HP Server Automation

for the HP-UX operating system

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HP-UX OS Provisioning Whitepaper

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HP-UX Provisioning

Overview

HP-UX Provisioning installs HP-UX on bare metal systems using custom configurations. The HP-UX Provisioning process requires the following tasks:

- Setting up an Ignite environment on SA cores/satellites
- Creating custom configurations using the Custom Configuration Editor APX on the SA core
- Booting the target to the Network boot prompt
- Provisioning targets using the HP-UX Provisioning APX on the SA Core

The following sections discuss these tasks.

Prerequisites

You must insure that the following prerequisites are met before you can provision HP-UX servers.

DHCP Setup

To provision servers with unattended installations, DHCP must be enabled. HPSA ships the DHCP server plus a highly customized configuration file to handle DHCP for OS provisioning purposes. To provision HP-UX instead of Linux on Integrity servers, the HP-UX provisioning feature must be enabled on each Core/Satellite.

To enable the HP-UX Provisioning feature, make the following changes on the SA Core:

- 1 Modify the /etc/opt/opsware/dhcpd/dhcpd.conf file by commenting the following line:
 #filename "elilo.efi";
- 2 Uncomment the following line to enable network boot for HP-UX Provisioning:

filename "/opt/ignite/boot/nbp.efi";

3 Restart the DHCP service:

/etc/opt/opsware/startup/dhcpd restart

Ignite Setup on the SA Core

To provision HP-UX servers, you must set up Ignite Configurations. This includes:

- updating the configuration file
- updating the Index file
- copying the golden image archives on each SA core

For detailed information on Ignite-LUX software on a server running Linux, see

http://www.hp.com/go/ignite-ux-docs

The following tasks are required to set up the 11.31 golden archive-based configuration on the SA Core:

• Copy over the sample golden image to the following location:

/var/opt/ignite/archives/B.11.31/

• Copy over the corresponding .cfg file to following location:

/var/opt/ignite/data/Rel_B.11.31/B.11.31_archive_IA.cfg

• Add an entry in /var/opt/ignite/INDEX for the configuration as follows:

```
cfg "HP-UX B.11.31 Opsware Archive" {
  description "This selection supplies the sample golden archive
  created by the IUX team"
  "/opt/ignite/data/Rel_B.11.31/config"
  "/opt/ignite/data/Rel_B.11.31/hw_patches_cfg"
  "/var/opt/ignite/data/Rel_B.11.31/B.11.31_archive_IA.cfg"
  "/var/opt/ignite/data/config.local"
  }
```

APXs

- SA installs the HP-UX Provisioning APX (Automation Platform Extensions) and Custom Configuration Editor APX which perform parts of the provisioning process. These APXs appear in the SA Client APX Library.
- You can access APXs either through the SA Client or through an SA supported browser. HP recommends running the Custom Configuration Editor APX with Internet Explorer.
- Adobe Flash Player Version 10.0 or above must be installed on all machines on which you plan to run HP-UX Provisioning APXs.

Customer Configuration Subfolders

SA Administrators for HP-UX Provisioning or any user who has privileges to the following folder must create a sample configuration for every customer for whom users want to create configurations:

Library ➤ By Folder ➤ Opsware ➤ Tools ➤ OS Provisioning ➤ HP-UX Provisioning

The sample configuration is the same as the configuration that is created when you use the Custom Configuration Editor APX. It is called the sample configuration because it is the first configuration created for each new customer. When the first configuration is created, a subfolder is created for that new customer. If the SA Administrator wants to assign restricted access to a user/group based on configurations belonging to a specific customer, they must grant permission to that customer subfolder.

The SA Administrator can see subfolders created with the customer name only after creating the sample configuration.

When you create the sample configuration, make sure that you select the new customer so that the subfolder with the customer name is created immediately within the configuration folder. The SA Administrator can assign read/write access to the user/group to access configurations. For example, say that PROV_USR needs access to HP-UX Provisioning and should have access only to configurations belonging to CustA and CustB customers:

- 1 Open the Custom Configuration Editor APX using Internet Explorer.
- 2 Log on as SA Administrator or as any user who has access to Library ➤ By Folder ➤ Opsware ➤ Tools ➤ OS Provisioning ➤ HP-UX Provisioning
- 3 Create a sample configuration for CustA and CustB using the Custom Configuration Editor APX.
- 4 Log on to the SA client as SA Administrator for HP-UX Provisioning. Create subfolders named CustA and CustB at the following location:

Library ➤ By Folder ➤ Opsware ➤ Tools ➤ OS Provisioning ➤ HP-UX Provisioning/CustA

Library ➤ By Folder ➤ Opsware ➤ Tools ➤ OS Provisioning ➤ HP-UX Provisioning/CustB

Permissions

This section discusses the minimum permissions required to use the HP-UX Provisioning feature. Your SA Administrators for HP-UX Provisioning can optionally provide additional permissions that enable more features.

User/Group Permissions

SA Administrators for HP-UX Provisioning must grant the following permissions to the user/ group:

- Facilities You must have read/write access to any facility where the Integrity servers are provisioned with the configurations created by the Custom Configuration Editor APX.
- Customers You must have read/write access to any Not Assigned customer to run the provisioning job successfully.
- You must also have read/write access to any customer on whose behalf the HP-UX configurations are created.
- Features You must have Managed Server and Groups permission so that you can actually see the server in SA after you provision it.

Folder Permissions

SA Administrators for HP-UX Provisioning must also grant folder permissions to list APXs, software policies, and configurations.

• APXs – You must have List Contents Of Folder and Execute Objects Within Folder permissions to the following folder to access HP-UX Provisioning and Custom Configuration Editor APXs:

Library ➤ By Folder ➤ Opsware ➤ Tools ➤ OS Provisioning ➤ HP-UX

• Software Policies – You must have List contents of Folder, Read Objects Within Folder, and Execute Objects Within Folder permissions to the folders where HP-UX software policies used to define the configurations are placed.

