

Veritas InfoScale™ Operations Manager 7.3.1 Hardware and Software Compatibility List

Contents

1. Overview and acronyms	3
2. Veritas InfoScale™ Operations Manager Management Server	4
3. Veritas InfoScale™ Operations Manager managed hosts	5
4. Browser support	6
5 Software support.....	7
5.1 Multi Path Support	7
5.2 Veritas Storage Foundation (File System and Volume Manager)	7
5.3 Native File Systems	8
5.4 Native Volume Managers.....	8
5.5 High Availability Solutions	8
5.6 Veritas ApplicationHA	9
5.7 Databases	9
5.8 Virtualization.....	10
6. Array Support for the Storage Insight Add-on.....	10
7. Switches Support for the Fabric Insight Add-on.....	13
8. Add-on Compatibility Matrix	14

1. Overview and acronyms

This document includes the hardware and the software compatibility information for Veritas Operations Manager. For more information, go to <https://www.veritas.com/product/software-defined-storage/infoscale-operations-manager>.

Acronyms used in this document:

ASM	Automatic Storage Management
DMP	Dynamic Multipathing
DR	Disaster Recovery
FS	File System
HA	High Availability
HA-DR	High Availability – Disaster Recovery
MS	Management Server
MH	Managed Host
NAS	Network Attached Storage
N/A	Not Applicable
RAC	Real Application Cluster
SF	Storage Foundation
SFHA	Storage Foundation High Availability
SFW	Storage Foundation for Windows
SFWHA	Storage Foundation for Windows High Availability
VBS	Virtual Business Services
VCS	Veritas Cluster Server
VM	Volume Manager
VIOM	Veritas InfoScale Operations Manager

2. Veritas InfoScale™ Operations Manager Management Server

Operating system supported	HA supported	Comments
Red Hat Enterprise Linux 6.8 Red Hat Enterprise Linux 6.9 Red Hat Enterprise Linux 7.2 Red Hat Enterprise Linux 7.3 Red Hat Enterprise Linux 7.4	Yes	x86_64 is the supported architecture. HA (High availability) is supported using Veritas Cluster Server.
SUSE Linux Enterprise Server 11 SP3 SUSE Linux Enterprise Server 11 SP4 SUSE Linux Enterprise Server 12 SP1 SUSE Linux Enterprise Server 12 SP2	Yes	x86_64 is the supported architecture. HA (High availability) is supported using Veritas Cluster Server.
Windows Server 2012 R2	Yes	x86_64 is the supported architecture. HA (High availability) is supported using Veritas Cluster Server.

3. Veritas InfoScale™ Operations Manager managed hosts

Operating systems supported	Agent	Agentless	Comments
AIX 7.1 TL4 AIX 7.2 TL1 and TL2	Yes	Yes	The xIC runtime environment must be version 7 or later. Use the <code>lspp -lc grep xIC.rte</code> command to verify the version of the xIC runtime environment. Supported on x64.
Red Hat Enterprise Linux 6.8 Red Hat Enterprise Linux 6.9 Red Hat Enterprise Linux 7.3 Red Hat Enterprise Linux 7.4 Red Hat Enterprise Linux 7.5	Yes	Yes	Following 32 bit compatible libraries are required to install the product: Glibc Libgcc Supported on x64.
SUSE Linux Enterprise Server 11 SP4 SUSE Linux Enterprise Server 12 SP1 and SP2	Yes	Yes	Following 32 bit compatible libraries are required to install the product: Glibc libgcc Only for hosts having Storage Foundation version 7.1 or later. Supported on x64.
Solaris SPARC 11 U2 and U3	Yes	Yes	Supported on x64.
CentOS 6.8 and 7.3	Yes	Yes	Following 32 bit compatible libraries are required to install the product: Glibc Libgcc Supported on x64.
Solaris 11 x86 U2 and U3	Yes	Yes	
Windows 2012 R2	Yes	Yes	Windows Server 2012 is supported on x64. Supported on Datacenter and Standard Edition.
Windows 2016	Yes	Yes	Supported on x64.

For latest platform support documentation for Storage Foundation (UNIX) and Storage Foundation HA for Windows, visit the Veritas Technical Support website: https://www.veritas.com/content/support/en_US.html or Veritas Services and Operations Readiness Tools (SORT) website at <https://sort.veritas.com>.

