Hewlett Packard
Enterprise

Ignite-UX (IUX) Frequently Asked Questions (FAQ) Document

HP-UX 11i v3

Abstract

This document is intended for Ignite-UX users and administrators, who have questions, which is frequently asked, and answers and solutions to those questions.

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Contents

Hewlett Packard Enterprise secure development lifecycle.....7
1 About this FAQ (frequently asked questions) document.....8
2 Known problems.....9
Frequently asked questions.....9
I updated my server; now it cannot find /d_cfg_mnt_sb61/monitor_bpr.....9
Can the Ignite-UX GUI for make_tape_recovery span multiple tapes?.....9
Why do I get warnings from pax concerning files that are not on the client when I run either make_tape_recovery or make_net_recovery?.....9
When igniting from an archive, why do I get numerous samreg errors?.....9
Can an Ignite-UX server install clients on multiple subnets?.....9
Why do some applications and shells hang over NFS after igniting?.....10
Why do the iux_postconfig scripts associated with EMS KRM sometimes fail?.....11
Can I run make_net_recovery from a PA-RISC server to create an archive for an Itanium-based client or vice versa?.....11
Why does installing or recovering a client via NFS from an HP-UX 11i v1 Ignite-UX server take so long compared to an 11.00 server?.....11
My VxVM installation has stopped with the message: ERROR: Disk group dg02:cannot create: Disk group exists and is imported. What is the problem and how can I resolve it?.....12
Is SecurePath (previously known as AutoPath) supported by Ignite-UX during installation or recovery?.....13
Why is install.log so difficult to read?.....13
Why is the message Cannot open /dev/vx/rdsk/rootdg/standvol displayed during an Itanium-based installation via golden image?.....14
Does Hewlett Packard Enterprise support Ignite-UX through a firewall?.....14
What do I do when I get file system full messages during installation or recovery when _hp_ignore_sw_impacts is set to 1?.....14
What do I do when I get an error reading files greater than 2 GB in size?.....15
Why is the network boot of my Itanium-based system slow?.....15
How can I workaround recovery failure: ERROR: A conflict has been detected while attempting to restore the prior device file names?.....16
Why do I see errors about io.info version 0.5 not being understood and how do I workaround it?.....16
When using the graphical interface, why do errors occur when opening a terminal window to a client?.....17
Why am I getting the message pax: Cannot access /sbin/pax_enh : No such file or directory?....17
Why do I see a problem while using March 2013 HP-UX OE media as install media? 17
Why do I see the message pax_iux: mem_get(): There is a memory allocation problem during restore of an archive?.....18
Why do the Ignite-UX archive creation of a client configured with VxFS/VxVM 5.0.1 software failed when Enclosure Naming (EBN) Scheme is enabled on the system?.....18
3 Server setup.....20
Frequently asked questions.....20
Should I use DHCP or bootp?.....20
Why did it call my client <hostname>.0x080009....?.....20
How can I set the timezone for messages during the install?.....20
4 Configuration files.....21
Frequently asked questions.....21
What should go in which configuration file? Also, what should go in INSTALLFS?.....21
How do I preview configuration file changes?.....21

Is there a way to set the configuration files to ignore the disk warnings, which can prevent automated installations?....21
Why does changing variable values in the Additional screen no longer control non-final networking settings (which should propagate to final networking settings) after updating to C.7.7?....22
5 Recovery (make_tape_recovery and make_net_recovery)....23
Frequently asked questions....23
We tried running the recovery system option from a client booted in Ignite-UX, which generated errors. What files need to be accessible for tftp?....23
How do I duplicate a tape made with make_tape_recovery?....23
How do I deal with hot-swappable disk devices during recovery?....23
What is the maximum amount of data that a make_tape_recovery tape can hold?....23
How do I boot correctly from a recovery tape on a V-class system?....23
How do I include all volume/disk groups into a recovery tape?....24
Are multi-byte characters supported in file names in Ignite-UX?....24
Can you move a volume that was created in a non-root volume to the root volume during recovery?....24
How can I create empty volume groups during system restoration?....24
During the installation of a recovery archive, the process stopped with a message from pax_iux complaining of a file with % at the start of its name: pax_iux:/sbin/%sh text busy, would you like to push a shell for debugging? What should I do if I encounter this message?....25
How do I perform two-step recovery?....25
How do I retain custom minor number for device files?....25
How do I recover a system which has cluster-wide device special file (cDSF) configured?....26
Why are ACLs(Access Control Lists) not archived when using the pax format?....26
6 General installation....27
Frequently asked questions....27
How does Ignite-UX estimate needed file system sizes? Does it do anything other than add up the impacts statements?....27
When does Ignite-UX configure software?....27
How do I set the client's final networking information?....27
I do not want to use DHCP, can I still have Ignite-UX automatically determine networking information for all my clients?....27
How can I make software in a depot available for installations?....27
FDDI software is included in my archive, yet Ignite-UX requires that I select it. Why?....28
How many clients can I install simultaneously or in parallel?....28
My installations are hanging; what is going on?....29
How large can I create a single swap space using Ignite-UX?....29
Why do the text fields in the Ignite-UX TUI not accept my input, and the dialogs re-open or loop?....30
What Hewlett Packard Enterprise applications are tested for use with Ignite-UX?....30
7 Network installation....32
Frequently asked questions....32
When the client searches for bootable devices, the Ignite-UX server does appear on the list. When I try to boot, I get the error: IPL error: bad LIF magic. Why?....32
I set control_from_server=true and run_ui=false in the INSTALLFS, but I still get prompted for information on the client. What is wrong?....32
The bootsys command seems to work in reverse; if we entered: # bootsys -w client the client did not wait for the server, if we entered: # bootsys client the client waited for the server. Why?....32
When executing search lan install on the client, the Ignite-UX server does not appear in the list. Why?....33
The bootsys command fails due to insufficient space in the /stand volume. Why?....33
Can I have the Ignite-UX server and client on different subnets?....33

My Itanium-based client fails to boot with a PXE-E16 error. Why?....33
Does Ignite-UX Support APA (auto-port aggregation)?....34
Does Ignite-UX Support IPv6?....35
8 Media installation....36
Frequently asked questions....36
Why do I get DCE/RPC errors (RPC exceptions) during the configuration stage?....36
How can I put an operating system archive on multiple CDs?....36
Which HP-UX releases support install using vMedia?....37
How can I use iLO (integrated lights-out) vMedia with Ignite-UX?....37
9 Archive installation (Golden images)....38
Frequently asked questions....38
What does the following gunzip error indicate? gunzip: stdin: unexpected end of file pax_iux: The archive is empty. ERROR: Cannot load OS archive (HP-UX Core Operating System Archives)....38
The /etc/nsswitch.conf and /etc/resolv.conf files from my archive do not end up on the client. Why?....38
What do these errors mean pax_iux: X: Cross-device link, pax_iux: X: File exists, or pax_iux: X : Device busy?....38
10 Obtaining Ignite-UX....40
Frequently asked questions....40
What is different about the Web version?....40
Is Ignite-UX available on media?....40
How do I update my Ignite-UX server to a new version?....40
How much of Ignite-UX do I need to install?....40
How can I copy Ignite-UX from media to a local depot such that Ignite-UX from this new local depot will be installable on all HP-UX B.11.* systems?....41
11 Loading patches....42
Frequently asked questions....42
How do I prevent backup copies of patched files from being saved?....42
Why are patches left in an installed state when I install the Support Plus patch bundle along with HP-UX 11.x from CD?....42
12 Network recovery....43
Frequently asked questions....43
How can I learn more about network recovery?....43
How can I clone a client using make_net_recovery?....43
How can I tell which files will be included in the archive created by make_net_recovery?....44
How can I tell which disks or volume groups get recreated during an installation from a make_net_recovery configuration? 44
How can I use make_net_recovery, if I need to be able to recover from a tape?....45
Which files does Ignite-UX change during an installation from a make_net_recovery configuration?....45
How can I keep archives from being deleted by make_net_recovery when new archives and configurations are created by subsequent invocations of make_net_recovery?....46
How can I make configuration file additions to all recovery configurations for a given client?....47
How can I select from the standard file system layouts during a recovery?....47
I replaced the client machine and the LAN address is now different. How can I restore the new machine from the old client network recovery archive?....47
Dealing with hot swappable disks during recovery....48
Why does archive_impact fail during make_net_recovery?....48
How can I restore VxVM DCO log volume groups?....48
Are the layered/striped/mirrored VxVM volumes included in the recovery archive when a client recovery archive is created?....49

Can I run make_tape_recovery/make_recovery in single user mode? If so, how?.....49
Why are there invalid disk device files left behind after some recoveries?.....50
How can I install additional software from depots during a recovery?.....51
Why am I getting this message, Warning: untrusted X11 forwarding setup failed?.....51
Why does the -n option to make_net_recovery not clean up old client recovery subdirectories?.....51
13 Support and other resources.....52
More on Ignite-UX documentation.....52
Support policy for HP-UX.....52

Hewlett Packard Enterprise secure development lifecycle

Starting with HP-UX 11i v3 March 2013 update release, Hewlett Packard Enterprise secure development lifecycle provides the ability to authenticate HP-UX software. Software delivered through this release has been digitally signed using Hewlett Packard Enterprise private key. You can now verify the authenticity of the software before installing the products, delivered through this release.

To verify the software signatures in signed depot, the following products must be installed on your system:

- `B.11.31.1303` or later version of SD (Software Distributor)
- `A.01.02.00` or later version of HP-UX Whitelisting `(WhiteListInf)`

To verify the signatures, run: `/usr/sbin/swsign -v –s <depot_path>`. For more information, see *Software Distributor documentation* at **http://www.hpe.com/info/sd-docs**.

NOTE: Ignite-UX software delivered with HP-UX 11i v3 March 2014 release or later supports verification of the software signatures in signed depot or media, during cold installation.

For more information, see *Ignite-UX documentation* at

http://www.hpe.com/info/ignite-ux-docs.

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1 About this FAQ (frequently asked questions) document

At the release of Ignite-UX version C.6.0, all FAQ entries were removed that applied to HP-UX 10.x or Ignite-UX versions prior to B.4.0. At the release of Ignite-UX version C.7.0, all FAQ entries that applied to Ignite-UX versions prior to version C.6.0 were removed. The current contents of this FAQ were created by the Ignite-UX engineering team based on the questions gathered from various sources.

You may obtain a copy of this FAQ from

http://www.hpe.com/info/ignite-ux-docs.

2 Known problems

Frequently asked questions

Following are the frequently asked questions as known problems, which is a compilation of all the available feedback from the users.

I updated my server; now it cannot find `/d_cfg_mnt_sb61/monitor_bpr`

This is caused by having a mix of Ignite-UX fileset revisions on your server. In most cases, it happens when you update only one release bundle (like Ignite-UX 11.23) even though you install other releases from that server.

To check this case, view the output from the command `swlist` Ignite-UX. All the filesets must have the same revision. If not, you must install all consistent versions.

If you have boot helper systems, they also must have the Ignite-UX product updated to match the same revision as the server that they reference.

Can the Ignite-UX GUI for `make_tape_recovery` span multiple tapes?

No. We use pax as the tool to create the archive tape and there is no current communication between pax and the GUI to prompt the user on the GUI when pax requests a second tape. You need to use `make_tape_recovery` on the interactive client to be able to span multiple tapes.

Why do I get warnings from pax concerning files that are not on the client when I run either `make_tape_recovery` or `make_net_recovery`?

Before the archive process, a list of files to be archived is created. If the files are removed from the client while creating such list, warnings regarding the files missing from the list are generated at the time the files are actually archived. For more information, see *make_tape_recovery*(1M) and *make_net_recovery*(1M).

When igniting from an archive, why do I get numerous `samreg` errors?

The problem is that the `SAM` filesets have not been configured when certain products are registered with SAM.

The workaround is as follows:

Place this configuration stanza in `/var/opt/ignite/config.local` or directly in the configuration file with the core `sw_source`:

```
sw_source "core"
{
      post_load_cmd += "
      swconfig -xautoselect_dependencies=false /
      -xenforce_dependencies=false SystemAdmin.SAM "

 }
```

Can an Ignite-UX server install clients on multiple subnets?

There is one known problem with having an Ignite-UX server that is multi-homed (connected to multiple subnets).

The server keyword that specifies the IP address for your Ignite-UX server can only correspond to one of the LAN interfaces. If each subnet is routed such that all clients can use a single IP address to contact their server, then the installation works. However, it is more effective for the client to use the IP address of the server that is connected directly to the client's own subnet. If

a client is on a subnet that does not have a route to the IP address specified by the server, then it will not be able to contact the server after it boots.

The workaround for this problem are as follows:

- Manually correct the IP address of the server on the networking screen that appears on the client console when you boot the client.
- Use a boot helper on each subnet. When using a boot helper, the IP address of the server can be specified correctly on each helper system. For more information about complex network solutions, see *Ignite-UX Administration Guide* at **http://www.hpe.com/info/ignite-ux-docs**.

