Eureka Streams

Fedora Installation

short description

Paul Morgan

Eureka Streams Fedora Installation short description Edition 0

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Owner

A short overview and summary of the book's subject and purpose, traditionally no more than one paragraph long. Note: the abstract will appear in the front matter of your book and will also be placed in the description field of the book's RPM spec file.

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Executive Summary

This chapter provides a high-level overview of the project.

1.1. Related documents

- Statement of Work (SOW)

1.2. Technologies used

This project incorporates the following technologies:

Red Hat

- Publican
- Red Hat Enterprise Linux 5
- Fedora Linux

1.3. Scope

1.3.1. Focus on content, *not* formatting

This documentation system leverages open-source tools to create professional documents without worrying about the format. It provides several advantages:

- Rapid document creation
  - Include files directly
  - Manage revisions
  - Publish content automatically
- Automatic formatting based on stylesheets
  - Consistent look and feel
  - Format is based on semantic content
- Automatic creation of
  - Table of contents
  - List of figures
  - Index (based on tagged content)

1.3.2. Create professional documents based on templates

This package provides the **`ej`** command for creating documents. The **`ej`** command is short for **engagement journal** and does several things:

- Creates a working directory containing a template engagement journal

- Enables the author to work with plain-text files
- Provides a **`Makefile`**, which…
  1. converts plain-text, lightweight markup into **docbook**
  2. converts **docbook** into well-formatted output, such as PDF

Note

The **`ej`** command provides the above features *now*.

1.3.3. Manage a central document repository

The **`ejadm`** command administers a collection of documents. In the future, the **`ejadm`** command will provide a front-end to version control and publishing, enabling users to:

- List documents by author, client name, or document title
- Search documents
- Publish documents
- Manage revisions
- Check-out documents
- Check-out document *modules*; e.g., runbook procedures

Important

The **`ejadm`** command does not *yet* provide the features listed above.

1.3.4. Another scope element

Use asciidoc in your source to denote things that should be **bold** or *italicized*.

List titles are optional and begin with a dot (no space)

- First bullet point in no implied order of progression
- Second bullet point
  - Sub-bullet
  - Another sub-bullet
- Third bullet point
- Denote commands, such as the **`cat /proc/cpuinfo`** command, in backticks

List titles are bold, and *this portion is also italicized*

1. Numbered lists are good for procedures
2. Pretty easy, right?
    a. A sub-step
    b. Second sub-step
3. Third major step

1.4. Challenges and Risks

1.4.1. Publican versions

Publican embeds a *product* version number in the title of the document. This is really annoying, but fits within the design goals of **Publican**.

Sigh…to get rid of it:

1. Edit **`en-US/Book_Info.xml`**
2. Find the tag **`<productnumber>0.1</productnumber>`**
3. Change it to read **`<productnumber></productnumber>`**
4. Rebuild by running the **`make all`** command

Note

A future version of the **`ej`** command will probably do this for you.

1.4.2. Low-latency Environment

This solution does not require any background process (also known as a *daemon*) to run. This avoids any impact on low-latency requirements for RHEL.

1.4.3. DNS Architecture

Any network infrastructure based on TCP/IP protocols should have a well-designed DNS. This document provides work-arounds for an infrastructure in which DNS is less than optimal.

Causes

- Lack of heirarchical delegation to subdomains
- Missing **`A`** records
- Inconsistent **`cname`** records
- Improper forwarders

Effects

- Hosts cannot reach each other
- Kerberos-based authentication fails

Workarounds

- Pre-populating the **`/etc/hosts`** file provides unique names for each record
- A naming standard has been developed for adding entries to the **`/etc/hosts`** file
- Use RHN Satellite Server to push out the **`/etc/hosts`** file

1.4.4. Multicast traffic

Red Hat Cluster Suite requires multicast traffic on intervening switches.

1.5. Recommendations

1.5.1. Fix your DNS

Please fix your DNS asap.

1.5.2. Implement multicast correctly

Really, I mean a $35 D-Link switch can do it.

1.5.3. Design a standard operating environment around Client Name's Satellite Server

Client Name has an RHN Satellite Server. We should develop a plan to:

- Define standard configurations for Client Name RHEL servers
- Add existing servers to the satellite server for management of
  - Patches
  - In-house software
  - Configuration files that deviate from stock. RHN Satellite server provides basic revision control for config files.
- Deploy future servers

1.5.4. Disable unnecessary services

A number of services are enabled by default and can be disabled to save resources. The following code snippet can be added as a standard part of **`%post`** in a baseline kickstart.

```
#!/bin/bash

unnecessary="
avahi-daemon
```

```
pcscd
bluetooth
hidd
iptables
cpuspeed
"

prog=$(basename $0)
def_run=$(grep '^id.*initdefault' /etc/inittab | cut -d: -f2)

for svc in $unnecessary; do
  chkconfig --list $svc | grep -q "$def_run:on" && continue
  logger -t $prog "disabling $svc"
  service $svc stop
  chkconfig $svc off
done

file=/etc/sysconfig/network
grep -q NOZEROCONF $file || \
(
  logger -t $prog "disabling zeroconf"
  echo "NOZEROCONF=disabled" >> $file
)
```

The script reports its actions in **`/var/log/messages`**, as shown in this example output:

```
Nov 17 16:51:42 hostname disable-services: disabling avahi-daemon
Nov 17 16:51:42 hostname disable-services: disabling pcscd
Nov 17 16:51:44 hostname disable-services: disabling bluetooth
Nov 17 16:51:44 hostname disable-services: disabling hidd
Nov 17 16:51:44 hostname disable-services: disabling iptables
Nov 17 16:51:44 hostname disable-services: disabling cpuspeed
```

1.5.5. Centralized logging

We should consider making **rsyslog** a part of the baseline build. A centralized log host can be virtualized and addressed using a DNS CNAME, such as **syslog01**. This would allow the virtual host to be relocated as needed without impacting existing configurations.