• Configurations – You must have Read Objects Within Folder and Write Objects Within Folder permissions to the following folder because it contains the HP-UX configurations:

Library ➤ By Folder ➤ Opsware ➤ Tools ➤ OS Provisioning ➤ HP-UX Provisioning/<customer_name>

OS Installation

Installing an Operating System on HP-UX Servers

HP-UX Provisioning installs HP-UX on bare metal systems using custom configurations. The HP-UX Provisioning process requires the following tasks:

- Setting up an Ignite environment on SA cores/satellites
- Creating custom configurations using the Custom Configuration Editor APX on the SA core
- Booting the target to the Network boot prompt
- Provisioning targets using the HP-UX Provisioning APX on the SA Core

The following sections discuss these tasks.

You must have set up Ignite before continuing. For more information, see Ignite Setup on the SA Core on page 4.

Creating a Custom Configuration

You can specify customized configurations to be applied to an Integrity server. You can specify Ignite attributes that are applied on the server during HP-UX installation on top of the standard golden image configurations. You can also select additional software policies to be remediated as part of the HP-UX installation.

You can build customer-specific configurations by specifying the platform, base configuration, Ignite attributes, and related software policies. You can customize the installation to meet your specific needs.

To provision the server in a customized way, you must first create a custom configuration.

HP-UX Custom Configuration Editor APX

To access the HP-UX Custom Configuration Editor APX:

1 In the SAS Web Client: Open Internet Explorer and specify the URL:

https://<your core>/webapp/<APX Unique Name>

The unique name for the APX is displayed in the SAS Web Client.

2 In the SA Client: Click the **Library** tab and select **Extensions** ➤ **Web** ➤ **HPUX Custom Config Editor**. The unique name for the APX is displayed when you select the APX.

In this instance, the Custom Configuration Editor APX name is com.hp.osprov.hpuxconfig.

	🏹 Web								
Server 💌	View: Prop	erties_		1	Name 💌				
	Name -		Location	Version	Modified	Modif	r.		
Saved Searches v	testpost		/Opsware/Tools/OS Provisioni /Opsware/Tools/OS Provisioni	34c		ops	^		
By Type By Folder	HP-UK Cus	tom Config Editor	/Opsware/Tools/O5 Provisioni	346.000	Thu Jul 01 19(56)26 2	ops			
in - 27 Sorpts	Proper Name:	ties HP-UK Custom Conf	la falsa				*		
	Description:		ning Contig WAPX			Î			
						-	i		
Devices		(Opsware/Tools/OS	Provisioning/HP-Ltc						
	Location:			Last ModRed: Thu Jul 01 19:56:26 2010 by opsware					
Covices									

Figure 1 HP-UX Custom Configuration Editor APX

All existing custom configurations are listed with Name, Customer, HP-UX Platform, Ignite Server, and Base Config details. The Refresh, Create, and Delete buttons also appear.

Figure 2 HP-UX Custom Configuration Editor APX – List Existing Configurations

	https://192.168.184.			2 Certificate Error 🔩 🛪 Goo	gle 🖉 🖉
	IX Configurations in SA te/Delete HP-UX Configurati				
	Name	Customer	HP-UX Platform	Ignite Server	Base Config
۲	testing	Not Assigned	HP-UX 11.31	tomato2.tomato.ga.opsware.co	HP-UX 8.11.31_vPar Default
Y	LVM 11.31 vPar Satelite	Not Assigned	HP-UX 11.31	jade4.jade.qa.opsware.com	HP-UX 8.11.31_vPar Default
۲	11.23 vPar for Slave 33	Not Assigned	HP-UX 11.23	jade3.jade.ga.opsware.com	HP-UX 8.11.23_vPar Default
Y	11.23 Standalone	Not Assigned	HP-UX 11.23	tomato2.tomato.qa.opsware.co	HP-UX 8.11.23 Standalone Defaul
۲	11.23 Standalone Correcte	Not Assigned	HP-UX 11.23	tomato2.tomato.ga.opsware.co	HP-UX 8.11.23 Standalone Defaul
Y	11.31 standalone for mast	Not Assigned	HP-UX 11.31	tomato2.tomato.qa.opsware.co	HP-UX 8.11.31_standalone Defaul
۲	11-31 vPar Slave Core	Not Assigned	HP-UX 11.31	jade3.jade.qa.opsware.com	HP-UX 8-11-31_vPar Default
۲	11.23 vPar on slave core	Not Assigned	HP-UX 11.23	jade3.jade.qa.opsware.com	HP-UX 8.11.23_vPar Default
٢	11.31 vPar for satelite	Not Assigned	HP-UX 11.31	jade4.jade.ga.opsware.com	HP-UX 8.11.31_vPar Default
۲	LVM 11.31 vPar for Satelite	Not Assigned	HP-UX 11.31	jade4.jade.qa.opsware.com	HP-UX 8.11.31_vPar Default
۲	LVM 11.31 vPar for n026	Not Assigned	HP-UX 11.31	jade4.jade.ga.opsware.com	HP-UX 8.11.31_vPar Default
۲	LVM-2 11.31 SA on n026	Not Assigned	HP-UX 11.31	jade4.jade.qa.opsware.com	HP-UX 8.11.31_standalone Defaul
٢	11.23 test sw policy	Not Assigned	HP-UX 11.23	tomato2.tomato.qa.opsware.co	HP-UX 8.11.23 Standalone Defaul
Y	LVM Test on Satelite	Not Assigned	HP-UX 11.31	jade4.jade.qa.opsware.com	HP-UX 8.11.31_vPar Default
٢	LVM test 3 for satelite	Not Assigned	HP-UX 11.31	jade4.jade.qa.opsware.com	HP-UX 8-11-31_vPar Default
۲	LVM FS Test	Not Assigned	HP-UX 11.31	jade4.jade.qa.opsware.com	HP-UX 8.11.31_vPer Default
٣	LVM Test 2	Not Assigned	HP-UX 11.31	jade4.jade.ga.opsware.com	HP-UX 8-11-31_vPar Default
Y.	11.23 vPar for multi target	Customer A	HP-UX 11.23	jade3.jade.qa.opsware.com	HP-UX 8.11.23_vPar Default
٢	validate 11.23 vPar on slav	Customer A	HP-UX 11.23	tomato2.tomato.qa.opaware.co	HP-UX 8.11.23_vPer Default
۲	validate 11.2 vPar on slave	Customer A	HP-UX 11.23	jade3.jade.qa.opsware.com	HP-UX 8-11-23_vPar Default
۲	vPar for LVM on Satelite	Customer A	HP-UX 11.31	jade4.jade.qa.opsware.com	HP-UX 8-11-31_vPar Default
Y.	LVM attributes on vPar k08	Customer A	HP-UX 11.31	jade4.jade.qa.opsware.com	HP-UX 8.11.31_vPar Default