Why do some applications and shells hang over NFS after igniting?

The reason for the hang is most likely due to a problem with the NFS file locking daemons `rpc.statd` and `rpc.lockd`, caused by the action of reinstalling the client.

Many applications use file locking and can hang in this situation. Most common is the user home directories that are NFS mounted. In which case, `sh` and `ksh` attempt to lock the `.sh_history` file and hang before giving you a prompt.

When a client is running and has an active NFS mount with a server in which files have been previously locked, both the client and server cache information about each other. Part of the information that is cached is what the RPC port number uses to contact the `rpc.lockd` daemon on the server and client.

This RPC port information is cached in memory of the running `rpc.statd/rpc.lockd` process on both the server and client side. The `rpc.statd` process keeps a file in the directory `/var/statmon/sm` for each client that it knows to contact in the event that the client reboots (or `rpc.statd/rpc.lockd` restarts). During a normal reboot or crash, `rpc.statd` a message is sent to each client in `/var/statmon/sm` and inform them to flush their caches regarding this client.

When you reinstall a client, the `/var/statmon/sm` directory is cleared. In this case, if the reinstalled client tries to recontact a server that has cached information, the server will try to communicate over an old RPC port. The communication will fail for `rpc.lockd` and any file locking done by an application over that NFS mount will hang.

There are several ways to avoid or fix the problem if it occurs:

- If you experience a hang, you can reboot the client, or kill/restart `rpc.lockd` and `rpc.statd` on the client. At the point of the hang, the `/var/statmon/sm` directory will contain the name of the server, and thus rebooting or restarting the daemons will tell the server to clear its cache. If more than one server is involved you might have to do this multiple times until all servers are notified.
- As part of the installation, create a file for each server in `/var/statmon/sm`, which contains the name of the server. This will cause the first boot to generate a crash recovery notification message to each server, causing them to purge the stale port information. The following is an example `post_config_cmd` stanza that can be placed in your `/var/opt/ignite/config.local` file:

```
post_config_cmd += "
mkdir -p /var/statmon/sm
for server in sys1 sys2 sys3
do
echo $server > /var/statmon/sm/$server
chmod 0200 /var/statmon/sm/$server

done
```

"

Why do the `iux_postconfig` scripts associated with EMS KRM sometimes fail?

On some HP-UX 11.x clients you might encounter the following errors when recovering a client from a `make_net_recovery` or `make_tape_recovery` tape, or a `make_net_recovery` image:

Executing:

```
"/var/adm/sw/products/EMS-KRMonitor/KRMON-RUN/iux_postconfig".
ERROR: Cannot install a dlkm driver.
ERROR: Cannot configure a dlkm driver.
ERROR: The script:
"/var/adm/sw/products/EMS-KRMonitor/KRMON-RUN/iux_postconfig"
     failed, exit code was 1.
```

The reason for this is when the recovery archive was created, the kernel which the client was running was not created correctly (the DLKM information was out of sync). You must use `kmupdate` to move a new kernel into place after creating it with `mk_kernel`. This will move the DLKM information into place when the new vmunix is moved into place at the next shutdown.

To solve this problem, create a kernel in the way described above. Then, recreate the recovery tape or network recovery archive. This message must not appear next time you use the new tape or network recovery archive (the old tape or network recovery archive will always show this problem).

Can I run `make_net_recovery` from a PA-RISC server to create an archive for an Itanium-based client or vice versa?

Yes

Why does installing or recovering a client via NFS from an HP-UX 11i v1 Ignite-UX server take so long compared to an 11.00 server?

To answer this, we need to look at some background before considering the available options for resolving this issue.

If you use 100BT or 1000BT interfaces, you must check the duplex setting of the port on the switch that the Ignite-UX client is connected to. When a client boots, the kernel driver automatically negotiates the speed and duplex settings of 100BT and 1000BT interfaces.

If auto-negotiation fails, the interface defaults to half-duplex (the speed may vary depending on the speed of the switch port). When a normal client boots, its startup scripts are used to change the interface speed and duplex values to match that of the switch port. If the switch port is set to full duplex, you will have a duplex mismatch.

This causes a problem for interfaces connected to switches that have not been set to auto-negotiate. These interfaces will run at half duplex for the duration of the installation. From observation, the duplex value reduces the throughput that NFS over TCP can achieve, but NFS over UDP performance does not seem to suffer.

Ignite-UX uses an 11i installation kernel with versions Ignite-UX B.3.x, so if the Ignite-UX server is an 11i system the transport for NFS will be TCP and performance will suffer. HP-UX 11.00 is only transported via UDP for NFS by default, so the performance problems are not seen. There are several solutions available:

1. Change the switch duplex setting of the client being installed to auto-negotiate for the duration of the installation.
2. Change the `_hp_nfs_mount_opts` in the `INSTALLFS` to force UDP to be used as the protocol. For example:

   ```
   # instl_adm -d -F /opt/ignite/boot/INSTALLFS >
   /tmp/installfs.out Edit /tmp/installfs.out to add the
   following line:

   _hp_nfs_mount_opts="-oproto=udp"
   ```

   (or change the `_hp_nfs_mount_opts` variable if it already exists to add `-oproto=udp`) Then, save the changes back into the INSTALLFS after saving the file:

   ```
   # instl_adm -F /opt/ignite/boot/INSTALLFS -f
   /tmp/installfs.out
   ```

3. Ignite-UX provides the libraries required to use the `lanadmin -X` option with 100BT and 1000BT interfaces. You can add the `lanadmin` options to be applied to a LAN interface with the `hp lanadmin_args` variable in the INSTALLFS using the same commands as in option 2. An example of what you need to add to include a 100BT LAN interface into 100 full duplex mode would be:

   ```
   (lan[].driver == "btlan")

   {

   _hp_lanadmin_args="-X 100FD"

   }
   ```

   For more information about the admin options, see *lanadmin*(1M).

NOTE: If the Ignite-UX server is multi-homed and connected to one or more non-ethernet networking technologies over which it provides Ignite-UX installation/recovery services, Ignite-UX uses the `_hp_lanadmin_args` settings on the network interface you are using for installation. (Errors occur if the `lanadmin` options you have provided are not applicable to that interface.)

My VxVM installation has stopped with the message: `ERROR: Disk group dg02:cannot create: Disk group exists and is imported`. What is the problem and how can I resolve it?

This is a known issue with Ignite-UX and VxVM installations involving disk group names that were used on disks in a prior installation though not in the current installation.

Be careful when creating extra VxVM disk groups other than `rootdg` via the Ignite-UX GUI. During installation, no validation is done on a disk group name to see if it conflicts with a disk group name already in use for another unused disk on the system. If the name conflicts with another disk group, the attempt to create a disk group of the same name fails. This is a feature of VxVM to prevent the creation of duplicate disk groups. If you do encounter this problem, you are presented with something like the following:

```
* Starting VxVM
* Creating VxVM Disk "c17t13d0" (1/0/12/0/0/4/1.13.0).
* Creating VxVM Disk "c17t12d0" (1/0/12/0/0/4/1.12.0).
* Creating VxVM Disk "c17t11d0" (1/0/12/0/0/4/1.11.0).
* Creating VxVM Disk "c17t10d0" (1/0/12/0/0/4/1.10.0).
* Adding disk "c17t10d0" to rootdg.
* Enabling VxVM
```

```
* Creating disk group "dg01".
* Creating disk group "dg02".

vxvm:vxdg:
ERROR: Disk group dg02: cannot create:
Disk group exists and is imported

ERROR: Command "/sbin/vxdg init dg02 dg0201=c17t12d0
dg0202=c17t13d0"failed.
The configuration process has incurred an error, would you
like to push a shell for debugging purposes? (y/[n]):
```

If the affected disk group contains any important volume like `/usr`, `/opt`, or `/var`, this installation is unlikely to succeed as those volumes are required to boot and bring a system up. If the volumes are not essential, then it may be possible to ignore all the errors and the system may continue to boot. There may be additional VxVM errors beyond this initial one:

- To continue and ignore the error, answer `y`, and at the shell prompt, enter `exit 2`. Then press **Return**.

  Or

- To exit the installation, enter `n`. The system reboots, and then you must reinstall avoiding the use of duplicate disk group names.

One potential workaround for this problem is to set the control parameter *`clean_all_disks`* to true in `*INSTALLFS` (For more information about this keyword, see *instl_adm*(4)). However, this is not recommended in most instances and extreme caution is required because when this variable is set to true, all the disks found on the system are cleaned, which might not be intended. Data is lost on all disks on the system when this variable is set, even if the disks are not explicitly selected for the installation. In a SAN environment or MC/ServiceGuard cluster, the system you are installing may be able to detect disks currently used by other systems. Setting *`clean_all_disks`* to true removes the data from them as well, which is not an intended situation. However, this cleans the disk group data from the other disks on the system, thus eradicating the duplicate disk group names.

NOTE: LVM has the similar problem, but it would be observed when the duplicate group is imported back via `vgimport`. In VxVM, the problem is detected at volume group creation time. VxVM identifies all the disks on the system, and not just those selected for use in the current installation.

Is SecurePath (previously known as AutoPath) supported by Ignite-UX during installation or recovery?

It depends on what SecurePath is controlling. Ignite-UX does not support active/passive EVA GL (EVA3000/EVA5000) disk arrays because of multiple known issues. For more information about potential issues you might encounter, see the latest version of the Ignite-UX Release Notes (and search for EVA).

These issues do not affect active/active EVA GL or any EVA XL disk arrays. These disk arrays are fully supported for use with Ignite-UX.

Why is `install.log` so difficult to read?

The installation messages that are logged into `install.log` are obtained by Ignite-UX from multiple sources including the standard output (stdout) and standard error (stderr) of Software

Distributor and the contents of `swagent.log`. It is not possible to control how these messages are logged into `install.log`, thus the file can be confusing.

If you want to verify the installation of a product, Hewlett Packard Enterprise recommends that you examine the `swagent.log` file directly, rather than the Ignite-UX `install.log` file.

Why is the message `Cannot open /dev/vx/rdsk/rootdg/standvol` displayed during an Itanium-based installation via golden image?

It is caused by the major number change between B.11.23 first release and B.11.23 September 2004 for VxVM volumes. You will see this message if the golden image was created on a system running B.11.23 first release, and then the golden image is installed using version 'C' of Ignite-UX.

You can move the kernel build a little earlier in the process to avoid the message.

```
post_load_cmd += "
ccunset SW_INITIAL_INSTALL
/usr/sbin/mk_kernel -f -o /stand/vmunix
"
```

Does Hewlett Packard Enterprise support Ignite-UX through a firewall?

Hewlett Packard Enterprise has not tested Ignite-UX through a firewall.

It must be possible to configure a firewall such that Ignite-UX functions properly. For more information, see the section on modifying a Bastille-hardened system for Ignite-UX in the security chapter of *Ignite-UX Administration Guide* available on

http://www.hpe.com/info/ignite-ux-docs.

Hewlett Packard Enterprise supports Ignite-UX in conjunction with Bastille on HP-UX 11i systems. *Ignite-UX Administration Guide* describes how to configure Bastille on both Ignite-UX servers and clients.

What do I do when I get file system full messages during installation or recovery when `_hp_ignore_sw_impacts` is set to 1?

When installing or recovering a system, Ignite-UX uses a small amount of space (a few MB) in each of the `/` and `/usr` file systems to hold some commands. While some of these commands are used during the installation or recovery of HP-UX, others are used after the first reboot.

If the `/` or `/usr` file systems are nearly full when creating a golden image (and configuration) or recovery archive, or when installing an SD depot where the impacts will leave file systems nearly full, and you have set `_hp_ignore_sw_impacts` to 1 as follows:

```
init _hp_ignore_sw_impacts=1
```

It is possible that you might encounter a problem wherein the file system is full during recovery or installation. Normally, the configuration variable that controls how much free space must be in a file system increases the size of a file system so that there is at least 10% free space; 10% free space being the default value. This default value guarantees that there is enough free space for an installation or recovery.

Setting `_hp_ignore_sw_impacts` to 1 means that Ignite-UX will not resize the file systems according to impacts to guarantee some free space. If you set `_hp_ignore_sw_impacts` to 1, you must ensure that there is some free space available in `/` and `/usr` during installation or recovery (at least 20 MB) to avoid file system full issues.

If you do not set `_hp_ignore_sw_impacts` to 1, you can ignore this information. This issue is most likely to affect even if you create a recovery archive in which you have set `_hp_ignore_sw_impacts` to 1 in the installation file system or `config.local` files and `/` or `/usr` file system is nearly full.

What do I do when I get an error reading files greater than 2 GB in size?

