## PRODUCT IDENTIFICATION

Product    HPSA VPN SVP V7.0
Version    V7.0-1A
Released   Jan 2015

## PURPOSE

This is the release note of  VPN Solution Value Pack (HPSA VPN SVP V7.0) V7.0-1A

The product automates the major part of the following tasks:

- Creation and deletion of Layer 3 VPN service. Fully-meshed and Hub & Spoke topologies are supported. Layer 3 multicast is supported (PIM sparse and spares-dense mode). Creation and deletion of Layer 2 VPN service.
- Creation and configuration of ASBR links automated as part of Layer 3 VPN Site service creations when a multi-AS-backbone core network is deployed.
- Building of a full mesh of LSPs between the PE routers hosting VPN sites, as part of a strategic Traffic Engineering component.
- Creation and deletion of Layer 2 VPWS (point-to-point) services of Port, Port-VLAN, Frame Relay and PPP types.
- Addition and removal of Layer 2 and Layer 3 VPN Site service. This includes allocation and reservation of the various Layer 2 or Layer 3 VPN and Site specific resources.
- Attachment of all service types via L2 switched Ethernet based access network.
- VRRP configuration. Optionally available when attachment is via multiple PE routers.
- Modification of Layer 3 Site services. This includes connectivity type (Fully meshed, Hub or Spoke), rate limit (CAR), Quality of Service (QoS profile), static routes. This also includes joining and leaving other VPNs (intranet and extranet) and enabling of multicast.
- Modification of Layer 2 Site services.
- Addition of multiple service types to an existing Site service (service multiplexing).
- Timed activation of Layer 2 VPLS, Layer 2 P2P VPWS and Layer 3 VPN Site operations such as creation, deletion and modification.
- Enable/disable of services without removing configuration.
- Collection of activation parameters through workflow-controlled dialogs with network operators.
- Execution of device specific configuration command dialogs with PE (and on Layer 3 for Managed Sites, CE routers) as required for each service request.
- Maintaining an inventory database of the information, resources and parameters which define each VPN service and reserved resources.
- Network upload of equipment related inventory elements, such as ports, interfaces and controllers.
- Service Discovery functionality that allows the discovery of pre-configured services from existing network devices (PE routers).  The function  is mainly aimed at the initial commencement of VPN SVP in an already provisioned network environment.
- A Reporting Tool that provides information about the services and resources managed by VPN SVP and which is not readily available in the Inventory view.
- Router configuration backup (manual and scheduled), edit, audit and upload. Multiple transfer protocol supported.
- Regions and associated operator roles support.
- Error/Diagnostic Handler that allows the operator to analyze, diagnose and possibly resubmit failed service requests.  Supports resource retention or reselection as well as skip activation mode.
- Delayed Activation component that allows requests that fails due to temporary connectivity problems between the NOC and the NEs to be retried automatically.
- XML based Inventory data import and export tool.
- Service recovery required by equipment failures.  This includes an automated interface recovery tool, which allows the operator to migrate all services configured on a specific port is to a selected replacement port.
- The Audit tool of HPSA is used to store VPN SVP specific historic records (audit trails) in the database for each NE activation made.
- A pan-optic network management integration foundation, currently towards HP Network Node Manager (NNMi) and HP Network Automation (NA) for network discovery, data load, VPN service integrity checks and GUI cross-launch.
- Support for both IPv4 and IPv6 MPLS VPN services.
- Support for Flow-Through-Activation (FTA) that require no operator interactions.
- North Bound Interfaces to integrate with the 3rd-party Order Management systems.
- Adaptive mode allows dynamic resource creation for agnostic integration with external inventory systems.

The product includes a light-weight Order Entry portal, which can perform the following tasks:
- Creation/deletion of a customer.
- Creation/deletion of customer's L2 VPLS, L2 VPWS and L3 VPN services, addition/removal of VPN/VPLS/VPWS Sites and modification of specific VPN and Site parameters.
- Timed creation and deletion of VPN Site and VPWS services, timed VPN Site modification.
- Browsing of services' information.
- Re-issuing of failed requests.
- Enable/disable of services.

The product supports the following equipment types:
- Cisco routers and switches which support IOS 12.3 and MPLS.
- Juniper routers which support JunOS 9.4 and MPLS.

This release adds the following major functions to the VPN SVP solution:
- An external inventory system can be integrated with the VPN SVP the incoming request can contain the information so the resources can be created dynamically in the internal VPN SVP inventory before the activation process takes place.

The product does not aim at providing a 100% solution for every Service Provider. For each Provider a certain amount of customization work must be expected to support specific configuration styles and service variants of the Provider.


## DELIVERABLES

The package is delivered as an ISO image JK756-15001.iso, that comprises the following folders and items:

### Opensource/
Licenses/
- directory, containing the license information for the public domain libraries.
Sources/
- directory, containing the source files for the public domain libraries.

