BSA VPC Hacking

How to get the VPC to recognize non supported RPM-based Distros

This has been tested in the 7.6.0 VPC and tested on later appserver versions. In 8.x the VPC has been removed for Linux patching as RedHat, SLES and OEL support is rolled into the product as Patch Catalogs. These catalogs are however inflexible and will not work with distros like CentOS, Fedora. OpenSuSE or any other RPM-based distro. While this distros are typically unsupported by the RSCD agent, the agent typically functions ok.

The examples below cover modifying the VPC for CentOS, but a similar procedure should work for other distros.
There are 3 files to modify here:

***<OM>/patch/linuxpu/Scripts/Perl/linuxpc.pl**

***<OM>/patch/linuxpu/Scripts/Jython/linux-analysis-py**

***<OM>/patch/linuxpu/Work/linux-analyze.sh**

This may or may not work for you. It may horribly and irrevocably break the VPC, your appserver, your database or your target systems. ***This is completely unsupported by BMC***. I would make backups of any files you are making changes to and systems you are going to test this on. You may not be able to get this to work.

Overview

We need to do two main things here. We need to tell the VPC how to identify the distro (CentOS) and we need to tell the VPC how to get the version or release of the distro. Luckily this information is stored in a text file that is consistent for each distro. This is how the VPC figures out RHEL is RHEL and SuSE is SuSE. For 8.x appservers we need to install the VPC and then add the Linux VPC bits back and they will use the common vpc framework the VPC Installer lays down.

Install the VPC

On 7.6 install the VPC and the latest VPC patch normally. You must install the perl-XML-Parser module on the application server and the RedHat helper system (where the repo is kept). Also, java must be installed on your helper system. The openjdk that ships w/ RHEL 5 is fine.

8.x VPC

Installation

On 8.x install the VPC and choose 'HP-UX'. Let the installer finish. Apply the latest VPC patch.

- Then grab the 7.6 VPC and 7.6 VPC hotfixes.
- In the *patch-content* directory, unzip the *patchanalysis.zip* file.
- Copy the *linuxpu* directory to the 8.x VPC install path, eg */opt/bmc/BladeLogic/8.1/NSH/patch*

- Unzip the 7.6 VPC Hotfix into a temporary directory. Copy any files in the *linuxpu* directory to the 8.x VPC install path (overwriting what you just extracted from the 7.6 VPC)
- Copy the *SupportFiles/RedHatRepositoryManager.zip* file to the *SupportFiles* directory in the install path, eg_ /opt/bmc/BladeLogic/8.1/NSH/patch/SupportFiles_
- On Unix, run the command *chown -R bladmin:bladmin /opt/bmc/BladeLogic/8.0/NSH/patch/linuxpu*

8.x VPC File Modifications

Comment out any lines in the following files that contain *blcli.setAuthenticationType("BLSSO")* or *jli.setAuthenticationType("BLSSO")* or_ jli.setAppServerHost(appserver)_ or *blcli.setAppServerHost(hostname)*

- *linuxpu/Scripts/Jython/linux-analysis.py*
- *linuxpu/Scripts/Jython/get_blds_path.py*
- *linuxpu/Scripts/Jython/loadAndDeployPatches.jli*

In 8.1 and beyond, the following files need the java class paths they reference updated

- *linuxpu/Scripts/Jython/solpatch.py*
- *linuxpu/Scripts/Jython/sharedPayload.py*
- *linuxpu/Scripts/Jython/linux-analysis.py*

For example, we find *com.bladelogic.shared.comm* in the linuxpu/Scripts/Jython/solpatch.jy. We need to change that to: *com.bladelogic.om.infra.shared.comm*. Insert a *om.infra* after any occurance of *com.bladelogic*.