When you select any existing configuration from the list, you will see additional details such as Custom Configurations and Software policies.

The Configuration listings are based on permissions assigned to you. You are able to list configurations belonging to the customers for which you have been granted permission. The configuration can be customer dependent or customer independent.

A customer independent configuration is accessible to all users. A customer dependant configuration is accessible to only those users who have appropriate permissions assigned. You can make the configuration dependant or independent by selecting the customer when you create the configuration.

The HP-UX Custom Configuration Editor APX enables you to:

- Create Custom Configurations
- Delete Custom Configurations

Creating a Custom Configuration

To create a custom configuration:

- 1 Open the HP-UX Custom Configuration Editor APX using Internet Explorer.
- 2 Click the Create button and specify the required details to create a new custom configuration.

Figure 3 HP-UX Custom Configuration Editor – Create Custom Config

6 https://192.168.184.195	/webapp/com.hp.osprov.hpuxconfig/ - Windows Internet	Explorer	
File Edit View Fav	orites Tools Help		
- 1 https://	192.168.184.195/webapp/com.hp.osprov 🝷 😰 Certificate	e Error 🏘 🐹 Google 🖉	•
🚖 🐟 🔊 https://19/	2.168.184.195/webapp/com.hp.osprov	👌 Home 💌	35
	Create an HP-UX Configuration NOTE: Please use Internet Explorer to run this APX to creat	te the configuration	Î
Config Name	11.31 vPar		
Config description	provisioning the servers with 11.31 vPar golden image with custom attributes.		
Customer	Customer A 🔻		
Platform	11.31 *		
Base Configuration	tomato2.tomato.qa.opsware.com:Release 11.31:H	P-UX B.11.31_vPar Default •	
Custom Config	_hp_pri_swap=6291456Kb "Create / export volume"=TRUE		
Software Policies	Related Software Policies	Selected Software Policies	
	HP-UX Provisioning Ignite Server	swapoff_8.11.31.0809.02_HP-UX_8.11.31_IA_PA (
	MallocNextGen_B.11.31.0903.02_HP-UX_B.11.31	MallocNextGen_8.11.31.0903.02_HP-UX_8.11.31_I	
	MD5Checksum_A.01.01.02_HP-UX_B.11.31_IA+	NumericUser_B.11.31.0809.03_HP-UX_B.11.31_IA_	
	DRD_1131_WEB1002 Depot		
	NumericUser_B.11.31.0809.03_HP-UX_B.11.31_ SwPkgBuilder_A.02.00.32.450_HP-UX_B.11.31_1		
	swapoff_B.11.31.0809.02 HP-UX_B.11.31_IA_P.		
		• •	
Refresh		< Back Create	
L			

- 3 You must specify the following required details to define the HP-UX custom configuration:
 - Config Name: This is a mandatory field. It must be unique for each customer. The APX validates the following specifications:
 - Must not exceed 255 characters in length.
 - Must not begin or end with an empty space.
 - Must not begin with punctuation, including $@#\$\$^&*() + -, ./:; ~\{\}[]| ! "?=`$
 - Should not use newline, tab, flash or backslash.
 - Config Description: This is an optional field that can contain explanatory text describing the purpose and use of the configuration.
 - Customer: By default, this is set to Not Assigned, which makes the configuration customer independent. You can only list those customers for which you have permission. You will not be able to list the configurations if appropriate permissions have not been granted to you for that customer.
 - Platform: This is a mandatory field. You must select either 11.31 or 11.23 from the drop-down menu. Base configuration or Related Software Policies are dependent on platform selection. If the platform was not selected and you try to select either Base configuration or Related Software Policies, a warning message appears.

- Base Configuration: Content is displayed based on the HP-UX platform selected.
- Custom Config: This is an optional field that can be used to specify Ignite attributes. Any valid Ignite attributes specified in this field overwrite the configuration values specified in the golden image, which allows you to provision the servers in a customized manner.

The following are examples of Ignite attributes:

```
_hp_pri_swap=6291456Kb
"Create /export volume"=TRUE
_hp_root_disk="0/1/1/1.2.0"
_hp_disk_layout="Logical Volume manager (LVM) with VxFS"
```

For detailed information on Ignite custom attributes, see

http://h20000.www2.hp.com/bc/docs/support/SupportManual/c01942568/c01942568.pdf

If the attributes and values specified are valid, they are applied on the servers on top of the standard image configurations. However, if the attributes specified are invalid or have incorrect syntax, provisioning will not start.

In some cases, attributes and values are incompatible. For example, say that you want to provision the server with the following Ignite attributes:

_hp_pri_swap=6291456Kb "Create /export volume"=TRUE

The Ignite attributes syntax is correct and also has valid values but your target does not have enough disk space to implement it. As a result, a warning message is displayed on the targets before provisioning starts.