> Rsyslog is an enhanced multi-threaded syslogd supporting, among others, MySQL, syslog/tcp, RFC 3195, permitted sender lists, filtering on any message part, and fine grain output format control. It is quite compatible to stock sysklogd and can be used as a drop-in replacement. Its advanced features make it suitable for enterprise-class, encryption protected syslog relay chains while at the same time being very easy to setup for the novice user.

1.5.6. Event correlation

Client Name should consider installing **Simple Event Correlator** (**SEC**) on the **`syslog`** host.

See *http://simple-evcorr.sourceforge.net* for more information on **SEC**.

> SEC is an open source and platform independent event correlation tool that was designed to fill the gap between commercial event correlation systems and homegrown solutions that usually comprise a few simple shell scripts. SEC accepts input from regular files, named pipes, and standard input, and can thus be employed as an event correlator for any application that is able to write its output events to a file stream. The SEC configuration is stored in text files as rules, each rule specifying an event matching condition, an action list, and optionally a Boolean expression whose truth value decides whether the rule can be applied at a given moment. Regular expressions, Perl subroutines, etc. are used for defining event matching conditions. SEC can produce output events by executing user-specified shell scripts or programs (e.g., snmptrap or mail), by writing messages to pipes or files, and by various other means.
>
> SEC has been successfully applied in various domains like network management, system monitoring, data security, intrusion detection, log file monitoring and analysis, etc. The applications SEC has been used or integrated with include HP OpenView NNM and Operations, CiscoWorks, BMC Patrol, Nagios, SNMPTT, Snort IDS, Prelude IDS, etc.
>
> *—http://simple-evcorr.sourceforge.net*

1.5.7. Bash Scripting

Client Name admins should develop Bash scripting skills. I spent some time with the Linux team to cover scripting and command-line navigation. Using scripts to automate management tasks provides useful benefits:

Benefits of Bash scripting

- Understand how system scripts operate
- Resolve run-time issues with servers
- Ability to test scripts before running in production
- Avoids risk of entering commands by hand on production servers
- Reproduce tasks efficiently
- Over time, build a library of common scripts

Free, self-study resources

The following two resources are freely available online and provide a great reference for individuals who prefer to self-study.

Introductory tutorial on Bash scripting

http://tldp.org/HOWTO/Bash-Prog-Intro-HOWTO.html

Advanced Bash scripting guide (PDF)

http://freshmeat.net/projects/advancedbashscriptingguide

Instructor-led training

For instructor-led training with labs, Red Hat offers a course that includes Bash scripting and Linux command-line skills. RH033 *Red Hat Linux Essentials for Windows Professionals and other Operating System Users* is available in a traditional corporate classroom environment or as a virtual Internet-based class.

Red Hat classroom course RH033

https://www.redhat.com/courses/rh033_red_hat_linux_essentials

Red Hat virtual course RH033VT

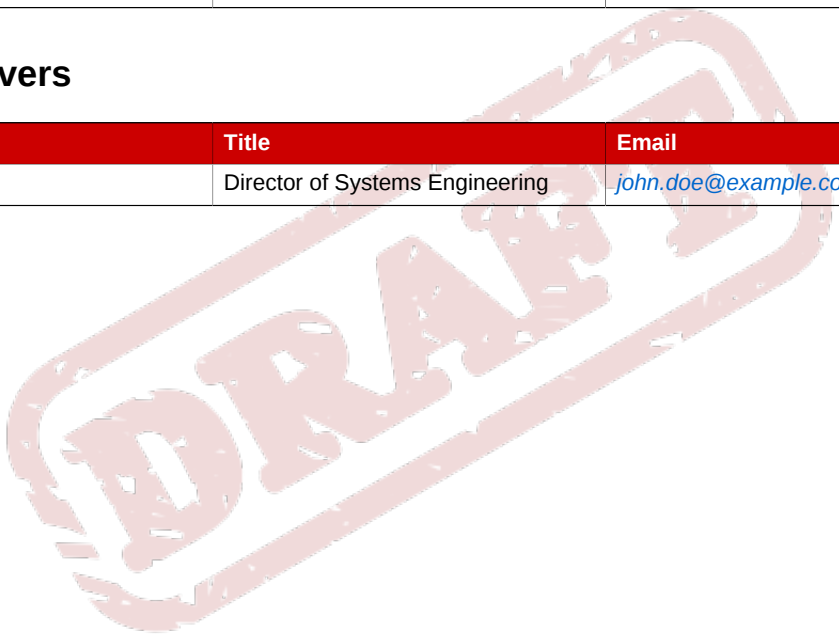
https://www.redhat.com/elearning/rh033vt_red_hat_linux_essentials/

1.6. Reviewers

Name	Title	Email
Jane Austen	Technical Writer	*jane.austen@example.com*[1]
Compliance Person	Senior Auditor	*compliance.person@example.com*[2]
Another Name	Project Manager	*another.name@redhat.com*[3]
Yet Another	Technical Account Manager	*yet.another@redhat.com*[4]

1.7. Approvers

Name	Title	Email
John Doe	Director of Systems Engineering	*john.doe@example.com*[5]



Runbook Procedures

This chapter provides high-level, task-oriented procedures related to this project. They are intended to act as a starting point for operational procedures in runbooks.

