

# Groundwork monitoring for HP Lefthand

revision 1.0  
part 1: VM prerequisites and Groundwork installation

presented by:



Business Partner



## Introduction:

This document attempts to explain how to configure a groundwork monitor nagios server to monitor HP Lefthand P4000 series SAN modules and virtual appliances. The concepts should be applicable to any Nagios implementation; however the specific instructions and screenshots included were using [Groundwork Community Edition](#). These methods were specifically tested against GWCE versions 5.6.1 CentOS is used in the examples. The version of ESX used was vSphere 4 Update1



Groundwork monitoring for HP Lefthand Author: Paul Drangeid | <http://www.tdonline.com>

**Prerequisites:**

Working knowledge of the console and VI Client for VMware ESX  
Working knowledge of the console and configuration interfaces for Linux.  
Properly installed, configured, HP Lefthand P4000 series Cluster  
Ability to work with vi/nano or other Linux editor

**Goals:**

Our end-result should be monitoring capabilities of multiple HP Lefthand P4000 series storage modules, Virtual Storage Appliances (VSA), clusters, management groups, hardware resources, volume statistics and utilization. Trending and historical graphing of the utilization and alerting based on warning and critical thresholds supplied.

**About the Author:**

Paul Drangeid is a senior systems architect and owner for TeleData Consulting, Inc. Began the IT career in 1994; Areas of competence have included the following focus areas:  
Virtualization (VMware ESX/vSphere, Capacity Planning, SRM, XenServer, HyperV, automated deployments)  
Storage (Shared SCSI, iSCSI, SAN, DAS, NAS, replication)  
Microsoft (SQL Server, Exchange, Active Directory, Terminal Services, general infrastructure)  
Citrix (Winframe – Xenapp; Web Interface, Secure Gateways)

**Resources and Tools used:**

Nagios	GroundWork OpenSource Community Edition 6.1	<a href="http://sourceforge.net/projects/gwmos/files/installable%20(BIN)%20and%20Vmware%20appliance%20versions%20available">http://sourceforge.net/projects/gwmos/files/installable (BIN) and Vmware appliance versions available.</a>
SCP	Veeam FastSCP	<a href="http://www.veeam.com/vmware-esxi-fastscp.html">http://www.veeam.com/vmware-esxi-fastscp.html</a>
Check comma nds	Various shell and perl check commands	Links supplied within document

### Create yourself a Linux VM

I usually assign between 6-8GB RAM and 2 vCPUs

I used Centos5.3 x64. Give yourself a reasonable amount of disk storage.

Your server can get by with less resources if need be. The resources will largely depend on the number of hosts/counters that you want to monitor.

### Disk Storage:

Groundwork wants 160GB. I built mine with 80GB for a smaller implementation

### Networking:

If you have a routed network only 1 nic may be necessary

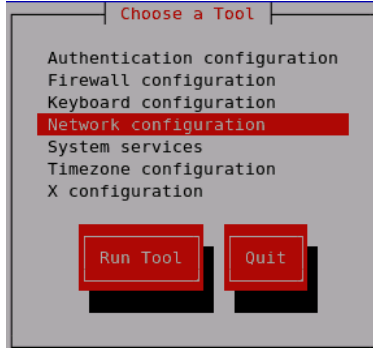
If you have a non-routed isolated (iSCSI for example) network, then you may need additional vNICs. If you have multiple subnets and routes, you may have to create static routes. (Beyond the scope of this document)

Install your OS, add critical components (like sendmail if you plan to use it for sending notifications).