4. Browser support

Management Server browser support

Browser	Version	Comments
Internet Explorer	<ul style="list-style-type: none"> IE 10 and IE 11 	JavaScript: Enabled Cookies: Enabled
Firefox	<ul style="list-style-type: none"> FF 40 and later 	JavaScript: Enabled Cookies: Enabled
Chrome	<ul style="list-style-type: none"> Chrome 40 and later 	JavaScript: Enabled Cookies: Enabled

Additional considerations for supported Web browsers:

- Your browser must support JavaScript 1.2, or later.
- If you use pop-up blockers (including Yahoo Toolbar or Google Toolbar), either disable them or configure them to accept pop-ups from the Veritas Operations Manager Web server to which you connect.
- For Internet Explorer, enable the play animations in web pages option in the multimedia category of Advanced Internet options.
- For Internet Explorer, when popup-blocker is turned on, make sure that the filter Level is set to Medium or lower.
- For Internet Explorer, ensure that the site is included in the list of trusted sites.
- If you cannot add the site to the list of trusted sites, enable the Binary and script Behaviors option in security settings.
- You must install Adobe Flash plug-in version 10, or later.

5 Software support

5.1 Multi Path Support:

Veritas Dynamic Multi Pathing (DMP) and other Multi Pathing Software's

Vendor	Type / Product	Version	OS Support	Agent	Agentless	Comments
Veritas	DMP	7.2, 7.3, 7.3.1	Windows 2012 R2	Yes	N/A	X86-64
Veritas	DMP	7.2, 7.3, 7.3.1	Linux x86-64: RHEL 6, RHEL 7 SLES11 SLES12	Yes	N/A	
Veritas	DMP	7.2, 7.3, 7.3.1	Solaris: SPARC 11 X86 11	Yes	N/A	
Veritas	DMP	7.2, 7.3, 7.3.1	AIX: 7.1 TL4 7.2 TL1, TL2	Yes	N/A	
Veritas	VxDMP	7.2, 7.3, 7.3.1	ESX 5.1 ESXi 5.5 ESXi 6.0 GA ESX vSphere 2016	N/A	N/A	Discovered as a part of VMware discovery through vCenter. Performance metering is supported.

Vendor	Type / Product	Version	OS Support	Agent	Agentless	Comments
EMC	PowerPath	5.5, 6.0 SP1	Solaris 11	Yes	Yes	
EMC	PowerPath	5.7, 6.0 SP1	AIX 7.1, 7.2	Yes	Yes	
EMC	PowerPath	6.0 SP1	RHEL 6.x, 7.x	Yes	Yes	
EMC	PowerPath	5.7, 6.0 SP1	SLES 11, 12	Yes	Yes	
EMC	PowerPath	5.5, 6.0 SP1	Windows 2012 R2	Yes	Yes	
EMC	PowerPath / VE	5.7, 6.0 SP1	ESX 6.0 ESX vSphere 2016	No	No	Discovered as a part of VMware discovery through vCenter.
IBM	MPIO		AIX 7.1, 7.2	No	Yes	
Linux	MPIO		RHEL 6.x, 7.x	No	Yes	Device Mapper (DM)
SUN	MPxIO		Solaris 11	Yes	Yes	
Microsoft	MPIO	2012	Windows 2012 R2	Yes	No	
VMware	NMP	N/A	ESX 6.0 ESX vSphere 2016	No	No	Discovered as a part of VMware discovery through vCenter.

5.2 Veritas Storage Foundation (File System and Volume Manager)

Vendor	Type / Product	Version	OS Support	Agent	Agentless	Comments
Veritas	SFW	7.2, 7.3, 7.3.1	Windows 2012 R2	Yes	N/A	
Veritas	SF	7.2, 7.3, 7.3.1	AIX 7.1 TL4 and AIX 7.2 TL1, TL2	Yes	N/A	
Veritas	SF	7.2, 7.3, 7.3.1	RHEL 6.8, 6.9 and RHEL 7.3, 7.4	Yes	N/A	
Veritas	SF	7.1, 7.2, 7.3	SLES 11 U3, U4 and SLES 12 U1, U2	Yes	N/A	
Veritas	SF	7.2, 7.3, 7.3.1	Solaris 11 U2, U3 (SPARC and X86)	Yes	N/A	
Veritas	SF	7.3, 7.3.1	CentOS 6.8 and 7.3	Yes	N/A	