The C.6.5.61 (December 2005) and newer versions of Ignite-UX contain the B.11.23 patch PHKL_33110 which includes install kernels to resolve an issue where files on ISO9660 media cannot be correctly read if they are 2 GB or greater in size. When encountering this problem the symptoms look like:

- `Loading_software: Begin`
- `Installing boot area on disk`
- `Formatting HP Service Partition`
- `Enabling swap areas.`
- `Backing up LVM configuration for "vg00"`
- `Processing the archive source (hp client archives)`
- `Thu Nov 03 12:37:56 EST 2005: Starting archive load of the source (B.11.23 client archive IA)`
- `Completed 0% of archive`

```
gunzip: stdin: unexpected end of file pax_iux: The archive
is empty
ERROR: Cannot load OS archive (B.11.23 client archive IA)
The configuration process has incurred an error, would you
like to push a shell for debugging purposes? (y/[n]):

Patch PHKL_33110 contains the defect fixes for JAGaf44970
and JAGaf67476.
Ignite-UX version C.6.8 contains the equivalent fix for HP-UX
11.11.
```

Why is the network boot of my Itanium-based system slow?

To reduce the amount of time it takes to perform a network boot, you must use an Ignite-UX server that is running a `tftp` daemon (`tftpd`) which supports the `tsize` option.

When the firmware on an Itanium-based system is downloading a file booting, it first attempts to determine the size (in bytes) of the file. If the `tftp` daemon (`tftpd`) on the server does not support the `tsize` option, the client downloads the file using the following steps:

1. Download the entire file (not storing the data), counting the bytes.
2. Allocate a buffer which is the exact size of the file.
3. Download the entire file (again) into the allocated buffer.

The B.11.11 patch which enables the `tsize` feature is PHNE_32825 which was posted on 20 March 2006.

NOTE: HPVM requires this patch if you are installing a virtual machine from an Ignite-UX server running B.11.11. Not having this patch installed on the server will cause the network boot to fail because of a firmware defect. No `tftpd` patch is required for B.11.23 onwards as the `tftpd` daemon supports the `tsize` option from first release.

How can I workaround recovery failure: `ERROR: A conflict has been detected while attempting to restore the prior device file names`?

This error is caused by the way that device special files are managed while restoring a prior instance number assignment of the `ext_bus` class devices (this instance number appears in the device file names for disks following the 'c' character).

For VxVM, the device files must not be renamed prior to the kernel knowing about the new instance assignments, and for LVM/whole-disk, they must be renamed prior. So, when the system has a mixture of VxVM and LVM/whole-disk, there is a chance that device files used by one or the other need to be exchanged resulting in a conflict.

In the case of fibre channel devices, the kernel can sometime assign different instances for the `ext_bus` devices each time the system boots Ignite-UX. So in these cases, if you get the error, simply rebooting and retrying might result in success.

If retrying does not resolve the problem, you can workaround the problem for recovering a system by doing the following:

- When using an Ignite server to do a network recovery, on the ignite server, do:
  - Edit the `system_cfg` file under the correct directory for the recovery you are doing. For example:`/var/opt/ignite/clients/{client}/recovery/latest/system_cfg`
  - Comment out (using the # char) the `hw_instance_num` keyword for the `ext_bus` device referenced by hardware path in the error message.

The result is that, the disk devices attached to that `ext_bus` will be assigned a different instance number and have a different device file name than before.

NOTE: The problem might persist even after disabling just one line. You can either try and disable the next entry at every instance, or disable all `hw_instance_num` lines if required.

- When using a tape recovery you cannot disable just one `hw_instance_num` value as you can with a network recovery. For tape:
  - From the first UI screen, select **Advanced Options**.
  - From **Advanced Options**, select the `Edit (vi) config` file.
  - From vi editor, add the following line:
    ```
    hw_instance_num = 0 "ioa" "sba" 0
    ```
  - This will override the `hw_instance_num` values from the other config files on the tape.
  - The system will not attempt to restore any prior device file naming because of this.

Why do I see errors about `io.info` version 0.5 not being understood and how do I workaround it?

If an Ignite-UX version C.6.8 - C.6.10 was used to create a recovery image and then an Ignite-UX version C.7.1 - C.7.6 was used to recover that image, the following errors might occur:

```
ERROR: 0x40041e30: IOTree::parse_io_info_line: io.info
version is understood: 0.5
ERROR: Fatal error while parsing io.info file
ERROR: Cannot initialize I/O data: unable to parse
```

```
/var/opt/ignite/clients/0x00306E48CE61/io.info file.
```

The cause of these error messages is that versions C.6.8 - C.6.10 of Ignite-UX create a version 0.5 `io.info` file. When a recovery is attempted with versions C.7.1 - C.7.6 of Ignite-UX, it is unable to parse the old 0.5 version of the `io.info` file.

To workaround this issue, do one of the following:

1. Run **Actions →Refresh Client** from the ignite user interface.
2. Use **Boot Client** from the **Actions** menu to boot the client in preparation for installing from the ignite user interface.
3. Use the client's console to boot from the Ignite-UX server.
4. Delete the `io.info` file in the client's directory.

When using the graphical interface, why do errors occur when opening a terminal window to a client?

If errors occur when Ignite-UX attempts to bring up a terminal to a client (for instance, to enter a password), it can be so because `hpterm` does not work with some name-services (like LDAP) and is unable to resolve a hostname specified in the `DISPLAY` environment variable.

For HP-UX 11.23, the following patch introduced support for an environment variable `SAMTERM`:

```
PHSS_31817 s700_800 11.23 ObAM Patch
```

The value of this variable will determine which type of terminal is opened.

To make use of this variable, run Ignite as follows:

```
# SAMTERM=dtterm ignite
```

or

```
# SAMTERM=xterm ignite
```

This variable is only supported on 11.23 with PHSS_31817 installed. 11.31 will use xterm, which does not have the hostname resolution problem. On 11.11 or 11.23 systems without the patch, you must specify an IP address in the `DISPLAY` variable.

Why am I getting the message `pax: Cannot access /sbin/pax_enh : No such file or directory`?

If you try archiving using pax format, you see the following message: pax: `Cannot access /sbin/pax_enh: No such file or directory`

pax: PAX-ENH product must be installed to enable the options -A, -o exclude, and -o graph.

⚠ **WARNING!** The `pax` command returned a non-zero exit status (exit status 1).

You must install PAX-ENH product to create pax format tape archives using `make_tape_recovery`, even on 11.31.

Why do I see a problem while using March 2013 HP-UX OE media as install media?

A problem occurred while using March 2013 HP-UX OE media as install media. This issue is common with the following configurations, but there can be other instances too:

- HPVM Guest or vPar using virtual or physical DVD
- Ignite-UX Server based cold installation is initiated on HPE Integrity rx5670 systems

The following are the symptoms associated with the issue:

- During installation of HP-UX 11i v3 March 2013 from physical or virtual media, the installation aborts unexpectedly and displays the following error:

```
Checking configuration for consistency... NOTE: run_cmd:
Process: 113 (net_cfg_prep): killed by signal: 11. ERROR:
Could not open /tmp/env.vars: No such file or directory errno
= 2). ERROR: Could not execute net_cfg_prep NOTE: System
rebooting... Shutdown at 10:36 (in 0 minutes) System shutdown
time has arrived
```

This is caused by an Ignite-UX issue and is tracked in QXCR1001268768.

- While installing an rx5670 via the network, when the installation settings are finalized and installation started, the following error message is displayed on the client console:

```
* Loading configuration utility...

* Beginning installation from source: 16.113.12.86 =======
06/21/13 09:05:29 EDT Starting system configuration... *
Configure_Disks: Begin * Will install B.11.31 onto this
system. #
```

If you were installing it from physical or virtual DVD media previously, a possible workaround is to use Ignite-UX server for installing the client. Hewlett Packard Enterprise recommends you to try this workaround, though it might not be always successful.

For getting the latest ISO images, contact Hewlett Packard Enterprise Support Center. Mention that fixed HP-UX 1303 OE ISO images must be provided.

Why do I see the message `pax_iux: mem_get(): There is a memory allocation problem` during restore of an archive?

This problem occurs due to a limitation in pax (a version of which is included within Ignite-UX). Ignite-UX has been tested with and is supported with archives, that do not contain more than 50,000 directories. This issue should not be seen, if you are within the supported directory archival limit for Ignite-UX. It is possible, if you upgrade to Ignite-UX version C.7.18 or later, you may be able to address this issue.

However Hewlett Packard Enterprise cannot guarantee this, as archives containing more than 50,000 directories are not tested.

For more information, see **PAX-ENH**.

Why do the Ignite-UX archive creation of a client configured with VxFS/VxVM 5.0.1 software failed when Enclosure Naming (EBN) Scheme is enabled on the system?

When Enclosure Naming (EBN) Scheme is enabled on the system, Ignite-UX archive creation of a client configured with VxFS/VxVM 5.0.1 software failed with the following messages:

```
/usr/lib/vxvm/diag.d/vxscsi: illegal option -- r
/usr/lib/vxvm/diag.d/vxscsi: illegal option -- r
ERROR: Failed to find "/dev/disk/disk_0" in IOTree
ERROR: Failed to find "/dev/disk/disk_1" in IOTree
ERROR: Failed to find "/dev/disk/disk_0" in IOTree
ERROR: Failed to find "/dev/disk/disk_1" in IOTree
ERROR: Failed to find "/dev/disk/disk_0" in IOTree
ERROR: Failed to find "/dev/disk/disk_1" in IOTree
ERROR: Failed to find "/dev/disk/disk_1" in IOTree
ERROR: Failed to find "/dev/disk/disk_0" in IOTree
```

This issue is caused by VxVM 5.0.1 command `vxscsi` when:

1. A VxVM volume was created under a disk group with EBN mode enabled on the system.

   And

2. Archive creation was initiated including the disk group having a volume created in EBN mode as mentioned in step 1.

To solve this problem, do one of the following:

1. Update the 5.0.1 VxFS/VxVM software to 5.1SP1 VxFS/VxVM software.

   Or

2. For each of the volume/s which were created when EBN mode was enabled, create new volume/s in Operating System Naming(OSN) scheme, and copy all the data from the volume/s which were created in EBN mode earlier.

NOTE: For more information, see `vxddladm(1M)` manpage to check the existing naming scheme set or to change the naming scheme on the system.

3 Server setup

Frequently asked questions

Following are the frequently asked questions for setting the server, which is a compilation of all the available feedback from the users.

Should I use DHCP or bootp?

There are some advantages and disadvantages to both DHCP and bootp. In general, DHCP allows you to specify more complete networking information. However, there are no good tools to manage the database so that you can enforce the LLA <-> IP-address mapping ahead of time. By its very design, DHCP dynamically allocates addresses.

In case you want to use the Ignite-UX GUI to set up the range of IP addresses which the server must manage with DHCP (If you have not already set the range). You must use SAM to make any future changes to the DHCP address pool.

If you are dealing with multiple subnets you will either need to have one DHCP server on each subnet or set up bootp relay agents.

See question 6.4 “I do not want to use DHCP, can I still have Ignite-UX automatically determine networking information for all my clients?” (page 27) also.

Why did it call my client `<hostname>.0x080009....`?

If your client has multiple LAN interfaces, and you have previously installed the client using one interface, and later chose to use the other interface during the installation, then the client name will have the LLA (link-level address) appended to the host name so that it does not conflict with the prior host name left from the prior installation.

This might also happen if you had to replace the LAN interface in your client since the last time you installed it. The LLA number is attached to the LAN interface, not the client.

It is only the name of the icon that has been renamed. You can use the Ignite-UX GUI **Action→ Change icon name** to rename one or both of the clients.

How can I set the timezone for messages during the install?

The HP-UX install kernel defaults to eastern US timezone. If you would like the log messages to come out in some other timezone, you can set the `TZ` environment variable within the `*INSTALLFS` files using `instl_adm`. Doing this will not impact the very first message that Ignite-UX produces, but it will take effect as soon as Ignite processes that variable setting. For example, to set `TZ` to mountain timezone:

```
# instl_adm -d > /tmp/installfs.out
# echo 'env_vars += "TZ=MST7MDT"' >> /tmp/installfs.out
# instl_adm -f /tmp/installfs.out
```

NOTE: The `timezone` keyword in the Ignite-UX config file determines what timezone is actually applied to the system after the installation is complete. Setting the `TZ` environment variable as shown above is only used during the installation. For more information about the `timezone` keyword, see *instl_adm*(4).

4 Configuration files

Frequently asked questions

Following are the frequently asked questions in configuring the files, which is a compilation of all the available feedback from the users.

What should go in which configuration file? Also, what should go in INSTALLFS?

