EMC® ViPR SRM

Version 4.0.1

Support Matrix

P/N 302-003-312

REV 08

EMC²

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CHAPTER 1

System Requirements

This chapter includes the following topics:

Operating system requirements

The following operating systems are supported for production.

Table 1 Supported operating systems

Operating system	Version
Red Hat Enterprise Linux	5 (64-bit)
	6 (64-bit)
	7 (64-bit)
CentOS Linux	5 (64-bit)
	6 (64-bit)
	7 (64-bit)
SUSE Linux Enterprise Server (SLES)	11 (64-bit)
Microsoft Windows	Server 2008 R2
	Server 2012
	Server 2012 R2

Note

Any new vApp installations require VMware vSphere 5.x or 6.0. This includes adding a vApp VM to an existing installation. Hyper-V, or any other virtual environment, is not supported for vApp installations.

Browser requirements

For the following browsers, support varies.

Table 2 Supported browsers

Browser	Version	Operating system	Notes
Google Chrome	Latest	Windows, Linux	Full support
Internet Explorer	9, 10, 11	Windows	Full support
Internet Explorer Edge	Latest	Windows	Full support
Mozilla Firefox	Latest	Windows, Linux	Full support
Apple Safari	Latest	Mac OS X and iOS	Full support

Minimal Browse mode is for report viewing and browsing. It can display tables, including interactive tables, and graphs that are not interactive. Topology maps are not supported.

Full support includes report viewing and browsing, plus support for interactive tables and graphs, topology maps, and administration tasks (user management, enrichment GUI, alerting GUI, and so on).

ESRS requirements

The following ESRS versions are supported.

Table 3 Supported ESRS versions

ESRS version	Ports	Notes
ESRS V3 (Virtual Edition)	9443 (HTTPS, Passive FTP, SMTP)	Used for communication between the ViPR SRM frontend host and the ESRS VE host.
	22 (CLI via SSH)	Opening port 22 on both the ViPR SRM frontend host and the ESRS VE host is required for additional communication between the two components.

Third-party tools

The following tools may be required during installation.

Table 4 Supported browsers

Tools	Version	Notes
PuTTY	0.63	Minimum version required to support AES_CTR algorithms introduced in SP 1.

CHAPTER 2

Supported SolutionPacks

This chapter includes the following topics:

ViPR SRM and SolutionPack compatibility

This is a list of SolutionPacks compatible with ViPR SRM 4.0.1.

Table 5 ViPR SRM and SolutionPack compatibility

Product	Version
EMC M&R	6.7u4
SolutionPack for Block Chargeback	4.0
SolutionPack for Amazon AWS	4.0
SolutionPack for Brocade FC Switch	4.0.1
SolutionPack for Cisco MDS/Nexus	4.0.1
SolutionPack for Cisco UCS	4.0
SolutionPack for Converged Infrastructure	1.1
SolutionPack for EMC Atmos	4.0.1
SolutionPack for EMC Centera	4.0
SolutionPack for EMC Data Domain	4.0.1
SolutionPack for EMC Data Protection Advisor	4.0.1
SolutionPack for EMC ECS	4.0
SolutionPack for EMC Host Interface	4.0
SolutionPack for EMC Isilon	4.0.1
SolutionPack for EMC M&R Health	2.2.1
SolutionPack for EMC RecoverPoint	4.0
SolutionPack for EMC ScaleIO	4.0.1
SolutionPack for EMC ViPR Controller	4.0.1
SolutionPack for EMC VMAX	4.0.1
SolutionPack for EMC VNX	4.0.1
SolutionPack for EMC VPLEX	4.0.1
SolutionPack for XtremIO	4.0.1
SolutionPack for Hitachi Device Manager	4.0.1
SolutionPack for HP 3PAR StoreServ	4.0.1
SolutionPack for HP EVA	1.1.3
SolutionPack for HP StorageWorks P9000	4.0.1
SolutionPack for IBM DS	4.0.1
SolutionPack for IBM LPAR	4.0.1
SolutionPack for IBM SAN Volume Controller/Storwize	4.0

Table 5 ViPR SRM and SolutionPack compatibility (continued)

Product	Version
SolutionPack for IBM XIV	4.0
SolutionPack for Microsoft Hyper-V	4.0.1
SolutionPack for Microsoft SQL Server	4.0.1
SolutionPack for NetApp Filer	4.0.1
SolutionPack for Oracle Database	4.0.1
SolutionPack for Oracle MySQL Database	4.0
SolutionPack for Physical Hosts	4.0.1
SolutionPack for Storage Compliance	4.0
SolutionPack for VMware vCenter	4.0

SolutionPack for Amazon AWS

Table 6 Support for Amazon AWS

Supported Family/Models	Prerequisites	Ports
Amazon Simple Storage Service (S3) Billing & Cost Estimate Reports CloudWatch Monitoring Service	AWS Command Line Interface (CLI) Windows binary installations require a minimum of Windows Management Framework 3.0.	