4 Related Software Policies: This is an optional field consisting of a drop-down menu whose contents are displayed based on the platform selected. You can select multiple Related Software policies by holding the CTRL key and dragging the policies to the selected software policies list to apply them on the server after provisioning is completed and the agent is installed.

You can change the sequence of a selected software policy by dragging it up or down. Polices specified in Selected Software Policies are applied on top of the standard policies in the golden Ignite image.

After the details for all mandatory fields, Config Name, Platform and Base Config are specified, the Create button is enabled.

5 Click the Create button. A confirmation message appears and the newly created configuration is listed.

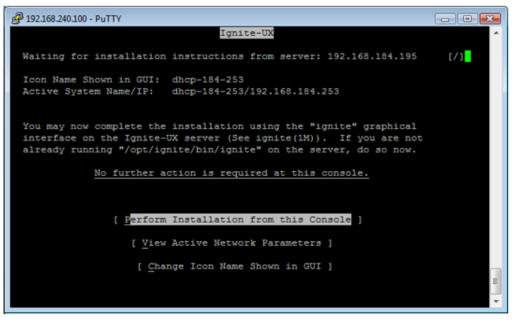
Figure 4 Newly Created Custom Config Profile

File	_	Tools Help 8.184.195/webap	p/com.h	o.osprov 👻 😨 Cer	tificate Error 🍕	Goog	le		Q
	6 https://192.168.3	184.195/webapp/	com.hp.c	sprov				Home	•
	IX Configurations in SA te/Delete HP-UX Configu	rations							
	Name	Customer		HP-UX Platform	Ignite Server		Base Config		
প্র	LVM test 3 for satelite	Not Assigned		HP-UX 11.31	jade4.jade.qa.op	sware.com	HP-UX 8.11.31	vPar Default	12
er.	LVM FS Test	Not Assigned		HP-UX 11.31	jade4.jade.qa.op	sware.com	HP-UX 8.11.31	vPar Default	1
er.	LVM Test 2	Not Assigned		HP-UX 11.31	jade4.jade.qa.op	sware.com	HP-UX 8.11.31	vPar Default	1
21	11.23 vPar for multi tar	Customer A		HP-UX 11.23	jade3.jade.qa.op	sware.com	HP-UX 8.11.23	vPar Default	1
er.	validate 11.23 vPar on	Customer A		HP-UX 11.23	tomato2.tomato	qa.opswar	HP-UX 8.11.23	vPar Default	1
2	validate 11.2 vPar on s	Customer A		HP-UX 11.23	jade3.jade.qa.op	sware.com	HP-UX 8.11.23	vPar Default	1F
শ	vPar for LVM on Satelite	Customer A		HP-UX 11.31	jade4.jade.qa.op	sware.com	HP-UX 8.11.31	vPar Default	
er .	LVM attributes on vPar	Customer A		HP-UX 11.31	jade4.jade.qa.op	sware.com	HP-UX 8.11.31	vPar Default	
٩.	11.31 vPar	Customer A		HP-UX 11.31	tomato2.tomato	.qa.opswar	HP-UX 8-11-31	vPar Default	
dda	tional details:		Softwar	Policies					
	e: 11.31 vPar		ID			Name			
	8810058 ription: This config is inte	ended to use	19000	58		swapoff_t	.11.31.0809.02	HP-UX_8.11.	31_
or p	rovisioning the servers w	ith 11.31 vPar	18200	58		Malloches	tGen_8.11.31.0	903.02_HP-UX	_B.
pold	en image with custom at	ributes.	18600	50		Numericu	ser_8.11.31.080	9.03_HP-UX_8	
hp.	tom Config: pri_swap=6291456Kb ate /export volume"=TRI	JE							
	fresh								te

Boot Target

The network booted integrity client requires selecting the desired LAN and target OS to install. It waits for server side install instructions to start HP-UX Provisioning. The following figure shows a target client waiting to be installed.

Figure 5 Server Waiting to be Installed



For more information, see:

http://h20000.www2.hp.com/bc/docs/support/SupportManual/c01868281/c01868281.pdf

Provision the Target Servers

Once the custom configuration is created, it is listed on the HP-UX Provisioning APX on the SA Client. The target server waiting at the network boot prompt is listed under the unprovisioned servers list on the HP-UX Provisioning APX. The following section describes how to provision the targets.

HP-UX Provisioning APX

To access HP-UX Provisioning APX:

- 1 Log on to the SA Client.
- 2 Click the **Library** tab and select **Extensions** ➤ **Web** ➤ **HP-UX Provisioning**.

Figure 6 HP-UX Provisioning APX

earch	😪 Web					
erver	View: Pro	perties *		P	Name 💌	
	Nome -		Location	Version Mo		Modif
aved Searches	* 😫 testpost		/Opsware/Tools/OS Provisioni		a Jun 08 21:29:08	
anced Search	B HP-UK Pro	visioning	/Opsivare/Tools/OS Provisioni		Jul 01 19:56:12 2	
Type By Folder	- NP-UK Cu	stom Config Editor	/Opsware/Tools/OS Provisioni	34c The	a Jul 01 19:56:26 2	ops
Uttensions Web Program Scripts						
	Prope					(
	Name:	HP-UX Provisioning	2			
						Ì
Devices	Name:	HP-UX Provisioning				Ì
) Devices	Name:	HP-UX Provisioning HPUX OS Provisio				Ì
) Devices	Name: Description:	HP-UX Provisioning HPUX OS Provisioning /Opsware/Tools/0	oning APX 5 Provisioning/MP-LS:			
	Name: Description: Location: Last Modified:	HP-LEC Provisioning HPUX OS Provisio /Opsware/Tools/O Thu Jul 01 19:56:1	oning APX S ProvisioningNP-UC 12 2010 by opsiware			Ì
Devices Ubvary Reports Jobs and Sessions	Name: Description: Location:	HP-LEC Provisioning HPUX OS Provisio /Opsware/Tools/O Thu Jul 01 19:56:1 Thu Jul 01 19:56:0	S Provisioning/HP-LK 2 2010 by opsware 39 2010 by opsware			Ì

The HP-UX Provisioning APX popup window showing the HP-UX configuration opens.