Here is a short description of the common uses of the various configurations. There can be situations that are not common and variations will occur:

- INSTALLFS (accessed/modified via *instl_adm*(1M)) —Information that is needed at boot, such as GUI controls and networking.
- `/var/opt/ignite/config.local` — Information that must be globally applied to all clients and defines the `post_[load/config]_scripts` run on all clients.
- `/opt/ignite/data/Rel_<release>/config` — This file sets the definitions for that release and must not be modified.
- `/var/opt/ignite/date/Rel_<release>/*_cfg` — Information regarding software selections/sources. These files must be created by `make_config` (run against a Software Distributor depot) or in the archive case, edited versions of the examples in `/opt/ignite/data/examples/[core|noncore].cfg`.

When Ignite-UX is run for a client, all of these configuration files are combined and parsed. If there are conflicting or duplicate definitions, the order in which the files appear in the INDEX file determines the precedence with the last file listed (typically `config.local`) having precedence over all but the INSTALLFS definitions.

A potential breakdown can occur if the client was previously installed and the per client directory in `/var/opt/ignite/clients` exists and is populated with the previously resolved configurations. In this case, the previously resolved `config.full` has precedence.

How do I preview configuration file changes?

DESCRIPTION: Fixing syntax problems with `mod_kernels` results in statements of the following form:

```
mod_kernel += "maxdsiz " + ${_maxdsiz}
```

There does not seem to be a way to preview the effects of these types of statements. Can a comment be added to the `config.full` with the string that was being output?

SOLUTION: The `config.full` file has the variable values replaced with the real values. So, if you review this file, you must be able to view the modified `mod_kernel` statement. In this case, you would see the following:

```
mod_kernel += "maxdsiz 0"
```

Another option would be to have the configuration file push a shell prior to the kernel build using a `post_load_cmd`:

```
post_load_cmd += "/sbin/sh;"
```

Is there a way to set the configuration files to ignore the disk warnings, which can prevent automated installations?

An environment variable exists which can be used to prevent automated installations. For `INST_ALLOW_WARNINGS` information, see *instl_adm*(4). This can be used to keep you from going interactive when warnings are received. You will need to put the setting of this environment

variable in INSTALLFS for it to have effect. The line you would add to allow an automated installation to proceed after the warning is as follows:

```
env_vars += "INST_ALLOW_WARNINGS=10"
```

Why does changing variable values in the Additional screen no longer control non-final networking settings (which should propagate to final networking settings) after updating to C.7.7?

Prior to the C.7.7 release, it was possible to set final networking parameters (without using the `final` keyword) from the Additional screen with logic such as this:

```
dns_nameserver[0] = "1.8.26.55" dns_domain =
"default.corp.com"
_corp_dns_prefix = {"domain1","domain2"}
_corp_dns_prefix help_text "Select DNS Domain and
NameServer"corp_dns_prefix == "domain1" {
dns_nameserver[0] = "1.4.25.85"
dns_domain = "domain1.corp.com"

}
_corp_dns_prefix == "domain2" {
dns_nameserver[0] = "1.7.9.83"
dns_domain = "domain2.corp.com"

}
```

However, with the inclusion of the fix for QXCR1000741225, this no longer works. The better solution in this case is to use the `final` keyword, which is the more correct way of specifying. So the above logic would then look like this:

```
final dns_nameserver[0] = "1.8.26.55"
final dns_domain = "default.corp.com"
corp_dns_prefix = {"domain1","domain2"}
_corp_dns_prefix help_text "Select DNS Domain and NameServer"
_corp_dns_prefix == "domain1" {
final dns_nameserver[0] = "1.4.25.85"
final dns_domain = "domain1.corp.com"

}
_corp_dns_prefix == "domain2" {
final dns_nameserver[0] = "1.7.9.83"
final dns_domain = "domain2.corp.com"

}
```

If the Additional screen is visited and one of these choices is selected, then those final attributes will be applied. Otherwise the default ones will be applied. The above logic will work with all Ignite-UX releases, including C.7.7 and later. For more information on the final keyword, see *instl_adm*(4).

5 Recovery (make_tape_recovery and make_net_recovery)

Frequently asked questions

Following are the frequently asked questions in various modes of recovery, which is a compilation of all the available feedback from the users.

We tried running the recovery system option from a client booted in Ignite-UX, which generated errors. What files need to be accessible for tftp?

Only /opt/ignite and /var/opt/ignite are needed for tftp access.

How do I duplicate a tape made with make_tape_recovery?

For this information, see *copy_boot_tape*(1M). For information about how to copy a recovery tape for an HPE Integrity server, see *How do I duplicate a recovery tape from an HPE Integrity server?* in HPESC.

How do I deal with hot-swappable disk devices during recovery?

Ignite-UX only supports hot-swappable disks that are completely installed and present when creating a recovery image. Proper software and hardware procedures must be used for hot swap disk removal or replacement before or after recovery, but not during recovery. LVM command lvlnboot used by save_config does not work when a disk is removed and the system is in this transitional state. If this command is not working, then recovery has no chance of succeeding. See the information about SAS disks in Ignite-UX Release Notes for Version C.6.8.

What is the maximum amount of data that a make_tape_recovery tape can hold?

A make_tape_recovery tape can hold as much data as will fit on the tape. If make_tape_recovery is run in the foreground it prompts for more tapes if they are necessary.

NOTE: To include files larger than 2 GB but less than 8 GB, you might need to install patches. On HP-UX 11.11 you must have PHCO_28414 or later installed. On HP-UX B.11.23 you must have PHCO_31634 or later installed. Otherwise, files will be limited to being less than 4 GB in size.

How do I boot correctly from a recovery tape on a V-class system?

When booting from a recovery tape on a V-class system using an incorrect boot string, it is possible that the following errors are generated:

```
Command: bo 4/2/0.1.0 VINSTALL Device : 4/2/0.1.0
File : hpux Arguments : hpux VINSTALL
Loading : hpux.....175984bytes Loaded
110448 + 65536 + 865264 start 0xd01c88
Boot
:tape(4/2/0.1.0;0)VINSTALL
tape(4/2/0.1.0;0)VINSTALL:cannot open, or executable Exec
failed : No such file or directory
```

The correct method for booting any kernel from a tape is to add a colon (:) to the start of the kernel name. The colon indicates the bootloader reads the kernel from the LIF at the start of the media. Without the colon, the bootloader attempts other methods to read the kernel, but it does

not attempt to install it from an LIF. The above errors are the result of the bootloader attempting to read the kernel from an HFS file system, which is not possible on a tape.

Older releases of the bootloader prepended a colon (:) to the VINSTALL kernel name. This provision is unavailable from the bootloader for 11i v1. In this case, the correct boot string would be:

```
bo 4/2/0.1.0 :VINSTALL
```

Not:

```
bo 4/2/0.1.0 VINSTALL
```

For machines other than the V-class, always use: INSTALL to represent the installation kernel when manually booting from tape or an installation CD. The bootloader automatically changes it to :VINSTALL on systems that require a 64 bit kernel for installation.

How do I include all volume/disk groups into a recovery tape?

To include all volume and disk groups on the system into a recovery tape (can be used with make_net_recovery as well) use the following command:

```
# make_tape_recovery -A -x inc_cross=/
```

The make_tape_recovery manual page defines inc_cross as follows:

```
-x inc_cross=file|dir
```

Includes the file or directory in the recovery archive and crosses mount points to access any directories that are mounted or files contained in directories that are mounted.

Are multi-byte characters supported in file names in Ignite-UX?

Currently, multi-byte characters are not supported in file names.

Can you move a volume that was created in a non-root volume to the root volume during recovery?

When you recover a system using a recovery archive, you can extend the existing logical volume size in the Ignite-UX GUI, **File System** tab. However, the current tool does not allow you to create a new logical volume instead of using the old one.

How can I create empty volume groups during system restoration?

When using make_*_recovery tools in an off-site disaster recovery situation, you may want to have all the volume groups on the system recreated during the restore operation even though only the root volume group data is backed up with make_*_recovery. This might be the case when you use other tools (such as fbackup/frecover, VERITAS netbackup, Omniback, and so on.) for backing up the non-root data. This can be accomplished by specifying at least one file in each non-root volume group to be included in the backup.

If any file is included in make_*_recovery command from a volume group, the restoration process will recreate that volume group during the recovery. Hence, if only one file is specified for inclusion from the volume group, the entire group will be recreated, and that specific file will be restored.

A more complicated command line would be necessary to accomplish this, and -A would no longer be an option (which is currently used).

An example would be:

```
make_net_recovery -x inc_entire=vg00 \
-x include=/myDataVolume/anyFile ...
```

This would backup the entire vg00 volume group and the one file `anyFile` from the directory `myDataVolume`. Assuming that `myDataVolume` is on the other volume group, the layout of the other volume group will be saved and restored during recovery (along with `anyFile`).

During the installation of a recovery archive, the process stopped with a message from pax_iux complaining of a file with % at the start of its name: `pax_iux:/sbin/%sh text busy, would you like to push a shell for debugging?` What should I do if I encounter this message?

Enter `yes` to push a shell for debugging, then rename the file that will not conflict with any other file name. For example:

```
# mv "/sbin/%sh" "/sbin/%sh.remove"
```

Then continue the recovery installation process by entering **`exit 2`** and click **Return**. If you move the files to a name that has something in common, they will be easier to find and remove post recovery.

NOTE: Files starting with % (such as `/sbin/%sh`) are created by Ignite-UX during a recovery or installation session. These files remain on a system if an error occurred during the last recovery or installation before they could be cleaned up. Problems during recovery or installation must be investigated immediately; failing to do so can cause problems with subsequent recoveries.

How do I perform two-step recovery?

When recovering an Itanium-based system from a recovery image created with `make_tape_recovery` that does not support Itanium-based tape boot, you must perform a two-step recovery. This requires both a recovery tape of the system and a bootable CD or DVD containing the same revision of Ignite-UX, for example, C.6.6.x.

If you are using a version of Ignite-UX that does not have a corresponding set of Operating Environment media, you must create a custom bootable CD or DVD to recover from the recovery tape. Instructions on how to create this bootable media are available from the following locations:

- See the chapter Creating Your Own Installation Media in *Ignite-UX Administration Guide*, available in the Information Library.
- See the section How do I create the CD equivalent of a tape created by make_tape_recovery? in *Ignite-UX Custom Configuration Files* White Paper, available in the Information Library.

NOTE: `/opt/ignite/data/scripts/examples/make_media_installis` an example script is delivered with Ignite-UX C.6.2.x and greater. You can use this script as a guideline to create a bootable CD or DVD that may be used for dual-media recovery.

How do I retain custom minor number for device files?

Ignite-UX provides no functionality to allow you to retain custom settings for minor numbers in device files. A significant fraction of device files are recreated using the `insf -e` command after a recovery or golden image installation. This includes the `/dev/async` device file (which will be used in the examples below).

You do have several options:

1. Change your per-system post recovery instructions to remind you to check the setting of `/dev/async` (the minor number) to ensure settings are retained prior to recovery process.
2. Write a startup script that looks at `/dev/async` and verify that it has the minor number you would expect. If it is not the expected value, recreate it in the startup script. It is important to note that anyone can run the `insf -e` command that would create this device file, not just Ignite-UX during a recovery.

NOTE: If the `/dev/async` device file needs to be customized, make the change before the database starts.

How do I recover a system which has cluster-wide device special file (cDSF) configured?

Starting from Version 7.16.x Ignite-UX supports cDSF. No additional steps are required to recover a system on which cDSF have been configured. The consistency of cDSF is not checked across the systems sharing the storage during recovery and the cDSF is not synchronized. The user is responsible for ensuring the same.

Why are ACLs(Access Control Lists) not archived when using the pax format?

The PAX-ENH product is required to archive the ACLs of files/directories on 11i v3. The `-E` option is provided in *make_net_recovery*(1M) or *make_tape_recovery*(1M), along with the pax format.

6 General installation

Frequently asked questions

Following are the frequently asked questions in installation in general, which is a compilation of all the available feedback from the users.

How does Ignite-UX estimate needed file system sizes? Does it do anything other than add up the impacts statements?

Ignite-UX adds in `minfree` (normally 10%) to the amount required by the software impact.

You might have software bundles that have overlapping contents: filesets and/or files. The `make_config` command makes `sw_impact` statements for each bundle without any special handling the guard against over-counting when the bundles overlap.

For example, the Ignite-UX-11-XX bundles all overlap. Thus, when you install all of them using Ignite-UX, it estimates too much space.

You must be able to add the `sw_impact`, of all the `sw_sels` that you are installing and be able to calculate the required file system size.

When does Ignite-UX configure software?

The Software Distributor configuration and Ignite-UX `post_config_cmd` and `post_config_script` scripts are run after all software has been installed and the client has booted the final kernel from the target disk.

How do I set the client's final networking information?

This can be done from the **System** tab of the Ignite-UX GUI, or using the keywords in the configuration files (For information, see *instl_adm*(4)).

I do not want to use DHCP, can I still have Ignite-UX automatically determine networking information for all my clients?

