

# GEC 17

## Experimenter Roundtable

### Dingbot: Configuring GENI nodes

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[www.geni.net](http://www.geni.net)

- Plastic Slices: Artificial experiments to test GENI
- Slivers at all sites with production GENI resources
- Different sites are different:
  - OS on your nodes: Fedora, Ubuntu, etc
  - AM: ExoGENI/ORCA, InstaGENI/Emulab, etc
  - Differences in how particular images were created
- Approaches:
  - Homogeneity? Sometimes ok, but limiting
  - Custom images? Time-consuming, AM-specific
  - Post-boot scripts? Indeed!

- Bridge gaps between AMs (expected to narrow)
- Smooth over OS differences when necessary
- Do other setup stuff that you need
- Run when the node boots
  - At least once, when the sliver is created
  - Also every time it reboots, unless you tell it not to

- A post-boot script (written in Python):
  - Lets you put the same thing in all your rspecs
  - Handles OS- and AM-specific differences
  - Extensible to handle other differences
  - Takes a config file for user-specific stuff

- Thus:

```
<services>  
  <install url="http://www.gpolab.bbn.com/~jbs/dingbot.tar.gz"  
    install_path="/tmp" />  
  <install url="http://www.gpolab.bbn.com/~jbs/dingbot-jbs.tar.gz"  
    install_path="/tmp" />  
  <execute shell="/bin/bash" command="sudo /tmp/dingbot/dingbot  
    /tmp/dingbot/dingbot-jbs.json carlin"/>  
</services>
```

(<http://groups.geni.net/geni/wiki/Dingbot>)

- A post-boot script (written in Python):
  - Lets you put the same thing in all your rspecs
  - Handles OS- and AM-specific differences
  - Extensible to handle other differences
  - Takes a config file (JSON) for user-specific stuff

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- General:
  - Checks if it's already run
  - Logs what it does (separate output and errors)
  - Sets the hostname (rspec passes a command-line argument)
- OS-specific:
  - Installs packages (a list from the config file)
  - Configures sudo
- AM-specific:
  - Creates accounts with SSH keys (a list from the config file)
  - Sets preferred shell on existing accounts
- Easy to add more things

- A list of packages:

```
"packages": ["fping", "iperf", "rsync", "sudo"]
```

- Package names are handed to YUM/APT/etc
- Doesn't handle package name differences (yet)

- A dict of users:

```
"users": {  
  "jbs": { "username": "jbs", "fullname": "Josh Smift",  
    "shell": "/bin/bash", "authorized_keys": "ssh-rsa ..."},  
  "nriga": { "username": "nriga", "fullname": "Niky Riga",  
    "shell": "/bin/bash", "authorized_keys": "ssh-rsa ..." }  
}
```

- User accounts are created if they don't exist
- Shell changed for existing accounts (no other changes)

- Multi-rack images
- Provisioning tools:
  - Scripts to manage multiple slices at multiple AMs
  - Templates for generating AM-specific rspecs
- Config management tools (Puppet, Salt, etc)
- Graphical I&M-integrated projects:
  - GENI Desktop + GEMINI
  - LabWiki + GIMI