Figure 7 HP-UX Provisioning APX – Listing of HP-UX Configurations

	X Configurations in SA				
rea	te/Edit/Delete HPUX Confi	Customer	HP-UX Platform	Ignite Server	Base Config
er	profile 11.31 vpar	Not Assigned	HP-UX 11.31		HP-UX 8.11.31_vPar Defau
er	Profile 11.31 Standalone	Not Assigned	HP-UX 11.31	tomato2.tomato.ga.opsv	HP-UX 8.11.31_standalone
er	Profile 11.23 vPar	Not Assigned	HP-UX 11.23	tomato2.tomato.ga.opsv	HP-UX 8.11.23_vPar Defau
er	11.31 yPar Config	Not Assigned	HP-UX 11.31	tomato2.tomato.qa.opsv	HP-UX 8.11.31_vPar Defau
er.	11.31 config - test custor	Test Customer	HP-UX 11.31	tomato2.tomato.ga.opsv	HP-UX 8.11.31_standalone
er	Config 11.31	Not Assigned	HP-UX 11.31	tomato2.tomato.ga.opsv	HP-UX 8.11.31_standalone
er	11.31 config	Not Assigned	HP-UX 11.31	tomato2.tomato.ga.opsv	HP-UX 8.11.31_standalone
er.	11.31 standalone	Not Assigned	HP-UX 11.31	tomato2.tomato.qa.opsv	HP-UX 8.11.31_standalone
er.	Blade without Final config	Not Assigned	HP-UX 11.31	tomato2.tomato.qa.opsv	HP-UX 8.11.31_standalone
er.	sy_1131_vpar_name	Opsware	HP-UX 11.31	tomato2.tomato.qa.opsv	HP-UX 8.11.31_vPar Defau
2	Config 11.31 on Blade86	Not Assigned	HP-UX 11.31	tomato2.tomato.ga.opsv	HP-UX 8.11.31_standalone
2	11.31 vpar	Not Assigned	HP-UX 11.31	tomato2.tomato.ga.opsv	HP-UX 8.11.31_vPar Defau
er.	11.31 config with final	Not Assigned	HP-UX 11.31	tomato2.tomato.qa.opsv	HP-UX 8.11.31_standalone
er.	HPVM 11.31 without final	Not Assigned	HP-UX 11.31	tomato2.tomato.qa.opsv	HP-UX 8.11.31_standalone

All the configurations created using the Custom Configuration Editor APX are listed on the HP-UX Provisioning APX based on permissions granted. Configurations are listed with Name, Customer, HP-UX Platform, Ignite Server, and Base configurations details. The Refresh, Next, and Start buttons are also displayed. Select the HP-UX configuration you want installed on the servers and click **Next**.

When you select a configuration, additional details, including Custom Configurations and Software policies of the chosen configuration, are displayed. When you select a configuration, the Next button is enabled.

Figure 8 HP-UX Provisioning APX – Select HP-UX Configuration

	ct HP-UX Configuration		re library		
	Name	Customer	HP-UX Platform	Ignite Server	Base Config
প্র	11.31 ypar on blade	Not Assigned	HP-UX 11.31	tomato2.tomato.qa.o	HP-UX 8.11.31_vPar Default
Y	11.31 standalone on t	Not Assigned	HP-UX 11.31	tomato2.tomato.qa.o	HP-UX 8.11.31_standalone Defau
Ľ	11.31 new StandAlone	Not Assigned	HP-UX 11.31	tomato2.tomato.qa.o	HP-UX 8.11.31_standalone Defau
4 7	11.31 vPar	Customer A	HP-UX 11.31	tomato2.tomato.qa.o	HP-UX 8.11.31_vPar Default
প	LVM attributes 11.31 v	Not Assigned	HP-UX 11.31	tomato2.tomato.qa.o	HP-UX 8.11.31_vPar Default
Y	lvm 11.23 blade	Not Assigned	HP-UX 11.23	tomato2.tomato.qa.o	HP-UX 8.11.23 Standalone Defau
প্র	11.31 standalone	Not Assigned	HP-UX 11.31	tomato2.tomato.qa.or	HP-UX 8.11.31_standalone Defau
Y	11.31 standalone with	Not Assigned	HP-UX 11.31	tomato2.tomato.qa.o	HP-UX 8.11.31_standalone Defau
প্র	11.23 vPar	Not Assigned	HP-UX 11.23	tomato2.tomato.qa.o	HP-UX 8.11.23_vPar Default
ddi	tional details:		Software Policies		
	e: 11.31 vPar		10	Name	
	7410058 tription: This config is in	tended to use	1900058	виаро	H_B.11.31.0809.02_HP-UX_B.11.31_
	erovisioning the servers in ern image with custom a		1820058	Mallo	NextGen_B.11.31.0903.02_HP-UX_B.
gold	ern image with custom a	ittributes.	1860058	Nume	ricUser_8.11.31.0809.03_HP-UX_8.11
Custom Config: _hp_pri_swep=6291456Kb "Create /export volume"=TRUE					

3 Click **Next** to select the unprovisioned servers.

All unprovisioned servers waiting at the network boot prompt matching the selected configuration platform are displayed and show MAC address, install OS, Ignite Server and Model details. Servers in the Unprovisioned Servers list register their presence, but do not have an operating system installed.

4 Select the server to provision. Hold down the CRTL key to select multiple servers to provision at the same time using the same configuration.

