gz** the latest, at the open-iscsi official website: www.open-iscsi.org.

- **Upgrade Procedure (Using open-iscsi-2.0-865.15 as an Example)**

Step1 Make sure that the gcc and kernel source codes have been installed on the host. (Select maximum installation when you install the operating system)

Step2 Decompress open-iscsi-2.0-865.15.tar.gz to the host.

Step3 Go to the open-iscsi-2.0-865.15 directory and run the following compilation command:

```
make KSRC=/usr/src/linux KBUILD_OUTPUT=/lib/modules/`uname -r`/build
```

Step4 Run the following command for installation:

```
make KSRC=/usr/src/linux KBUILD_OUTPUT=/lib/modules/`uname -r`/build install
```

To enter the backquote marks (`) in `uname -r`, make sure to press the key to the left of 1 on your keyboard.

----End

Configuring and Using Initiators

- **Configuring the iSCSI Initiator**

Edit the `/etc/iscsi/iscsid.conf` file and ensure:

```
node.startup = automatic
node.session.timeo.replacement_timeout = 1
```

- **Using the iSCSI Initiator**

Step1 Start the iSCSI initiator by running either of the following commands:

```
# rcopen-iscsi start or /etc/init.d/open-iscsi start
```

Step2 Add a target by running the following command (using 192.168.123.100 as an example service IP address):

```
# iscsiadm -m discovery -t st -p 192.168.123.100
```

If multiple paths are present, run the preceding command for each service IP address.

Step3 Configure an iSCSI Qualified Name (IQN), which is used to add ports on storage systems, by running the following command:

```
# cat /etc/iscsi/initiatorname.iscsi
```

Step4 Log in to the added target, and check whether you can detect physical LUNs mapped from a storage system by running the following command:

```
# iscsiadm -m node -l
```

Step5 Run the `upadm start hotscan` command to generate virtual LUNs.

Once you have added a target, you can use the iSCSI initiator by directly running the `rcopen-iscsi start` command.

----End

- **Stopping the iSCSI Initiator**

To stop the iSCSI initiator, run the `rcopen-iscsi stop` or `/etc/init.d/open-iscsi stop` command.

- **Restarting the iSCSI Initiator**

To restart the iSCSI initiator, run the `rcopen-iscsi restart` or `/etc/init.d/open-iscsi restart` command.

D

Acronyms and Abbreviations

F

FC	Fiber Channel
FCoE	Fiber Channel over Ethernet

H

HBA	Host Bus Adapter
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I

iSCSI	Internet Small Computer Systems Interface
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L

LUN	Logical Unit Number
LVM	Logical Volume Manager

P

PnP	Plug and Play
------------	---------------

S

SAS	Serial Attached SCSI
SCSI	Small Computer System Interface
SSL	Secure Sockets Layer

T

TLS	Transport Layer Security
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W

WWN World Wide Name