### Binaries/
| | |
|---|---|
| VPNSVP-V70-1A.zip | The VPN Solution pack zip file |
| VPNSVP-V70-1A.zip.sig | The VPN Solution pack certificate file |

### Documentation/
| | |
|---|---|
| InstallGuide.pdf | Installation and initial configuration |
| AdminsGuide.pdf | Administrator's configuration and maintenance guide |
| UsersGuide.pdf | Operational procedures and tools description |
| SDGuide.pdf | Service Discovery configuration and operational procedures guide |
| ReleaseNotes.pdf | This document. |

### Readme/
- directory, containing the End User License Agreement (EULA) and Open Source and Third-Party Licenses.


## CODE SIGNING

This Software Product from HP is digitally signed and accompanied by Gnu Privacy Guard (GnuPG) key.
For detailed instructions, refer to VPN SVP Installation Guide.


## NEW OR CHANGED FEATURES

This release changes or enhances the following features:
- Solution compatible to HP Service Activator 7.0 core frame work
- Equipment Model is a part of HP Service Activator 70, available as a solution pack, CRModel 7-0-0. VPN SVP extends the CRModel.
- Adaptive mode allows opens VPN SVP interface so external inventory systems can be used as main inventory by extending the information sent in the requests to perform activations with all resources involved on them.
- Other minor fixes.

## PREREQUISITES

### Web Client
- Microsoft Internet Explorer 9.0 or Firefox 8

### Server Platforms
- HP-UX 11i v3
- Red Hat Enterprise Linux 6.4
- Microsoft Windows® Server 2008 R2

### HP_UX

#### Hardware
The HP-UX 11i v3 activation server system must meet the following minimum requirements after installation of Service Activator 7.0:
- Itanium system
- 2 GB of memory
- Disk space available as follows:
    - o  1 GB under /opt partition
    - o  1 GB under /etc partition
    - o  1 GB under /var partition
- The database system requires room for an Oracle 12c / Enterprise DB database instance of at least 4 GB for the product data.

#### Software
- HP-UX 11i v3 and all available patches.
- HP-UX 11i Java Development Kit (JDK) 7.0.60 or later.
- HP Service Activator version 7.0 and all available patches:
    - o  HPSA 7.0
- CRModel Solution Pack version 7-0-0 available with HPSA 7.0.
- Secure Shell 3.7 or later
- Bash utility for HP-UX 11i v3
- Oracle Client (sqlplus and sqlldr) for HP-UX 11i v3
  OR
- PostgreSQL Client (psql) for HP-UX 11i v3

### Linux

#### Hardware
The Redhat Enterprise Linux 6.4 activation server system must meet the following minimum requirements after installation of Service Activator 7.0:
- X86-64 based system
- 2 GB of memory
- Disk space available as follows:
    - o  1 GB under /opt partition
    - o  1 GB under /etc partition
    - o  1 GB under /var partition
- The database system requires room for an Oracle 12c / Enterprise DB database instance of at least 4 GB for the product data.

#### Software
- Redhat Enterprise Linux 6.4 for x86-64 and all available patches
- Java SE Development Kit (JDK) 7 update 60 or later.
- HP Service Activator version 7.0 and all available patches:
    - o  HPSA 7.0
- CRModel Solution Pack version 7-0-0 available with HPSA 7.0.
- Secure Shell 4.3 or later
- Oracle Client (sqlplus and sqlldr) for Redhat Enterprise Linux 6.4
  OR
- PostgreSQL Client (psql) for Redhat Enterprise Linux 6.4

### Windows

**Hardware**

The Windows Server 2008 R2 activation server system must meet the following minimum requirements after installation of Service Activator 6.2:

- Windows Server 2008 R2
- 1 GB of memory
- Disk space available as follows:
  - 1 GB of disk space available on the drive on which Service Activator is  installed
- 1 GB of virtual memory
- The database system requires room for an Oracle 12c / Enterprise DB database instance of at least 4 GB for the product data.

**Software**

- Microsoft Windows 2008 R2 and all available patches.
- Java SE Development Kit (JDK) 7 update 60 or later.
- HP Service Activator version 7.0 and all available patches:
  - HPSA 7.0
- CRModel Solution Pack version 7-0-0 available with HPSA 7.0.
- Open Ssh v3.6 or later
- Oracle Client (sqlplus and sqlldr) for Windows
  OR
- PostgreSQL Client (psql) for Windows

# INSTALLATION/DE-INSTALLATION

See: Documentation/InstallGuide.pdf

## SOLVED PROBLEMS

The following problems are solved in HPSA VPN SVP V7.0:

| PR # / ALM ID | Problem description |
|---|---|
| 4648968550 / ALMCR9F1281 | Operator cannot delete L2VPN service. I have included the logs and a screen shot of the log file. |
| 4649124988 / ALMCR9F1282 | SA LSPs did not create but new attachment complete OK. |
| 4648986139 / ALMCR9F1256 | Backup issues in parameters Inventory Tree. |
| 4650096144 / ALMCR9F1492 | Multiple COS for A-LSPs |
| 4648945217 / ALMCR9F1260 | Inventory Tree SAVPN/Equipment is not able to show subinterfaces when the interface is part of a aggregate interface |
| ALMCR9F1570 | L2VPWS Multiplex Service Error Case |
| ALMCR9F1571 | Can't get the interface to be listed in the Reserve Resource JSP |
| 4648018141 / ALMCR9F1184 | Aggregate LSP Addition |

