



# Monitoring Network Services with Linux

SHARE 107  
Session 9270  
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VM Assist, Inc.  
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# Presentation softcopy



[http://www.vmassist.com/rs\\_samples/hobbitmon\\_share107.zip](http://www.vmassist.com/rs_samples/hobbitmon_share107.zip)



# Agenda



- Why monitor the network?
- Hobbit Network Monitor
- Hobbit concepts
- Installing and configuring Hobbit
- Writing Hobbit extensions
- Hobbit operations
- Hobbit reports



# Why monitor the network?

- Monitoring packages available for operating systems and sub-systems
  - CICS, VSE, VM, z/OS, Linux
  - Designed to monitor internals (tasks, jobs, file access, performance metrics)
- Networks can get quite complex
- Systems are very interconnected
- We rely much more on varying types of systems



# Why monitor the network?

- Many machines perform 'business critical' functions
- Network administrators need to know when these systems are down or running degraded
  - Automated notification, instead of calls from unhappy users



# Hobbit Network Monitor



- Network services availability monitor
- Provides a web based status display
- Uses colored icons and backgrounds for easy status spotting
- Runs a series of 'tests' at 5 minute intervals
- Can perform any number of tests on any number of hosts
- Reports test results as a state
  - Up or down (green or red)
  - Marginal state used for potential trouble (yellow)

# Hobbit Network Monitor



- If a test fails, it is re-tested every minute for 30 minutes
  - Quicker indication that test results have returned to normal
  - Reduces the need to change the test time
  - Web page updates are done every minute to reflect any failed test status change
- Linux/Unix client is also available
  - Installed to run client side tests and report to Hobbit server
  - Load average, disk space utilization, memory, running processes, logs, files, ports

# Hobbit History

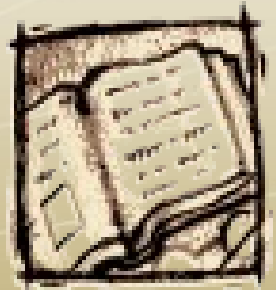
- Originally called 'bb-gen toolkit'
- Offered as an enhancement to Big Brother (<http://bb4.com>)
- Big Brother runs on various Unix systems
  - Implemented almost entirely as shell scripts
  - Easy to write and fairly universal, but not the best performance
  - Not an open source license
  - Development focused on commercial product
- bb-gen reimplemented the core of bb in C





# Hobbit History

- Development of the 'free' version of bb stagnated
- Henrik Stoerner evolved bb-gen into a stand-alone package
- Hobbit 4.0 was released on Mar 31, 2005
- Active development
  - 4.2 is current



# New in 4.2

- Major overhaul of Critical Systems (was called NK View)
  - Web based configuration of Critical Systems
- Log file monitoring
- Web page headers and footers
- 'Files' status column reports on the existance and size of files and directories on the client
- 'Ports' status column reports on the use of specific port numbers



# New in 4.2

- Clients report network interface usage stats
  - Eliminates MRTG for Unix/Linux clients
- Major performance improvements (25%-50% less CPU)
- Downtime can be applied to individual tests
- New report will show all hosts that have a certain test
- Process counts can be graphed
- The client can run in 'local' mode
  - Configuration done at the client



# Hobbit features

- Developed to monitor thousands of hosts
  - Handles big or small networks with ease
  - A number of users monitor several hundred hosts, a few over 2000
- Text file configuration
  - Web based configuration is planned
- Notification feature
  - Email (including cell phone), SMS
  - Alerts can be acknowledged while a solution is in progress
- Extensible through external scripts or clients



# Hobbit features

- Common protocols are available for testing
  - FTP, Telnet, HTTP, DNS, LDAP, SMTP, etc
  - SSL testing of any supporting protocols
- Networked applications can be monitored
  - Connections to a specific port are made, a command is sent and a specific response is checked



# Hobbit features

- “Green is good, Red is bad”
  - Simple web based front end
- Hosts can be grouped together
  - Based on logical or physical relationships
  - Groups can be in separate sections, web pages or both
- Critical systems can be put on a separate page
  - Suitable for use by a NOC



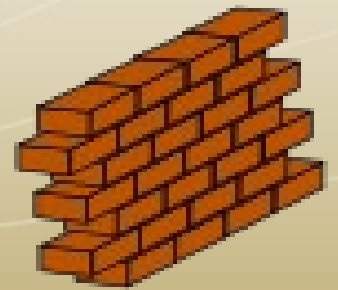
# Hobbit features

- In addition to HTML...
  - PDAs can be used via WAP/WML
  - RSS Feeds can be set up
  - XML format is also available
- Integrated trend analysis via LARRD
  - Dynamically generates graphs for many tests
- Event history is available
  - Can be used for SLA reporting
- Hosts can be disabled for planned downtime



# Hobbit installation

- Fairly standard Linux application install
  - RPMs available for x86 architecture
  - Source RPMs available
  - Source also available via tarball
- Available from
  - <http://hobbitmon.sourceforge.net>
- If installing on x86, use the RPM
- For System z build from source
  - Use architecture specific optimization flags in make file
  - eg: `-march=z990 -mtune=z990`





