Maxim Burgerhout's Blog: Integrating Satellite 6 with Ansible Tower

Posted by Maxim Burgerhout Jan 25, 2016

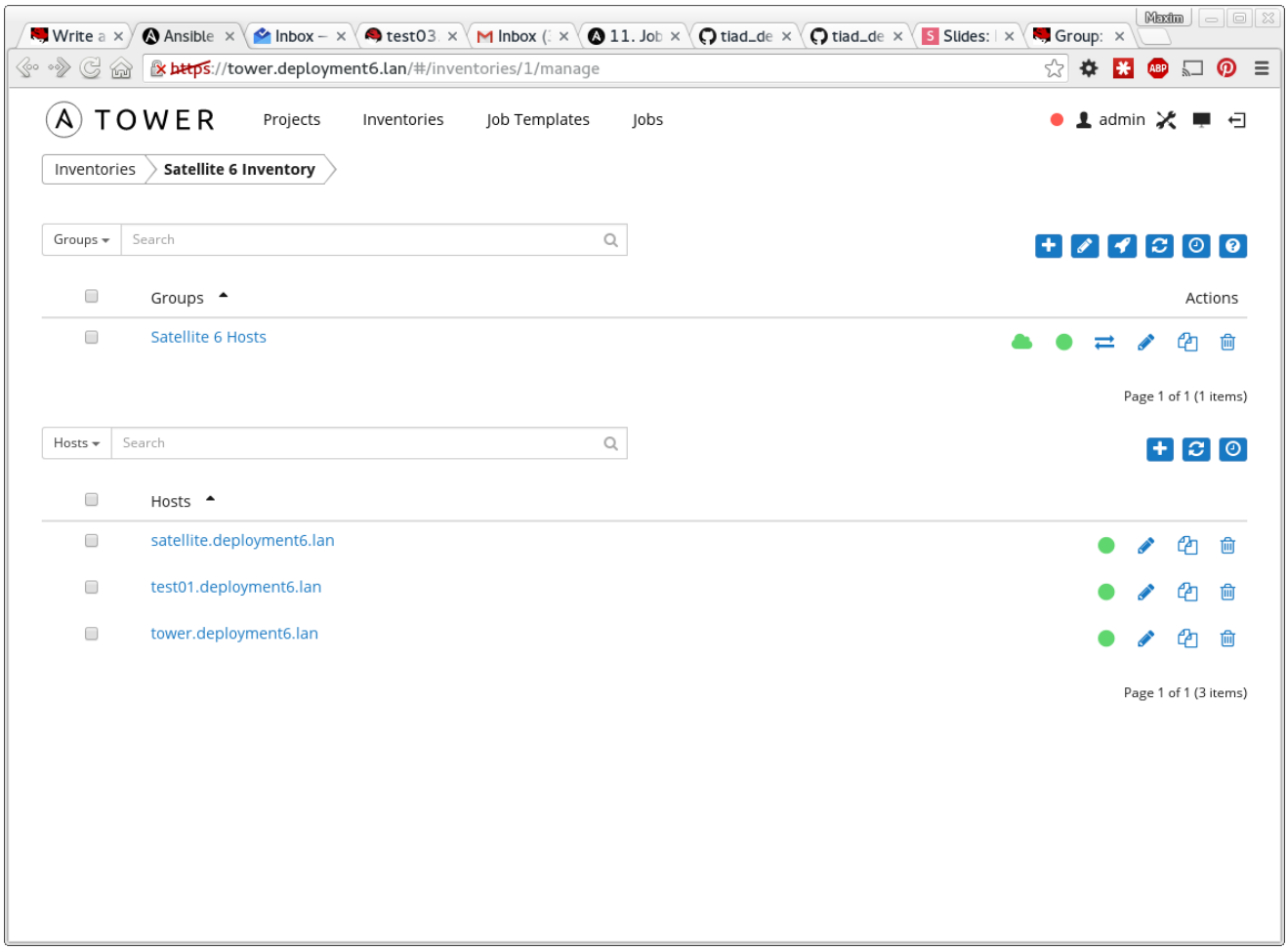
As I was looking into getting some kind of r10k integration with Satellite 6, I figured I might also take a peek at what is possible with Ansible Tower right now. Turns out, there's quite a lot possible. I'm going to assume some basic knowledge around Tower here. If you struggle, let me know and I'll try to help.