## KNOWN PROBLEMS

The following problems are known to exists for the current HPSA VPN SVP V7.0 release:

| PR # / ALM ID | Problem description | Workaround |
|---|---|---|
| 15399 / ALMCR9F1101 | The names of policy maps are limited to 40 chars on Cisco devices. The auto-generated names may exceeded this limit in some L3 service situations where e.g. multicast is enabled | None |
| 17383 / ALMCR9F715 | Implementation for the multicast bandwidth allocation policy is incomplete. However, in the VPN SVP User Guide, there are references to the same. Solution currently behaves as if the flag is set to false (Ratelimit applied on Multicast service cannot exceed the ratelimit associated with the service). | None |
| 18335 / ALMCR9F1100 | LSP: When 'mCast LSP' flag is enabled, the mCast LSPs should be configured based on mCast CoS, and not site CoS. | None |
| 4648594747 / ALMCR9F1223 | CRM Portal Help Page Error does not exist. | None. |
| ALMCR9F1401 | L2/L3 Multiplex Region | None. |
| ALMCR9F1544 | L2VPWS Resubmit Job | None. |

## PATCHES

None

## LIMITATIONS

The following limitations have been identified:

L3 Services
- Unnumbered PE-CE point-to-point links not supported
- Allocated PE-CE IP addresses cannot be changed by a modify operation.
- It is not possible to change between managed and unmanaged CE sites.
- PR 17383: Implementation for the multicast bandwidth allocation policy is incomplete. However, in the VPN SVP User Guide, there are references to the same. Solution currently behaves as if the flag is set to false (Ratelimit applied on Multicast service cannot exceed the ratelimit associated with the service).
- PR 18335: LSP: When 'mCast LSP' flag is enabled, the mCast LSPs should be configured based on mCast CoS, and not site CoS.

IPv6 Services
- Multicast service not supported on IPv6 L3 services.
- Cisco does not support VRRP for IPv6.
- CE Enabled QoS not supported for managed CE services on IPv6 L3 services.
- Having IPv4 and IPv6 attachments in the same VPN is not supported.

Access Network
- Access network currently only supported on Cisco switch devices
- The VPMS (E-Tree) service is not supported
- When a new switch is added to the ring, the VLAN configurations already activated on the ring will be missing from this switch.
- If service multiplexing occurs on UPE port, SAVPN should sum the rate limit and reconfigure it. Currently, it overwrites the old.
- If Vlan activation fails on Cisco switch for L3/VPLS services, rollback does not happen on failing the service. However, deleting the service from CRM portal attempts to clean the NEs.

LSP
- TE LSP configuration is limited to same ASN.
- TE LSP configuration is supported only on Juniper devices, not Cisco
- TE LSP configuration is not supported for IPv6 VPNs.
- During service creation, if LSPs are partially created, and the service is failed from Error Handler, the successfully created LSPs are removed. However, the associated site service should be removed using normal Delete operation from CRM portal.
- Modifying and Deleting the same service simultaneously may not remove site and LSPs from the DB. LSPs can be removed from LSP remove operation from inventory.
- Disabling LSP Feature when there are LSPs present in the system may lead to inconsistencies.
- ALMCR9F1184: Implementation for the 'Aggregate LSP Addition' is not supported in this version.

QoS
- No support for rate-limit splitting according to percentages for Juniper devices
- Creation of different CoS for VPWS not supported

NNM Integration
- NNM Integration is not validated with VPNSP 7.0
- NNMI discontinued.

Service Discovery
- Service Discovery currently handles only L3 VPN type of services on Cisco and Juniper devices.
- Service Discovery of ASBR links and their configuration not supported
- List of known RCs not uploaded by service discovery.
- All the configuration files should be uploaded together. Incremental upload of the configuration files is not supported.
- Automatic Vendor and OS recognition does not happen in service discovery
- Network Service Discovery of LSPs are not supported.
- Service Discovery of IPv6 L3 services not supported.

Multi-ASN Service
- Multi-AS- Backbone supports only L3 services
- Identification of Multi-AS-Backbone ASBR links limited to 2 hop distances
- Multi-AS-Backbone configurations for IPv6 L3 attachments not supported.

NBI
- Separate NBI request for Customer creation and deletion does not exist. It is currently tied to VPN creation and deletion.
- Modifying the scheduled job to cancel the operation (STOP) is not available as a NBI request.
- Channelization/bundling and other network resource operations will continue to be supported only via VPN inventory GUI. These operations will not be available via the NBI.
- Multiple service blocks are supported only for VPWS services.

Adaptive Mode
- LSP bandwidth allocation is not supported.

Others
- Limited support for Internationalization (I18N).
- Deployment of CRM portal on a separate server is not validated.