

Foreman - Feature #3906

Support for Junos Zero-Touch-Provisioning

12/18/2013 01:04 PM - Frank Wall

<div>Status: Closed</div> <div>Priority: Normal</div> <div>Assignee: Frank Wall</div> <div>Category: Unattended installations</div> <div>Target version: 1.4.0</div> <div>Difficulty:</div> <div>Triaged:</div> <div>Bugzilla link:</div> <div>Pull request:</div>	<div>Fixed in Releases:</div> <div>Found in Releases:</div> <div>Red Hat JIRA:</div>
<div>Description</div> <div>Status</div> <p>Some pull-requests are currently being prepared for submission. It was developed running foreman 1.3.1, so it might need some modifications for foreman 1.4.</p> <div>Description</div> <p>Junos devices can be automcatically provisioned by using either "Autoinstallation" (before Junos 12.2) or "Zero-Touch-Provisioning" (12.2+). Additionally a puppet agent is available for Junos devices. Documentation is available on Juniper's website: <a href="http://kb.juniper.net/InfoCenter/index?page=content&amp;id=KB13232">http://kb.juniper.net/InfoCenter/index?page=content&amp;id=KB13232</a> <a href="http://kb.juniper.net/InfoCenter/index?page=content&amp;id=KB27327&amp;actp=RSS">http://kb.juniper.net/InfoCenter/index?page=content&amp;id=KB27327&amp;actp=RSS</a> <a href="http://www.juniper.net/techpubs/en_US/release-independent/junos-puppet/information-products/pathway-pages/index.html">http://www.juniper.net/techpubs/en_US/release-independent/junos-puppet/information-products/pathway-pages/index.html</a></p> <div>Workflow</div> <p>In case you are not trying to provision a NEW device it might be a good idea to run "request system zeroize".</p> <p>The basic workflow is as follows:</p> <ul style="list-style-type: none"><li>- Junos device needs to be reset to default configuration</li><li>- Junos device will send a DHCP request on the management interface</li><li>- DHCP server will send a "filename" option, referring to a special Junos configuration file</li><li>- Junos device will receive this configuration file and install it</li><li>- an Event Policy will be setup automatically to receive an SLAX script</li><li>- the SLAX script will take care for further provisioning tasks</li></ul> <div>Limitations</div> <p>Using "Autoinstallation" does not require any customization, it can all be configured through foreman. It is disabled in favour of "Zero-Touch-Provisioning" on devices running Junos 12.2+. ZTP requires some custom options in your dhcpd.conf:</p> <pre>option option-150 code 150 = ip-address; option space FM_ZTP; option FM_ZTP.image-file-name code 0 = text; option FM_ZTP.config-file-name code 1 = text; option FM_ZTP-encapsulation code 43 = encapsulate FM_ZTP;</pre> <p>Furthermore the puppet agent should be seen as a technology preview. It is currently only available for devices running Junos 12.3R2.5 and requires <i>manual steps</i> to complete it's setup. Sad story.</p> <p>While "Autoinstallation" will send DHCP requests forever, with ZTP there is a limit on the number of retries. This means you could find you in the need to restart a device to trigger ZTP again.</p> <div>Compatibility</div> <p>This was tested with EX4200 devices running Junos 11.4R1.6, 11.4R5.5, 12.3R2.5 and 12.3R3.4.</p>	

## Licence

The SLAX script was originally written by Jeremy Schulman and was released by Juniper Networks under a 2-clause BSD license. In any case, my modifications are under the same 2-clause BSD license.

### Related issues:

Blocked by Smart Proxy - Feature #3941: Proxy TFTP support for Junos Zero-Tou...	Closed	12/18/2013	12/19/2013
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## Associated revisions

### Revision b80c6c00 - 01/16/2014 10:08 AM - Frank Wall

fixes #3906 - Support for Junos ZTP

## History

### #1 - 12/18/2013 01:56 PM - Frank Wall

#### Quirks

I forgot to mention some quirks :-(

- Foreman configuration: You need to set *token\_duration* to enable UID support. And you need to set *safemode\_render = false* to enable the macro `<%= Settings['foreman_url'] %>` in provisioning templates.
- Junos version numbering scheme is bad (i.e. 12.3R2.5) and foreman does not handle this at all. Currently I rely on a "feature" of foreman allowing "12.3" as major and "2.5" as minor version number. This works well, but foreman needs to support those strange version numbers. (FreeBSD would benefit too).
- Although Junos is based on FreeBSD, I decided to create it's own OperatingSystem (family). Junos is basically a black box and is very different from FreeBSD as of now.
- Although it would have been technically possible to use the Syslinux class for provisioning, I've decided to create a Ztp class to make it easier to get the required quirks in.
- ZTP requires special DHCP options to be set though omshell (Smart Proxy); it will fail if you forgot to edit your dhcpd.conf.
- ZTP requires a .slax suffix in the provisioning url (Foreman); the UnattendedController will check for this suffix and reparate it from the token internally.

### #2 - 12/18/2013 02:07 PM - Ohad Levy

Exciting, looking forward seeing the code :)

### #3 - 12/18/2013 02:37 PM - Frank Wall

One more quirk:

- You need to specify *any* partition table to deploy a Junos device, although it will never be used in any ZTP template.

Couldn't figure out if it is possible to "disable" partition tables for a specific OS family.

### #4 - 01/03/2014 08:42 AM - Dominic Cleal

- Copied to Feature #3941: Proxy TFTP support for Junos Zero-Touch-Provisioning added

### #5 - 01/03/2014 08:43 AM - Dominic Cleal

- Copied to deleted (Feature #3941: Proxy TFTP support for Junos Zero-Touch-Provisioning)

### #6 - 01/03/2014 08:43 AM - Dominic Cleal

- Blocked by Feature #3941: Proxy TFTP support for Junos Zero-Touch-Provisioning added

### #7 - 01/09/2014 02:28 PM - Dominic Cleal

- Target version set to 1.9.2

### #8 - 01/09/2014 02:28 PM - Dominic Cleal

- Status changed from New to Ready For Testing

### #9 - 01/09/2014 02:32 PM - Anonymous

- Target version deleted (1.9.2)

**#10 - 01/09/2014 02:33 PM - Dominic Cleal**

- *Target version set to 1.9.2*

**#11 - 01/14/2014 12:45 PM - Daniel Lobato Garcia**

<https://github.com/theforeman/foreman/pull/1103> is completed now, waiting for merge.

**#12 - 01/16/2014 10:31 AM - Frank Wall**

- *Status changed from Ready For Testing to Closed*

- *% Done changed from 70 to 100*

Applied in changeset [b80c6c009d37c3c60cae39e361ac886f8933d51d](#).