# Hobbit installation



- Prerequisites
  - A Unix-like operating system
  - Apache webserver
  - Working compiler and GNU make
  - PCRE, RRDTOol, libpng
    - Regular expression matching
    - Graphing
  - fping optional
  - For SSL support
    - Open SSL
  - For LDAP support
    - Open LDAP



# Hobbit installation

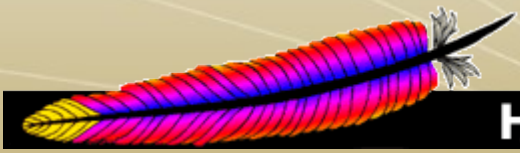
- Create a 'hobbit' user
- Use RPM or configure/make to build
- During the configuration, a number of questions are asked
  - The defaults are sensible
  - Only had to answer fping/hobbitping question, the IP address prompt and group name for the Apache webserver
- Use make to compile the programs
- As root 'make install'



# Apache configuration

- An Apache configuration file is included with Hobbit
  - /home/hobbit/server/etc/hobbit-apache.conf
- Edit /etc/sysconfig/apache2
  - The path to the configuration file in APACHE\_CONF\_INCLUDE\_FILES

APACHE\_CONF\_INCLUDE\_FILES=/home/hobbit/server/etc/hobbit-apache.conf

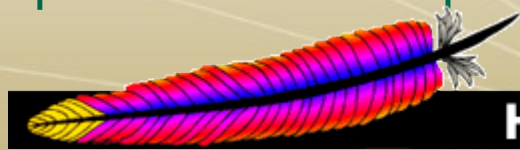


# Apache

**HTTP SERVER PROJECT**

# Apache configuration

- Start Apache
  - `/etc/rc.d/apache2 start`
- Set up Apache to start at boot
  - `chkconfig apache2 on`
  - YaST
- Use `htpasswd2` to create users for access to secured Hobbit administration functions
  - In `/home/hobbit/server/etc`
  - `htpasswd2 -c hobbitpasswd [username]` (to create)
  - `htpasswd2 hobbitpasswd [username]` (to add)