5.3 Native File Systems

Vendor	Type	Version	OS Support	Agent	Agentless	Comments
IBM	AIX JFS/ JFS2		AIX 7.1 TL4 AIX 7.2 TL1, TL2	Yes	Yes	
RedHat	EXT3/ EXT4		RHEL 6.8, 6.9 RHEL 7.2, 7.3	Yes	Yes	
SUSE	ReiserFS		SLES 11 SP3, SP4	Yes	Yes	
SUSE	EXT3/ EXT4		SLES 11 SP3, SP4 SLES 12 SP1, SP2	Yes	Yes	
Sun	ZFS		Solaris 11 U2, U3 (SPARC and X86)	Yes	Yes	
CentOS	EXT 4 / XFS		CentOS 6.8 CentOS 7.3	Yes	Yes	
Microsoft	NTFS		Windows 2012 R2	Yes	Yes	

5.4 Native Volume Managers

Vendor	Type	version	OS Support	Agent	Agentless	Comments
AIX	AIX LVM		AIX 7.1 TL4 AIX 7.2 TL1, TL2	Yes	Yes	
Red Hat	Linux LVM		RHEL 6.8, 6.9 RHEL 7.3, 7.4	Yes	Yes	
Microsoft	LDM		Windows 2012 R2	Yes	Yes	
Sun	Sun VM		Solaris 11 U2, U3	Yes	N/A	

5.5 High Availability Solutions

5.5.1 Veritas InfoScale Availability / Cluster Server (VCS)

Vendor	Type/Product	Version	OS Support	Agent	Agentless	Comments
Veritas	InfoScale Availability	7.2, 7.3, 7.3.1	Windows 2012 R2	Yes	N/A	
Veritas	InfoScale Availability	7.2, 7.3, 7.3.1	Windows 2016	Yes	N/A	
Veritas	InfoScale Availability	7.2, 7.3, 7.3.1	RHEL 6.8, 6.9 RHEL 7.3, 7.4	Yes	N/A	
Veritas	InfoScale Availability	7.2, 7.3, 7.3.1	SLES 11 SP3, SP4 SLES 12 SP1, SP2	Yes	N/A	
Veritas	InfoScale Availability	7.2, 7.3, 7.3.1	AIX 7.1 TL4 AIX 7.2 TL1, TL2	Yes	N/A	
Veritas	InfoScale Availability	7.2, 7.3, 7.3.1	Solaris 11 U2, U3 (SPARC and X86)	Yes	N/A	
Veritas	InfoScale Availability	7.3, 7.3.1	CentOS 6.8 CentOS 7.3	Yes	N/A	

5.5.2 Microsoft HA

Vendor	Type /Product	OS	Agent	Agentless	Comments
Microsoft	High Availability	Windows 2012 R2	Yes	N/A	Microsoft Failover Cluster server
Microsoft	High Availability	Windows 2016	Yes	N/A	Microsoft Failover Cluster server

5.6 Veritas ApplicationHA

Version	Platforms
ApplicationHA 6.2	AIX_ppc64, Linux_x86_64 (RHEL 6.x and SLES 11.x) Solaris_SPARC_LDOM
ApplicationHA 6.1	AIX_ppc64, Linux (RHEL 6.x and SLES 11.x), Solaris_SPARC_LDOM, Windows 2012
SFWHA 6.1	Windows 2012 R2