2.1. Install the needed RPMs

1. Download the RPMs from **where**?
   - **`publican-redhatgps-*.noarch.rpm`**
   - **`engagement-journal-*.noarch.rpm`**
     a. Store the RPMs in **`/tmp/`**
     b. List the executables in the package

```
rpm -qlp /tmp/engagement-journal-*.noarch.rpm | grep bin/
```

     c. List the config files in the package

```
rpm -qcp /tmp/engagement-journal-*.noarch.rpm
```

     d. List the doc files in the package

```
rpm -qdp /tmp/engagement-journal-*.noarch.rpm
```

2. *Optionally* import my GPG pubkey to your (non-**`root`**) keychain
   a. Import my key into your keychain *untrusted*

```
gpg --search-keys pmorgan@redhat.com
```

   The above command should find and offer to import the 1024 bit DSA key **`F59E77C2`**, created: 2006-03-22.
   b. Check the key fingerprint

```
gpg --fingerprint F59E77C2
```

   The output should look similar to:

```
pub   1024D/F59E77C2 2006-03-22
      Key fingerprint = 3248 D0C8 4B42 2F7C D92A  AEA0 7D20 6D66 F59E 77C2
uid                  Paul Morgan (GLS) <pmorgan@redhat.com>
sub   1024g/735DAF52 2006-03-22
```

   c. If you believe the key is genuine, export it to an ascii-armored text file

```
gpg --export -a F59E77C2 > /tmp/pm.pubkey
```

   d. Import the pubkey to the RPM database

```
sudo rpm --import /tmp/pm.pubkey
```

3. Configure **`yum`** repos
   a. RHEL 5 users should configure EPEL as described at *http://fedoraproject.org/wiki/EPEL/FAQ#Using_EPEL*
   b. Fedora users should enable the *Fedora Updates* repository in **`/etc/yum.repos.d/fedora-updates.repo`**

4. Use **yum** to install as shown here

```
sudo yum -y localinstall /tmp/publican-redhatgps-*.noarch.rpm /tmp/engagement-journal-*.noarch.rpm
```

Note

If you did not import my pubkey, you will need to pass **yum** the **--nogpgcheck** option.

2.2. Create your first document

In this section, you'll create your first document, then modify it in various ways.

1. Use **ej** to create a new document

   a. Look at the command usage

```
$ ej -h
Usage: ej -c "Client Name" -t "Project Title" [-b] [-f] [-l]
  -b brand (default=redhatgps)
  -f journal|book (default=book)
  -l language (default=en-US)
Note: "Client Name" should conform to "[^a-zA-Z_\- ]"
Note: "Project Title" should conform to "[^a-zA-Z_\-0-9. ]"
```

   b. Create your document

```
ej -c "My Client" -t "Test Project"
```

   The above command:

   - creates **~/ej/My_Client/Test_Project/**,
   - installs a template into that directory,
   - then builds the template into a PDF.

2. Use your favorite PDF viewer to look at the build
3. Use your favorite text editor, such as **vim**, to review the source files in **Test_Project/en-US/*.txt**

2.3. Change the DRAFT status of your document

The default template included with this package sets the status of your EJ to **DRAFT**. Use this procedure to remove **DRAFT** status when the document is finalized.

Remove the DRAFT status

1. Edit **en-US/<Book_Title>.xml**

   a. Find the **<book status="draft">** element

   b. Change it to **<book>**

   c. Save your changes

2. Run **make all**

Add the DRAFT status

1. Edit **en-US/<Book_Title>.xml**
   a. Find the **<book>** element
   b. Change it to **<book status="draft">**
   c. Save your changes
2. Run **make all**

2.4. Change the Confidential status of your document

The default template included with this package sets the status of your EJ to **Red Hat Confidential: Internal Use Only**. Use this procedure to remove **Confidential** status before delivering the document to your customer.

Remove Confidential status

1. Edit **publican.cfg** in the same directory as the **Makefile**
   a. Change **confidential: 1** to **confidential: 0**
   b. Save your changes
2. Run **make all**

Add Confidential status

1. Edit **publican.cfg** in the same directory as the **Makefile**
   a. Change **confidential: 0** to **confidential: 1**
   b. Save your changes
2. Run **make all**

2.5. Shell access to the RHN Satellite API

The **spacecmd** package provides a command-line shell interface to RHN Satellite Server version 5.3 and later.

2.5.1. Install spacecmd

Visit *http://people.redhat.com/aparsons/* to download this utility in RPM format, then install normally.

2.5.2. Use spacecmd as a shell

1. Open a Bash session
2. Connect to your satellite server via **spacecmd**

```
$ spacecmd -u satadmin -s mysat.fqdn
Password: ******

Welcome to spacecmd, a command line interface to Spacewalk.
```

```
For a full set of commands, type 'help' on the prompt.
For help for a specific command try 'help <cmd>'.

spacecmd> help

Documented commands (type help <topic>):
========================================
activationkey_details      login                        system_rename
activationkey_list         logout                       system_runscript
activationkey_listsystems  package_details               system_search
clear                      package_search               system_setbasechannel
clear_caches               schedule_cancel              system_upgradepackage
configchannel_details      schedule_getoutput           whoami
configchannel_filedetails  schedule_listarchived        whoamitalkingto
configchannel_list         schedule_listcompleted
configchannel_listfiles    schedule_listfailed
configchannel_listsystems  schedule_listpending
cryptokey_details          schedule_summary
cryptokey_list             softwarechannel_details
errata_details             softwarechannel_list
errata_search              softwarechannel_listerrata
get_apiversion             softwarechannel_listpackages
get_certificateexpiration  softwarechannel_listsystems
get_entitlements           ssm_add
get_serverversion          ssm_clear
group_addsystems           ssm_list
group_create               ssm_rm
group_delete               system_addchildchannel
group_details              system_applyerrata
group_list                 system_delete
group_listsystems          system_details
group_removesystems        system_installpackage
help                       system_list
history                    system_listerrata
kickstart_details          system_listhardware
kickstart_getfile          system_listinstalledpackages
kickstart_list             system_listupgrades
kickstart_listsnippets     system_removechildchannel
kickstart_snippetdetails   system_removepackage

Miscellaneous help topics:
==========================
ssm

spacecmd>
```