SolutionPack for Brocade FC Switch

SMI-S only
Discovers switch topology, performance and zoning details completely through SMI-S. This is the recommended discovery approach.

Table 7 Support for Brocade fabric

Supported Family/Models	Prerequisites	Ports
For the supported models, refer to *EMC Connectrix Manager Converged Network Edition Professional, Professional Plus, and Enterprise User Guide*.	CMCNE/BNA 11.1.x, 11.2.1, 12.0.x, 12.1.x, 12.3.x, 12.4.x, 14.0, 14.0.1 CMDCE/DCFM 10.4.x	

Notes

- For all versions of CMCNE/BNA, ViPR SRM does not support Single Sign On and Launch-in- Context.
- ViPR SRM does not support Administrative Domains features.

- Performance Metrics will not be collected for Brocade AG Devices and FCoE ports.
- Discovery support is limited to FC and FCoE ports; discovery of other protocols or routing is not supported.
- CPU Utilization and Memory Utilization will not be populated for Brocade switches.
- Name Server Database, Ethernet ports details are not discovered.
- For Alerts to be populated in ViPR SRM, configure the SNMP trap recipient on each switch. For more information, refer to the *ViPR SRM Alerting Guide*.

SNMP + SMI-S (Zoning only through SMI-S)

Discover switch topology and performance metrics through SNMP. SNMP does not support zoning discovery. Restrict SMI-S discovery to zoning details only.

This discovery approach is supported for backward compatibility with previous versions.

Table 8 Support for Brocade fabric

Supported Family/Models	Prerequisites	Port
All Brocade switches that are running FOSv4.x or higher.	Supported MIBs: SW-MIB FCMGMT-MIB FIBRE-CHANNEL-FE-MIB IANAifType-MIB IF-MIB IP-MIB RFC1213-MIB SNMPv2-SMI-MIB Providers: CMCNE/BNA 11.1.x, 11.2.1, 12.0.x,12.1.x, 12.3.x, 12.4.x, 14.0, 14.0.1 CMDCE/DCFM 10.4.x Some switch models might not have all the MIBs listed and in that case those capabilities will not be discovered.	161 SNMP

Notes

- Performance Metrics will not be collected for Brocade AG Devices.
- CPU Utilization and Memory Utilization will be populated for Brocade switches running firmware version FOS 6.3 and above. A Fabric Watch license should be installed on the switches to fetch CPU and Memory utilization metrics.
- Discovery is limited to FC blades. Discovery supports only the E, F, and G ports on the blades.
- ViPR SRM does not support Administrative Domains features.

- For all versions of CMCNE/BNA, ViPR SRM does not support Single Sign On and Launch-in-Context.

SolutionPack for Cisco MDS/Nexus

Table 9 Support for Cisco MDS/Nexus

Supported Collection Interfaces	Prerequisites	Ports
Cisco MDS Cisco ONS Cisco Nexus	Supported MIBs: • CISCO-FLASH-MIB • CISCO-NS-MIB • CISCO-DM-MIB • CISCO-ENTITY-SENSOR-MIB • ENTITY-MIB • CISCO-FC-FE-MIB • IF-MIB • CISCO-ENTITY-FRU-CONTROL-MIB • CISCO-VSAN-MIB • CISCO-DM-MIB • CISCO-ZS-MIB • CISCO-SYSTEM-EXT-MIB • SNMPv2-MIB • CISCO-FCS-MIB • CISCO-FEATURE-CONTROL-MIB	161 SNMP

Notes

- Some switch models might not have all of the listed MIBs and in that case those capabilities will not be discovered.
- Discovery is limited to FC and FCoE ports only.
- ViPR SRM does not support Cisco device aliases or Cisco enhanced device aliases.
- ViPR SRM does not support discovery of VDC (virtual device context) and Fabric extenders.
- Switches running NX-OS 5.2(x) and 6.2(x) code is recommended to upgrade to 5.2(8d) or later and 6.2(11) or later accordingly.

SolutionPack for Cisco UCS

Table 10 Support for Cisco UCS

Supported Collection Interfaces	Prerequisites	Ports
Cisco UCS Manager 2.0 and higher Cisco UCS C-Series (CIMC) 1.4 and higher		80 443

SolutionPack for Converged Infrastructure

Table 11 Support for Converged Infrastructure

Supported Family/Models	Prerequisites	Ports
UIM/Provisioning - 4.0 and later UIM/Operations - 4.0 and later		443 HTTPS

SolutionPack for EMC Atmos

Table 12 Support for EMC Atmos

Supported Family/Models	Prerequisites	Ports
Atmos 2.1.x.x - 2.2.3.0	Atmos System Management Interface	8080 443 8443

SolutionPack for EMC Centera

Table 13 Support for EMC Centera

Supported Family/Models	Prerequisites	Ports
EMC Centera CenteraStar v4.3		3682

SolutionPack for EMC Data Domain

Table 14 Support for EMC Data Domain

Supported Family/Models	Prerequisites	Ports
EMC Data Domain OS 5.4 EMC Data Domain OS 5.5 EMC Data Domain OS 5.6 EMC Data Domain OS 5.7 EMC Data Domain OS 6.0	If you are updating from an older version, ensure that the SolutionPack block Generic-SNMP is updated to version 1.2 or later. SNMP must be enabled.	161 SNMP

Notes

- Archive Tier information is provided via an SNMP agent starting with DD OS 5.7. This information is displayed only when archive/retention is enabled on the device. Devices running an earlier version of DD OS, will not be able to display this information even if archive/retention is enabled on the device.