5.7 Databases

Vendor	Application	Version	OS Support	Agent	Agentless	Comments
Sybase	ASE	15.7	RHEL 7.2, 7.3	Yes	N/A	64 bit instances
Sybase	Single Instance	15.x, 16.x	RHEL 6.8, 6.9 RHEL 7.2, 7.3 SLES 11 SP4 SLES 11.2 SP1, SP2 AIX 7.1 TL4 AIX 7.2 TL1, TL2 Solaris 11 U2, U3	Yes	N/A	64 bit instances
Microsoft	SQL Server	2014	Windows 2012 R2	Yes	N/A	Agent supports SQL Server on LDM. SQL Server on Microsoft Failover Cluster is also supported. Supports 32 and 64-bit instances and OS.
Microsoft	SQL Server	2012	Windows 2012 R2	Yes	N/A	Agent supports SQL Server on LDM. SQL Server on Microsoft Failover Cluster is also supported. Supports 32 and 64-bit instances and OS.
Oracle	Single Instance	11gR2, 12cR1	Solaris SPARC 11 U2, U3	Yes	N/A	64 bit instances
Oracle	Single Instance	11gR2, 12cR1	AIX 7.1 TL4 AIX 7.2 TL1, TL2	Yes	N/A	64 bit instances
Oracle	Single Instance	11gR2, 12cR1	RHEL 6.8, 6.9 RHEL 7.3, 7.4	Yes	N/A	64 bit instances
Oracle	Single Instance	11gR2, 12cR1	SLES 11 SP3, SP4 SLES 12 SP1, SP2	Yes	N/A	64 bit instances
Oracle	RAC	11gR2, 12cR1	Solaris SPARC 11 U2, U3	Yes	N/A	64 bit instances
Oracle	RAC	11gR2, 12cR1	AIX 7.1 TL4 AIX 7.2 TL1, TL2	Yes	N/A	64 bit instances
Oracle	RAC	11gR2, 12cR1	RHEL 6.8, 6.9 RHEL 7.3, 7.4	Yes	N/A	64 bit instances
Oracle	RAC	11gR2, 12cR1	SLES 11 SP3, SP4 SLES 12 SP1, SP2	Yes	N/A	64 bit instances
Oracle	ASM	11gR2, 12cR1	Solaris SPARC 11 U2, U3	Yes	N/A	
Oracle	ASM	11gR2, 12cR1	AIX 7.1 TL4 AIX 7.2 TL1, TL2	Yes	N/A	
Oracle	ASM	11gR2, 12cR1	RHEL 6.8, 6.9 RHEL 7.3, 7.4	Yes	N/A	
Oracle	ASM	11gR2, 12cR1	SLES 11 SP3, SP4 SLES 12 SP1, SP2	Yes	N/A	

5.8 Virtualization

Virtualization Type	Virtualization Manager	Virtualization server/versions	Guest OS Support	Agent	Agentless	Comments
Hyper-V	N/A	2012 R2	Windows and Linux	Yes	N/A	Discovery using Microsoft System Center Virtual Machine Manager is not supported.
KVM	N/A	Linux 7.2	Linux	Yes	N/A	
LDOM	Control Domain	Solaris 11 SPARC	Solaris	Yes	N/A	LDM version 1.3 or later.
LPAR	HMC V7R7.1.0.2 V7R7.2.0 V7R7.4.0.2 V7R7.4.0.3 V7R7.7.0.1	AIX 7.1 and AIX 7.2	AIX, Linux	N/A	N/A	
VMware	vCenter 6.0, U1, U2 ESX vSphere 2016	ESXi 6.0, U1 ESX vSphere 2016	Windows, Solaris x86, Linux	N/A	N/A	Discovers VMware cluster information. Performance metering is supported.
Zones	Global Zones	Solaris 11 SPARC and x86_64	Solaris	Yes	N/A	

Note: Virtualization Manager is used for discovering virtualization objects in Veritas Operations Manager. And if virtualization server is configured via agentless configuration, then Veritas Operations Manager will not discover virtual machines configured on that virtualization server.

6. Array Support for the Storage Insight Add-on

Vendor	Array	Version		Comments
EMC	Symmetrix DMX	Symcli	7.0. x - 7.3. x	Array performance metering is supported.
	Symmetrix VMAX		7.4.0.6	For FAST discovery on Symmetrix VMAX, Symcli version 7.3.1.0 or higher should be used.
			7.5.1.0	
	Clariion CX 3 series Clariion CX 4 series Clariion CX 500	Naviseccli	6.29. x - 7.31. x	Array performance metering is supported.
			7.32.x	
Celerra NSx Celerra NX	DART	6.x, 7.x		
VPLEX D10.60.0.59	VPLEX CLI	4.x and 5.1	Firmware 2.1.40.57.0 SSH is used to get details	
VNX5100 VNX5300 VNX5500	Naviseccli	6.29. x - 7.31. x 7.32.x, 7.33.x	Array performance metering is supported for VNX (Block) devices.	