2.5.3. Use spacecmd in scripts

This example shows how to use **spacecmd** in a Bash script.

```
for server in $(spacecmd -u admin -s exta-inf1 system_list | grep '^pc-' | sort -u)
do
  # really glad that spacecmd caches login creds
  echo -n "$server : "
  spacecmd -u admin -s exta-inf1 system_listhardware "$server" 2> /dev/null | awk '/RAM/{print $2}'
done
```

2.6. Use PuTTY to access Linux hosts

This section describes how to configure PuTTY for password-less authentication from Microsoft Windows clients to RHEL hosts. This assumes the RHEL hosts have been properly configured to use Active Directory for authentication.

2.6.1. PuTTY versions

There are two popular versions of PuTTY:

- The developer snapshot available at *http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html* provides experimental support for GSSAPI authentication. The development snapshot **2010-02-24:r8878** has been tested to use GSSAPI for authentication.
- the Qwest version of PuTTY available at

2.6.2. PuTTY checklist

For password-less authentication to work:

- Reverse DNS lookups *must* work or else ticket forwarding will fail. Use **`dig -x <ip>`** on a Linux host to confirm that reverse DNS lookups are working.
- The Linux host must be trusted by AD for GSSAPI delegation in order to forward tickets from Windows to Linux.

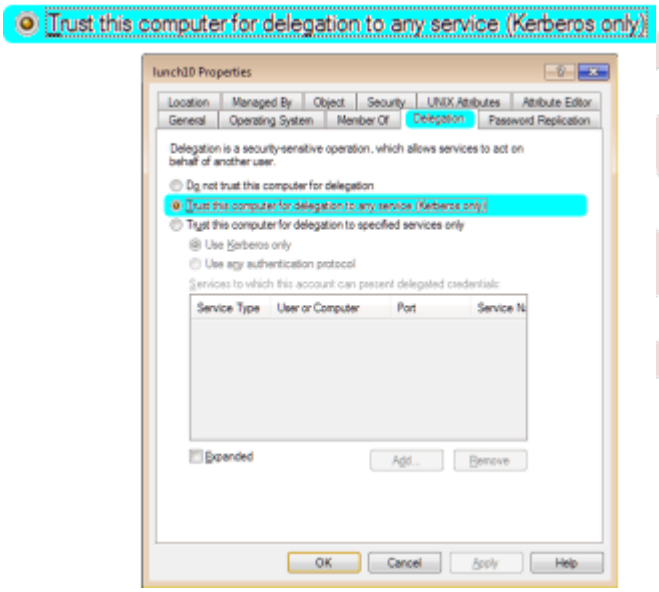


Figure 2.1. AD Delegation for GSSAPI

2.6.3. PuTTY Configuration

Follow these steps to configure Putty for password-less authentication.

1. Enable GSSAPI authentication for the host profile in PuTTY

   Putty must have *Attempt GSSAPI auth* selected to enable Kerberos authentication. To enable credential delegation, *Allow GSSAPI credential delegation* must also be selected:

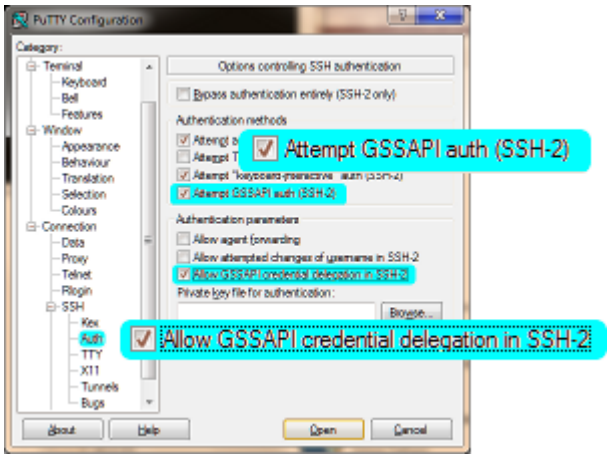


Figure 2.2. GSSAPI options in PuTTY

Important

DNS must be properly configured for Kerberos authentication to succeed. Specifying an IP address instead of the hostname when connecting may not work.