SolutionPack for EMC Data Protection Advisor

Table 15 Support for EMC Data Protection Advisor

Supported Family/Models	Prerequisites	Ports
DPA 6.1.x DPA 6.2.3		9004 HTTP 9002 HTTPS

SolutionPack for EMC ECS

Table 16 Support for EMC ECS

Supported Family/Models	Prerequisites	Ports
ECS 2.0 ECS 2.0.1 ECS 2.1 ECS 2.2 ECS 3.0		4443 HTTPS

SolutionPack for EMC Host Interface

Table 17 Support for EMC Host Interface

Supported Operating Systems	Prerequisites	Ports
Windows 2008 SP2 Windows 2008 R2 Windows 2008 R2 core Windows 2012 Windows 2012 R2 core	Supported Windows OS EMC Host Interface Agent version 1.3.1.0.279	5988 TCP 5989 TCP secure

Notes

- This SolutionPack does not contain reports. You should install the reports from the SolutionPack for Physical Hosts.
- Only 64-bit versions of Windows is supported.

SolutionPack for EMC Isilon

Table 18 Support for EMC Isilon

Supported Family/Models	Prerequisites	Ports
Isilon OneFS 6.x (via SNMP) Isilon OneFS 7.0 Isilon OneFS 8.0.0		8080 HTTPS

Notes

- Support for the iSCSI protocol in Isilon products was deprecated as of OneFS 8.0. To maintain support for other protocols across all supported versions of OneFS, iSCSI performance statistics are also no longer supported as of ViPR SRM 4.0.

SolutionPack for EMC RecoverPoint

Table 19 Support for EMC RecoverPoint

Supported Family/Models	Prerequisites	Ports
RecoverPoint 4.0 and later		7225 443

SolutionPack for EMC ScaleIO

Table 20 Support for EMC ScaleIO

Supported Family/Models	Prerequisites	Ports
ScaleIO 1.30 ScaleIO 1.31 ScaleIO 1.32 ScaleIO 1.33 for ScaleIO Node ScaleIO 2.0 ScaleIO 2.0.1	ScaleIO REST gateway should be installed on the host and should be configured with ScaleIO MDM (Meta Data Manager).	443 HTTPS

Notes

- Topology for VMware is not supported.
- For ScaleIO Node server, reports similar to software-only ScaleIO versions are supported.

SolutionPack for EMC ViPR Controller

Table 21 Support for EMC ViPR Controller

Supported Family/Models	Prerequisites	Ports
ViPR Controller 2.2.0.1.1084 to ViPR Controller 3.5.0.1.613		4443

SolutionPack for EMC VMAX

DMX, VMAX, and VMAX SE support

Table 22 Collecting capacity and topology information using Solutions Enabler

Solutions Enabler Server	Solutions Enabler Client on Collector Host	Solutions Enabler Client Connection Type	Notes
7.6.2.56	N/A	Local	Support for 7.6.2 is deprecated and will be dropped in a future release.
8.0.3 - 8.3	N/A	Local	For the 8.0.x release, Solutions Enabler 8.0.3.26 is the recommended hotfix.
7.6.2.56	7.6.2.56	Remote	Support for 7.6.2 is deprecated and will be dropped in a future release.

Table 22 Collecting capacity and topology information using Solutions Enabler (continued)

Solutions Enabler Server	Solutions Enabler Client on Collector Host	Solutions Enabler Client Connection Type	Notes
8.0.3 - 8.2	7.6.2.56	Remote	Solutions Enabler hotfix 7.6.2.56 is required to communicate with Solutions Enabler 8.0.3 to 8.2 server. For the 8.0.x release, Solutions Enabler 8.0.3.26 is the recommended hotfix. Support for 7.6.2 is deprecated and will be dropped in a future ViPR SRM release. Client side version should be less than or equal to the version on the server side. It is recommended that the Solutions Enabler Client on the Collector Host be upgraded to the same version as the Solutions Enabler 8.x Server(s) being used in the collection (assuming all servers use the same version).
8.0.3 - 8.3	8.0.3 - 8.3	Remote	Client side version should be less than or equal to the version on the server side. It is recommended that the Solutions Enabler Client on the Collector Host be upgraded to the same version as the Solutions Enabler 8.x Server(s) being used in the collection (assuming all servers use the same version).