Figure 9 Select Client to Provision Using the Config Selected Before

elect Servers to Provision hoose one or more serve elected HPUX Config:	rs from the provisioning poo	ol. To add a server to t	he pool, it must be network be	ooted.
Name	MAC	Install OS	Ignite Server	Model
dhcp-184-254	00:0F:20:2B:23:2F	B.11.31	192.168.184.195	ia64 hp server rx7620
dhcp-184-253	00:30:6E:4B:C7:47	B.11.31	192.168.184.195	ia64 hp server rx7620
Refresh			< B	ack Next > Star

Once all servers are selected, provisioning starts immediately after you click the Start button.

5 To set email notification, click the **Next** button. The following screen appears.

HP-UX Prov		
⊨ ⇒ ᢒ 😣 🏠 造		
Additional Job Options (Step 3 of 3)		
Optionally specify people to notify when the job is completed, and whether they should be notif ID, if required.	fied if an error occurs. Also	provide a ticket
Selected HP-UX Config: 🍳		
Email Notifications		
Email Address of Recipient	Success	Failure
parikh@hp.com	\checkmark	\checkmark
test@yahoo.com	✓	
🛖 Add 📟 Remove		
Ticket Integration		
Ticket ID: 123456		
	< Bac	k Start
	bac	Start

Figure 10 Set the Email Notification

On Email Notification, by default, your email address (the user running the job) is displayed. To add additional email addresses, click **+Add**. Select the check boxes to receive notifications when job failure or success occurs. To remove an email address, select the address and click **Remove**.

You can also specify the Job Ticket ID in the Ticket Integration section. This Ticket ID is associated with the Job.

6 When you click Start, the job is initiated for program APX and the Job ID is assigned to it.

Figure 11 Initializing the Provisioning Job

HP-UX Prov				
• 🔹 😋 🕻) 🏫 👛			
ob Progress for Job	10 20730058			
	a job. Active jobs will contin	nue to run if the wind	ow is closed.	
elected HPUX Confi	91 🤓 11.31 vPar			
ob 20730058 starte	d.			
ierver Name	MAC address	Status	% Complete	Status Hessage

Figure 12 Initializing the Provisioning Job

词 HP-UX Prov										
🔶 🔶 😂 🏠 🚔										
Job Progress for Job ID 20730058										
View the status of the job. Active jobs will continue to run if the window is closed.										
Selected HPUX Config	Selected HPUX Config: 🤍 11.31 vPar									
	Status: 6 % complete Start time: Fri Jun 11 14:22:48 GMT-0700 2010									
Server Name	MAC address	Status	% Complete	Status Message						
dhcp-184-253	00:30:6E:4B:C7:47	Active	6	Configure_Disks						
dhcp-184-254	00:0F:20:2B:23:2F	Active	6	Configure_Disks						

If the provisioning job was initiated successfully on the servers, you will see the following screen. This screen has a progress bar that is refreshed with updated progress status messages. The following status messages are updated during the provisioning job:

- Waiting_to_install
- Prepare_Config_File
- Configure_Disks
- Download_mini-system
- Loading_software
- Build_Kernel
- Boot_From_Client_Disk
- Run_Postconfigure_Scripts
- Agent Install
- Remediate software policy

Figure 13 Progress Bar with Status Message

ob Progress for Job	D 20810058	to pup if the wind	ow is closed.	
ew the status of the elected HPUX Config		to run if the wind	ow is closed.	
tatus: 51 % complet	15:04:39 GMT-0700 2010			
art times in Jun 11	15104139 GM1-0700 2010			
ierver Name	MAC address	Status	% Complete	Status Message
ihcp-184-253	0013016E1481C7147	Active	54	Boot_From_Client_Disk
hcp-184-254	0010F12012B12312F	Active	40	Build_Kernel

Once the provisioning job starts, two different progress bars are displayed. The consolidated progress bar displays the average percentage of progress on all servers being provisioned. It also displays the average percentage of jobs finished with the job start time.

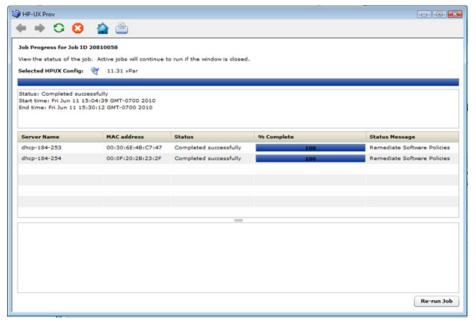
The progress bar for each of the servers being provisioned shows the percentage of provisioning complete with Server Name, MAC address, Status, and Status Message details. The % Complete and Status Message are updated along with the progress of the provisioning job.

Figure 14 Progress Bar with Status Message Remediate Software Policies

HP-UX Prov				
• 🔹 😋 😣	1			
b Progress for Job II	D 20810058			
w the status of the j	ob. Active jobs will continue t	o run if the window is d	osed.	
lected HPUX Config				
_	4			
atus: 80 % complete art time: Fri Jun 11 1	5:04:39 GMT-0700 2010			
erver Name	MAC address	Status	96 Complete	Status Message
hcp-184-253	0013016E14B1C7147	In Progress	80	Remediate Software Policies
hep-184-254	0010F12012812312F	In Progress	80	Remediate Software Policies
				Re-run Jol

Once the server is provisioned, the agent is installed by default. Also, the software policies chosen in the configuration are remediated on the servers. When the HP-UX Provisioning job completes, an email is sent to you if you set up email notification.

Figure 15 Progress Bar with Job Completed Message



The provisioned servers are managed by SA. The servers are listed under **Devices** > **All Managed Servers**. Select the server, and then select Go to **View** > **Properties**. You can see the customer value, which is the same as the configuration customer value. You can see the servers listed as managed servers only if you have permission granted for the customer.

You can also verify the configuration name associated with the server. Go to **View** \succ **Custom Attributes**. This can be useful to find out which configuration was used to provision the server.

Jobs and Sessions on SA Core

HP-UX Provisioning APX assigns the job ID. You can use the job ID to verify the job status at the following location: **SA** \succ **Jobs and Sessions** \succ **Job Logs**.