## Apache

**HTTP SERVER PROJECT**

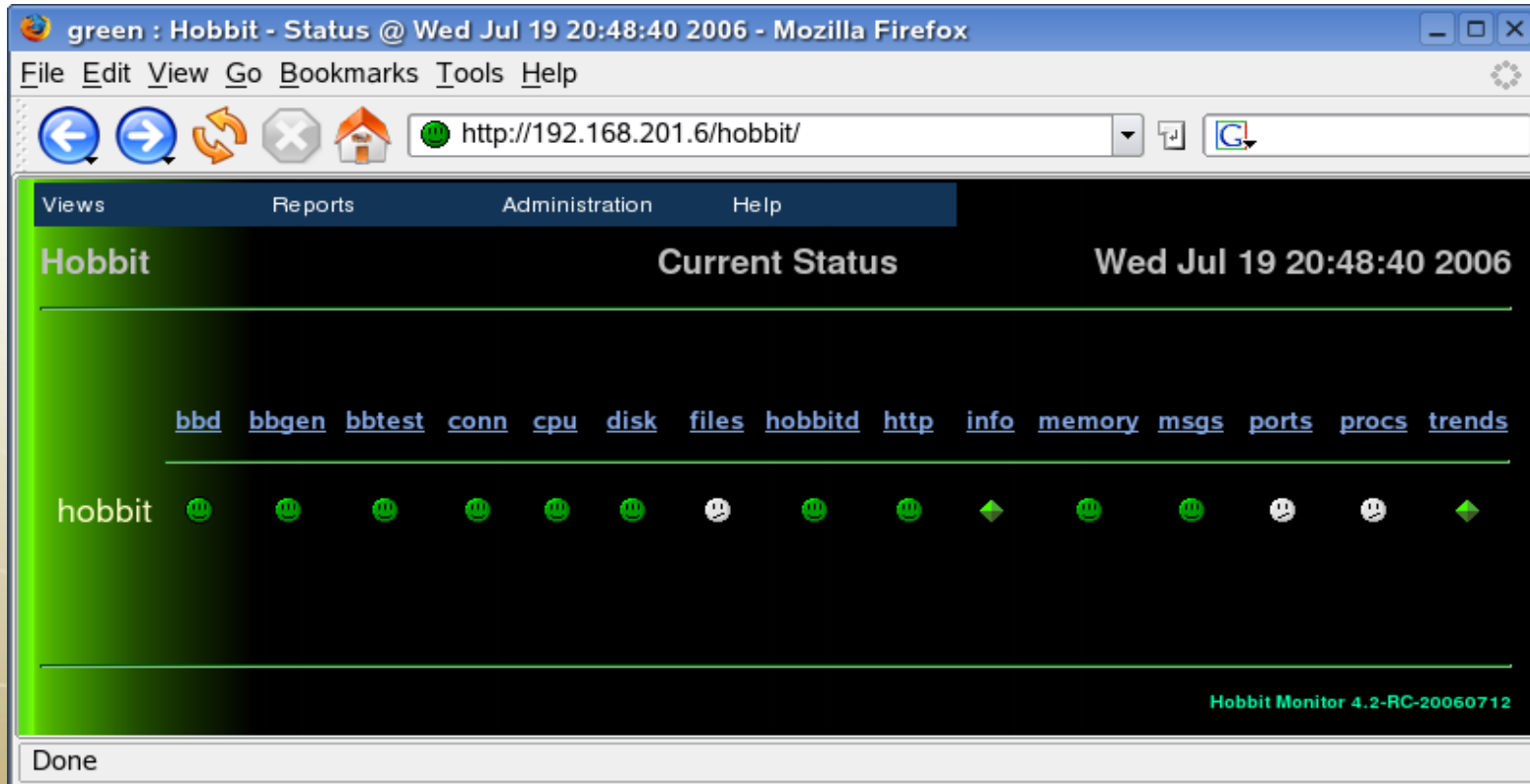
# Hobbit startup



- Sign on as 'hobbit' user
- Use the command
  - `./server/hobbit.sh start`
- The response should be 'Hobbit started'
  - A number of process will be running
- After a few minutes use your web browser to navigate to your Hobbit server
  - <http://192.168.201.12/hobbit/>

# Hobbit web page

- Provides the status of the Hobbit server
- Clicking on an icon provides more information
- Including trending graphs



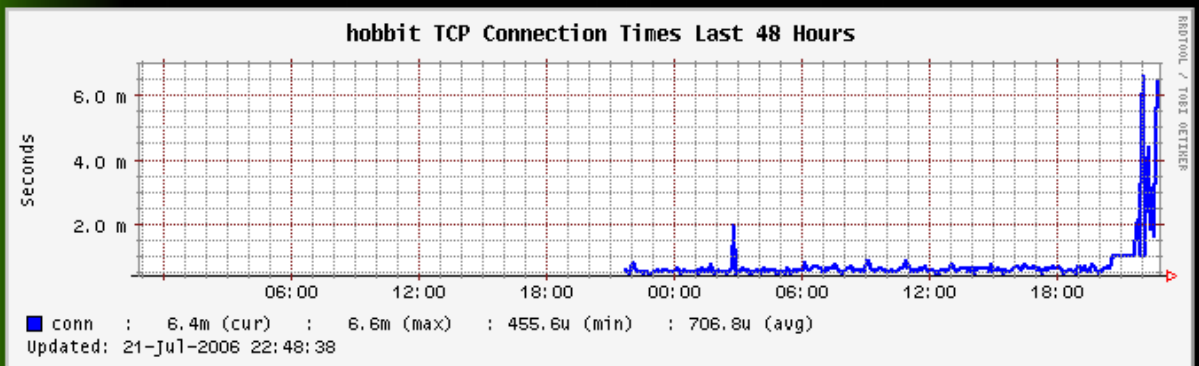
HISTORY

Fri Jul 21 22:47:39 2006 conn ok

Service conn on hobbit is OK (up)

◆ 192.168.201.6 is alive (1 ms)

Status unchanged in 2 days,6 hours, 23 minutes  
Status message received from 192.168.201.6  
[Client data](#) available



# Configuring Hobbit

- Configuration involves editing text files
- Host and test configuration is in `~/server/etc/bb-hosts`
- Changes automatically take affect during the next test cycle (every 5 minutes)





# Hobbit configuration file

```
group Hobbit Servers
192.168.201.12  hobbit      # BBDISPLAY BBPAGER BBNET bbd http://hobbit/
group Linux for zSeries
192.168.201.8   conn2      # ftp dialup
192.168.201.9   db2b       # ftp
group VM/VSE systems
192.168.201.1   vm1        # ftp
192.168.201.2   vse1       # dialup
```



# Hobbit configuration file

```
group Hobbit Servers
192.168.201.12 hobbit # BBDISPLAY BBPAGER BBNET bbd http://hobbit/
group Linux for zSeries
192.168.201.8 conn2 # ftp dialup
192.168.201.9 db2b # ftp
group VM/VSE systems
192.168.201.1 vm1 # ftp
192.168.201.2 vse1 # dialup
```

IP Address of a monitored host

# Hobbit configuration file

```
group Hobbit Servers
192.168.201.12 hobbit # BBDISPLAY BBPAGER BBNET bbd http://hobbit/
group Linux for zSeries
192.168.201.8 conn2 # ftp dialup
192.168.201.9 db2b # ftp
group VM/VSE systems
192.168.201.1 vm1 # ftp
192.168.201.2 vse1 # dialup
```

Host name of a monitored host

# Hobbit configuration file

```
group Hobbit Servers
192.168.201.12  hobbit      # BBDISPLAY BBPAGER BBNET bbd http://hobbit/
group Linux for zSeries
192.168.201.8   conn2      # ftp dialup
192.168.201.9   db2b       # ftp
group VM/VSE systems
192.168.201.1   vm1        # ftp
192.168.201.2   vse1       # dialup
```

Directives used for Big Brother compatibility

# Hobbit configuration file

```
group Hobbit Servers
192.168.201.12  hobbit      # BBDISPLAY BBPAGER BBNET bbd http://hobbit/
group Linux for zSeries
192.168.201.8   conn2      # ftp dialup
192.168.201.9   db2b       # ftp
group VM/VSE systems
192.168.201.1   vm1        # ftp
192.168.201.2   vse1      # dialup
```