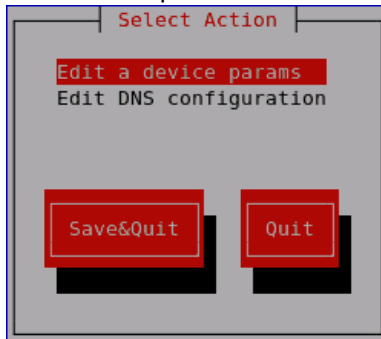
Your experience may differ based on your Linux distro:

At a shell prompt type run setup:

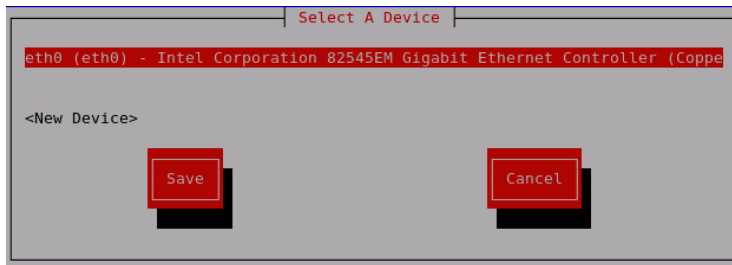
Select Network Configuration:



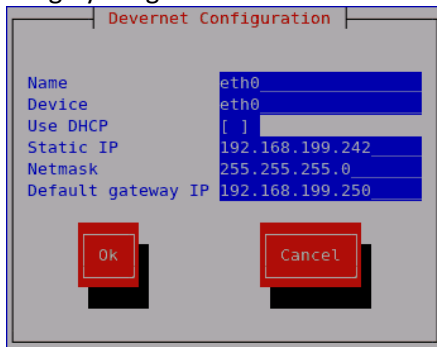
Edit a device params:



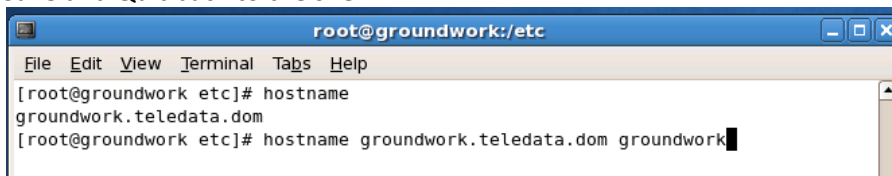
Select your Network card:



Assign your groundwork node a static IP address:



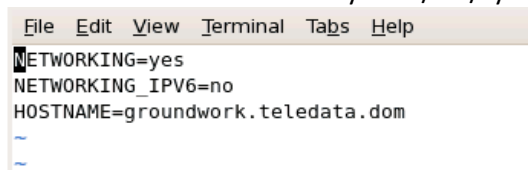
Save and Quit back to the shell:



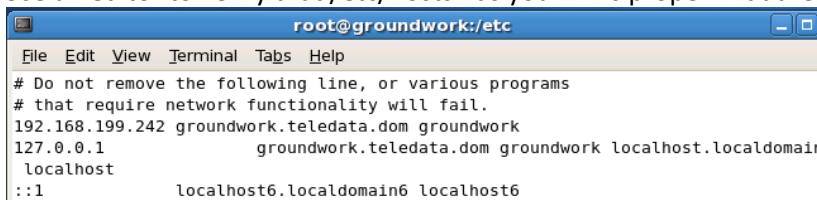
Verify that hostname properly returns your fully qualified host and domain name (FQDN) if not use:

**#hostname *fully.qualified.domain hostname***

Also use a text editor to verify that /etc/sysconfig/network contains the correct hostname info:



Use an editor to verify that /etc/hosts has your VMs proper IP address:



Edit /etc/resolv.conf and verify that you have the proper DNS servers listed for your environment:

```
root@groundwork:/etc
File Edit View Terminal Tabs Help
; generated by /sbin/dhclient-script
search teledata.dom
nameserver 192.168.2.26
nameserver 192.168.2.25
```

Restart your network service to apply your changes:

```
File Edit View Terminal Tabs Help
[root@groundwork sysconfig]# service network restart
Shutting down interface eth0: [ OK ]
Shutting down loopback interface: [ OK ]
Bringing up loopback interface: [ OK ]
Bringing up interface eth0: [ OK ]
[root@groundwork sysconfig]#
```

If you plan to use sendmail to facilitate groundwork sending out email notifications now would be a good time to configure sendmail:

edit /etc/mail/sendmail.mc:

In my example I have nagios forward it's outbound email to my Exchange server using smarthost:

```
root@groundwork:/etc
File Edit View Terminal Tabs Help
dn! #
dn! define(`confSMTP_LOGIN_MSG', ` $j Sendmail; $b')dn!
dn! #
dn! # default logging level is 9, you might want to set it higher to
dn! # debug the configuration
dn! #
dn! define(`confLOG_LEVEL', `9')dn!
dn! #
dn! # Uncomment and edit the following line if your outgoing mail needs to
dn! # be sent out through an external mail server:
dn! #
dn! define(`SMART_HOST', `tdexchange.teledata.dom')
dn! #
dn! define(`confDEF_USER_ID', ``8:12'')dn!
dn! define(`confAUTO_REBUILD')dn!
dn! define(`confTO_CONNECT', `1m')dn!
dn! define(`confTRY_NULL_MX_LIST', `True')dn!
dn! define(`confDONT_PROBE_INTERFACES', `True')dn!
dn! define(`PROCMail_MAILER_PATH', `/usr/bin/procmail')dn!
dn! define(`ALIAS_FILE', `/etc/aliases')dn!
dn! define(`STATUS_FILE', `/var/log/mail/statistics')dn!
dn! define(`UUCP_MAILER_MAX', `2000000')dn!
dn! define(`confUSERDB_SPEC', `/etc/mail/userdb.db')dn!
-- INSERT --
```

compile your sendmail.cf:

```
#m4 /etc/mail/sendmail.mc > /etc/mail/sendmail.cf
```

Configure sendmail to start automatically:

```
#chkconfig sendmail on
```

Perform updates:

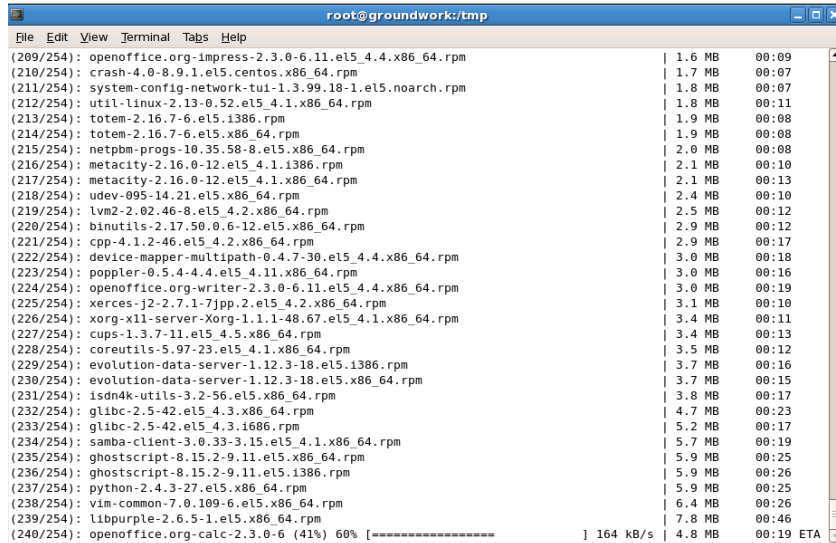
```
#yum update
```

You should see updates listed and a prompt to download and install. If you get 404 errors sometimes the yum update cache needs a cleanout:

```
#yum clean all
```

```
#yum makecache
```

```
#yum update
```



```

root@groundwork:/tmp
File Edit View Terminal Tabs Help
(209/254): openoffice.org-impress-2.3.0-6.11.el5_4.4.x86_64.rpm | 1.6 MB | 00:09
(210/254): crash-4.0-8.9.1.el5.centos.x86_64.rpm | 1.7 MB | 00:07
(211/254): system-config-network-tui-1.3.99.18-1.el5.noarch.rpm | 1.8 MB | 00:07
(212/254): util-linux-2.13-0.52.el5_4.1.x86_64.rpm | 1.8 MB | 00:11
(213/254): totem-2.16.7-6.el5.i386.rpm | 1.9 MB | 00:08
(214/254): totem-2.16.7-6.el5.x86_64.rpm | 1.9 MB | 00:08
(215/254): netpbm-progs-10.35.58-8.el5.x86_64.rpm | 2.0 MB | 00:08
(216/254): metacity-2.16.0-12.el5_4.1.i386.rpm | 2.1 MB | 00:10
(217/254): metacity-2.16.0-12.el5_4.1.x86_64.rpm | 2.1 MB | 00:13
(218/254): udev-095-14.21.el5.x86_64.rpm | 2.4 MB | 00:10
(219/254): lvm2-2.02.46-8.el5_4.2.x86_64.rpm | 2.5 MB | 00:12
(220/254): binutils-2.17.50.0-6-12.el5.x86_64.rpm | 2.9 MB | 00:12
(221/254): cpp-4.1.2-46.el5_4.2.x86_64.rpm | 2.9 MB | 00:17
(222/254): device-mapper-multipath-0.4.7-30.el5_4.4.x86_64.rpm | 3.0 MB | 00:18
(223/254): poppler-0.5.4-4.4.el5_4.11.x86_64.rpm | 3.0 MB | 00:16
(224/254): openoffice.org-writer-2.3.0-6.11.el5_4.4.x86_64.rpm | 3.0 MB | 00:19
(225/254): xerces-j2-2.7.1-7jpp.2.el5_4.2.x86_64.rpm | 3.1 MB | 00:10
(226/254): xorg-x11-server-Xorg-1.1.1-48.67.el5_4.1.x86_64.rpm | 3.4 MB | 00:11
(227/254): cups-1.3.7-11.el5_4.5.x86_64.rpm | 3.4 MB | 00:13
(228/254): coreutils-5.97-23.el5_4.1.x86_64.rpm | 3.5 MB | 00:12
(229/254): evolution-data-server-1.12.3-18.el5.i386.rpm | 3.7 MB | 00:16
(230/254): evolution-data-server-1.12.3-18.el5.x86_64.rpm | 3.7 MB | 00:15
(231/254): isdn4k-utils-3.2-56.el5.x86_64.rpm | 3.8 MB | 00:17
(232/254): glibc-2.5-42.el5_4.3.x86_64.rpm | 4.7 MB | 00:23
(233/254): glibc-2.5-42.el5_4.3.i386.rpm | 5.2 MB | 00:17
(234/254): samba-client-3.0.33-3.15.el5_4.1.x86_64.rpm | 5.7 MB | 00:19
(235/254): ghostscript-8.15.2-9.11.el5.x86_64.rpm | 5.9 MB | 00:25
(236/254): ghostscript-8.15.2-9.11.el5.i386.rpm | 5.9 MB | 00:26
(237/254): python-2.4.3-27.el5.x86_64.rpm | 5.9 MB | 00:25
(238/254): vim-common-7.0.109-6.el5.x86_64.rpm | 6.4 MB | 00:26
(239/254): libpurple-2.6.5-1.el5.x86_64.rpm | 7.8 MB | 00:46
(240/254): openoffice.org-calc-2.3.0-6 (41%) 60% [=====] | 164 kB/s | 4.8 MB | 00:19 ETA

```

install/Update VMware tools:

Begin the install tools from vSphere Client

```
#mkdir /mnt/cdrom
```

```
#mount /dev/cdrom /mnt/cdrom
```

```
#cd /tmp
```

```
#rpm -Uhv /mnt/cdrom/VMwareTools-4.0.0-<>xxxxx>.i386.rpm
```

```
#vmware-config-tools.pl
```

After YUM updates and VMware tools install/update you should reboot the VM

```
#shutdown -r now
```

Download Groundwork Binary

```
# cd /tmp
```

```
#wget
```

<http://downloads.sourceforge.net/project/gwmos/GW%20Monitor%20Community%20Edition/6.0.1%20%28stable%29/groundwork-6.0.1-br124-gw502-linux-64-installer.bin>

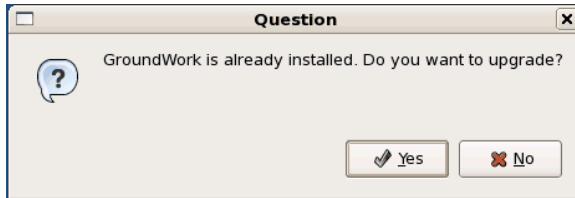
Make the installer executable

```
#chmod +x groundwork*.bin
```