Yes. If you want more control over the allocation of IP addresses and their mappings to your clients, you can configure entries in `/etc/bootptab` for each client. Because BOOTP is a subset of DHCP, the client's request for a DHCP server is satisfied with the BOOTP response.

If you also specify a boot file (bf) of `/opt/ignite/boot/boot_lif` in the bootptab entries, then additional entries in `/etc/opt/ignite/instl_boottab` is not required. In this case, boot the clients using `boot lan` instead of `boot lan install`. Only clients known in `/etc/bootptab` are capable to boot if you do not use `instl_boottab`.

```
sysname:\
hn:\ vm=rfc1048:\ ht=ether:\
ha=080009352575:\ ip=15.1.51.82:\ sm=255.255.248.0:\
bf=/opt/ignite/boot/boot_lif
```

NOTE: There is a known problem using this mechanism that you must review; see question 2.5 (Can an Ignite-UX server install clients on multiple subnets?) also.

How can I make software in a depot available for installations?

You must change to the release directory that is appropriate for the software in the depot, then run `make_config` against the depot. After the configuration is created, run `manage_index` to make it visible in the Ignite-UX GUI. For example, for the following situation:

```
SD depot machine: sdsource
```

```
SD depot: /var/application_depot
For release: 11.23
```

You would execute the following:

```
# cd /var/opt/ignite/data/Rel_B.11.23
# make_config -s sdsource:/var/application_depot -c
app_name.cfg
# manage_index -a -f
/var/opt/ignite/data/Rel_B.11.23/app_name.cfg \
-c "HP-UX B.11.23 Default"
```

NOTE: The `make_config` command only works on bundles. If the software is not contained within a bundle, you must either create bundles for it using the `make_bundles` command or manually create configuration files for your software.

FDDI software is included in my archive, yet Ignite-UX requires that I select it. Why?

Ignite-UX generates an error indicating that you must select the FDDI software for installing if the following conditions exist:

- You are using the FDDI interface during the installation.
- There is a `sw_sel` defined in a configuration file that has the string FDDI in the description.

Ignite-UX provides the error prior to starting the configuration phase to avoid the client being unable to complete the installation due to the lack of the FDDI drivers. Ignite-UX does not have any method to detect the inclusion of FDDI software in an archive.

If you have the FDDI software in the archive, you can avoid the error by removing it from your depot then, rerunning `make_config` to reflect the removal in the associated configuration file.

Alternatively, you can select the FDDI software, which causes the `swinstall` command to skip installing it since it is already on the client.

How many clients can I install simultaneously or in parallel?

Although there are no set limits in Ignite-UX, you will find that performance decreases as you reach the limits of your network and server bandwidth.

Most users have found that installing about 20 clients at a time from a single server is the limit while maintaining reasonable performance and avoiding network errors. This is a reasonable number for you to track and test when the installations complete. Also, you might find it useful to stagger the installations so that they all are not performing the same operation at the same time, thus all of them do not complete at the same time.

Using the NFS access method to access archives is suggested to avoid a problem that occurs when installing many clients using the ftp access method. When many `ftp` and `tftp` processes are running to a server at once, the `tftp` commands start generating the following error:

```
tftp: recvfile: recvfrom: Can't assign requested address
```

NOTE: It is required to make SD configuration changes to cope with a large number of concurrently installing clients, see the section Performance considerations for SD-UX based installs in the manual *Ignite-UX Custom Configuration Files* available at: **http://www.hpe.com/info/ignite-ux-docs**.

My installations are hanging; what is going on?

In certain circumstances installations might hang and this can be due to a problem with `swagentd`. If you are using an operating system archive, the hang occurs after the following message appears:

```
* Running /opt/upgrade/bin/tlinstall -v and correcting transition link permissions.
```

If you are using `swinstall` only, the hang occurs after the following message appears in `install.log`:

```
* Setting primary boot path to <some hardware path>
```

At this point in the process, Ignite-UX starts `swagentd` daemon. Because of a signal problem with `swagentd`, the parent process waits infinitely for a signal from the child process, which cannot occur. If you press **Ctrl+C** on the client console, you see a message similar to the following:

```
NOTE: run_cmd: Process: 223 (/usr/sbin/swagentd): killed by signal: 2.
ERROR: swagentd returned an error.
```

Select the option, `Push a shell`. After the execution of command, enter `exit2`. Select the option `Ignore to continue installation`. This results in an error because the child process is running. Installation must be completed successfully.

When you are asked if you want to push a shell, enter `yes`. Enter `Exit2`, to exit the process and click **Ignore** Ignite-UX to ignore the problem to continue the installation. Ignite-UX falsely believes that `swagentd` has not started and attempts to start it whenever it does a subsequent `swinstall`. This results in an error because the child process is running. Assuming no other problems occur, the installation must complete successfully.

Patch versions of `swagentd` is incorporated into SYSCMDS archives of Ignite-UX. However, if you are using an operating system archive, the archive might contain an older unpatched `swagentd` that gets deposited on top of the SYSCMDS version. This older, unpatched version then gets used and the hang might occur. In this case, the operating system archive requires a patched `swagentd` to fix the problem, and then it must be rebuilt. If this is not possible, you can instead use a `post_load_cmd` script to copy a fixed `swagentd` from the Ignite-UX server onto the client after the archive is unpacked.

NOTE: Changing seemingly unrelated things like disk drives, file system layout, language choice, and so forth, might eliminate the hang though this is not guaranteed.

How large can I create a single swap space using Ignite-UX?

On HP-UX 11.23 and above the restriction on swap spaces being less than or equal to 32 GB has been removed. The same is not true for HP-UX 11.11, Ignite-UX will limit the size of a swap space to be 32 GB or less.

To fully enable any amount exceeding 32 GB on HP-UX 11.11, it requires adjustment of the kernel parameters *`swchunk`* and *`maxswapchunks`* post installation.

There are individual size restrictions on the primary swap and all dump logical volumes that depend on operating system revision and firmware limitations in disk controllers. These volumes are limited in how far they can span from the beginning of the physical disk. The limits for HP-UX 11.11 and later are 4 GB or limited only by size of disk, depending on firmware. (Most PCI controllers and more modern systems do not impose specific limits. Older systems, like K and D series, do have restrictions on dump.)

If these limits are exceeded, Ignite-UX produces an error message and the installation is not allowed to proceed.

To use a large amount of swap, you must ensure that you have sized the swap related kernel parameters to allow for the total swap space configured. Ignite-UX automatically increases the kernel tunable *maxswapchunks* up to its maximum of 16384 to allow for more swap.

If the amount of swap created is more than 32 GB, you must increase the kernel tunable *swchunk* from its default of 2048. This is not an automatic process. If there is insufficient kernel resources configured to enable you to use the swap being created, a message appears indicating this during the installation process. This message might not be accurate if the *swchunk* value is manually changed using a configuration file as default value of *swchunk* (that is, 2048) is considered and does not take into account any changes to its value.

You can manually increase *swchunk* once the installation process is complete using SAM. To increase *swchunk* during an Ignite-UX installation, you can place a line like the following in the Ignite-UX configuration:

```
mod_kernel += "swchunk 4096"
```

With *swchunk* set to 4096, you are able to utilize up to 64 GB of swap, assuming that Ignite-UX had to set *maxswapchunks* to its maximum value of 16384.

NOTE: Ignite-UX does not detect any changes you make to *swchunk* manually. It limits the total size of all swap space to 32 GB.

To calculate how much swap can be utilized, multiply *swchunk* by *maxswapchunks*. For example:

```
16384 * 4096 = 67108864
```

Since *swchunk* is measured in KB, 67108864 / (1024*1024) = 64 GB. Provision to configure more space in swap space than what the kernel can use is provided. Hence, setting *swchunk* and *maxswapchunks* values appropriately for a large configuration is important.

Currently, the maximum supported value of *swchunk* is 16384. This gives a total of 256 GB of addressable swap with both *swchunk* and *maxswapchunks* set to 16384.

Do not assign large amount of swap space while setting values for *maxswapchunks* and *swchunk*. These values are used to allocate kernel memory that is used to track the swap resources, setting them too large wastes memory. To efficiently use kernel memory set *swchunk* as a power of 2 (for example: 2048, 4096, 8192, 16384, and so on).

When choosing values, assign *swchunk* the lowest value that you can, and then choose the value needed for *maxswapchunks* to address the swap required. On a system that actively swaps memory to a swap space, there might be performance implications when increasing *swchunk* past its default of 2048.

The *HP-UX Memory Management* White Paper (`mem_mgt.txt` located in `/usr/share/doc`) contains detailed information about how swap is controlled inside the kernel.

Additionally, to create logical volumes as unused logical volumes rather than swap logical volumes you can configure them to be used for swap after the installation process has completed. This is important only if you need the swap spaces allocated in a particular order.

Why do the text fields in the Ignite-UX TUI not accept my input, and the dialogs re-open or loop?

The text fields within the Ignite-UX TUI do not recognize keyboard input when the **Insert** key is active. Make sure that the **Insert** key is inactive when entering data in the TUI by pressing it.

What Hewlett Packard Enterprise applications are tested for use with Ignite-UX?

Hewlett Packard Enterprise applications that have been tested with Ignite-UX have an OD1 option on the Hewlett Packard Enterprise CPL (Corporate Product List), which indicates the factory integrate option. This option directs Hewlett Packard Enterprise factories to install the software

on the client before it leaves the factory. Hewlett Packard Enterprise manufacturing installs the software from a depot using the Ignite-UX process.

All Hewlett Packard Enterprise applications identified with an OD1 ordering option may be installed from a depot.

No applications are tested for proper installation or operation when included in a golden image that is installed with Ignite-UX. They might work fine in this mode, but it is up to you to verify proper installation and operation. Running `swconfig -x reconfigure=true\*` after installation might cause some software to properly configure itself after installing from a golden image archive.

7 Network installation

Frequently asked questions

Following are the frequently asked questions in installing the network, which is a compilation of all the available feedback from the users.

When the client searches for bootable devices, the Ignite-UX server does appear on the list. When I try to boot, I get the error: `IPL error: bad LIF magic.` Why?

Typically, this has been caused by one of the following situations:

- Not having `tftp` access to `/opt/ignite and /var/opt/ignite`, the `/etc/inetd.conf` file on the server must have an entry similar to:

  ```
  tftp dgram udp wait root /usr/lbin/tftpd tftpd\
  /opt/ignite\
  /var/opt/ignite

  If not, fix inetd.conf and run "inetd -c". Kill any tftpd
  processes that may be running. Installing Ignite-UX should
  set inetd.conf.
  ```

- Using a `tftp` entry for the client that is referencing a nonexistent boot file (bf).
- A corrupted `/opt/ignite/boot/boot_lif` file.
- Some remnants of the old installation product are conflicting with Ignite-UX. For example, an old `instl_bootd` is running.

I set `control_from_server=true` and `run_ui=false` in the INSTALLFS, but I still get prompted for information on the client. What is wrong?

Review the following possible answers depending on the prompt that you received:

- If the screen is showing the client name in an editable field and a **Cancel** button at the bottom of the screen, then client icon is enabled on Ignite-UX server GUI. The text screen allows you to change the icon name, or switch to a client-side installation.
- If the screen is showing two or more LAN interfaces to select from, there was not enough information in the configuration files regarding which LAN to use. The installation continues, once you select the required LAN, and click **HP-UX**.
- If the screen is prompting you for networking information, then either DHCP did not respond or there is not an entry in `/etc/bootptab` for the client. Enter the network information, select **Install HP-UX** and continue the installation.

The `bootsys` command seems to work in reverse; if we entered: `# bootsys -w client` the client did not wait for the server, if we entered: `# bootsys client` the client waited for the server. Why?

This is probably because you ran through the GUI once on the Ignite-UX server prior to running the `bootsys` command. The server pushes the instruction to the client to start installing and the next time the client boots it uses this pushed instruction. The message Ignite-UX generates, inform you that the installation will happen the next time `bootsys -w` is used, but does not indicate that it happens automatically.

It is possible that the next time you executed a `bootsys` command, you had not used the GUI without the client being booted from the Ignite-UX server.

When executing `search lan install` on the client, the Ignite-UX server does not appear in the list. Why?

Check the following on the Ignite-UX server that you are trying to boot from are:

- Messages from `instl_bootd` in `/var/adm/syslog/syslog.log`. If you need to add more IP addresses to `/etc/opt/ignite/instl_boottab`, messages are written to `syslog.log` similar to the following:

  ```
  instl_bootd: Denying boot request for host: 080009F252B3 to
  avoid IP address collision. Try booting again in 214 seconds,
  or add more IP addresses to /etc/opt/ignite
  ```

- A message in `syslog.log` that indicates that you have no IP addresses in `/etc/opt/ignite/instl_boottab` similar to the following:

  ```
  instl_bootd: No available IP address found in:
  /etc/opt/ignite/instl_boottab
  ```

The `bootsys` command fails due to insufficient space in the `/stand` volume. Why?