Note

Though currently supported, Solutions Enabler (SYMCLI) topology collection is now deprecated specifically for VMAX array models. Therefore, this VMAX/SYMCLI support will be removed in a future ViPR SRM release. Transition VMAX array models to use SMI-S topology collection to obtain the latest enhancements and ensure smooth upgrades to future ViPR SRM SolutionPack for VMAX releases. DMX arrays will continue to use SYMCLI topology collection.

Table 23 Collecting performance statistics using SMI-S Provider and Unisphere

SMI-S	Unisphere	Notes
4.6.2	1.6.2	Support for 4.6.2 and 1.6.2 is deprecated and will be dropped in a future ViPR SRM release.
8.0.3 - 8.2 (latest 8.2	8.0.3 - 8.2	If DMX arrays and VMAX arrays are connected to the same Solutions Enabler host, then version 8.2.0.18 hotfix or higher must be used. Otherwise, the SMI-S Provider

Table 23 Collecting performance statistics using SMI-S Provider and Unisphere (continued)

SMI-S	Unisphere	Notes
hotfix is recommended)		can encounter problems due to any DMX arrays being included. The alternative to using the hotfix is to use a separate Solutions Enabler host solely for DMX arrays. To prevent the VMAX-only Solutions Enabler host from discovering DMX arrays, the DMX serial numbers must be added to the symavoid file and any DMX arrays should be removed from the Solutions Enabler database.
8.3	8.3	

VMAX, VMAX3, and VMAX All Flash support

Table 24 Collecting capacity and topology information using SMI-S Provider

SMI-S	Notes
8.1	Required for HYPERMAX OS FAST.X external devices. VMAX All Flash arrays are supported by 8.1.2 and later
8.2 (latest 8.2 hotfix is required)	SMI-S topology collection of VMAX arrays require the 8.2 version to have data equivalence with the SYMCLI topology collection. Required for support of: • HYPERMAX OS FAST.X incorporated devices • HYPERMAX OS SRDF/Metro • HYPERMAX OS CKD device support • HYPERMAX OS VVOL device support • Device reservations
8.3 (latest 8.3 hotfix is recommended)	Solutions Enabler with SMI-S Provider is required in order for Compression and SRP Efficiency details to be collected and reported. These details are only collected using SMI-S and are not collected via SYMCLI.

Table 25 Collecting performance statistics using SMI-S Provider and UniSphere for VMAX

SMI-S	Unisphere
8.1 VMAX All Flash arrays are supported by 8.1.2 and later	8.1
8.2 (latest 8.2 hotfix is recommended)	8.2 is required for collection of HYPERMAX OS Storage Group SLO Compliance
8.3	8.3

Notes

• SMI-S provider 8.x is packaged as part of the Solutions Enabler. For SMI-S installation, download the Solutions Enabler package from EMC Online Support.

- The default settings for the 8.x Solutions Enabler installation does not include the SMI-S Provider to be installed. Therefore, you must manually select the SMI-S Provider option when installing Solutions Enabler.

- If DMX arrays and VMAX arrays are connected to the same Solutions Enabler host, then version 8.2.0.18 hotfix or higher must be used. Otherwise, the SMI-S Provider can encounter problems due to any DMX arrays being included. The alternative to using the hotfix is to use a separate Solutions Enabler host solely for DMX arrays. To prevent the VMAX-only Solutions Enabler host from discovering DMX arrays, the DMX serial numbers must be added to the symavoid file and any DMX arrays should be removed from the Solutions Enabler database.

- SMI-S 4.6.2 installation includes Solutions Enabler 7.6.2 and can be downloaded from EMC Online Support. This 7.6.2 Solutions Enabler can be upgraded to the required 7.6.2.56 hotfix version.

- eNAS is supported by the SolutionPack for EMC VNX.

- For feature specific compatibility, refer to the Solutions Enabler, SMI-S Provider, and Unisphere for VMAX documentation.

- SMI-S Provider requires 6 gatekeepers per array fibre-connected to the SE host.

- VMAX arrays discovered through SMI-S cannot get the number of FICON mapped devices.

- Solutions Enabler 8.3.0.6 should be avoided due to a Non-Disruptive Migration (NDM) corruption issue. See KB article 496471 for more details. It is recommended that the latest 8.3 hotfix version available be used instead.

Table 26 Guidelines for Gatekeepers

Gatekeepers used to support	Minimum Gatekeepers
Unisphere for VMAX	6
ViPR SRM	2
Customer run scripts	2

Notes

- 100K maximum devices from all arrays, zone to host, where the SMI-S Provider is installed.