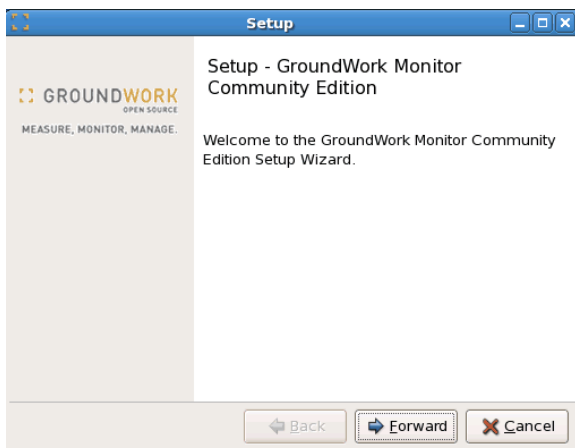
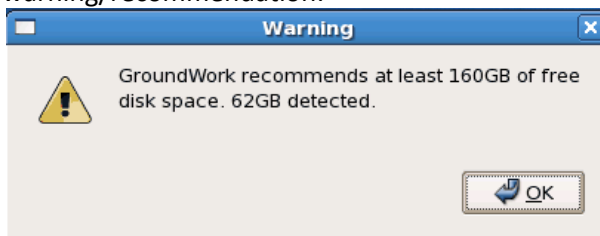
Run the install

```
#!/groundwork*.bin
```

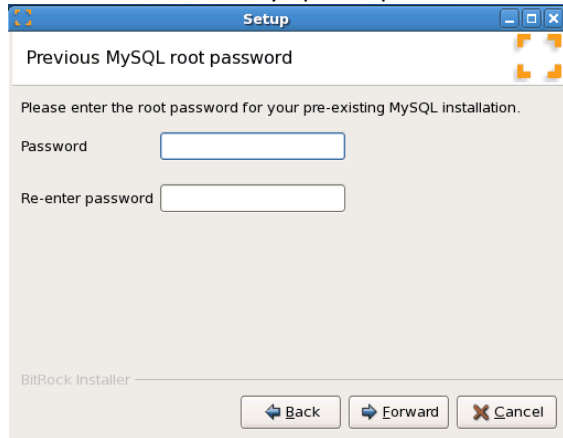
In my case I was upgrading from Groundwork 6.0 to 6.1:



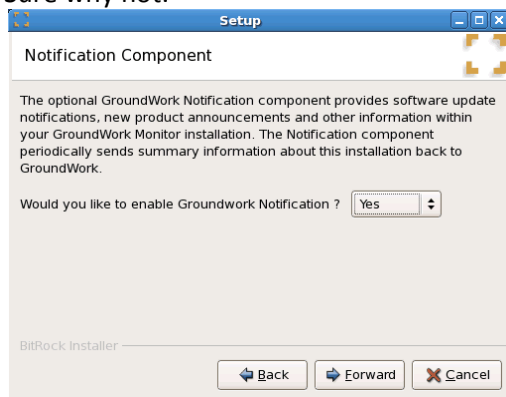
If you are monitoring a relatively small network infrastructure you can ignore this warning/recommendation:



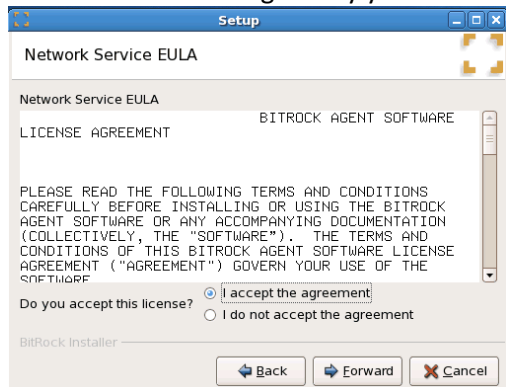
You will need to know your MySQL root password. If you don't know or remember it perform a google search for "Recover mysql root password"

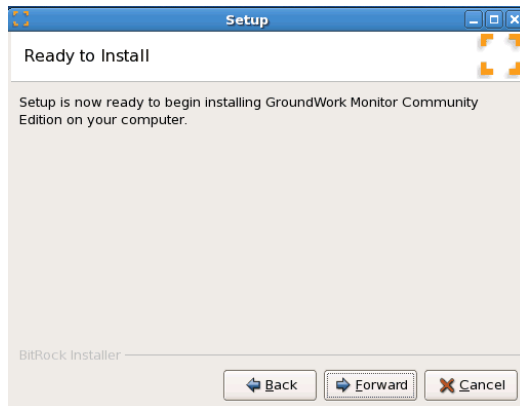


Sure why not.