Change the *bl_yum="/opt/bladelogic/blyum"* line in *linuxpu/Work/linux-anayze.sh* and *linuxpu/Work/linux-deploy.sh* to:

bl_yum="`cat /usr/lib/rsc/HOME`/bin/blyum"

Common File Modifications

linuxpc.pl

In the **linuxpc.pl** file find the section around line 700 that looks like:

```
if ( !( system_cmd("nexec $host 'sh -c \"test -f $redhat_relfile\"'") ) )
    {
        $os_vendor = "redhat";
        $os_rel_file = $redhat_relfile;
    }

    if ( !( system_cmd("nexec $host 'sh -c \"test -f $suse_relfile\"'") ) )
    {
        $os_vendor = "suse";
        $os_rel_file=$suse_relfile;
    }
```

We need to tell the VPC how to figure out this is CentOS. This can be done w/ an nexec to look for a particular RPM that should only exist on a CentOS system. Then new section looks like:

```
if ( !( system_cmd("nexec $host 'sh -c \"test -f $redhat_relfile\"'") ) )
    {
        $os_vendor = "redhat";
        $os_rel_file = $redhat_relfile;
    }

    if ( !( system_cmd("nexec $host 'sh -c \"test -f $suse_relfile\"'") ) )
    {
        $os_vendor = "suse";
        $os_rel_file=$suse_relfile;
    }

    if ( !( system_cmd("nexec $host 'sh -c \"rpm -q centos-release\"'") ) )
    {
        $os_vendor = "cent";
        $os_rel_file=$redhat_relfile;
    }
```

Next we need to tell the VPC how to figure out the release of CentOS. Around line 720 there is a section that reads the version out of the **/etc/redhat-release** file. The CentOS file is in a different order than RedHat so we need to pull the release number from a different location in the line. The original section looks like this:

```
my @a = split( " ", $os_relstring );
            if($os_vendor eq "redhat"){
                $os_version = $a[6];
            }elsif($os_vendor eq "suse") {
                $os_version = $a[4];
            }

            $os_version=~s/.//gi;
            $os_version =~ s/AS//g;
```

The modified version looks like this:

```
my @a = split( " ", $os_relstring );
            if($os_vendor eq "redhat"){
                $os_version = $a[6];
            }elsif($os_vendor eq "suse") {
                $os_version = $a[4];
            }elsif($os_vendor eq "cent") {
                $os_version = $a[2];
                $os_version = int $os_version;
            }

            $os_version=~s/..*//gi;
            $os_version =~ s/AS//g;
```

We're pulling the version from the 3rd position (array position 0 is the 1st position) here instead of the 7th or 4th.

The last modification is done to pull the name of the distribution from the **/etc/redhat-release** file. The original code block around line 770 looks like this:

```
if($os_relstring=~/Red Hat Linux Advanced Server release/gi){
        $os_relstring='RHAS';
    }elsif($os_relstring=~/Red Hat Enterprise Linux ES release/gi){
        $os_relstring='RHES';
    }elsif($os_relstring=~/Red Hat Enterprise Linux Server release/gi){
        $os_relstring='RHES';
    }elsif($os_relstring=~/SUSE LINUX Enterprise Server/gi){
        $os_relstring='SLES';
    }elsif($os_relstring=~/Red Hat Enterprise Linux AS release/gi){
        $os_relstring='RHAS';
    }elsif($os_relstring=~/Enterprise Linux Enterprise Linux AS release/gi){
        $os_relstring='OELAS';
    }elsif($os_relstring=~/Enterprise Linux Enterprise Linux Server release/gi){
        $os_relstring='OELES';
    }else{
        display_err("($host) Unsupported Linux Release $os_relstring");
        display_err("($host) Skipping this host");
        print "($host) Exit Code 1n";
        return 0;
    }
```

We need to add a new section for CentOS based on the /etc/redhat-release file. The file contains something like

CentOS release 5.2 (Final)

so the 'release string' should be 'CentOS release'. The new section looks like:

```
...
    }elsif($os_relstring=~/Enterprise Linux Enterprise Linux AS release/gi){
        $os_relstring='OELAS';
    }elsif($os_relstring=~/Enterprise Linux Enterprise Linux Server release/gi){
        $os_relstring='OELES';
    }elsif($os_relstring=~/CentOS release/gi){
        $os_relstring='COS';
    }else{
        display_err("($host) Unsupported Linux Release $os_relstring");
        display_err("($host) Skipping this host");
        print "($host) Exit Code 1n";
        return 0;
    }
```

Note: In 7.6, after you modify this file, you must overwrite the file in the Depot with this file. You can copy it over the file in <FS>/storage/scripts or you can cut and paste the contents into the file in the CM GUI. In 8.x we will be adding this to the depot later so you don't need to do anything yet.