Identifies this system as the hobbit server

# Hobbit configuration file

```
group Hobbit Servers
192.168.201.12  hobbit      # BBDISPLAY BBPAGER BBNET bbd http://hobbit/
group Linux for zSeries
192.168.201.8   conn2      # ftp dialup
192.168.201.9   db2b       # ftp
group VM/VSE systems
192.168.201.1   vm1        # ftp
192.168.201.2   vse1       # dialup
```

Monitor Hobbit's own web site

# Hobbit configuration file

```
group Hobbit Servers
192.168.201.12  hobbit      # BBDISPLAY BBPAGER BBNET bbd http://hobbit/
group Linux for zSeries
192.168.201.8   conn2      # ftp dialup
192.168.201.9   db2b       # ftp
group VM/VSE systems
192.168.201.1   vm1        # ftp
192.168.201.2   vse1      # dialup
```

Monitor ftp on conn2, db2b and vm1

# Hobbit configuration file

```
group Hobbit Servers
192.168.201.12  hobbit      # BBDISPLAY BBPAGER BBNET bbd http://hobbit/
group Linux for zSeries
192.168.201.8   conn2      # ftp dialup
192.168.201.9   db2b       # ftp
group VM/VSE systems
192.168.201.1   vm1        # ftp
192.168.201.2   vse1       # dialup
```

Treat conn2 and vse1 as dialup links  
If they are unreachable, no notifications



# Hobbit configuration file

```
group Hobbit Servers
192.168.201.12 hobbit # BBDISPLAY BBPAGER BBNET bbd http://hobbit/
group Linux for zSeries
192.168.201.8 conn2 # ftp dialup
192.168.201.9 db2b # ftp
group VM/VSE systems
192.168.201.1 vm1 # ftp
192.168.201.2 vse1 # dialup
```

Group the following hosts  
'Page' will create a separate web page

Hobbit Servers [bbd](#) [bbgen](#) [bbtest](#) [conn](#) [cpu](#) [disk](#) [files](#) [hobbitd](#) [http](#) [info](#) [memory](#) [msgs](#) [ports](#) [procs](#) [trends](#)

hobbit

Linux for zSeries [conn](#) [cpu](#) [disk](#) [files](#) [ftp](#) [info](#) [memory](#) [msgs](#) [ports](#) [procs](#) [trends](#)

conn											
conn2		-	-	-			-	-	-	-	
db2b		-	-	-			-	-	-	-	

VM/VSE systems [conn](#) [cpu](#) [diskutil](#) [ftp](#) [getvis](#) [info](#) [paging](#) [pg\\_util](#) [procs](#) [trends](#) [vmspool](#) [vsespool](#)

vm1					-							-
vse1		-	-	-	-		-	-	-		-	-
vse2				-				-			-	

# Hobbit Client

- Reports status back to Hobbit server
- Can be installed on any Linux/Unix machine
- Build is much quicker than Hobbit server; one question
  - IP Address of Hobbit server
- By default thresholds are configured on the server for any client
  - Optionally can do configuration at each client
- Client code automatically installed on server

# Hobbit Client

- CPU Load
- Disk or File System Utilization
- Memory Utilization
- Running processes
- Log file monitoring
- File monitoring (size, changed files & directories)
- Port monitoring (including client connections)

# Hobbit Client

- Client installed under a specific user: 'hobbit'
  - Just like the server
- Home directory is ~/client
- Client startup is similar to server
  - ~/client/runclient.sh start
  - Same init script can be used (with the directory and script name changed)
- Client code runs 'top' to show top processes
  - This should be disabled on zSeries
  - In ~/client/etc/hobbitclient.cfg
  - Comment out environment setting for location of TOP command

# Hobbit Client

- Configuration of client thresholds is based on a set of rules in `~/server/etc/hobbit-clients.cfg`
- UP: Defines uptime values, will show yellow if the machine came up within a time interval or is up too long
- LOAD: System load warning, will trigger color change when number of running processes hits a certain level
- DISK: Provides filesystem capacity check
- MEMPHYS, MEMACT, MEMSWAP: Memory utilization check

# Hobbit Client

- PROC: Running processes test, will alert when certain processes are not running, or not enough are running
- FILE: Checks for the existence of a file or when it has changed
- PORT: Open listeners and client connections
- Rules can be limited to a timeframe
- Good examples in file commentary

```
HOST=db2b  
DISK /opt 98 99
```

```
HOST=conn2  
FILE /vsamredir/VSAMRedirectorServer.properties yellow  
PORT "LOCAL=%[:]2387" STATE=LISTEN "TEXT=VSAM Redirector"
```



http://192.168.201.5/hobbit/

Hobbit Servers [bbd](#) [bbgen](#) [bbtest](#) [conn](#) [cpu](#) [disk](#) [files](#) [hobbitd](#) [http](#) [info](#) [memory](#) [msgs](#) [ports](#) [procs](#) [trends](#)

hobbit														
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Linux for zSeries [conn](#) [cpu](#) [disk](#) [files](#) [ftp](#) [info](#) [memory](#) [msgs](#) [ports](#) [procs](#) [trends](#)

conn												
conn2												
db2b				-					-			

VM/VSE systems [cics](#) [conn](#) [cpu](#) [diskutil](#) [ftp](#) [getvis](#) [info](#) [paging](#) [pg\\_util](#) [procs](#) [sp\\_util](#) [trends](#)