Getting Satellite's hosts into Tower

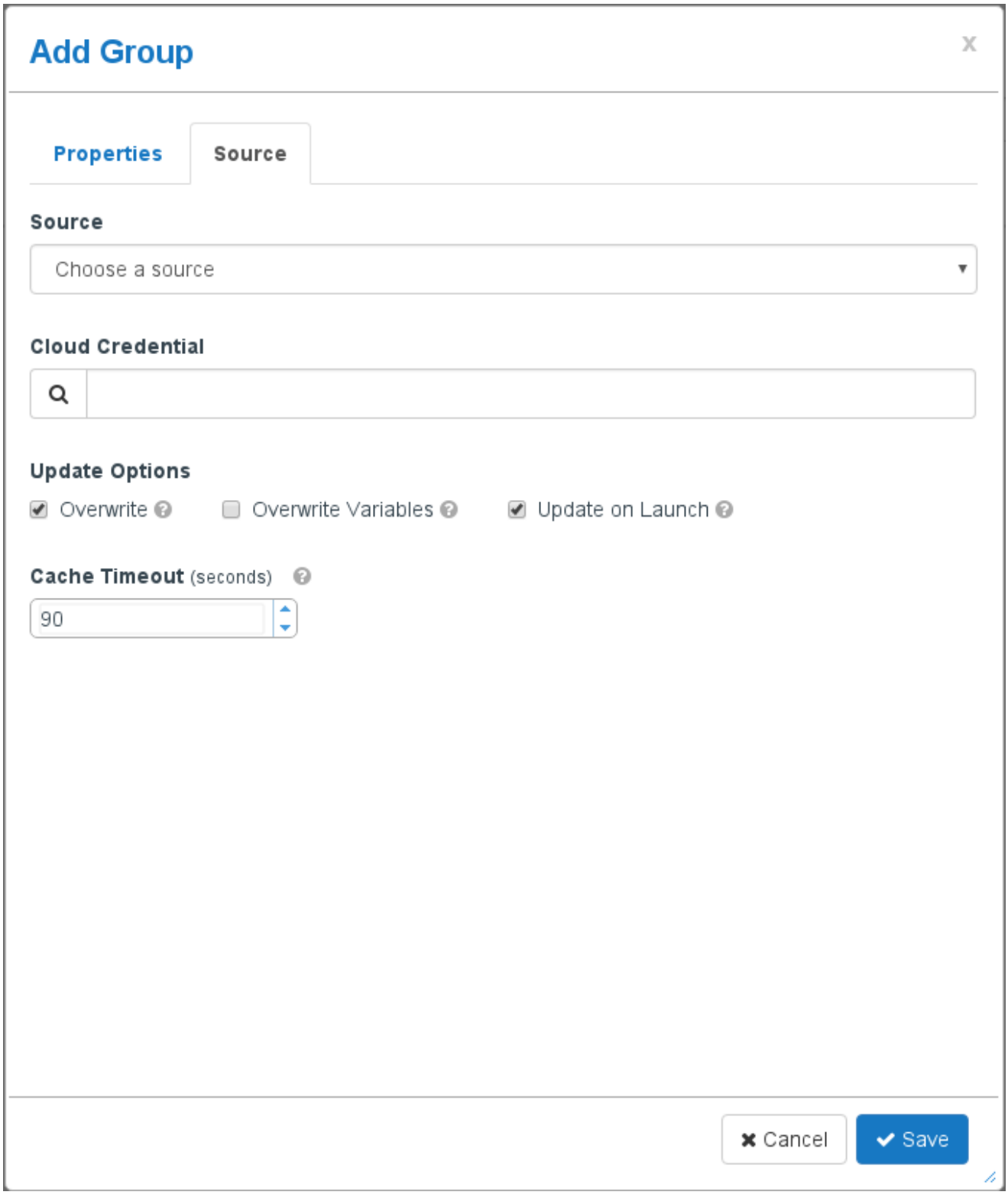
This is probably the easy part, as there have already been people that did this. Take a look at this Github repository for example. In there, you'll find a script to make your Ansible Tower system connect to your Satellite server to gather all hosts and hostgroups and import those as it's own inventory. It'll also import variables from Satellite 6 into Ansible Tower. Here's how to configure it:

First, in Tower, go to 'Setup' -> 'Inventory Scripts'. Click the big blue plus button and paste the contents of this file into the 'Custom Script' text area. Finish off the rest of the fields, and save. Next, on your Tower system, go to /etc/ansible and create a file called 'foreman.ini'. Paste the contents of this file into it and alter to fit your environment. Should be fairly straight forward.

Next step is to create a new inventory and create a new group in there. While creating that group, on the 'Source' tab of the group creation dialog, choose 'Custom Script' and pick the one you just created. After this you can setup a regular schedule to pull your Satellite hosts into your Tower instance. Below is example of an inventory called 'Satellite 6 Inventory', a group called 'Satellite 6 Hosts' and three hosts, imported from Satellite 6. Under the 'Satellite 6 Hosts' group, are several imported hostgroups from Satellite 6 (not shown in picture).



When creating the group, make sure to enable 'Overwrite' (to automatically remove hosts that have been removed from Satellite) and 'Update on Launch'. This last setting will make running the bootstrap script below a lot easier. The cache timeout below is 0, but it should generally be a value that is both high enough to not hammer your Satellite and low enough to quickly remove stale hosts. I have mine at 90 seconds.


Add Group
x
Properties
Source
Source
Choose a source
Cloud Credential
Update Options
Overwrite
Overwrite Variables
Update on Launch
Cache Timeout (seconds)
90
Cancel
Save

Dynamically updating the inventory (callbacks)

So now we have an inventory, how do I run a bootstrap script on new hosts right after deploying them? This could be very useful to setup an Ansible user with, with some sudo rules and configure some basic firewall rules, just to name a few.

Ansible Tower has a concept of 'provisioning callbacks'. Basically this gives you a URL to post a secret string to upon which Ansible Tower will run a certain playbook on the calling host.

Go to your bootstrapping playbook in Tower and check 'Allow Provisioning Callbacks'. This will create a field called 'Host Config Key': click the button next to it to create the key. If we make a host call this URL with the accompanying secret, Tower will run this playbook against it.

To make this happen after kickstarting, add the following to a clone of Satellite Kickstart Default, somewhere after the Puppet snippet, but before the 'Informing Satellite that we are built' part:

```
# Using systemd will make this not work on RHEL5 and RHEL6
# TODO: Fix that, look into @reboot w/ cron (thanks, Mark Phillips).
<% if @host.params['ansible_enabled'] == 'true' %>
cat > /etc/systemd/system/ansible-callback.service << EOF
<%= snippet 'ansible_callback_service' %>
EOF


# Runs during first boot, removes itself
/usr/bin/systemctl enable ansible-callback
<% end -%>
```