HP Server Automation - 192.168.184.194						
obs and Sessions	Job Logs					
🗊 Job Logs	Last Quarter + Any Status	• Any	Type	- 7090001	Any Ticket	Any Use
S Recurring Schedules	×.					
- @ Shel Sessions	Job / Type		End Time	# # Status	Ticket 1D	
Devices Userry Reports Xobiand Sessons Administration						

Figure 16 Job Status on SA Jobs and Sessions

You can also find the specified Job Ticket ID in the notifications tab by double-clicking the job.

Deleting Custom Configurations

To delete a custom configuration:

- 1 Open the HP-UX Custom Configuration Editor APX using Internet Explorer.
- 2 Select the configuration or hold the CTRL key to select multiple configurations and click **Delete**.

Figure 17 Delete Custom Config Profile

le (Edit View Favorites		pp/com.hp.osprov 👻 😨 Cer	tificate Error 🍫 🛪 Goo	gle 🔎
	2 https://192.168.1	184.195/webapp	/com.hp.osprov		🟠 Home 💌
	X Configurations in SA Ie/Delete HP-UX Configu	rationa			
	Name	Customer	HP-UX Platform	Ignite Server	Base Config
٢	11.23 Standalone	Not Assigned	HP-UX 11-23	tomato2.tomato.ga.opsva	HP-UX 8.11.23 Standalone Def
٢	11.23 Standalone Com	Not Assigned	HP-UX 11-23	tomato2.tomato.qa.opzna-	HP-UX 8-11-23 Standalone Def
٢	11.31 standalone for m	Not Assigned	HP-UX 11-31	tomato2.tomato.qs.opswa	HP-UX 8-11-31_standalone Def
٢	11.31 vPar Slave Core	Not Assigned	HP-UX 11.31	jade3.jade.qa.opsware.com	HP-UX 8.11.31_vPar Default
1	11.23 vPar on slave cor	Not Assigned			HP-UX 8.11.23_vPar Default
٢	11.31 vPar for satelite	Not Assigne			HP-UX 8-11-31_vPar Default
1	LVM 11.31 vPar for Sab	Not Assigne		late the following .com	HP-UX 8.11.31_vPar Default
٢	LVM 11-31 vPar for n02	Not Assigne	HP-UX Configurations from :		HP-UX 8-11-31_vPar Default
	LVH-2 11.31 5A on n02	Not Assigne	vPar for LVM on Satelite		HP-UX 8.11.31_standalone Def
٢	11.23 test sw policy	Not Assigne		summers for all the second	HP-UX 8.11.23 Standalone Def
1	LVM Test on Satelite	Not Assigna	LVM Test 2 LVM FS Test	100710-0 (0.000-0.000-0.000-0.000-0.000-0.000-0.000-0.000-0.000-0.000-0.000-0.000-0.000-0.000-0.000-0.000-0.000	HP-UX 8.11.31_vPar Default
٢	LVM test 3 for satelite	Not Assigne			HP-UX 8.11.31_vPar Default
	LVH FS Test	Not Assigne	testing		HP-UX 8-11-31_vPar Oefault
			Yes	No	HP-UX 8.11.31_vPar Default
r	11.23 vPar for multi tar	Customer A	HP-UX 11.23	jade3.jade.qa.opsware.com	HP-UX 8.11.23_vPar Default
٢	validate 11.23 vPar on	Customer A	HP-UX 11-23	tomato2.tomato.qa.opswa	HP-UX 8.11.23_vPar Default
1	validate 11.2 vPar on s	Customer A	HP-UX 11-23	jade3.jade.qa.opsware.com	HP-UX 8.11.23_vPar Default
	wPar for LVM on Satelite	Customer A	HP-UX 11-31	jade4.jade.qa.opsware.com	HP-UX 8.11.31_vPar Oxfault
					HP-UX 8.11.31_vPar Default
r	11.31 vPar	Customer A	HP-UX 11.31	tomato2.tomato.qs.opsva	HP-UX 8.11.31_vPar Default

3 Click **Yes** on the confirmation window. The selected configurations are deleted and are no longer listed.

You are allowed to delete only those configurations for which you were granted privileges to execute the delete configuration operation.

Additional Information

Glossary

Ignite-UX

An HP-UX administration toolset that allows:

- simultaneous installation of HP-UX on multiple clients
- creation of custom installation configurations (golden images) for multiple installations on clients
- creation of recovery media
- recovery of HP-UX clients both locally and remotely

Ignite-UX server

A server from which Ignite-UX is used to install HP-UX on client systems.

Golden Image

A combination of a golden archive and a configuration file describing a system's disk layout and file system. Used as a common configuration to install clients.

Ignite Attributes

Custom attributes that allow provisioning of a server with new customized values that overwrite the standard attributes values defined in the golden image.

Network boot

A system boot of the HP-UX install kernel over a network connection from an Ignite-UX server.

Target or Target Server

The HP Integrity server to be provisioned.

Custom Configuration Editor APX

The APX used to create and delete the custom configurations for HP-UX Provisioning.

HP-UX Provisioning APX

The APX used to start HP-UX Provisioning on target servers.

Sample Configuration

The first configuration created for the new customer by the SA Administrator for HP-UX Provisioning. It is same as the custom configuration but is the first configuration for a new customer. It creates a subfolder with the customer name under the HP-UX Configs folder in the SA Client Library.

Useful Links

• 11iv3 installation information:

http://h20000.www2.hp.com/bc/docs/support/SupportManual/c01916012/ c01916012.pdf

• White paper: Ignite-LUX: Management and Integration of Ignite-UX Software on a Server Running Linux at:

http://www.hp.com/go/ignite-ux-docs

• Ignite-UX custom configuration files:

http://h20000.www2.hp.com/bc/docs/support/SupportManual/c01942568/c01942568.pdf

• Ignite-UX:

http://h20000.www2.hp.com/bizsupport/TechSupport/ DocumentIndex.jsp?lang=en&cc=us&taskId=101&prodClassId=10008&contentType=Sup portManual&docIndexId=64255&prodTypeId=18964&prodSeriesId=4077173

Troubleshooting

Following are some problem scenarios and suggested solutions.