2. Test the connection from a Windows machine. In the following attempt, notice that the server did not prompt for a password. Then, the command **`klist -f`** shows that a ticket is being used with the following flags:

   - F=can be forwarded
   - f=was forwarded (in this example from Windows to Linux)

```
Using username "pmorgan".
Last login: Fri Feb 26 13:36:01 2010 from 172.21.5.65

RHN Satellite kickstart on 2010-02-12

[pmorgan@tb-gts01 ~]$ klist -f -5
Ticket cache: FILE:/tmp/krb5cc_10000_sOMjHC7820
Default principal: pmorgan@OFFICE.ISEOPTIONS.COM

Valid starting     Expires            Service principal
02/26/10 13:35:27  02/26/10 23:29:34  krbtgt/OFFICE.ISEOPTIONS.COM@OFFICE.ISEOPTIONS.COM
        renew until 03/05/10 13:29:34, Flags: FfRA
```

   Another ticket: This one shows the service ticket for **`sshd`** on the host **`tb-gts02`**.

```
[pmorgan@tb-gts01 ~]$ klist -f -5
Ticket cache: FILE:/tmp/krb5cc_10000_RoOivM
Default principal: pmorgan@OFFICE.ISEOPTIONS.COM

Valid starting     Expires            Service principal
03/03/10 11:04:08  03/03/10 21:04:08  krbtgt/OFFICE.ISEOPTIONS.COM@OFFICE.ISEOPTIONS.COM
        renew until 03/03/10 21:04:08, Flags: FRIA
03/03/10 11:04:13  03/03/10 21:04:08  host/tb-gts02.office.iseoptions.com@OFFICE.ISEOPTIONS.COM
        renew until 03/03/10 21:04:08, Flags: FRAO
```

Technical Discussion

This section provides technical details about the packaging and deployment of HP PSP components for ISE.

3.1. PSP Software

To download the PSP software:

1. Visit *http://www.hp.com/servers/psp*
   a. Follow the link for **Downloads**
   b. Choose RHEL 5 Server x86_64
2. The HP site delivers three parts
   a. Download Part 1 (XML file) as **`psp.xml`**
   b. Download Part 2 (tarball) with name intact
   c. Download Part 3 (MD5 checksum) and save as **`md5sum.txt`** in the *same* directory as tarball
3. Verify integrity of the download

```
md5sum -c md5sum.txt
```

Expected output:

```
psp-8.31.rhel5.x86_64.en.tar.gz: OK
```

Important

This is not a true integrity check since it lacks a digital signature, but it is the best we can do at the moment.

4. Extract the tarball to inspect its contents
   a. Extract the distribution tarball

```
[pmorgan@x200 hp-psp]$ tar xvzf psp-8.31.rhel5.x86_64.en.tar.gz
compaq/
compaq/csp/
compaq/csp/linux/
compaq/csp/linux/cpqacuxe-8.30-5.0.noarch.rpm.tar.gz
compaq/csp/linux/cpq_cciss-3.6.20-30.rhel5.x86_64.rpm.tar.gz
compaq/csp/linux/e1000-8.0.16-1.src.rpm.tar.gz
compaq/csp/linux/e1000e-1.0.15-1.src.rpm.tar.gz
compaq/csp/linux/fibreutils-2.5-4.x86_64.rpm.tar.gz
compaq/csp/linux/hpacucli-8.30-5.0.noarch.rpm.tar.gz
compaq/csp/linux/hpahcisr-1.2.1-9.rhel5.x86_64.rpm.tar.gz
compaq/csp/linux/hpdiags-8.3.0-14.linux.x86_64.rpm.tar.gz
compaq/csp/linux/hp-fc-enablement-1.1-9.noarch.rpm.tar.gz
compaq/csp/linux/hp-health-8.3.1.2-2.rhel5.x86_64.rpm.tar.gz
compaq/csp/linux/hp-ilo-8.3.0-118.rhel5.x86_64.rpm.tar.gz
compaq/csp/linux/hp-lpfc-8.2.0.22-8.noarch.rpm.tar.gz
compaq/csp/linux/hpmouse-1.1.2-33.noarch.rpm.tar.gz
compaq/csp/linux/hponcfg-2.2.0-5.noarch.rpm.tar.gz
compaq/csp/linux/hp-OpenIPMI-8.3.1-15.rhel5.x86_64.rpm.tar.gz
```

```
compaq/csp/linux/hp_qla2x00src-8.02.23-1.noarch.rpm.tar.gz
compaq/csp/linux/hp_qla2x00src-mezz-8.02.23-1.noarch.rpm.tar.gz
compaq/csp/linux/hpsmh-3.0.2-77.x86_64.rpm.tar.gz
compaq/csp/linux/hp-smh-templates-8.3.0.9-13.noarch.rpm.tar.gz
compaq/csp/linux/hp-snmp-agents-8.3.0.27-24.rhel5.x86_64.rpm.tar.gz
compaq/csp/linux/hpvca-2.2.1-3.linux.rpm.tar.gz
compaq/csp/linux/mptlinux-4.00.13.07-1.rhel5.x86_64.rpm.tar.gz
compaq/csp/linux/netxtreme2-5.0.17-1.src.rpm.tar.gz
compaq/csp/linux/nx_nic-4.0.406-5.src.rpm.tar.gz
compaq/csp/linux/qla4xxx-5.01.01.04-1.src.rpm.tar.gz
compaq/csp/linux/tg3-3.99h-1.src.rpm.tar.gz
compaq/csp/linux/hppldu-1.0.26-1.tar.gz
compaq/csp/linux/hppldu-librpms-1.0.26-1.tar.gz
compaq/csp/linux/install830.sh
compaq/csp/linux/bp000666.xml
compaq/csp/linux/hppldu_v831.rhel5.txt
```

b. Extract additional tarballs

```
find compaq/ -regex '.*tar.gz' -exec tar xvf {} \;
```

c. Some of the packages appear from the name to conflict, so check the packager for each:

```
{
for rpm in $(ls *rpm); do
  echo " ========== $rpm ==========="
  rpm -qip $rpm
done
} 2> /dev/null | tee /tmp/pkg-descriptions | less
```

Note

See the relevant appendix for the complete **`pkg-descriptions`** file.

Warning

Some of the components are specific, *out-of-date* versions of vendor packages; others, *uncertified* replacements for certified drivers.