vm1	-					-							
vse1	-		-	-	-	-		-	-	-	-		
vse2					-				-				



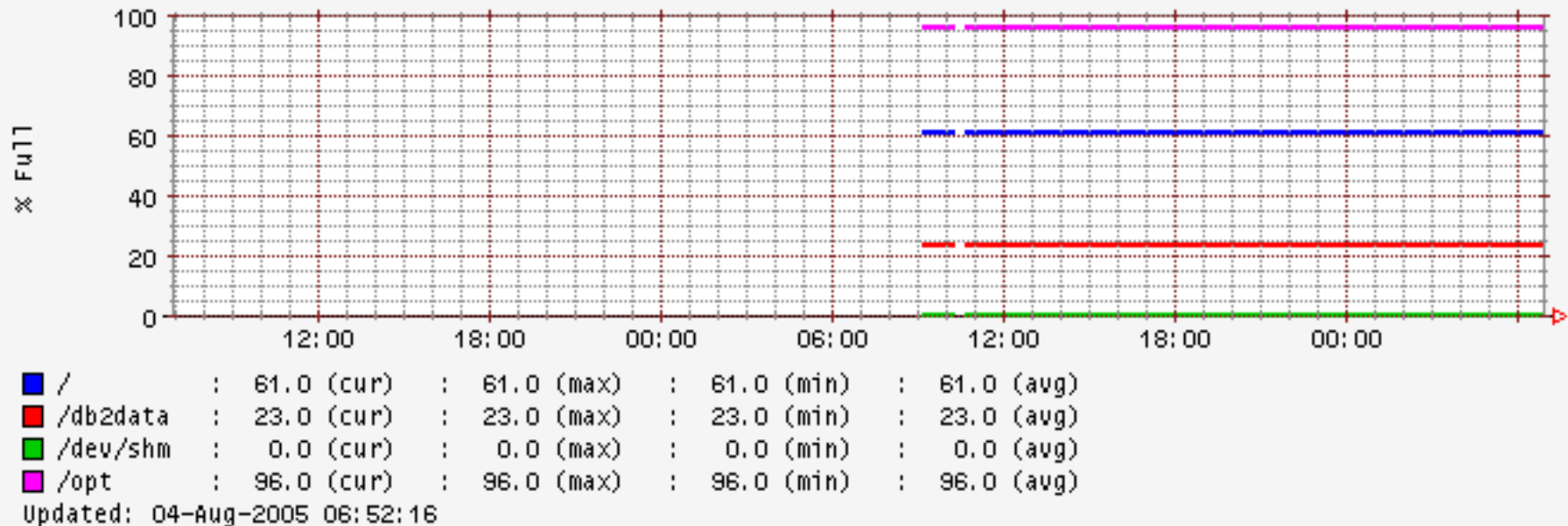
# HISTORY

Thu Aug 4 06:50:09 CDT 2005 - Filesystems OK

Filesystem	1024-blocks	Used	Available	Capacity	Mounted on
/dev/dasda1	787940	451668	296248	61%	/
/dev/dasdc1	418344	377752	19000	96%	/opt
/dev/dasdd1	139368	29756	102420	23%	/db2data
shmfs	46768	0	46768	0%	/dev/shm

Status unchanged in 21 hours, 37 minutes  
 Status message received from 192.168.201.9  
[Client data](#) available

db2b Disk Utilization Last 48 Hours



RR0700L / TOBI OETIKER

# Host or service failure

- Detected by Hobbit during it's network test cycle
- Turns the icon and web page background red
- Shows 'red' in the web page title bar
- Optionally notifies appropriate administrator via email or page

# Hobbit

## Current Status

Mon Jul 24 21:05:58 2006

Hobbit Servers [bbd](#) [bbgen](#) [bbtest](#) [conn](#) [cpu](#) [disk](#) [files](#) [hobbitd](#) [http](#) [info](#) [memory](#) [msgs](#) [ports](#) [procs](#) [trends](#)

hobbit															
--------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Linux for zSeries [conn](#) [cpu](#) [disk](#) [files](#) [ftp](#) [info](#) [memory](#) [msgs](#) [ports](#) [procs](#) [trends](#)

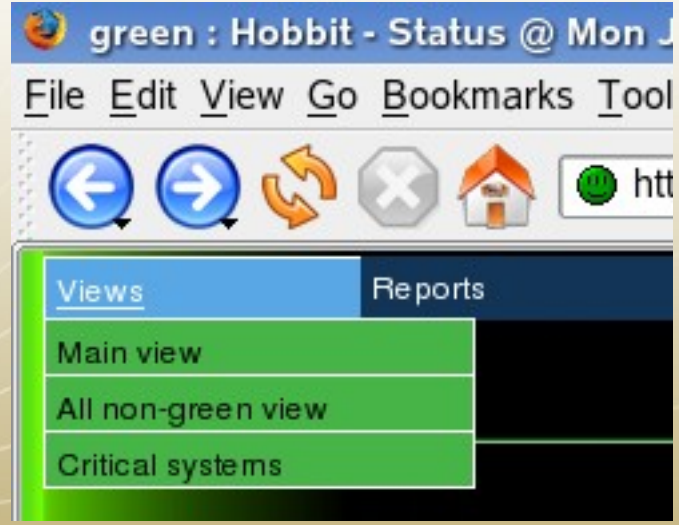
conn												
conn2												
db2b		-	-	-			-	-	-	-		