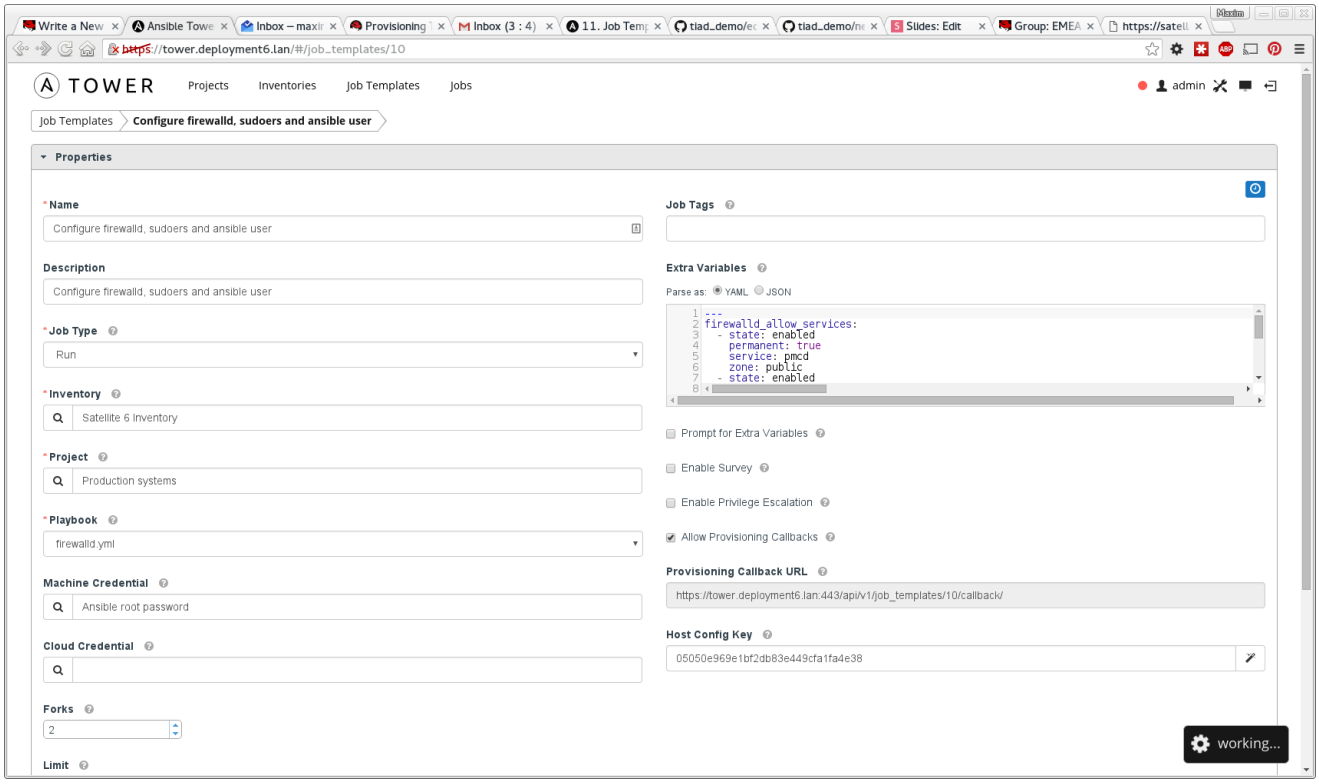
Create a snippet in Satellite 6 (Provisioning Templates, create new, mark as snippet on 'Type' tab) and put the following content in it (update it to match the URL to your Tower instance, your job template ID and your host_config_key, obviously):

```
[Unit]
Description=Provisioning callback to Ansible
Wants=network-online.target
After=network-online.target

[Service]
Type=oneshot
ExecStart=/usr/bin/curl -k -s --data "host_config_key=$HOST_CONFIG_KEY" https://
$YOUR_TOWER_HOSTNAME/api/v1/job_templates/$JOB_TEMPLATE_ID/callback/
ExecStartPost=/usr/bin/systemctl disable ansible-callback

[Install]
WantedBy=multi-user.target
```

I have set a global 'ansible_enabled' variable to 'true', so I can disable this snippet by overriding that variable per host or hostgroup.

Now provision a new host. During bootup of the new host, the new host will call the callback URL. Tower will not know this host yet, but because we checked 'Update on Launch' above, it will now sync all hosts from Satellite. Obviously, it then finds the new host in it's inventory and runs the appropriate playbook on it.

I use this to configure a rudimentary firewall, setup an Ansible specific user with an SSH key, set the root password to something better than what I set it to from Satellite and configure sudo for the Ansible user. Pretty useful



964 Views Tags: sat6, ansible, tower

Ricky Nelson *in response to Maxim Burgerhout on page 5*
Nov 28, 2016 2:48 PM
Seeing this post helped me fix my issue, which was a tad different. I'm testing the built-in Sat 6 inventory script. While not exactly the same issue, on Sat 6.2 and Ansible Tower 3.x, I was getting an error when my credential had 'satellite.demo.com' as the hostname variable. Once I changed it to 'https://satellite.demo.com', then the inventory sync worked like a charm.