Based on the above, the most interesting components *on initial review* seem to be:

- **cpqacuxe**: HP Array Configuration Utility

```
Name        : cpqacuxe                     Relocations: (not relocatable)
Version     : 8.30                              Vendor: Hewlett-Packard Company
Release     : 5.0                           Build Date: Wed 08 Jul 2009 10:14:24 PM EDT
Install Date: (not installed)               Build Host: Prowl.americas.hpqcorp.net
Group       : Applications/System           Source RPM: cpqacuxe-8.30-5.0.src.rpm
Size        : 12284428                         License: See cpqacuxe.license
Signature   : (none)
Packager    : Hewlett-Packard Company
URL         : http://www.hp.com/linux
Summary     : HP Array Configuration Utility
Description :
The HP Array Configuration Utility is the web-based disk array
configuration program for Array Controllers.
```

- **hpacucli**: HP Command Line Array Configuration Utility

```
Name        : hpacucli                     Relocations: (not relocatable)
Version     : 8.30                              Vendor: Hewlett-Packard Company
Release     : 5.0                           Build Date: Wed 08 Jul 2009 06:14:52 PM EDT
Install Date: (not installed)               Build Host: Prowl.americas.hpqcorp.net
Group       : Applications/System           Source RPM: hpacucli-8.30-5.0.src.rpm
Size        : 15748051                         License: See hpacucli.license
Signature   : (none)
Packager    : Hewlett-Packard Company
URL         : http://www.hp.com/linux
Summary     : HP Command Line Array Configuration Utility
Description :
The HP Command Line Array Configuration Utility is the disk
array configuration program for Array Controllers.
```

- **hpdiags**: hp Insight Diagnostics

```
Name        : hpdiags                      Relocations: (not relocatable)
Version     : 8.3.0                             Vendor: (none)
Release     : 14                            Build Date: Mon 10 Aug 2009 04:53:48 PM EDT
Install Date: (not installed)               Build Host: linux-X64
Group       : Applications/System           Source RPM: hpdiags-8.3.0-14.src.rpm
Size        : 64303983                         License: commercial
Signature   : (none)
URL         : http://www.hp.com/linux
Summary     : hp Insight Diagnostics
Description :
Identifies and exercises system components.
```

- **hp-health**: HP System Health Application and Command Line Utilities

```
Name        : hp-health                    Relocations: (not relocatable)
Version     : 8.3.1.2                           Vendor: Hewlett-Packard Company
Release     : 2                             Build Date: Thu 17 Sep 2009 03:21:17 PM EDT
Install Date: (not installed)               Build Host: bld72.sdg.adapps.hp.com
Group       : System Environment            Source RPM: hp-health-8.3.1.2-2.src.rpm
Size        : 1506986                          License: 2008 Hewlett-Packard Development Company, L.P.
Signature   : (none)
Packager    : Hewlett-Packard Company
URL         : http://www.hp.com/go/proliantlinux
Summary     : HP System Health Application and Command Line Utilities
Description :
This package contains the System Health Monitor for all hp Proliant systems
with ASM, ILO, & ILO2 embedded management asics.  Also contained are the
command line utilities.
```

- **hp-ilo**: HP iLO Channel Interface Driver

```
Name        : hp-ilo                       Relocations: (not relocatable)
Version     : 8.3.0                             Vendor: Hewlett-Packard Company
Release     : 118.rhel5                     Build Date: Fri 26 Jun 2009 01:10:10 PM EDT
Install Date: (not installed)               Build Host: rhel5ebuild
Group       : System Environment/Kernel     Source RPM: hp-ilo-8.3.0-118.rhel5.src.rpm
Size        : 1910611                          License: GNU Public License
Signature   : (none)
Packager    : Hewlett-Packard Company
URL         : http://www.hp.com/go/proliantlinux
Summary     : HP iLO Channel Interface Driver
Description :
This is the Hewlett-Packard integrated Lights-Out (iLO) system management
controller channel interface device driver. This driver establishes a channel
from the iLO 2 controller to an application such that the application can
communicate directly to the iLO 2 controller.
```

- **hponcfg**: RILOE II/iLo online configuration utility

```
Name        : hponcfg                      Relocations: (not relocatable)
Version     : 2.2.0                             Vendor: Hewlett-Packard Company
Release     : 5                             Build Date: Tue 02 Jun 2009 11:35:56 PM EDT
Install Date: (not installed)               Build Host: nt179237.ind.hp.com
Group       : Utilities/System              Source RPM: hponcfg-2.2.0-5.src.rpm
Size        : 200492                           License: Proprietary
Signature   : (none)
Packager    : Hewlett-Packard Company
URL         : http://www.hp.com/go/ilo
Summary     : hponcfg - An RILOE II/iLo online configuration utility
Description :
Hponcfg is a command line utility that can be used to configure iLO/RILOE II from with in the operating
 system without requiring a reboot of the server.
```

- **hpsmh**: HP System Management Homepage

```
Name        : hpsmh                        Relocations: (not relocatable)
Version     : 3.0.2                             Vendor: Hewlett-Packard Company
Release     : 77                            Build Date: Sat 20 Jun 2009 12:45:38 PM EDT
Install Date: (not installed)               Build Host: linux
Group       : Applications/System           Source RPM: hpsmh-3.0.2-77.src.rpm
Size        : 43065778                         License: COPYRIGHT 2004-2009 Hewlett-Packard Development
 Company, L.P.  All rights reserved.
Signature   : (none)
Packager    : Hewlett-Packard Company
URL         : http://www.hp.com/linux
Summary     : HP System Management Homepage
Description :
The HP System Management Homepage v3.0.2.77
```