SolutionPack for EMC VNX

Table 27 Support for EMC VNX

Supported Family/Models	Prerequisites	Ports
Operating Environment for Block ("FLARE"): 04.30* 05.31 or later Used with CLARiiON, VNX1, and VNX2 models.		443

Table 27 Support for EMC VNX (continued)

Supported Family/Models	Prerequisites	Ports
VNX Operating Environment for File 7.0 or later Celerra DART 5.6 and 6.0 Used with Celerra, VNX1, VNX2, and Gateway models.		22 443

Notes

- Systems with FLARE/Operating Environment for Block 04.30 or 05.31 might incorrectly report CurrentUtilization, ResponseTime, ServiceTime, and QueueLength metrics. These metrics might not match Unisphere Analyzer because the necessary counters used to properly compute them are not available in the NaviCLI output for arrays that are running FLARE 04.30 or 05.31.

- The ResponseTime and QueueLength metrics are not available for disks dedicated to Storage Pools on systems with FLARE/Operating Environment for Block version 04.30 or 05.31. This is because the counters that are used to compute these metrics are not available via Navisphere CLI at these versions.

- There are known issues collecting Disk data from arrays running FLARE/Operating Environment for Block versions 04.30.000.5.509, 04.30.000.5.522, and 05.31.000.5.509. It is advised to obtain the latest software version of 04.30 or 05.31 from EMC Online Support (https://support.emc.com).

- To collect performance data for VNX MetaLUNs with Operating Environment for Block ("FLARE") 05.32, version 05.32.000.5.209 or later must be used.

- CIFS Throughput (IOPS) and Top 5 CIFS users reports are supported with Operating Environment for File 7.1 or later.

- Navisphere CLI commands are used to communicate with the VNX. EMC recommends matching Navisphere CLI versions with the Block Operating Environment versions of VNX systems configured in the SolutionPack. For example, if the firmware version of the Block side is 05.32.x, Navisphere CLI 7.32.x or higher should be used. For more information on compatible Block OE and Navisphere CLI versions, see the *VNX OE for Block Release Notes* and the *Unisphere Host Agent/CLI and Utilities Release Notes* located on EMC Online Support.

- SSH access to VNX-File/Celerra with an operator user. SSH access is needed between VNX Collector host and Control Station to download files in /emc-srm via SFTP via SFTP.

- To collect Quota information correctly, arrays must be running File OE 6.0.70.0, 7.0.54-6, 7.1.70.0 or later.

- If ALUA (Failover Mode 4) is enabled for one or more hosts attached to a VNX array and I/O to the associated host LUNs is distributed across more than one Storage Processor, values for the LUN perfromance metrics AverageBusyQueueLength, QueueLength, and ResponseTime may be higher than what is displayed in Unisphere Analyzer, because the Navisphere CLI counters used to compute these metrics will accumulate for each Storage Processor.

- To properly compute the LUN performance metrics ReadCacheHitRatio and WriteCacheHitRatio for FLARE/Operating Environment for Block version 05.33, version 05.33.006.5.102 or later must be used.

- It is possible for Raw Capacity for an array to decrease if Hot Spare disks are invoked or disks are removed, even though Raw Capacity for the RAID Group(s) or Pool(s) the faulted/removed disks belong to does not change. This is normal due to how Unisphere and Navisphere CLI display capacity metrics for Hot Spares depending on their state; however, until the removed/faulted disks are replaced and the hot spares are returned to a "Hot Spare Ready" state, it could result in Raw Capacity for a VNX array to display as lower than the sum of ConfiguredUsableCapacity, RAIDOverheadCapacity, UnconfiguredCapacity, UnusableCapacity, and HotSpareCapacity.

- Unisphere Analyzer/SRM may provide huge spikes for Disk Response Time on systems with FLARE/Operating Environment for Block 05.33. This has been addressed in 05.33.000.5.081 and higher.

Table 28 Support for EMC Unity/VNXe

Supported Family/Models	Prerequisites	Ports
OE 3.0, 3.0.1, 3.1.1, 3.1.5 (Block and File) • Used with second generation VNXe models as of VNXe3200 • First generation VNXe models such as VNXe1600, VNXe3100, VNXe3150, and VNXe3300 are not supported OE 4.0, 4.0.1, 4.0.2[a], 4.1[ab], 4.1.1[ab], 4.1.2[ab] (Block and File) • Used with physical Unity models • UnityVSA (Virtual Storage Appliance) is not supported		443

[a] The Test button displays an error, but discovery is successful.

[b] Tolerance support only; Inline Compression and QoS are not supported.

SolutionPack for EMC VPLEX

Table 29 Support for EMC VPLEX

Supported Family/Models	Prerequisites	Ports
5.2.x, 5.3.x, 5.4.x, 5.5.x, 6.0.0 of Standalone (single cluster) and Metro/Geo	REST API access, CLI access, and Virtual Volume Perpetual monitor logs (for VPLEX 5.3.x or newer only). CLI access and Director Perpetual monitor logs.	443 HTTPS 22 SSH

Notes

- Do not run VPLEX 5.2sp1 patch 2 with any version of the product as the VPLEX management server could become unresponsive.

- Backend Arrays supported by this SolutionPack: EMC VMAX, EMC VNX, NetApp, EMC XtremIO, IBM XIV, Hitachi Device Manager, HP StorageWorks P9000, and HP 3PAR.