Scenario: No Servers Waiting to be Installed

If there are no servers waiting at the network boot prompt with the HP-UX version that matches the selected configuration's HP-UX version, the following message is displayed:

Figure 18 No Servers Waiting to be Installed



Ensure that you have the selected correct configuration.

Scenario: Servers Waiting to be Installed are Managed Servers

If there are servers waiting for network installation but they are already managed by SA, the following warning message is displayed.

Figure 19 Servers Waiting to be Installed are Managed Servers

The following servers are managed servers in	
SA, but are in the waiting to be installed list.	
Please delete them from SA if you want to re-	
ID:1110058 Name:blade-860	
ОК	

This warning message indicates that the listed servers are waiting for installation but are not candidates for reprovisioning because they are listed as Managed Servers in SA. To continue reprovisioning these servers, you must manually delete them from the SA managed server list.

For more information about deactivating and deleting a server from the SA managed servers list, see the *SA User Guide: Server Automation*.

Figure 20 List of Deleted Managed Servers for Reprovisioning

🌍 нр	-UX Prov				- 0 🔀			
4	🔶 😋 😫 🧉							
Sele Choi	Select Servers to Provision (Step 2 of 3) Choose one or more servers from the provisioning pool. To add a server to the pool, it must be network booted. Selected HPUX Config: Config 11.31 StandAlone2							
	Name	MAC	Install OS	Ignite Server	Model			
প্র	blade-860	00:11:0A:A5:40:07	B.11.31	192.168.184.195	ia64 hp Integrity BL860c			
Re	efresh			< Back	Next > Start			

Once a server is deleted, it is not listed under the SA managed server list. Click **Refresh** in the HP-UX Provisioning APX window and the server should be listed under the unprovisioned server pool. Select the server and continue provisioning it.

Scenario: Configurations Unavailable or Permissions Not Granted

This message appears when you do not have enough permission granted to list the configurations or there are no configurations found.

Figure 21 No Configurations Available or Permissions Granted

You do not have access to any HP-UX
Configurations or there are no HP-UX
Configurations created in SA. Please re-validate
then press the refresh button
ок

Contact your SA Administrator to obtain permission or create required configurations using the Custom Configuration Editor APX.

Scenario: Incorrect Target Listing

In certain error scenarios, you may see stale data in the APX client's menu such as clients that are not currently waiting to be network installed or clients with an incorrect hostname.

• A client that is not currently waiting to be network installed is displayed in the APX clients list.

If the target server is reset while waiting to be network installed, the Ignite-UX cannot detect the change and does not update the client's status.

Retry the installation or delete the directories for the target under /var/opt/ignite/ clients/. There are two directories for each client, one of the form <mac address> (for example, 0x00306EF37245) and the other a symbolic link to the directory. Delete both directories.

• A client is listed in the APX with an incorrect hostname.

This can happen when you modify DHCP to provide a different hostname after having previously provisioned the client. Ignite UX reuses the directories in /var/opt/ignite/ clients/ it set up for a client (when it finds a client based on the MAC address), so the APX reuses that information. You can delete the two directories for the client under /var/opt/ignite/clients and retry the installation.

Scenario: Installation Timed Out Error

An installation timed out error occurs when the provisioning job is not initiated on the target server. This could be due to a network issue, the golden image not being available, or for other reasons.



Figure 22 Provisioning Not Initiated on Server

Ensure that the network connection and Ignite images are accessibility and run the APX again to initiate provisioning.

Scenario: Loading Software Error

A loading software error can occur due to:

- Network issues
- Corresponding archive missing or not accessible
- Incorrect setup of golden images

Figure 23 Golden Image Set Up Incorrectly

HP-UX Prov									
+ + 🔾 🤅	3 🕋 ៉								
Job Progress for Job ID 14750058									
View the status of th	e job. Active jobs will continue	to run if the wind	ow is closed.						
Selected HPUX Confi	ig: 🍳 11.31 Blade860C co	onfig							
	-								
End time: Wed May Server Name	19 15:21:44 GMT-0700 2010 MAC address	Status	% Complete	Status Message					
blade-860	00:11:0A:A5:40:07	Error	100	Loading_software					

To resolve this, ensure that the Ignite-specific configuration file, Index file, and archives are correctly set up and pointing to correct locations. Also ensure that the network connection between the target and the Ignite server is accessible.

Scenario: Prepare Config File Error

The provisioning job fails to initiate on the server when any syntax errors are found in the custom attributes specified in the configuration or when the custom attributes are not compatible.

Figure 24 Provisioning Failed Due to Invalid Ignite Attributes

🌍 HP-UX Prov									
+ + 🔾 😫) 🏠 📥								
Job Progress for Job ID 15540058 View the status of the job. Active jobs will continue to run if the window is closed.									
Selected HPUX Config	: 🌱 LVM attributes 11.31	vPar							
	ccessfully 5 10:11:03 GMT-0700 2010 10:11:28 GMT-0700 2010								
Server Name	MAC address	Status	% Complete	Status Message					
k082	00:30:6E:4B:C7:47	Error	100	Prepare_Config_File					

You may need to reboot the system and bring it back to the network boot prompt, then create a new configuration with corrected custom attributes. Ensure that the specified syntax is correct and compatible.

Scenario: Agent Fails to Start

If, after successful job completion, the SA Agent fails to start on a newly provisioned target, the golden image you used may already have an Agent installed.

For example, as part of the standard provisioning process, after HP-UX is installed on the server, a post-install script that installs an Agent runs on the server. Because the Agent was previously installed with the golden image, the Agent may not start.