- **hp-snmp-agents**: Insight Management Agents(SNMP) for HP ProLiant Systems

```
Name        : hp-snmp-agents               Relocations: (not relocatable)
Version     : 8.3.0.27                          Vendor: Hewlett-Packard Company
Release     : 24                            Build Date: Tue 28 Jul 2009 12:52:56 PM EDT
Install Date: (not installed)               Build Host: bld73.sdg.adapps.hp.com
Group       : System Environment            Source RPM: hp-snmp-agents-8.3.0.27-24.src.rpm
Size        : 5428602                          License: 2008 Hewlett-Packard Development Company, L.P.
Signature   : (none)
Packager    : Hewlett-Packard Company
URL         : http://www.hp.com/go/proliantlinux
Summary     : Insight Management Agents(SNMP) for HP ProLiant Systems
Description :
This package contains the SNMP server, storage, and nic agents for all
hp Proliant systems with ASM, ILO, & ILO2 embedded management asics.
```

Note

The above components are binary-only and do not require building.

These additional components appear interesting, but possibly invasive:

- **fibreutils**: Complimentary programs and scripts for HP supported FC HBAs

```
Name        : fibreutils                   Relocations: (not relocatable)
Version     : 2.5                               Vendor: Hewlett-Packard Company
Release     : 4                             Build Date: Tue 25 Nov 2008 11:42:36 AM EST
Install Date: (not installed)               Build Host: deimos.mro.cpqcorp.net
```

```
Group       : Applications/System          Source RPM: fibreutils-2.5-4.src.rpm
Size        : 161229                          License: Proprietary
Signature   : (none)
Packager    : Hewlett-Packard Company
URL         : http://www.hp.com
Summary     : Provides complimentary programs and scripts for HP supported FC HBAs
Description :
This RPM has the following components:

* Miscellaneous scripts and programs to compliment HP supported FC drivers:

lssd
lssg
adapter_info
probe-luns
hp_rescan
hp_system_info
scsi_info
sysfs_scandisk
sysfs_scan_rport
```

Note

This component may provide redundant functionality with standard tools provided by **`sg3_utils`**, **`lspci`**, **`dmidecode`**, and other packages.

3.2. Test installation of PSP components

This section describes how to test the installation of interesting PSP components in an isolated environment with no impact on other environments.

3.2.1. Goals of test installation

The goals of a test installation procedure:

- Build in an isolated environment
- Determine whether components are buildable
- Determine build dependencies
- Determine run-time dependencies

3.2.2. Procedure for test installation

1. Copy the binary PSP packages to **`lunch18`**
2. Attempt to install without yum

```
[pmorgan@lunch18 ~]$ sudo rpm -Uvh *rpm
error: Failed dependencies:
        libGLU.so.1()(64bit) is needed by hpdiags-8.3.0-14.x86_64
        libXaw.so.7()(64bit) is needed by hpdiags-8.3.0-14.x86_64
        libXmu.so.6()(64bit) is needed by hpdiags-8.3.0-14.x86_64
        libstdc++.so.5 is needed by hpdiags-8.3.0-14.x86_64
        libstdc++.so.5()(64bit) is needed by hpdiags-8.3.0-14.x86_64
        libstdc++.so.5(CXXABI_1.2) is needed by hpdiags-8.3.0-14.x86_64
        libstdc++.so.5(CXXABI_1.2)(64bit) is needed by hpdiags-8.3.0-14.x86_64
```

```
       libstdc++.so.5(GLIBCPP_3.2) is needed by hpdiags-8.3.0-14.x86_64
       libstdc++.so.5(GLIBCPP_3.2)(64bit) is needed by hpdiags-8.3.0-14.x86_64
       libstdc++.so.5(GLIBCPP_3.2.2)(64bit) is needed by hpdiags-8.3.0-14.x86_64
       libsensors.so.3()(64bit) is needed by hp-snmp-agents-8.3.0.27-24.x86_64
       net-snmp is needed by hp-snmp-agents-8.3.0.27-24.x86_64
```