- Backend Arrays not supported by this SolutionPack: ScaleIO, EMC Isilon, and IBM DS.

SolutionPack for EMC XtremIO

Table 30 Support for EMC XtremIO

Supported Family/Models	Prerequisites	Ports
XtremIO 2.4.x, 3.0.x, 4.0.x (Multiple Cluster is supported with 4.0 and higher)		443 HTTPS

SolutionPack for Hitachi Device Manager

Table 31 Support for Hitachi Device Manager

Supported Family/Models	Prerequisites	Ports
AMS200, AMS500, AMS1000 AMS2xxx USP and USP_V HUS and VSP VSP G Series	Hitachi Command Suite 7.4.1 or later	2001 XML API 5988 SMI-S 5989 SMI-S

Notes

- Only block mode is supported on HUS arrays (not file or object).

- Performance statistics are provided for the HUS VM, VSP, and VSP G through the Embedded SMI-S Provider. For details about enabling Embedded Performance Collection for these models, refer to the *SolutionPack Installation Guide*.

SolutionPack for HP 3PAR StoreServ

Table 32 Support for HP 3PAR StorServ

Supported Family/Models	Prerequisites	Ports
F200 F400 S400X V400 T400 T800 7xxx Supported versions of the firmware are: 2.3.1, 3.1.1, 3.1.2, 3.1.3, 3.2.1, 3.2.2. Versions at 2.2 and earlier are not supported.	CIM server has been started. Use `startcim` command on the CLI to start the CIM server.	22 SSH 5988 SMI-S 5989 SMI-S

SolutionPack for HP EVA

Table 33 Support for HP EVA

Supported Family/Models	Prerequisites	Ports
HP EVA 3000, 4x00, 5000, 6000, 6x00, 8000, 8x00	SMI-S Command View EVA 9.02 full version	5988 CIMOM 5989 CIMOM

Notes

- CIMOM ports 5988/5989 should be open bi-directionally between Collector host and Command View host.

SolutionPack for HP StorageWorks P9000

Table 34 Support for HP StorageWorks P9000

Supported Family/Models	Prerequisites	Ports
P9500 XP24K/20K XP10K/SVS200 XP1024/128	HP Command View Advanced Edition Suite 7.4.1 or later installed on the host	2001 XML API 5988 SMI-S 5989 SMI-S

Notes

- Performance statistics are provided for the P9500 through the Embedded SMI-S Provider. For details about enabling Embedded Performance Collection for this model, refer to the *SolutionPack Installation Guide*.

SolutionPack for IBM DS

Table 35 Support for IBM DS

Supported Family/Models	Prerequisites	Ports
DS 3000 Series DS 4000 Series DS 5000 Series	CIM Agent running	5988 HTTP 5989 HTTPS
DS 6000 Series DS 8000 Series	CIM Agent running	6989 HTTPS

SolutionPack for IBM LPAR

Table 36 Support for IBM P Series

Supported Family/Models	Prerequisites	Ports
All P Series servers HMC version 6, 7, or 8	Installation of the SolutionPack for IBM LPAR, providing credentials of the Hardware management Console (HMC). HMC can also be discovered using SSH public-private key pair. Refer to the *SRM 3.7.1 SolutionPack Installation and Configuration Guide* for more information.	22

Table 37 Support for LPAR (VIOS/VIOC)

Supported Operating Systems	Prerequisites	Ports
IBM AIX 6.1, 7.1 Redhat 5.x, 6.x SuSE 10.x, 11.x	Installation of the SolutionPack for Physical Hosts. Physical Host SolutionPack Script needs to be installed on any Generic RSC collector that will be used for physical host discovery. padmin user credentials are not required to discover VIO Servers. INQ 8.1.0.4 is available from: ftp.emc.com/pub/symm3000/inquiry/	22

Table 37 Support for LPAR (VIOS/VIOC)

Supported Operating Systems	Prerequisites	Ports
	Perl interpreter 5.6.1 or later.	

Notes

- SolutionPack for IBM LPAR will collect information only from HMC.

- To discover VIO Server and LPAR information, use SolutionPack for Physical Hosts.

- INQ is pushed to both VIO Servers and Clients.

- The Live Partition Mobility (LPM) feature on IBM LPAR causes floating CPU and memory that is not captured by agentless collection scripts. For this reason, the SolutionPack for IBM LPAR does not support dynamic refresh on LPARs occurring due to the LPM capability on AIX/Linux LPAR.

- INQ 8.1.0.4 is supported only on 64-bit OS platforms. INQ 7.6.2 needs to be manually copied onto 32-bit target hosts.

SolutionPack for IBM SAN Volume Controller/Storwize

Table 38 Support for IBM SAN Volume Controller/Storwize

Supported Family/Models	Prerequisites	Ports
IBM SVC V7.0 and later	IBM SMI-S Provider running	22 SSH
IBM Storwize V7000 V7.0 and later		5989 HTTPS

Notes

- Backend Arrays supported by this SolutionPack: EMC VMAX, EMC VNX, IBM XIV, NetApp, HP 3PAR, and Hitachi Device Manager.