The `bootsys` command needs to copy the two files:

```
# /opt/ignite/boot/Rel_<release>/*INSTALL
# /opt/ignite/boot/Rel_<release>/*INSTALLFS
```

In the above files, *<release>* is the operating system release, from the server into the client's /stand directory. This error indicates that there is no enough space in /stand on the client. To correct the error, you might need to remove any backup kernels. Additionally, check for kernels in the `/stand/build` directory (like `vmunix_test`).

Can I have the Ignite-UX server and client on different subnets?

Yes. It requires that you setup a boot-helper on the remote subnets, or limit yourself to using the `bootsys` command.

Because the network boot firmware uses a broadcast BOOTP packet to find an Ignite-UX server to boot from, these packets do not normally cross over subnets. This limits clients to booting from Ignite-UX servers only on their local subnet.

When your Ignite-UX server is on a remote subnet, you have basically three options:

- Set up a boot helper system on the client's subnet that has the IUX.MinimumRuntime product installed. This boot-helper system provides the client with the ability to boot the INSTALL kernel, and then contact the server once it is booted. For more information, see Appendix B in the *Ignite-UX Administration Guide* at **http://www.hpe.com/info/ignite-ux-docs**.
- Use the `bootsys` command from the Ignite-UX server to initiate the installation of the client. The `bootsys` command copies the `*INSTALL` and `*INSTALLFS` files to the client's local disks and instructs it to boot from them. This option avoids the need to do a network boot.
- Create a minimal bootable tape or CD to boot from, and then point the client to the Ignite-UX server once it is booted. For more information, see *make_medialif*(1M).
- On HPE Integrity servers use direct boot profiles (if your system supports them) and directly contact a remote Ignite server without needing a boot helper.

My Itanium-based client fails to boot with a PXE-E16 error. Why?

The error message `PXE-E16: Valid PXE offer not received` indicates that the client did not receive a valid message from either a BOOTP or DHCP server.

Itanium-based clients differ from PA-RISC clients because the Ignite-UX `instl_bootd` boot protocol server cannot be used. The **Configure Booting IP Addresses** button on the **Server Configuration** tab of the Ignite-UX GUI and the `/etc/opt/ignite/instl_boottab` file do not apply to Itanium 2-based clients.

Instead, a BOOTP/DHCP server such as HP-UX bootpd must be configured and `/etc/bootptab` entries made for each client. If this Ignite-UX server has been configured and the client still does not boot, the following is a checklist of items to verify:

Check `inetd` for the following:

- Check `/etc/inetd.conf` to make certain `bootps` and `tftp` entries have been uncommented.
- Was `inetd` restarted or given an option to re-read the configuration files (inetd -c), after they were edited? Is the `inetd` process running?
- Check for entries in `/var/adm/inetd.sec` that might cause `inetd` to deny service to certain clients.
- Check `/var/adm/syslog/syslog.log` to make certain `inetd` was restarted, and no error messages were displayed. Check for messages from `bootpd` and `tftpd`.

Check `bootpd` for the following:

- Check the `/etc/bootptab` entry. Make certain the MAC address matches the client MAC address. Use `dhcptools -v` to validate the format of the `/etc/bootptab` file.
- Check for entries in `/etc/dhcpdeny` to ensure that `bootpd` is not set up to deny service for particular clients.
- Check `/var/adm/syslog/syslog.log` for a message from `bootpd` that indicates it was started when a `bootpd` packet was received.

Check `tftpd` for the following:

- Check the `tftp` line in `/etc/inetd.conf` to make certain `/opt/ignite` and `/var/opt/ignite` directories are listed.
- Check the `tftpd` connection manually by using the `tftp` command; for example:

```
prompt% tftp [server-name]
tftp> get /opt/ignite/boot/nbp.efi /tmp/nbp.efi Received n
bytes in s seconds
> quit
```

Does Ignite-UX Support APA (auto-port aggregation)?

Yes. From March 2011 release onwards Ignite-UX supports recovery of a system with APA configured on HP-UX 11i v3 OS.

Ignite-UX does not support the following activities on systems with aggregate LAN interfaces:

1. Configuring or changing network information associated with aggregate links during a recovery (nor can they be configured in during a cold install using either SD depots or golden images).

   Cloning systems using recovery archives that contain definitions for aggregate LAN interfaces.
2. Cold installing from a golden image containing definitions for aggregate LAN interfaces.

3. When network boots a system any network information gained by DHCP must provide the hostname of the system, not doing so will lead to errors during the recovery if a system has aggregate LAN interfaces defined on HP-UX 11i v1 or v2.
4. Changing the hostname during a recovery on a system that has aggregate LAN interfaces defined on HP-UX 11i v1 or v2. Doing so will lead to errors during a recovery.

For more information on APA, see Admin Guide chapter 15 under section Verifying Recovery Image Results.

Does Ignite-UX Support IPv6?

No. Ignite-UX does not currently support installation over IPv6.

8 Media installation

Frequently asked questions

Following are the frequently asked questions in installing the media, which is a compilation of all the available feedback from the users.

Why do I get DCE/RPC errors (RPC exceptions) during the configuration stage?

In addition to these errors, there is an approximate 10 minute hang at the end of the SD configure stage and a failure message appears at the end of the installation.

There is an apparent problem with certain SD operations (for example, `swacl`) when only loop back networking is enabled. This occurs if the `media-only installation` option is selected. The workaround is to install using the `media with networking enabled` option and set up these networking parameters: host name, IP address, netmask, and routing, so on. This allows the Software Distributor operations to complete normally.

How can I put an operating system archive on multiple CDs?

If the archive you want to put onto a CD is too large, you must consider using a DVD instead. If your system only has a CD writer, you must consider creating multiple independent archives each of which fits on a CD.

The first archive must contain the core HP-UX directories; the remaining archives contain the rest of the system. Use the following procedure to create these archives:

- Determine what large (non-essential) directories can be omitted from the core operating system archive, and include it in subsequent archives. In this example, we are assuming that the `/opt` directory will be put into a second archive. It may require some trial and error to exclude enough data to make an archive small enough to fit on the CD. In addition, the LIF data on the first CD requires space.
- Create the first core operating system archive, use the `make_sys_image` command and use the `-f` option to specify a file that contains a list of directories that must be excluded. For example, if you want to exclude `/opt` from the archive, create a file (`/tmp/specific_files`) that contains:

  ```
  + NO_ARCHIVE
  /opt
  ```

- Run `make_sys_image` as such:

  ```
  # /opt/ignite/data/scripts/make_sys_image \
  -f /tmp/specific_files -s local -d /var/tmp
  ```

- Create your second archive containing the rest of the system (in this example, the `/opt` directory). Note that the archive content must not contain absolute paths. This is especially true for core operating system archives, but is a best practice for other archives. Using pax to create the tar archive:

  ```
  # cd /
  # pax -wx ustar -f - opt | gzip > /var/tmp/archive2.tar.gz
  ```

- Copy and edit the configuration file template `/opt/ignite/data/examples/core11.cfg` for the first core operating system archive.
- Copy and edit the `/opt/ignite/data/examples/noncore.cfg` template file for the other archives. In addition to the changes required, ensure to change the `sw_source` definition in this file, to add the line:

```
change_media=TRUE
```

Now, you can put these archives and configuration files on the CDs. The first CD contains the LIF data created using `make_medialif` and all the configuration files referencing all your archives. For more information, see *make_medialif*(1M) and the *Ignite-UX Administration Guide* at **http://www.hpe.com/info/hpux-core-docs**.

The second and subsequent CDs need to have a file system containing only the archive. Do not use `instl_combine` on the subsequent CDs as they must not have an LIF area.

Which HP-UX releases support install using vMedia?

HP-UX 11.31 for September 2007, HP-UX 11.23 for December 2007, or a later release is needed for vMedia install.

How can I use iLO (integrated lights-out) vMedia with Ignite-UX?

If vMedia and the HP-UX kernel perform a very fast, simulated USB DVD device attach during boot, installation will work as if the vMedia DVD was a built-in DVD device.

It is much more likely that the HP-UX kernel will not discover the boot source device and Ignite-UX will complain that the source device is not found:

```
WARNING: Could not find Q_BOOT device. Cannot determine what
the boot device was.

ERROR: Could not get io-device data (ioscan)

WARNING: Could not find source device in ioscan output. You
must select from the list of devices below to use for the
source device:
```

A few seconds after these messages are displayed, a USB attach message will show on the console. Use the `r` (re-scan) option to repeat I/O inventory to detect the vMedia device. After re-scan, select the vMedia device from the list of possible source devices. This is required because the kernel will not determine the boot source during re-scan. After selection of the source device, installation will then continue normally.

9 Archive installation (Golden images)

Frequently asked questions

Following are the frequently asked questions in archiving the installation (Golden images), which is a compilation of all the available feedback from the users.

What does the following gunzip error indicate? `gunzip: stdin: unexpected end of file pax_iux: The archive is empty. ERROR: Cannot load OS archive (HP-UX Core Operating System Archives)`

It appears that the NFS mount succeeded, but the file was not accessible from the client. Check the following possibilities:

- The file has a different name so check your configuration files for errors.
- The file has the wrong permissions such that it is not readable, so check your `/etc/exports` file.

The `/etc/nsswitch.conf` and `/etc/resolv.conf` files from my archive do not end up on the client. Why?

There are certain files which Ignite-UX modifies during the configuration process, among them are `resolv.conf` and `nsswitch.conf` files. To end up with the archive versions of these modified files on your clients, Ignite-UX provides two scripts called `os_arch_post_l` and `os_arch_post_c` to aid you. These scripts are delivered in the `/opt/ignite/data/scripts` directory. Modification of only `os_arch_post_l` file is sufficient to retrieve the file. Copy this file to a new name in the same directory and then edit it searching on `resolv.conf` and `nsswitch.conf` for instructions regarding what must be changed.

After the script has been changed, modify your configuration file that describes the archive so that it points to the new script.

What do these errors mean `pax_iux: X: Cross-device link, pax_iux: X: File exists, or pax_iux: X : Device busy`?

Both of these errors might occur when installing a client from an archive that does not have the same file system partitioning as the client on which the archive was created.

The first error, `pax_iux: X: Cross-device link`, is caused when two files exist as hard links in the archive, and if these two files reside in separate file systems. For example, if you create an archive on a client that did not use LVM, the root file system is all one file system and the files `/usr/local/bin/f1` and `/opt/myprod/bin/f2` are hard linked. If an archive of such client is created, then try to apply it to a client that uses LVM and has `/usr` and `/opt` as separate file systems this error occurs.

The second and third errors, `pax_iux: X: File exists and pax_iux: X : Device busy`, can occur when the archive has a symbolic link (symlink), or regular file that is named the same as a directory or mount point that exists when the archive is installed. For example, if the original client on which the archive was made has a symlink like `/opt/myprod` -> `/extra/space`, and when you are installing a client from the archive you decide to create a mounted file system as `/opt/myprod`. The `pax` command fails to create the symlink because a directory exists in its place.

You can recover from this failure when the error occurs because, on the client's console, you are asked if you want to push a shell. Enter `yes`, and then enter `exit 2` from the shell you can ignore the error and continue the installation.

Once the client is up, you can easily determine what to do with the paths that created the errors.

To avoid the errors, the client that the archive is created from must not contain soft links between directories that are likely to be created as separate file systems.

10 Obtaining Ignite-UX

Frequently asked questions

Following are the frequently asked questions in obtaining Ignite-UX (IUX), which is a compilation of all the available feedback from the users.

What is different about the Web version?

Usually nothing, other than the software might be available prior to the media release. Additionally, you can download one depot containing all supported operating system releases. On some occasions, the Web release will contain additional fixes not present in the media release.

Is Ignite-UX available on media?

If you have subscription service for the Application Media Release then, Ignite-UX is available to you on the media without a codeword. In other words, free.

How do I update my Ignite-UX server to a new version?

In general, each new version of Ignite-UX is compatible with any scripts or configuration files that were delivered with older versions.

If you follow some simple guidelines, updating to a new version of Ignite-UX involves running `swinstall` to install the new version; this is the same procedure as installing it for the first time. There is no need to uninstall the old version. For more information about updates to be performed see the white paper *Installing and Updating Ignite-UX* available at **http://www.hpe.com/info/ignite-ux-docs**.

Updating to a new version of Ignite-UX preserves any changes you have made to files under the `/var/opt/ignite` and `/etc/opt/ignite` directories. Changes to any files under `/opt/ignite` are lost during the update. Hewlett Packard Enterprise does not recommend changes to any files under `/opt/ignite`.