VM/VSE systems [conn](#) [cpu](#) [diskutil](#) [ftp](#) [getvis](#) [info](#) [paging](#) [pg\\_util](#) [procs](#) [trends](#) [vmspool](#) [vsespool](#)

vm1					-							-
vse1		-	-	-	-		-	-	-		-	-
vse2				-				-			-	

# Other views of network status

- Three different views
  - Main View
    - Shows all hosts and tests
  - All non-green view
    - All systems that are currently not green
    - Shows last 6 hours or last 100 state transitions
  - Critical Systems
    - Hosts and tests defined as critical



[files](#) [info](#) [trends](#)

conn2   

6 events received in the past 128 minutes

- Mon Jul 24 21:05:32 2006 **conn2** files   
- Mon Jul 24 20:35:23 2006 **conn2** files   
- Mon Jul 24 20:35:23 2006 conn2 msgs   
- Mon Jul 24 19:59:58 2006 **conn2** ports   
- Mon Jul 24 19:29:42 2006 **conn2** ports   
- Mon Jul 24 18:59:24 2006 **conn2** ports   

No events acknowledged in the last 240 minutes

# Host or service return

- When a host or service becomes available
  - Icons and page background turn green
  - An optional notification can be sent out
  - Non-green page shows the transition



http://192.168.201.6/hobbit/bb2.html

+queef

Views

Reports

Administration

Help

Hobbit

Current non-green Systems

Mon Jul 24 21:19:22 2006

*All Monitored Systems OK*

7 events received in the past 139 minutes

- Mon Jul 24 21:15:37 2006 conn2 files 😞 → 😊
- Mon Jul 24 21:05:32 2006 conn2 files 😊 → 😞
- Mon Jul 24 20:35:23 2006 conn2 files 😐 → 😊
- Mon Jul 24 20:35:23 2006 conn2 msgs 😊 → 😐
- Mon Jul 24 19:59:58 2006 conn2 ports 😞 → 😊
- Mon Jul 24 19:29:42 2006 conn2 ports 😊 → 😞
- Mon Jul 24 18:59:24 2006 conn2 ports 😞 → 😊

No events acknowledged in the last 240 minutes

# Extending Hobbit



- Hobbit provides a lot of information by itself
- Designed to retain compatibility with Big Brother
- Big Brother has a large number of 'add-on' packages and clients for other operating systems





# Extending Hobbit

- Big Brother extensions are available at <http://www.deadcat.net>
- Community contributions to extend/improve monitoring
- A large number of categories of packages
  - Backup, Clusters, Databases, LDAP, Windows, performance, processes, SNMP, disk, email, files, memory, RAID, power, security, routers, logging, NFS

# Extending Hobbit

- The majority of these should be compatible with Hobbit
- Clients also available for other operating systems
  - OS/400
  - OS/390, z/OS
  - Netware
  - Alpha OpenVMS
  - z/VM
  - VSE/ESA, z/VSE

# Extending Hobbit

- z/VM client
  - Runs in a virtual machine
  - Written in REXX
  - Reports CPU Utilization, SFS Filepool Utilization, Paging, Page and Spool Utilization and running virtual machines
  - Configured via a file on the virtual machine
  - Thresholds can be set to change Hobbit color when a limit is exceeded
  - Available at [http://www.vmassist.com/rs\\_samples](http://www.vmassist.com/rs_samples)

VM/VSE systems	<u>conn</u>	<u>cpu</u>	<u>diskutil</u>	<u>ftp</u>	<u>getvis</u>	<u>info</u>	<u>paging</u>	<u>pg_util</u>	<u>procs</u>	<u>trends</u>	<u>vmspool</u>	<u>vsespool</u>
vm1	◆	◆	◆	◆	-	◆	◆	◆	◆	◆	◆	-

# Extending Hobbit



- z/OS client
  - Runs as a started task
  - Written in REXX and assembler
  - Reports CPU Utilization, Spooling, Paging, running processes, disk volume utilization, storage
  - Available at <http://www.deadcat.net>



# Extending Hobbit

- VSE/ESA, z/VSE client
  - Executes as a long running job
  - Written in REXX and assembler
  - Monitors CPU Utilization, Paging, Partition Getvis, running processes (jobs), Spool Utilization and Disk Utilization (VTOCs, VSAM Catalogs and Libraries)
  - Available at [http://www.vmassist.com/rs\\_samples](http://www.vmassist.com/rs_samples)

VM/VSE systems	<a href="#">conn</a>	<a href="#">cpu</a>	<a href="#">diskutil</a>	<a href="#">ftp</a>	<a href="#">getvis</a>	<a href="#">info</a>	<a href="#">paging</a>	<a href="#">pg_util</a>	<a href="#">procs</a>	<a href="#">trends</a>	<a href="#">vmspool</a>	<a href="#">vsespool</a>
vm1	◆	◆	◆	◆	-	◆	◆	◆	◆	◆	◆	-
vse1	■	-	-	-	-	◆	-	-	-	◆	-	-
vse2	◆	◆	◆	-	◆	◆	◆	-	◆	◆	-	◆