- Backend Arrays not supported by this SolutionPack: EMC XtremIO, HP StorageWorks P9000, ScaleIO, EMC Isilon, and IBM DS.

- Internal Storage is not supported in the Raw Capacity Usage and the Configured Usable reports. Service Level and Chargeback is not supported for mdisks (Virtual Disks) based on internal storage.

- Replication is not supported.

SolutionPack for IBM XIV

Table 39 Support for IBM XIV

Supported Family/Models	Prerequisites	Ports
IBM XIV	CIM Agent running	5989 SSL

SolutionPack for Microsoft Hyper-V

Table 40 Support for Microsoft Hyper-V

Supported Family/Models	Prerequisites	Ports
Hyper-V on Windows Server 2008 R2 Service Pack 1 or later Hyper-V Server 2008 Hyper-V Server 2008 or later Hyper-V on Windows 2012 R2	Requires PowerShell	

Notes

- This SolutionPack can only be installed on a Windows collector host.

SolutionPack for Microsoft SQL Server

Table 41 Support for Microsoft SQL Server

Supported Family/Models	Prerequisites	Ports
SQL Server 2008 R2 SQL Server 2012 SQL Server 2014	SQL Authentication: SQL authentication works with users having SYSADMIN privileges or with an unprivileged account. For more information on configuring the SolutionPack with an unprivileged account, refer to the *ViPR SRM SolutionPack Installation Guide*. Windows Authentication: Windows user account must be imported into the Microsoft SQL Server with settings similar to these: • Server roles of public • Securable grants for Connect SQL, View any definitions, and View server state	1433

Table 42 End-to-end capacity use cases

Supported	Not Supported
MS-SQL Server > FS > LUN	MS-SQL Server > VMDK
MS-SQL Server > RDM	MS-SQL > FS using VPLEX supported for End-to-end capacity but not supported for topology

SolutionPack for NetApp Filer

Table 43 Support for NetApp Filer

Supported Family/Models	Prerequisites	Ports
NetApp Filer 7-mode on Ontap 7.0.x, 7.1.x, 7.2.x, 7.3.x, 8.0.x, 8.1.x and 8.2.x		22 SSH
NetApp Filer C-mode on Ontap 8.0.x, 8.1.x, 8.2, 8.2.1, 8.2.2, 8.2.3, 8.3, 8.3.1, and 8.3.2		
IBM N-Series Storage Arrays		

Notes

• The cluster management IP must be provided during C-Mode Filer discovery.

SolutionPack for Oracle Database

Table 44 Support for Oracle Database

Supported Family/Models	Prerequisites	Ports
Oracle 10 and later	The appropriate JDBC driver jar file needs to be in the …/APG/ Databases/JDBC-Drivers/ Default/lib folder. ORACLE database user credentials are required.	1521 TCP

Notes

• The SolutionPack for Oracle Database was tested with ojdbc5.jar and ojdbc7.jar on Oracle 10, 11, and 12g versions respectively.

• Work with your DBA to determine the appropriate JDBC driver based on the installed version of Oracle. Download the JDBC driver from: www.oracle.com/technetwork/database/features/jdbc.

• For ASM Disk collection, only Oracle instances running Solaris, Windows 2008 R2 or later, and Red Hat Enterprise Server 5, 6, or 7 are supported.

• FileSystem information is not supported for Vdisks on VMs.

• ASM Disks on Vdisk are not supported.

• Non-admin Windows does not support ASM data.

Table 45 End-to-end topology and capacity for Oracle Database

Supported	Not Supported
• Oracle > File System > LUN • Oracle > ASM > RDM • Oracle > ASM > LUN	• Oracle > FileSystem > Datastore • Oracle > ASM > VMDK • Oracle > ASM or FileSystem using VPLEX supported for End-to-end capacity but not supported for topology

SolutionPack for Oracle MySQL Database

Table 46 Support for Oracle MySQL Database

Supported Family/Models	Prerequisites	Ports
MySQL 5.1 MySQL 5.5 MySQL 5.6	This SolutionPack requires MySQL database user login privileges to collect information from MySQL database servers running remotely.	3306 TCP

SolutionPack for Physical Hosts

Table 47 Support for HPUX hosts

Supported Family/Models	Prerequisites	Ports
HPUX 11iv1 11.11 HPUX 11iv2 11.23 HPUX 11iv3 11.31	PowerPath 5.2 or later must be installed on the host to fetch PowerPath metrics. INQ 8.1.0.4 is available from: ftp.emc.com/pub/symm3000/inquiry/ Perl interpreter 5.6.1 or later.	22