 Maxim Burgerhout *in response to Tom Gamull on page 6*
Aug 18, 2016 8:19 AM
So what you need to do, is when you define your cloud credentials for Satellite 6, you enter the hostname as follows (this is an example for my Satellite):

Do _not_ add the api/v2/hosts suffix, do _not_ make it http instead of https.

This works fine for me.

 Tom Gamull *in response to Maxim Burgerhout on page 6*
Aug 17, 2016 12:29 PM
Take your time, it's a home lab anyway. I also tried the built-in satellite 6 inventory option but got the same message. I am using the admin user on foreman but assumed there isn't a difference. Maybe this worked on 6 or 6.1 but something changes on 6.2? If I find the answer I'll post here.

 Maxim Burgerhout *in response to Tom Gamull on page 6*
Aug 17, 2016 6:59 AM
Will check this later. I completed wrecked my Fedora install the other day to the point that I have to reinstall and lost /home, so it'll take a little time

 Tom Gamull *in response to Tom Gamull on page 6*
Aug 16, 2016 5:10 PM
Just saw the SSL_VERIFY OPTION
using https://9090 gives same error as above with SSL_VERIFY disabled

 Tom Gamull
Aug 16, 2016 5:09 PM
Is this still working with Satellite 6.2, I'm not able to get past using foreman.ini.
I used http://satellite.example.com:8000/ for URL (assume domain is right) but get the following error.
If i use https://URL:9090 it fails on CERT issue with same JSON Fail.
Did other JSON or parameters need to be added on Ansible side?

> 1.436 INFO Updating inventory 2: Satellite 6.2 Inventory 1.454 INFO Reading executable JSON source: /tmp/ansible_tower_launch_JEVK_J/tmpPtidS_ 4.768 ERROR Failed to load JSON from: Traceback (most recent call last): File "/usr/bin/tower-manage", line 9, in <module> load_entry_point('ansible-tower==3.0.1', 'console_scripts', 'tower-manage')

```
() File "/lib/python2.7/site-packages/awx/__init__.py", line 103, in manage
File "/var/lib/awx/venv/tower/lib/python2.7/site-packages/django/core/
management/__init__.py", line 354, in execute_from_command_line
utility.execute() File "/var/lib/awx/venv/tower/lib/python2.7/site-
packages/django/core/management/__init__.py", line 346, in execute
self.fetch_command(subcommand).run_from_argv(self.argv) File
"/var/lib/awx/venv/tower/lib/python2.7/site-packages/django/core/
management/base.py", line 394, in run_from_argv self.execute(*args,
**cmd_options) File "/var/lib/awx/venv/tower/lib/python2.7/site-packages/
django/core/management/base.py", line 445, in execute output =
self.handle(*args, **options) File "/var/lib/awx/venv/tower/lib/python2.7/site-
packages/django/core/management/base.py", line 661, in handle return
self.handle_noargs(**options) File "/lib/python2.7/site-packages/awx/main/
management/commands/inventory_import.py", line 1284, in handle_noargs
File "/lib/python2.7/site-packages/awx/main/management/commands/
inventory_import.py", line 498, in load_inventory_source File "/lib/python2.7/
site-packages/awx/main/management/commands/inventory_import.py",
line 502, in load_inventory_source File "/lib/python2.7/site-packages/
awx/main/management/commands/inventory_import.py", line 392, in load
File "/lib/python2.7/site-packages/awx/main/management/commands/
inventory_import.py", line 380, in command_to_json RuntimeError: ['proot',
'-v', '0', '-r', '/', '-b', '/tmp/ansible_tower_launch_JEVK_J/tmpms5bRn:/
etc/tower', '-b', '/tmp/ansible_tower_launch_JEVK_J/tmpkVSxJz:/
tmp', '-b', '/tmp/ansible_tower_launch_JEVK_J/tmp4BK6W5:/var/lib/
awx', '-b', '/tmp/ansible_tower_launch_JEVK_J/tmpvTbpIo:/var/lib/awx/
job_status', '-b', '/tmp/ansible_tower_launch_JEVK_J/tmpNOO5qR:/
var/lib/awx/projects', '-b', '/tmp/ansible_tower_launch_JEVK_J/
tmpAiAqB2:/var/log', '-b', '/tmp/ansible_tower_launch_JEVK_J:/tmp/
ansible_tower_launch_JEVK_J', '-b', '/var/lib/awx/venv/ansible:/var/lib/awx/
venv/ansible', '-b', '/var/lib/awx/venv/tower:/var/lib/awx/venv/tower', '-w', '/
tmp/ansible_tower_launch_JEVK_J', '/tmp/ansible_tower_launch_JEVK_J/
tmpPtidS_', '--list'] failed (rc=1) with output: Traceback (most recent call
last): File "/tmp/ansible_tower_launch_JEVK_J/tmpPtidS_", line 346, in
<module> ForemanInventory() File "/tmp/ansible_tower_launch_JEVK_J/
tmpPtidS_", line 53, in __init__ self.update_cache() File "/tmp/
ansible_tower_launch_JEVK_J/tmpPtidS_", line 228, in update_cache
for host in self._get_hosts(): File "/tmp/ansible_tower_launch_JEVK_J/
tmpPtidS_", line 176, in _get_hosts return self._get_json("%s/api/v2/
hosts" % self.foreman_url) File "/tmp/ansible_tower_launch_JEVK_J/
tmpPtidS_", line 163, in _get_json ret.raise_for_status() File "/var/lib/
awx/venv/ansible/lib/python2.7/site-packages/requests/models.py", line
831, in raise_for_status raise HTTPError(http_error_msg, response=self)
requests.exceptions.HTTPError: 404 Client Error: Not Found
```