Guidelines for ensuring easy updates:

Do not modify any files under the `/opt/ignite` directory. If you need to modify any configuration files under `/opt/ignite`, copy them to an equivalent directory under `/var/opt/ignite` then modify the `INDEX` file to use them in the new location instead. Some files and scripts contain comments that describe the recommended modification procedure to use.

If you must modify files under `/opt/ignite`, then save a copy of your changes so you can restore the changes to the new files after updating Ignite-UX if necessary.

Ensure that you install all of the Ignite-UX filesets you had previously installed, so that no version mismatch of fileset must occur.

How much of Ignite-UX do I need to install?

Depending on what you are using Ignite-UX for, you might be able to reduce the disk space usage by not installing the full product. Below is a list of typical usages and a list of what parts of Ignite-UX you need. If disk space is not a limitation, install all the required bundles for the HP-UX releases. For all cases the `IUX.IGNT-ENG-A-MAN` fileset can be omitted or removed if on-line documentation is not required.

- Ignite-UX server to install HP-UX on clients — Install the Ignite-UX bundles for each HP-UX release which you plan to install onto clients.
- Ignite-UX server to support network recovery for clients — Install the full Ignite-UX bundle for each version of HP-UX that your clients are running. It might be easier to install the B5725AA bundle (for versions of Ignite-UX before C.7.0) or IGNITE (for versions of Ignite-UX

from C.7.0). Note that the IGNITE bundle is the same as the B5725AA bundle. It is only a new name.

- Using only `make_tape_recovery` on clients— Create the recovery commands depot on your Ignite server and install the HP-UX release specific bundle applicable to your system or if you have downloaded Ignite-UX from the website, install the release specific version of Ignite-UX from that depot. That bundle contains everything required to create a recovery tape.
- Using only `make_net_recovery` on a client — The filesets a client needs are normally installed by the Ignite-UX GUI to each client from the depot created by `pkg_rec_depot`. The bundle IUX-Recovery must be installed from the recovery commands depot to support `make_net_recovery`.
- A network boot helper system — To setup a client on a remote subnet that is used just to allow clients to boot from the network, and then contact a remote Ignite-UX server, you require `Ignite-UX.MinimumRuntime`.

Installing a combination of different versions of Ignite-UX filesets on a client is not recommended. Hence, if you decide to update only a subset of Ignite-UX, use `swremove` to delete the updates that are not required.

How can I copy Ignite-UX from media to a local depot such that Ignite-UX from this new local depot will be installable on all HP-UX B.11.* systems?

The media versions of Ignite-UX have the `os_release` attribute set to match the revision of the media (that is, B.11.11 or B.11.23 or B.11.31). A user might copy the Ignite-UX bundles from media into a local depot and run `swmodify` to change the value of the `os_release` attribute to be `wide open` (that is, it will then be applicable on all HP-UX B.11.* systems).

See the sample script at: `/opt/ignite/data/scripts/examples/open_media_iux`

11 Loading patches

Frequently asked questions

Following are the frequently asked questions in loading patches, which is a compilation of all the available feedback from the users.

How do I prevent backup copies of patched files from being saved?

When installing HP-UX patches from SD depots, the normal process is that the patched files are saved in case you want to remove the patch at a later date. However, this takes up additional space in the `/var` directory so you might want to turn that feature off.

This feature is controlled by an option to the `swinstall` command as follows:

```
x patch_save_files=false|true
```

You can use the `sd_command_line` keyword either at the global level, or within individual `sw_source` clauses depending on whether you want it to be specified for all installations or just certain ones.

Be aware that for patches in the core depot, this option is specified by the `/opt/ignite/date/Rel.B.11.**/hw_patches_cfg` file. It is controlled by the configuration file variable, `_hp_patch_save_files`, and made visible to the user in the **Additional** tab of the Ignite-UX GUI.

To specify this option at the global level (for example, in the `/var/opt/ignite/config.local` file), you can add the following line:

```
sd_command_line += "-xpatch_save_files=false"
```

To set the default variable that controls the core patches to `NO`, add the following line to `config.local` (which must be listed after `hw_patches_cfg` in the INDEX file):

```
init _hp_patch_save_files = "NO"
```

Why are patches left in an installed state when I install the Support Plus patch bundle along with HP-UX 11.x from CD?

When Ignite-UX installs the core operating system and patch bundle from the Installation CD, it installs the software with the SD-UX option `defer_configure` set to `True`, and then the Support Plus patch bundle is installed. Ignite-UX can install patches that supersede patches installed as part of the core operating system patch bundle. Superseded patches cannot be moved into a configured state by `swconfig` when it is eventually performed. This is because the superseded patches now on the client are no longer applicable to that patch, it is only applicable to the patch that superseded it. To correctly determine if a patch is really in an installed state you must look at the setting of both `patch_state` and `state` in the `swlist` output.

For example:

```
# swlist -l patch -a state -a patch_state | grep PH
```

If the `patch_state` is *applied* (the patch has not been superseded) and the `state` is *installed*, this indicates an issue and you must configure the patch with the `swconfig` command. If the `patch_state` is *superseded* or *committed*, then ignore the status. However, if you delete any patches and a previously superseded patch changes to have a `patch_state` as *applied*, you must run `swconfig` manually to configure the patch if the `state` attribute is *installed*.

NOTE: Do not manually modify the `state` attribute of an *installed* or *committed* patch, it must be configured with the `swmodify` command.

12 Network recovery

Frequently asked questions

Following are the frequently asked questions in recovering the network, which is a compilation of all the available feedback from the users.

How can I learn more about network recovery?

In addition to the information in this FAQ, there are several other sources of information on network recovery:

- See the System Recovery chapter in *Ignite-UX Administration Guide* at **http://www.hpe.com/info/ignite-ux-docs**.
- The manpages applicable to network recovery are as follows:
  make_net_recovery(4)
  make_boot_tape(1M)
  pkg_rec_depot(1M)
  instl_adm(1M)
  instl_adm(4)
  ignite(5)
- The Ignite-UX Release Notes that detail new features, enhancements and known problems with the product. It is located in Information Library and in the `/opt/ignite/share/doc/release_note` directory.
- The recovery white papers *Successful Cloning using Ignite-UX* and *Successful System Recovery using Ignite-UX* at **http://www.hpe.com/info/ignite-ux-docs**.

How can I clone a client using `make_net_recovery`?

The recovery configurations and archives created by `make_net_recovery` are stored in a separate directory on the Ignite-UX server for each client.

Using the configuration and archive created by `make_net_recovery` on one client to install a different client involves manually copying some configuration files, and allowing NFS access to the source client's archive.

The steps to clone a client using `make_net_recovery` are as follows:

1. Use `make_net_recovery` or the Ignite-UX GUI to create a recovery archive of the source client.
2. Login to the Ignite-UX server.
3. If the client to be installed does not currently have a directory in `/var/opt/ignite/clients` on the Ignite-UX server, but is up and running, then use the Ignite-UX GUI to create that directory using the **Add New Client for Recovery** task.

   If the client is not running, you either need to boot the client from the Ignite-UX server or for a tape made with `make_boot_tape` so that this directory is created.
4. Copy the `CINDEX` file and recovery directory from the source client to the target client directory. If the client has previously used `make_net_recovery`, then it already has a `CINDEX` file. If a `CINDEX` file for the target client exists, save a copy or edit the file to add the required entries from the source client. The following commands copy the required files. You can specify *src-client* and *target-client* using either the MAC addresses (for example, 0x0060B04AAB30) or the client's host name which is symbolically linked to the MAC address.

   ```
   # cd /var/opt/ignite/clients/<src-client>
   ```

```
# find CINDEX recovery | cpio -pdvma ../<target-client>
```

5. Give the target client NFS access to the archive of the source client by logging into the Ignite-UX server that holds the archive. Typically, each client has its own directory for storing the archives, and the directory is exported only to the individual client. For Ignite-UX servers running releases prior to 11.31, you must edit the `/etc/exports` file to allow access to both the source and target clients as follows:

   ```
   # vi /etc/exports
   (append ":target" to the end of the source client's line)
   # exportfs -av
   ```

   where `:target` is the hostname of the target system. For more information, see *exports*(4).

   For Ignite-UX servers running 11.31 or later, you must edit the `/etc/dfs/dfstab` file to allow access to both the source and target clients as follows:

   ```
   # vi /etc/dfs/dfstab
   (append ",ro=target" to the -o argument of the source
   client's line)
   # shareall -F nfs
   ```

   where `target` is a fully qualified client name. Since this client will not be creating an archive, the client will not have write access to the archive directory. For more information, see *dfstab*(4).

6. Now, boot the client from the Ignite-UX server using any method. When you install the client, you can select from the recovery configurations of the source client.

How can I tell which files will be included in the archive created by `make_net_recovery`?

Execute `/opt/ignite/lbin/list_expander` as described in the next FAQ question, replacing the `-d` option (which lists the disks and/or volume groups) with the `-l` option (which lists the individual directories and files that will be included in the archive).

How can I tell which disks or volume groups get recreated during an installation from a `make_net_recovery` configuration?

Execute the following from the client:

```
# /opt/ignite/lbin/list_expander -d -f <input_file>
```

where: <*input_file*> specifies what is to be archived. For more information about format of <input_file>, see *make_net_recovery*(4). The `make_net_recovery` command can take input from an input file, no input, or input from the command line with the `x` option. The `list_expander` command can take input from an input file, or no input, but does not have an `x` option like `make_net_recovery`. To see the result of using `x` options, put the options in a file and `passlist_expander` as the file name.

If you used the Ignite-UX GUI to specify what is to be included in the archive, then the input file can be found on the Ignite-UX server in:

```
# /var/opt/ignite/clients/<client>/recovery/archive_content
```

You can copy this file from the server to the client, then run `list_expander` against that file.

Omitting the `-f <input_file>` causes `list_expander` to use only the essential files as input. This shows which disks or volume groups are recreated for the minimal archive.

The following is an example of the output:

Table 1 Output

In?	dsk/vg	name	minor#	Associated disks
_____	_____	_____	_____	_____
0	d	/dev/dsk/c0t3d0		
1	v	/dev/vg00	0x00	/dev/dsk/c0t6d0 /dev/dsk/c0t4d0
0	v	/dev/vg01	0x01	/dev/dsk/c0t1d0
0	v	/dev/vg02	0x02	/dev/dsk/c0t2d0

The first column shows, for each disk or volume group, if it will be:

2= included in full (INC_ENTIRE dsk/vg specified); the disk or volume group is re-created and files from the archive are restored

1= included in part (some files included, some not); the disk or volume group is re-created and files from the archive are restored

0= not included at all (no files from this dsk/vg are included); the disk or volume group is not included

The second column shows that the client has one whole disk (d) and three volume groups (v). The third column gives the names of the disks and volume groups.

How can I use `make_net_recovery`, if I need to be able to recover from a tape?

There are two ways you can recover from a tape with `make_net_recovery`. The following method that you choose depends on your needs:

- The first method is useful when you want to create a totally self-contained recovery tape. The tape will be bootable and contains everything needed to recover your client, including the archive of your client. During recovery, no access to an Ignite-UX server is needed.
- The second method is useful when the client is not able to boot over the network, but are still able to access the Ignite-UX server using the network for your archive and configuration data. This might happen if your client does not support network boot or if is not on the same subnet as the Ignite-UX server. In these cases, use `make_boot_tape` to create a bootable tape with just enough information to boot and connect with the Ignite-UX server. The configuration files and archive are then retrieved from the Ignite-UX server. For more information, see *make_boot_tape*(1M).

Which files does Ignite-UX change during an installation from a `make_net_recovery` configuration?

During a client recovery, Ignite-UX strives to restore the client back to the way it was. However, Ignite-UX is a general purpose installation tool and as such it has the capabilities of modifying many client configuration files.

When you run `make_net_recovery`, client configuration information is gathered and saved in configuration files that are used later when the client is recovered. During the client recovery, you are allowed to make changes to this information, then Ignite-UX makes the appropriate changes to the client configuration. If you do not make any changes, then Ignite-UX simply reapplies the last installation information and makes no changes to the client's configuration.

Most of the client configuration files that Ignite-UX modifies are listed in the script: `/opt/ignite/data/scripts/os_arch_post_1`.

The `os_arch_post_1` script checks for the client recovery case by checking the `$RECOVERY_MODE` variable. When this variable is true, the `os_arch_post_1` script causes some configuration files to be protected from modification by using the `/save_file/` function.

The `os_arch_post_l` script uses the `merge_file` function on files into which appropriate information is merged.

The files operated on by `merge_file`, and those that have a commented out `save_file` line are those that are likely to be modified by Ignite-UX. Comments in this file explain any exceptions.

Because the list of files modified by Ignite-UX might change from release-to-release, it is best to look at the `os_arch_post_l` script on the client to see which files are saved as is and which are merged with information from the Ignite-UX configuration files.

How can I keep archives from being deleted by `make_net_recovery` when new archives and configurations are created by subsequent invocations of `make_net_recovery`?