Software				
Vendor	Array		Version	Comments
	VNX5700 VNX7500 VG-Series			
Hitachi	Hitachi 95xx Hitachi 98xx Hitachi 99xx Hitachi AMS Hitachi USP Hitachi USP-V (R5xx) Hitachi USP-V (R6xx) Hitachi VSP (R700) Hitachi USP-VM Hitachi Tagma Store	HiCommand Device Manager	6.1, 7.x, 7.6	Hitachi dynamic tier (HDT) discovery supported for the HDT capable arrays.
HP	HP XP 12000 HP XP 20000	Hi Command Device Manager	6.1, 7.x	
	HP 3 PAR F - 400 HP 3 PAR F - 200 HP 3 PAR S - 400	INSERV		FW 2.3.1, 2.2.4, 3.1.1, 3.1.2, 4.2.2, 4.3, 4.3.1 SSH is used to get details. Minimum MH version 6.0.
	HP EVA- 5000 HP EVA- 6100 HP EVA- 4400 HP EVA- 6400 HP EVA- 8100 HP EVA- 8400 HP EVA- P6300 HP EVA- P6500	SSSU	8.x, 9.x, 10.x	Controller versions: HP EVA- HSV110 HP EVA- HSV200 HP EVA- HSV210 HP EVA- HSV300 HP EVA- HSV360 HP EVA- HSV400 HP EVA- HSV450
IBM	DS8100 DS8300 DS8700 DS8800	DSCLI LMC	5.4.36.x – 7.6.x	DSCLI version should match with the LMC version as per the code bundle information from IBM.
	XIV 2810 XIV 2812 XIV GEN 3	XCLI	2.4.x, 3.0.x, 3.1.x, 4.x, 4.2.2, 4.3, 4.3.1	Array performance metering is supported. 4.x supported only on Linux.
	SVC Storwize V7000			Up to version 6.2 required SSH private key file to configure. From version 6.3 SSH private key file is optional. SSH is used to get details. Minimum version of MH should be 6.0. Support V7000 Block level discovery only, no filer support.
NetApp	FAS 200 FAS 270 FAS 800 FAS 900 FAS 2000 FAS 3000	ONTAP	6,7.0.x, 7.2.x, 7.3.x, 8.0, 8.1.x, 8.2.x (7-mode)	Minimum version of ONTAPI should be 1.4. For Vfiler to Array Volume, NAS object mapping, the minimum version should be 1.6 and above. Array performance metering is supported.
	cDOT	ONTAP	min. vers. 1.32	Array performance metering is not supported for cDOT.

Vendor	Array	Version		Comments
Fujitsu	Eternus DX80S2 Eternus DX90S2 Eternus DX100S3 Eternus DX 200S3	Vendor Plug-in	FujitsuDXLPerl	<p>Prerequisites:</p> <p>Storage Inside add-on must be installed on Management Server before installing these plugins.</p> <p>Discovery of these arrays requires a plug-in built and supported by Fujitsu site:</p> <p>More information and download can be found on the Fujitsu site: http://www.fujitsu.com/global/support/products/computing/storage/download/vomp.html</p>
	Eternus DX 410S2 Eternus DX 440S2	Vendor Plug-in	FujitsuDX400Perl	
	Eternus DX500S3 Eternus DX600S3	Vendor Plug-in	FujitsuDXMPerl	
	Eternus DX8100S2 Eternus DX8700S2	Vendor Plug-in	FujitsuDX8000Perl	
	Eternus DX8700S3 Eternus DX8900S3	Vendor Plug-in	FujitsuDXHPerl	