Table 48 Support for IBM AIX hosts

Supported Family/Models	Prerequisites	Ports
IBM AIX 5.1, 5.2, 5.3, 6.1, or 7.1	PowerPath 5.7 b194 or later must be installed on the host to fetch PowerPath metrics. INQ 8.1.0.4 is available from: ftp.emc.com/pub/symm3000/inquiry/ Perl interpreter 5.6.1 or later.	22

Table 49 Support for Linux hosts

Supported Family/Models	Prerequisites	Ports
LINUX RHEL AS/ES 4.x, 5.x, 6.x, 7.x LINUX SUSE ES 9, ES 9.3, ES 10.x, ES 11.x CentOS 5.x, 6.x, 7.x Oracle Linux 6.x MPIO reports are supported on Windows and Linux only.	PowerPath 5.7 or later must be installed on the host to fetch PowerPath metrics. INQ 8.1.0.4 is available from: ftp.emc.com/pub/symm3000/inquiry/ Perl interpreter 5.6.1 or later.	22

Table 50 Support for Windows hosts

Supported Family/Models	Prerequisites	Ports
Windows Server 2008 Core Windows Server 2008 SP1 Windows Server 2008 SP2 Windows Server 2008 R2 Windows Server 2012 Windows Server 2012 R2 Standard, Enterprise and Datacenter versions Multipath I/O for Windows Server 2008, Windows Server 2012 MPIO reports are supported on Windows and Linux only.	PowerPath 5.7 or later must be installed on the host to fetch PowerPath metrics. Requires PowerShell 2.0 or later.	5986 HTTPS 5985 HTTP

Notes

- Refer to the ViPR SRM Ports Usage and Worksheet for more information on port configuration.
- INQ 8.1.0.4 is supported only on 64-bit OS platforms. INQ 7.6.2 needs to be manually copied onto 32-bit target hosts.

Table 51 Support for Solaris hosts

Supported Family/Models	Prerequisites	Ports
Solaris 9, 10, 11, SVM, VxVM, zfs	PowerPath 5.5 P02 HF02 or later must be installed on the host to fetch PowerPath metrics. INQ 8.1.0.4 is available from: ftp.emc.com/pub/symm3000/inquiry/ Perl interpreter 5.6.1 or later.	22

Notes

- The PowerPath Support Matrix on EMC Online Support Site provides more details.
- Windows: fcinfo.exe is available from http://www.microsoft.com/download/en/details.aspx?displaylang=en&id=17530. Use the latest version and default install location recommended by Windows.
- INQ 8.1.0.4 is supported only on 64-bit OS platforms. INQ 7.6.2 needs to be manually copied onto 32-bit target hosts.

SolutionPack for Storage Compliance

Table 52 Support for Storage Compliance

Supported Family/Models	Prerequisites	Ports
Compliance rules support all the supported Hosts, ESX, VMs, EMC arrays (VMAX, VNX, VPLEX, and XtremeIO), third-party arrays (HDS, IBM XIV, NetApp, and IBM SVC), Brocade and Cisco fabrics.	Data needs to be discovered as part of individual collection.	

Notes

- ESM rules are not supported for third-party arrays.
- Policy Administration and EMC Support Matrix Administration reports are not supported in the minimal browse mode.

SolutionPack for VMware vCenter

Table 53 Support for VMware vCenter

Supported Family/Models	Prerequisites	Ports
VMware vCenter Server 5.1 VMware vCenter Server 5.5 VMware vCenter Server 6.0	VMware infrastructure. PowerPath/VE 5.8 or later must be installed on the host to fetch PowerPath metrics. Access to VCENTER user credentials, with a minimum privilege level of Browse DataStore and all StorageViews.	443 TCP

CHAPTER 3

Supported User-Installable Software

The ViPR SRM vApp is designed to be a black-box software appliance, to which EMC provides critical updates, such as security patches and component updates. As such, users are generally not allowed to install software onto the vApp based VMs. The exceptions include debugging utilities (man, tcpdump, netcat, net-snmp, sysstat, and iotop), which are provided by the SRM VM Utilities Manager, and the backup and restore solutions listed in this chapter.

Supported backup and restore solutions

Table 54 Support for backup and restore solutions

Supported Solutions	Prerequisites
EMC Avamar	Refer to *EMC ViPR SRM: Backup and Restore Using EMC Avamar* for more information.
EMC Networker	Refer to *EMC ViPR SRM: vApp Backup and Restore Using EMC Networker* for more information.
VMware vSphere Data Protection Advanced	Refer to *EMC ViPR SRM: vApp Backup and Restore Using VMware vSphere Data Protection Advanced* for more information.
CommVault Simpana Virtual Server Protection	Refer to *EMC ViPR SRM: vApp Backup and Restore Using Commvault Simpana Virtual Server Protection* for more information.
IBM Tivoli Storage Manager	Refer to *EMC ViPR SRM: vApp Backup and Restore Using IBM Tivoli Storage Manager* for more information.
Symantec NetBackup	Refer to *EMC ViPR SRM: vApp Backup and Restore Using Symantec NetBackup* for more information.