You might want to prevent known good archives from being deleted from your client. The `make_net_recovery` tool provides the `-n` option, which allows you to specify the number of archives to save. To preserve the disk space, the oldest archives are removed as new archives are created. The number of archives that are removed is based on the number of archives you specified to be saved using the `make_net_recovery -n`. One way to ensure that known good archives are saved is to specify the number of archives to save to be greater than the maximum number of archives you plan to store on the client at any given time. This method has the potential to use a great deal of disk space.

An alternative and better approach to saving known good archives is to rename the archive and edit the configuration file to include the new archive name. The following procedure explains this process in detail:

1. Login to the system where the archive is being stored; this system can be different from your Ignite-UX server.
2. Rename the archive. The name of the archive to save can be anything unique, but it must be outside the naming convention: `yyyy-mm-dd,hr:min`. For example:

   ```
   # cd /var/opt/ignite/recovery/archives/system_name/
   # mv old_archive_name saved_archive_name
   # mv 1999-05-11,15:14 Recovery_Archive.0511.save
   ```

3. If the archive server is different from the Ignite-UX server, login to the Ignite-UX server.
4. Edit the following file to reference the new archive name:

   ```
   # /var/opt/ignite/clients/<client>/recovery/<old_archive>/archive_cfg
   ```

   Change the `archive_path` variable inside the `(source_type == "NET")` conditional to the name of the saved archive. For example:

   ```
   (source_type == "NET") {
   archive_path = "Recovery_Archive.0511.save"
   }
   else {
   archive_path = "1"
   }
   ```

5. Optionally, you can edit the `<cfg>` entry in the file `/var/opt/ignite/clients/<client>/CINDEX` so that configuration is unique and descriptive when it is viewed using the Ignite-UX GUI. For example, change:

   ```
   cfg "1999-05-13,06:51 Recovery Archive" { description "Weekly
   System Recovery Archive"
   .
   ```

```
.
.
}
to:
cfg "Saved Recovery Archive" {
description "Weekly System Recovery Archive"
.
.
.
}
```

How can I make configuration file additions to all recovery configurations for a given client?

Create a new Ignite-UX configuration file called `/var/opt/ignite/clients/0x<LLA>/recovery/config.local`. This `config.local` file is automatically included into your recovery configuration for this client each time you run the `make_net_recovery` command. The `make_net_recovery` command is run for you when you use the Ignite-UX GUI for network recovery.

If you already have recovery configurations for this client and would like them to include the `config.local` file, edit the `/var/opt/ignite/clients/0x<LLA>/CINDEX` file to include a reference to `recovery/config.local` in all of the configuration clauses.

How can I select from the standard file system layouts during a recovery?

It is possible to change the configuration of your disks when you recover from an image saved by `make_net_recovery`. To do so, modify the `/var/opt/ignite/clients/0x<LLA>/CINDEX` file for the client you are recovering.

The `CINDEX` file contains one or more configuration clauses that refer to the recovery images you have previously created with `make_net_recovery`. Add a new configuration file entry to the clause from which you intend to recover. If you want to add the Hewlett Packard Enterprise standard file system choices, add the file:

```
# /opt/ignite/data/Rel_<release>/config
```

where *<release>* is the operating system release on the client you intend to recover. For example, `/opt/ignite/data/Rel_B.11.23/config` is added for a client with the HP-UX 11.23 operating system. This new configuration file entry must be the first entry in the clause you are modifying.

When you launch the Ignite-UX during recovery, select the **file system** type in the **Basic** tab.

I replaced the client machine and the LAN address is now different. How can I restore the new machine from the old client network recovery archive?

Separate directory is used for each client under `/var/opt/ignite/clients`. Each subdirectory is named based on the client's LAN address (MAC address, LLA, and so on).

If you replace the client hardware or the LAN card that the old LAN address was based on, then it can no longer access the same directory on the Ignite-UX server.

The simplest solution is to obtain the new LAN address, which you can do from the boot-ROM console using a command like `LanAddress` (the actual command might vary depending on the hardware architecture). Once you have the new address then manually rename the directory

under `/var/opt/ignite/clients`. You might remove the symbolic link to the host name because it is recreated automatically. The LAN address must be all in uppercase and begin with `0x`.

If you have already booted the client from the server, which caused it to create a new directory, you can remove that directory before renaming the old directory. Do not delete the original directory or you will lose the recovery information.

For example:

```
# cd /var/opt/ignite/clients
# mv 0x00108300041F 0x00108300042A
# rm old_hostname
```

Dealing with hot swappable disks during recovery.

See question "How do I deal with hot-swappable disk devices during recovery?" (page 23)

Why does `archive_impact` fail during `make_net_recovery`?

The PHCO_21185 patch issued for *ksh*(1M) causes corrupt parameter processing. The corruption occurs when `archive_impact` is run as a part of a `make_net_recovery` command.

Software patch PHCO_21185 has been superseded by PHCO_22020. Remove patch PHCO_21185 and install PHCO_22020 to correct this failure.

How can I restore VxVM DCO log volume groups?

The `make_net_recovery`/`make_tape_recovery` tools will create a recovery archive for a client while preserving the configurations for all VxVM (VERITAS volume manager) volumes except data change object (DCO) log volumes. After recovering from the archive, the DCO log volume configurations are lost and must be reconfigured using `VxVM` commands. There are

basically two methods of reconfiguring lost DCO log volumes; choose the method that is appropriate for your situation:

- Wait until the client is recovered and then execute the following `VxVM` command:
  `# vxassist -g rootdg addlog homevol logtype=dco` Repeat execution of this command until all the DCO volumes are restored.

Or

- Manually create an Ignite-UX configuration file that executes the `VxVM` commands as part of the actual recovery process. This method integrates the `VxVM` commands into an Ignite-UX configuration file.

  For `make_net_recovery`, create a new Ignite-UX configuration file called `/opt/ignite/clients/0x<LLA>/recovery/config.local`; while for `make_tape_recovery`, create a new file called `/var/opt/ignite/recovery/config.local`. The respective `config.local` file is automatically included in your recovery configuration for this client each time `make_net_recovery`/`make_tape_recovery` is run.

  An example of a `config.local` file that restores DCO log volumes after the recovery completes follows:

```
###### Begin user changes to add DCO log volumes #######
post_config_cmd +="
vxassist -g rootdg addlog homevol logtype=dco
"
###### End user changes to add DCO log volumes ######
```

  After creating this `config.local` file, it is a good practice to run `instl_adm -T -f config.local` to ensure that the syntax is correct.

  Commands in `post_config_cmd` are executed automatically after the client is restored.

Are the layered/striped/mirrored VxVM volumes included in the recovery archive when a client recovery archive is created?

No. The `make_tape_recovery` and `make_net_recovery` tools do not back up the layered/striped/mirrored VxVM volumes. You need to perform the following actions during and after the recovery:

- During recovery, since the volume definition for layered/striped/mirrored volumes may not exist, you might need to manually define a volume for recovery and resize other volumes appropriately. Ignite-UX might have adjusted the size of other volumes so that the client can be recovered. However, this might fail due to a lack of disk space and force an interactive recovery. In any event, you must choose an interactive recovery then verify that the VxVM volume layout will be appropriate after recovery.
- After recovery, recreate the original volume configuration. In other words, set up the previous layered/striped/mirrored VxVM volume configuration.

For more information, see *VERITAS Volume Manager 5.1 SP1 Administrator's Guide* at **http://www.hpe.com/info/hpux-LVM-VxVM-docs**.

Can I run `make_tape_recovery`/`make_recovery` in single user mode? If so, how?

Yes. You can use these tools after booting or shutting down to single user mode. Choose the appropriate procedure for your situation.

After you have booted to single user mode, use this procedure:

1. Mount all file systems:
   ```
   # /sbin/mountall
   ```
2. Disable DNS so that `/etc/hosts` is used:
   ```
   # mv /etc/resolv.conf /etc/resolv.conf.save
   ```
3. Set your client's host name:
   ```
   # /sbin/rc1.d/S320hostname start
   ```
4. Set up loop back networking:
   ```
   # /sbin/rc2.d/S008net.init start
   ```
5. Start the networking daemon:
   ```
   # swagentd
   ```
6. Start the recovery tool you intend to use [`make_tape_recovery`/`make_recovery`]:
   ```
   # [make_tape_recovery/make_recovery]
   ```

   NOTE: The `-s` option of `make_tape_recovery` is not supported in the single user mode.
7. When complete, return the `resolv.conf` file to its original location:
   ```
   # mv /etc/resolv.conf.save /etc/resolv.conf
   ```

After you have shutdown to single user mode, use this procedure:

1. Mount all file systems:
   ```
   # /sbin/mountall
   ```
2. Start the SD-UX daemon:
   ```
   # swagentd -r
   ```
3. Start the recovery tool you intend to use [`make_tape_recovery`/`make_recovery`]:
   ```
   # [make_tape_recovery/make_recovery]
   ```

   NOTE: The `-s` option of `make_tape_recovery` is not supported in the single user mode.

Why are there invalid disk device files left behind after some recoveries?

When Ignite-UX performs a recovery operation, it can create device files for disks that are discovered when the client boots from the installation kernel. During the recovery process, Ignite-UX performs actions to preserve the original instance numbers of those disks. After the final client boot, the disks will have the original instance numbers. However, clean up is performed on disk devices which no longer have hardware devices associated with them.

The existence of these device files presents no problem to HP-UX. This is only known to cause problems with one third party product as it expects all disk devices to have hardware associated with them. To remove the device files that no longer have hardware associated with them, the following commands must be executed:

```
# lssf /dev/*dsk/* | grep '\?\?\?'
# rmsf "names of files found with the previous command"
```

How can I install additional software from depots during a recovery?

In situations where a system needs additional software installed to support restoring a recovery archive onto a different hardware platform, or perhaps a vPar or HPVM, you can load additional software from a depot during the recovery.

To do this, generate a `config` file using `make_config` for the depot containing the additional software. Then add the path to that `config` file to each recovery clause required in the `/var/opt/ignite/clients/<client>/CINDEX` file. The example below will create a `config` file and add it to all entries in the client's `CINDEX` file.

```
# make_config -s <depot> -c
/var/opt/ignite/data/Rel_B.XX.YY/sw.cfg
# manage_index -a -f /var/opt/ignite/data/Rel_B.XX.YY/sw.cfg
\
-i /var/opt/ignite/clients/<client>/CINDEX
```

You might instead choose to save the `config` file for the client in the path `/var/opt/ignite/clients/0x<LLA>/recovery/config.local`. In which case, each time a new recovery archive is made, the `config.local` file will be automatically added to the new CINDEX entry. (See FAQ item 11.8)

During a system recovery, the software bundles available in the depot will be available for selection from the user interface.

Why am I getting this message, `Warning: untrusted X11 forwarding setup failed`?

If you try to initiate a recovery session on a client from the Ignite-UX server GUI and you see the following warning:

```
Warning: untrusted X11 forwarding setup failed: xauth key
data not generatedWarning: No xauth data; using fake
authentication data for X11 forwarding.
```

Check the setting of the *ForwardX11Trusted* variable in `/opt/ssh/etc/ssh_config` on the server. If it is `no`, try setting it to `yes`.

Why does the -n option to `make_net_recovery` not clean up old client recovery subdirectories?

The `-n` option to `make_net_recovery` can be used to limit the number of archives that are retained on the Ignite-UX server, but in some cases it will not clean up the client recovery subdirectories in `/var/opt/ignite/clients/<client>/recovery` where configuration files are stored. This can happen for two reasons:

- Archives were manually removed without removing their corresponding configuration directories. If you manually remove archives, you must also remove the corresponding directory under `/var/opt/ignite/clients/<client>/recovery` and any associated entries in `/var/opt/ignite/clients/<client>/CINDEX`.
- Unsuccessful `make_net_recovery` invocations may create a partial recovery directory without a corresponding archive. Because no archive was created, the `-n` cleanup process of `make_net_recovery` will not clean up the recovery directories. You need to manually clean up these directories periodically to keep your filesystem clean.

13 Support and other resources

Hewlett Packard Enterprise is committed to providing documentation that meets your needs. To help us improve the documentation, send any errors, suggestions, or comments to Documentation Feedback (docsfeedback@hpe.com). When submitting your feedback, include the document title, part number, edition, and publication date located on the front cover of the document. For online help content, include the product name, product version, help edition, and publication date located on the legal notices page.

More on Ignite-UX documentation

For more information on documentation and other manuals of HP-UX System Management Software, see **HP-UX System Management Software Product Manuals**.

For more information on documentation and other manuals of WBEM providers and HP-UX DAS (Direct Attached Storage) Provider, see **HP Ignite-UX** and look for Ignite-UX related documents.

Support policy for HP-UX

For more information about support policy for HP-UX, see **HP-UX support policy**.