3. Attempt to use **yum** to pick up dependencies

```
sudo yum localinstall --nogpgcheck *rpm
```

Actual output

```
 --snip--
Installing for dependencies:
 compat-libstdc++-33
            i386   3.2.3-61         ise-rhel-5.3-x86_64                232 k
 compat-libstdc++-33
            x86_64 3.2.3-61         ise-rhel-5.3-x86_64                227 k
 libXaw     x86_64 1.0.2-8.1        ise-rhel-5.3-x86_64                328 k
 libXmu     x86_64 1.0.2-5          ise-rhel-5.3-x86_64                 63 k
 libXpm     x86_64 3.5.5-3          ise-rhel-5.3-x86_64                 44 k
 lm_sensors x86_64 2.10.7-4.el5     ise-rhel-5.3-x86_64                528 k
 mesa-libGLU x86_64 6.5.1-7.7.el5   ise-rhel-5.3-x86_64                226 k
 net-snmp   x86_64 1:5.3.2.2-5.el5  ise-rhel-5.3-x86_64                716 k
 --snip--
Running Transaction
  Installing     : lm_sensors                                       [ 1/17]
  Installing     : libXmu                                           [ 2/17]
  Installing     : net-snmp                                         [ 3/17]
  Installing     : libXpm                                           [ 4/17]
  Installing     : libXaw                                           [ 5/17]
  Installing     : mesa-libGLU                                      [ 6/17]
  Installing     : compat-libstdc++-33                              [ 7/17]
Detected Red Hat Enterprise Linux AS/ES/WS/SERVER 5
Created hpsmh user and group...
  Installing     : hpsmh                                            [ 8/17]

*********************************************************
* System Management Homepage installed successfully with *
* default configuration values.   To change the default  *
* configuration values,  type the following command at   *
* the root prompt:                                       *
*                                                        *
* /opt/hp/hpsmh/sbin/smhconfig                           *
*                                                        *
*********************************************************


This RPM is not supported on RHEL 5.3 or greater

error: %pre(fibreutils-2.5-4.x86_64) scriptlet failed, exit status 1
error:   install: %pre scriptlet failed (2), skipping fibreutils-2.5-4
  Installing     : hp-ilo                                          [10/17]
Please read the Licence Agreement for this software at

         /opt/hp/hp-ilo/hp-ilo.license

By not removing this package, you are accepting the terms
of the included licenses.

The man page, hp-ilo(4), describes how to enable and use
the hp-ilo device driver.
  Installing     : hponcfg                                         [11/17]
  Installing     : compat-libstdc++-33                             [12/17]
  Installing     : cpqacuxe                                        [13/17]
```

```
  Installing     : hpacucli                                              [14/17]
  Installing     : hp-health                                             [15/17]
Please read the Licence Agreement for this software at

        /opt/hp/hp-health/hp-health.license

By not removing this package, you are accepting the terms
of the "HP Proliant Essentials Software End User License Agreement".
 ================================================================================
 NOTE: In order to activate the software contained in this package, you must
      type '/etc/init.d/hp-health start' as 'root' user.
 ================================================================================
The hp-health RPM has installed successfully.
  Installing     : hp-snmp-agents                                        [16/17]
Please read the Licence Agreement for this software at

        /opt/hp/hp-snmp-agents/hp-snmp-agents.license

By not removing this package, you are accepting the terms
of the "HP Proliant Essentials Software End User License Agreement".
Installing /opt/hp/hp-snmp-agents/nic/etc/HPcmanic.pp SELinux policy module
 ================================================================================
 NOTE: In order to activate the software contained in this package, you must
      type '/sbin/hpsnmpconfig' as 'root' user.
      Once configuration is completed start the agents by typing
      /etc/init.d/hp-snmp-agents start
 ================================================================================
  Installing     : hpdiags                                               [17/17]
Stopping hpsmhd: [  OK  ]
Starting hpsmhd: [  OK  ]

Installed: cpqacuxe.i386 0:8.30-5.0 fibreutils.x86_64 0:2.5-4 hp-health.x86_64 0:8.3.1.2-2 hp-ilo.x86_64
 0:8.3.0-118.rhel5 hp-snmp-agents.x86_64 0:8.3.0.27-24 hpacucli.i386 0:8.30-5.0 hpdiags.x86_64 0:8.3.0-14
 hponcfg.noarch 0:2.2.0-5 hpsmh.x86_64 0:3.0.2-77
Dependency Installed: compat-libstdc++-33.i386 0:3.2.3-61 compat-libstdc++-33.x86_64 0:3.2.3-61
 libXaw.x86_64 0:1.0.2-8.1 libXmu.x86_64 0:1.0.2-5 libXpm.x86_64 0:3.5.5-3 lm_sensors.x86_64
 0:2.10.7-4.el5 mesa-libGLU.x86_64 0:6.5.1-7.7.el5 net-snmp.x86_64 1:5.3.2.2-5.el5
Complete!
 --snip--
```

4. Check disk usage in **`/opt`**

```
[pmorgan@lunch18 ~]$ sudo du -lsh /opt
119M    /opt
```

3.2.3. Test configuration

Dave Shouse provided configuration settings for the test installation.

Equinix

SNMP trap destination is 6.3.5.202

Telx SNMP trap destination is 6.4.5.202

Community strings for both environments

SNMP read only string: 0p7im15e SNMP read/write string: 3p51lon!

3.3. RPM Details

This section describes the major ingredients needed for building the RPMs for deployment.

Appendix A. Revision History

Revision 0 Fri Aug 13 2010 Paul Morgan *pmorgan@redhat.com*

Initial creation of book by publican

Appendix B. Reference Material

This section of the engagement journal provides reference material pertaining to this engagement.

B.1. Red Hat technologies

Cluster Suite Documentation

http://www.redhat.com/docs/manuals/csgfs/

RHN Satellite Server

https://www.redhat.com/docs/manuals/satellite/

How to update software channels for Satellite Server

https://fedorahosted.org/spacewalk/browser/scripts/channel-to-update-level/

Virt-Manager wiki

http://virt-manager.et.redhat.com/

Infiniband KBase

http://kbase.redhat.com/faq/docs/DOC-4168

KBase RSS Feed

http://kbase.redhat.com/faq/community/feeds/documents?community=2001

Errata Twitter Feed

@redhaterrata

Online Storage Reconfiguration Guide

http://www.redhat.com/docs/en-US/Red_Hat_Enterprise_Linux/pdf/Online_Storage_Reconfiguration_Guide.pdf

Using Device-Mapper Multipath

http://www.redhat.com/docs/en-US/Red_Hat_Enterprise_Linux/5.2/pdf/DM_Multipath/DM_Multipath.pdf

LSB Compliance

http://refspecs.freestandards.org/LSB_3.1.0/LSB-Core-generic/LSB-Core-generic/iniscrptact.html

Configuring Network Bonds via **`sysfs`**

http://kbase.redhat.com/faq/docs/DOC-16006

B.2. Asciidoc

Asciidoc website

http://www.methods.co.nz/asciidoc/index.html

Asciidoc cheat sheet

http://powerman.name/doc/asciidoc