# Extending Hobbit

- Hobbit provides a well defined interface for reporting status messages
  - The same interface Big Brother used
  - Status can be reported
    - Locally (on the Hobbit server) via a command
    - Via a socket connection over port 1984
- Open a socket to the Hobbit server
- Send a status message:

```
status vm1.cpu green 8 May 2006 11:11:16 CPU Utilization 6%  
z/VM Version 4 Release 4.0, service level 0501 (32-bit)  
IPL at 05/03/06 09:31:55 CDT  
Uptime: 5 Days, 1 Hours, 39 Minutes  
AVGPROC-006% 01
```



Hobbit

vm1 - cpu

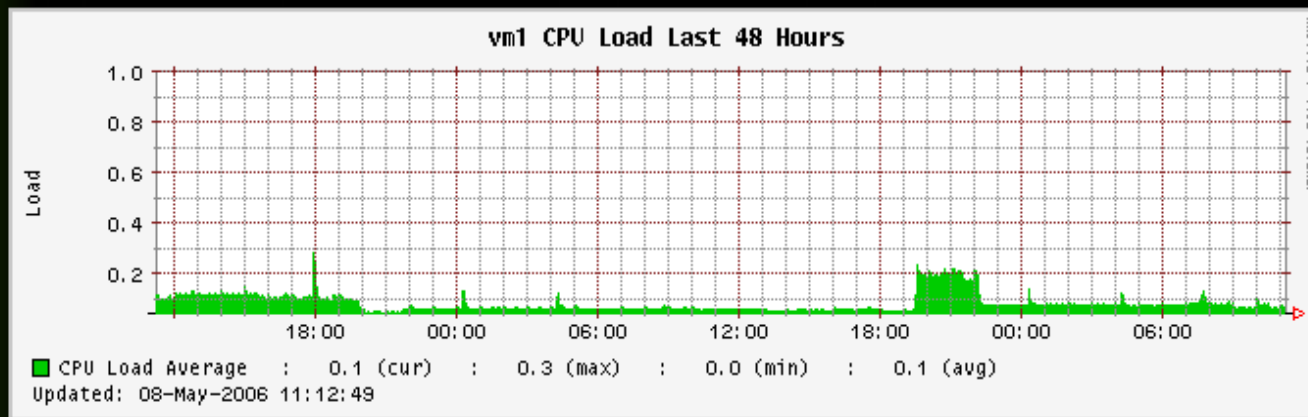
Mon May 08 11:11:16 2006

HISTORY

8 May 2006 11:11:16 CPU Utilization 6%

z/VM Version 4 Release 4.0, service level 0501 (32-bit)  
IPL at 05/03/06 09:31:55 CDT  
Uptime: 5 Days, 1 Hours, 39 Minutes  
AVGPROC-006% 01

Status unchanged in 14 days,14 hours, 43 minutes  
Status message received from 192.168.201.1



# HISTORY

## 1 Aug 2005 13:01:45 SFS Pool Utilization OK

FILEPOOL: VMSYS

StorGrp	Total Blks	Free Blks	Pct Used
◆ 2	30022	28705	4.4%

FILEPOOL: VMSYSU

StorGrp	Total Blks	Free Blks	Pct Used
◆ 2	1070	939	12.2%
◆ 3	17974	17974	0.0%

Filespaces:

FSpace	Type	StorGrp	Max Blks	Commit Blks	Pct Used
◆ HOBBITVM	SFS	2	100	12	12.0%
◆ MAINT	SFS	2	7000	9	0.1%
◆ RKS1	SFS	2	1000	19	1.9%
◆ RKS2	SFS	3	200	0	0.0%
◆ SFPURGER	SFS	2	1000	81	8.1%
◆ TMP	BFS	2	1000	0	0.0%
◆ VAR	BFS	2	1000	0	0.0%
◆ WAKEUP	SFS	2	1000	10	1.0%

Status unchanged in 46 days,2 hours, 1 minutes

Status message received from 192.168.201.1



# When clients don't respond

- Hobbit expects clients to communicate at regular intervals
- Most default to the standard Hobbit interval of 5 minutes
- If a status report is not received after 30 minutes, Hobbit turns the client tests purple
- An optional notification can be sent out
- Green is restored when the client is restarted

Hobbit Current Status Thu Apr 28 16:38:07 2005

Hobbit Servers bbd bbgen bbtest conn hobbitd http info trends

hobbit [status icons]

Linux for zSeries conn ftp info trends

conn2 [status icons]
db2b [status icons]

VM/VSE systems conn cpu ftp getvis info paging pg\_util procs sp\_util trends

vm1 [status icons]
vse1 [status icons]
vse2 [status icons]

# Hobbit operations

- Starting and stopping
- Outage notification
- Alert Acknowledgment
- Enable/Disable

# Starting and stopping Hobbit

- The traditional Linux start/stop process can be used
- Script is not provided, easy to create
- Copy existing script (like cron) to hobbit
- Will appear in output of `chkconfig --list` so that startup can be turned on or off