linux-analysis.py

In this file we need to do something similar to what we did in the perl script above. First is the distribution name around line 450:

```
if os_relstr.count('Enterprise Linux Enterprise Linux Server release'):
              os_release='OELES';

          if not os_release:
              print_error('Cannot resolve OS Release from /etc/redhat-release on host %s' %host)
```

We only need to add a line for CentOS:

```
if os_relstr.count('Enterprise Linux Enterprise Linux Server release'):
              os_release='OELES';
  if os_relstr.count('CentOS release'):
      os_release='COS';

          if not os_release:
              print_error('Cannot resolve OS Release from /etc/redhat-release on host %s' %host)
```

Then we need to handle the version around line 460:

```
temp = os_relstr.split(' ')
          if os_release == 'SLES': ver_indx = 4
          else: ver_indx = 6

          os_version = temp[ver_indx].strip()

          if not os_version:
              print_error('Cannot resolve OS Version from /etc/redhat-release on host %s' %host)
              print_error('Skipping host %s' %host)
```

With the CentOS check looks like:

```
temp = os_relstr.split(' ')
          if os_release == 'SLES': ver_indx = 4
  if os_release == 'COS': ver_indx = 2
          else: ver_indx = 6

          os_version = temp[ver_indx].strip()
  os_version = os_version.split(".")[0]

          if not os_version:
              print_error('Cannot resolve OS Version from /etc/redhat-release on host %s' %host)
              print_error('Skipping host %s' %host)
```

In 8.2 you need to modify a blcli call as a command was removed. Around line 230 find:

```
ret = blcli.run(['Job', 'getAssociatedInstanceBean'])
    if not ret.success():
        sys.stderr.write(str(ret.getError())+"\n")
        sys.exit(1)
    job_timeout = ret.returnValue.getFullyResolvedPropertyValueAsString('JOB_TIMEOUT')
    job_part_timeout = ret.returnValue.getFullyResolvedPropertyValueAsString('JOB_PART_TIMEOUT')
    job_timeout = str(int(job_timeout)*timeout_percentage/100)
    job_part_timeout = str(int(job_part_timeout)*timeout_percentage/100)
```

change this to

```
job_timeout = blcli.run(['Job', 'getPropertyValueAsString', 'JOB_TIMEOUT']).returnValue
job_part_timeout = blcli.run(['Job', 'getPropertyValueAsString', 'JOB_PART_TIMEOUT']).returnValue
job_timeout = str(int(job_timeout)*timeout_percentage/100)
job_part_timeout = str(int(job_part_timeout)*timeout_percentage/100)
```

linux-analyze.sh

Again, we need to identify the CentOS name. Around line 145 we have:

```
release="RHAS"
          return 0
      fi

      echo "$os_rel_str" | grep -qi "Enterprise Linux Enterprise Linux Server release"
      if ["$?" "0"]; then
          release="RHES"
          return 0
      fi

      return 1
  }
```

This needs an addition:

```
release="RHAS"
          return 0
      fi

      echo "$os_rel_str" | grep -qi "Enterprise Linux Enterprise Linux Server release"
      if ["$?" h1. "0"]; then
          release="RHES"
          return 0
      fi

     echo "$os_rel_str" | grep -qi "CentOS release"
     if ["$?" "0"]; then
       release="COS"
         return 0
     fi

      return 1
  }
```

linuxrepo.conf

The new shorthand identifier we've chosen is COS. Therefore in the linuxrepo.conf we should have a line like:
cos5=//blapp/u01/patch/cos53,COS5x86
That creates a repo tag for CentOS 5, stored in /u01/patch/cos53 on the server named 'blapp' for the x86 architecture. For x86_64 you would have something like:

cos5x64=//blapp/u01/patch/cos53,COS5x86_64

Creating NSHScripts and NSHScriptJobs for 8.x

In the BladeLogic Workspace create folders for the Linux VPC, you should already have folders for HPUX or AIX depending on what was installed as required previously. You can do this manually, or use this script.