 Vikas Kumar *in response to Lutz Lange on page 8*
Apr 7, 2016 4:31 PM
Hi Lutz,

I am not sure if its too late, but here is a quick way to install Ansible Tower

```
# wget https://releases.ansible.com/ansible-tower/setup/ansible-tower-setup-latest.tar.gz
# tar xzf ansible-tower-setup-latest.tar.gz
# cd ansible-tower-setup-2.4.4   (the latest version as of now)
# ./configure --local   (This will ask for a few passwords)

Or to automate the installation
# cat > tower_setup_conf.yml << 'EOF'
admin_password: fNwrC9Vh3xG2t
database: internal
munin_password: 2jKrC9VpkNru2
pg_password: 9F3jyPWvuokfNwrC9Vh3xG27UuH5Gm4XThPZjmQJ9zZ
primary_machine: localhost
redis_password: kokfNwrC9VpBDAq9y45cU7UuHvuokf5Gm4XThP6fYS
EOF
#
# ./configure -o tower_setup_conf.yml
# ./setup.sh

# rpm -qa | grep ^ansible
# ansible-tower-service status
```

Hope this helps.

Cheers,
Vikas

 Maxim Burgerhout *in response to Lutz Lange on page 8*
Jan 26, 2016 3:23 PM
Nope, you'll need to use the one you can request here.

 Lutz Lange *in response to Maxim Burgerhout on page 9*
Jan 26, 2016 3:17 PM
Playing with Tower is on my agenda. Do you have a quick link on how to

setup Tower? Ist that available with our employee subscription?

Regards
Lutz

On Tue, Jan 26, 2016 at 3:18 PM, Maxim Burgerhout <mojo-notify@redhat.com>

 Maxim Burgerhout *in response to Lutz Lange on page 9*
Jan 26, 2016 2:17 PM
Good to hear! I'm currently ironing out some bugs in this doc, stay tuned for updates.

 Lutz Lange
Jan 26, 2016 12:12 PM
Hi Max,

this was exactly what I was looking for.

Regards
Lutz