7. Switches Support for the Fabric Insight Add-on

Switch Vendor	Switch Model	Discovery Method	Software		Comments
			Firmware	Supported Version	
Brocade	200E 300, 3250, 3850, 3900 4100, 4900 5000, 5100, 5300 6510 7500, 7800, 8000 12000, 24000, 48000 DCX	HTTP	FOS v5.3.x, v6.0.x, v6.1.x, v6.2.x, v6.3.x, v6.4.x, v7.0.x, v7.1.x, v7.2.0d, v7.2.1	5.3.x and above	<p>HTTP switch discovery prerequisites:</p> <p>Principal switch requirements: FOS version 6.3.x, or later. Principal switch must be reachable for fabric to be discovered.</p> <p>Seed Switch requirements: FOS version 5.3.2, or later. Seed switch can be either Principal or Subordinate switch.</p> <p>Switch credentials requirements: All switches in the Fabric are required to have the same credentials. Credentials with minimum Guest level access are sufficient.</p> <p>To discover all Logical switches on a Brocade Chassis, chassis account needs to have all of its logical fabric FIDs assigned to that account. Chassis account also needs to have minimum Guest level Chassis access role configured.</p> <p>Discovery of Brocade Virtual Fabrics via HTTP method is not supported using a Windows 2012 R2 MH.</p>
		Brocade Network Advisor (BNA) ODBC	FOS v5.0.x, v5.1.x, v5.2.x, v5.3.x, v6.0.x, v6.1.x, v6.2.x, v6.3.x, v6.4.x, v7.0.x, v7.1.x, v7.2.0d, v7.2.1	11.x and above 12.1.1 12.1.3 12.2	<p>BNA ODBC switch discovery prerequisites:</p> <p>BNA 12.x: To allow Veritas Operations Manager to discover host to query BNA database, the following file on BNA server needs to be modified to allow remote client access:</p> <p>pg_hba.conf.</p> <p>File is located in the following directory:</p> <p>Install_Home\data\databases</p> <p>To modify the file, refer to the BNA Installation and Migration Guide.</p>
CISCO	MDS 9140 MDS 9513 Nexus 5548UP MDS 9506	SNMP	5.0(4d) 3.1 3.3 5.1		<p>All Switches in the fabric are required to have the same credentials.</p> <p>Cisco switches in NPV mode cannot</p>

Switch Vendor	Switch Model	Discovery Method	Software		Comments
			Firmware	Supported Version	
	MDS 9509 MDS 9124				be configured as seed switches. Discovery of mixed-vendor fabrics is not supported.

8. Add-on Compatibility Matrix

Veritas Operations Manager add-ons compatibility matrix

Name	Version	Add-on ID	Supported Veritas Operations Manager Versions	Deployment Type	OS	Comments
Application Migration	7.3.1.0	VRTSsfmappmig-7.3.1.0.sfa	7.3.1	MS only	Linux Windows	
Control Host	7.3.1.0	VRTSsfmch-7.3.1.0.sfa	7.3.1	MH only	Linux Windows	Supported only on 64-bit OS.
Distribution Manager	7.3.1.0	VRTSsfmdm-7.3.1.0.sfa	7.3.1	MS only	Linux Windows	
Fabric Insight	7.3.1.0	VRTSsfmfabric-7.3.1.0.sfa	7.3.1	MS + MH	Linux Windows	
Patch Installer	1.0	PatchInstaller-1.0.sfa	7.3.1	MS only	Linux Windows	Supports deployment of SF and SF-HA patches marked as 'VIOM deployable'. 1.0 version of add-on supports deployment of Windows patches only. Installation of SF and SF-HA patches is not supported for UNIX or Linux.
Storage Insight	7.3.1.0	VRTSsfmsi-7.3.1.0.sfa	7.3.1	MS only	Linux Windows	
Storage Insight SDK	7.3.1.0	VRTSsfmsisdsk-7.3.1.0.sfa	7.3.1	MH only	AIX Linux Solaris Windows	
Storage Provisioning and Enclosure Migration	7.3.1.0	VRTSsfmvtp-7.3.1.0.sfa	7.3.1	MS only	Linux Windows	
VCS Utilities	7.3.1.0	VRTSVCSUtilities-7.3.1.0.sfa	7.3.1	MS only	Linux Windows	
Veritas HA Plug-in for vSphere Web Client	7.3.1.0	VRTSsfmhac-7.3.1.0.sfa	7.3.1	MS only	Linux Windows	

VBS Supported Cluster Matrix for Fault management

Linux	Solaris	AIX	HPUX	ApplicationHA-Linux	Windows	ApplicationHA-Windows
InfoScale Enterprise 7.3.1	InfoScale Enterprise 7.3.1	InfoScale Enterprise 7.3.1	NA	NA	InfoScale Enterprise 7.3.1	NA
InfoScale Enterprise 7.3	InfoScale Enterprise 7.3	InfoScale Enterprise 7.3	NA	NA	InfoScale Enterprise 7.3	NA
InfoScale Enterprise 7.2	InfoScale Enterprise 7.2	InfoScale Enterprise 7.2	NA	NA	InfoScale Enterprise 7.2	NA