Workspace Folders

Depot:

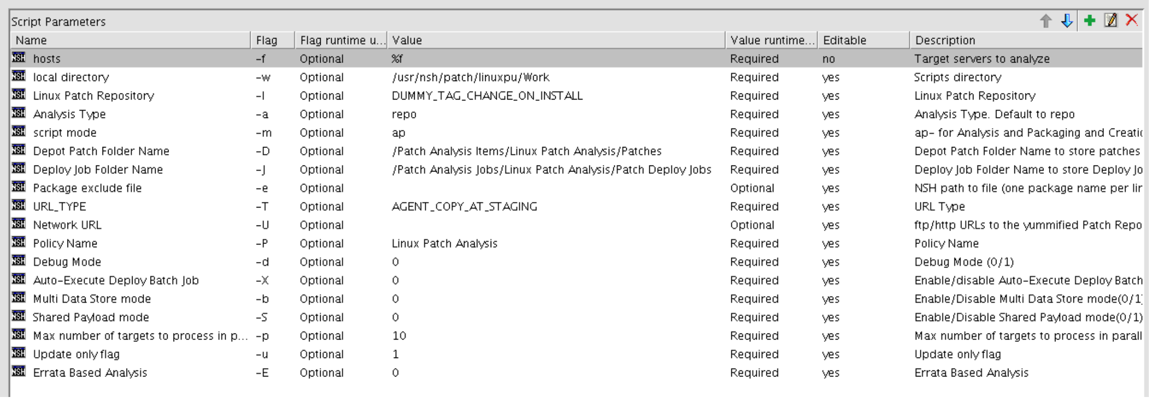
- */Patch Analysis Items/Linux Patch Analysis*
- */Patch Analysis Items/Linux Patch Analysis/Patches*
- */Patch Analysis Items/Linux Patch Analysis/Patches/BLPackages*
- */Patch Analysis Items/Linux Patch Analysis/Scripts*

Jobs:

- */Patch Analysis Jobs/Linux Patch Analysis*
- */Patch Analysis Jobs/Linux Patch Analysis/Patch Analysis Jobs*
- */Patch Analysis Jobs/Linux Patch Analysis/Patch Deploy Jobs*
- */Patch Analysis Jobs/Linux Patch Analysis/Patch Deploy Jobs/Deploy*

NSH Script and Script Job Creation

- Create a new NSH Script object in the Depot Workspace */Patch Analysis Items/Linux Patch Analysis/Scripts* named *Linux Patch Analysis* using the *linuxpc.pl* script.
- This should be a *Type 4* script (Execute the script using the PERL interpreter...)
- Create the following options on the nsh script
  - The *-w* option should match your install directory*
  - The *-l* option should contain the repositories defined in the *linuxrepo.conf* file*
  - The *-P* option should be the "Policy Name" you want to show up in Reporting.*