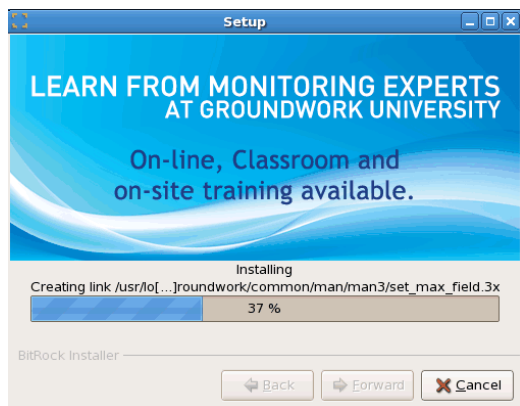


You know the drill. Sign away your first born:

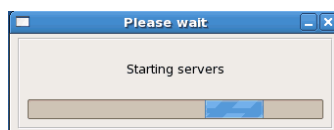
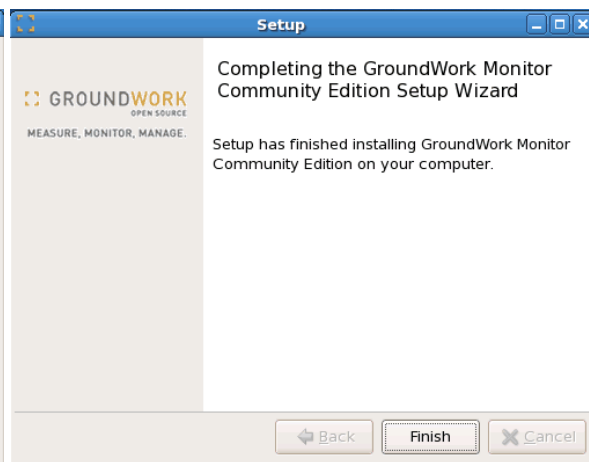
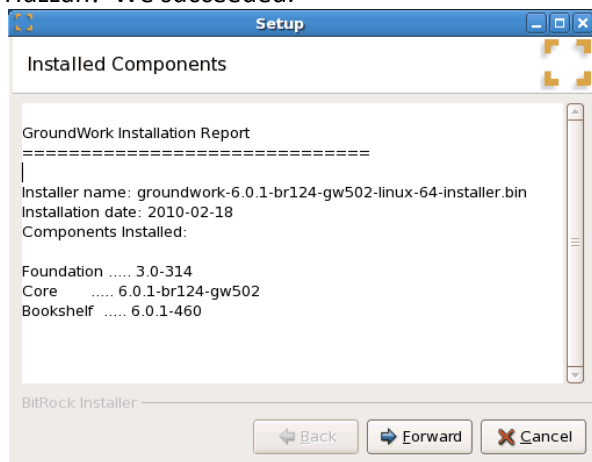




If this is an upgrade installation Then it will first remove older versions, and then perform the new component installations

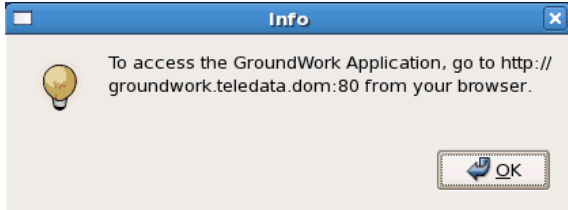


Huzzah! We succeeded:



Did you remember to add your groundwork server to your DNS servers?

No? Ok, go do that, then follow the directions below and verify everything is working as expected:



Default Username: admin

Password: admin



Your Groundwork Installation is up and running!

In Part 2 We will begin creating Service Checks for HP LeftHand health and performance statistics