- 

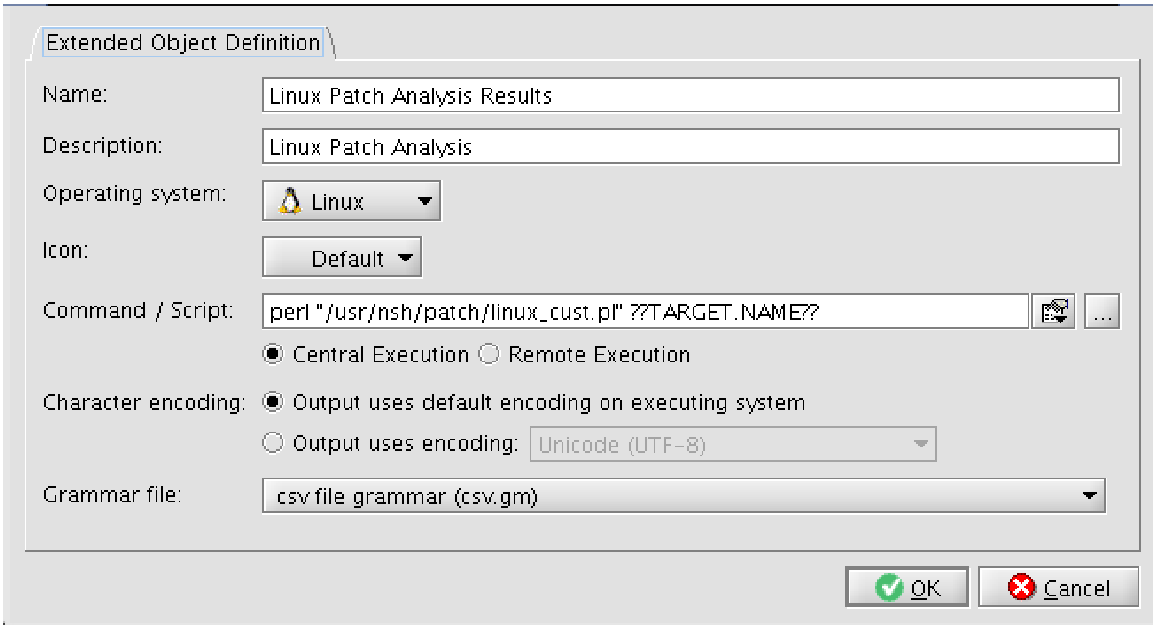
Script Parameters

Name	Flag	Flag runtime u...	Value	Value runtime...	Editable	Description
hosts	-f	Optional	%f	Required	no	Target servers to analyze
local directory	-w	Optional	/usr/nsh/patch/linuxpu/Work	Required	yes	Scripts directory
Linux Patch Repository	-l	Optional	DUMMY_TAG_CHANGE_ON_INSTALL	Required	yes	Linux Patch Repository
Analysis Type	-a	Optional	repo	Required	yes	Analysis Type. Default to repo
script mode	-m	Optional	ap	Required	yes	ap- for Analysis and Packaging and Creati
Depot Patch Folder Name	-D	Optional	/Patch Analysis Items/Linux Patch Analysis/Patches	Required	yes	Depot Patch Folder Name to store patches
Deploy Job Folder Name	-J	Optional	/Patch Analysis Jobs/Linux Patch Analysis/Patch Deploy Jobs	Required	yes	Deploy Job Folder Name to store Deploy Jo
Package exclude file	-e	Optional		Optional	yes	NSH path to file (one package name per lir
URL_TYPE	-T	Optional	AGENT_COPY_AT_STAGING	Required	yes	URL Type
Network URL	-U	Optional		Optional	yes	ftp/http URLs to the yummified Patch Repo
Policy Name	-P	Optional	Linux Patch Analysis	Required	yes	Policy Name
Debug Mode	-d	Optional	0	Required	yes	Debug Mode (0/1)
Auto-Execute Deploy Batch Job	-X	Optional	0	Required	yes	Enable/disable Auto-Execute Deploy Batch
Multi Data Store mode	-b	Optional	0	Required	yes	Enable/Disable Multi Data Store mode(0/1
Shared Payload mode	-S	Optional	0	Required	yes	Enable/Disable Shared Payload mode(0/1)
Max number of targets to process in p...	-p	Optional	10	Required	yes	Max number of targets to process in parall
Update only flag	-u	Optional	1	Required	yes	Update only flag
Errata Based Analysis	-E	Optional	0	Required	yes	Errata Based Analysis

Extended Object

To view the VPC results, you must manually create the Extended Object in the Configuration Object Dictionary.

- **Change the path to match your particular installation path.**



Extended Object Definition

Name: Linux Patch Analysis Results

Description: Linux Patch Analysis

Operating system: Linux

Icon: Default

Command / Script: perl "/usr/nsh/patch/linux_cust.pl" ??TARGET.NAME??

● Central Execution ○ Remote Execution

Character encoding: ● Output uses default encoding on executing system

○ Output uses encoding: Unicode (UTF-8)

Grammar file: csv file grammar (csv.gm)

Create the Repository

Getting the files

The RedHatDownload Manager will not download CentOS or other RPMS. It will however yummify the repositories just fine.

There are some options to download the repos:

- Manually use rsync or wget or some other tool to pull the RPMS from a mirror on the internet.
- Use a tool like mrepo http://dag.wieers.com/home-made/yam to manage the repo
- Something I haven't thought of...

Yummify the Repo

Copy the *RedhatRepositoryManager.zip* from the *<install>/patch/SupportFiles* directory to your RedHat helper system. Extract this somewhere on the system. Make sure your java executable is in your path.

After you download the repos you must run the *RedHatRepositoryManager -yummifyrepo* against the repo, the VPC creates its own custom metadata files that are separate from the standard files that createrepo generates (they are named differently but contain the same content). For example if your repository is stored in */u01/patch/cos53* you would run*RedHatRepositoryManager -yummifyrepo -repoLocation /u01/patch/cos53.*