# Starting and stopping Hobbit

```
#!/bin/sh
### BEGIN INIT INFO
# Provides:          hobbit
# Required-Start:    network
# Required-Stop:     network
# Default-Start:     3 5
# Default-Stop:      0 1 6
# Description:       Start the hobbit network monitor
### END INIT INFO

case "$1" in
  start)
    echo "Starting Hobbit"
    su - hobbit -c "cd /home/hobbit/server; ./hobbit.sh start"
    ;;
  stop)
    echo "Stopping Hobbit"
    su - hobbit -c "cd /home/hobbit/server; ./hobbit.sh stop"
    ;;
  restart)
    $0 stop
    $0 start
    ;;
  *)
    echo "Usage: $0 {start|stop|restart}"
    exit 1
    ;;
esac
```



# Outage Notification

- A page or email is sent out when a non-green condition occurs
- Most cell phones are email capable
- Very configurable and flexible
- Very good information in the docs
- Configuration data in  
~/server/etc/hobbit-alerts.cfg
- File contains rules about the host and service and who is notified

# Outage Notification

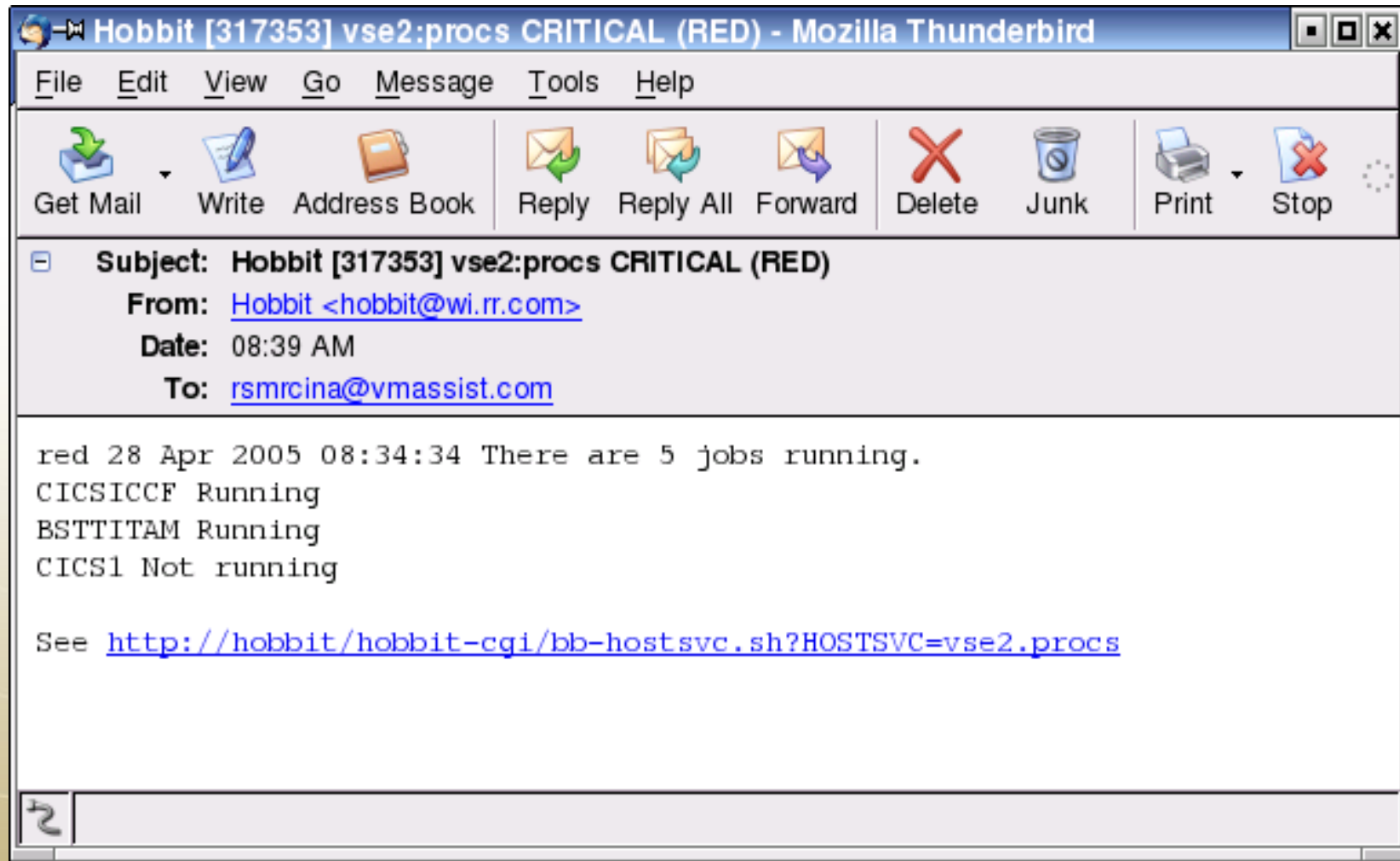
- Simple example

```
HOST=vse2
```

```
MAIL rsmrcina@vmassist.com
```

- Sends an email to [rsmrcina@vmassist.com](mailto:rsmrcina@vmassist.com) if any test related to vse2 fails

# Outage Notification





# Outage Notification

- **SERVICE** – notify for one or more services
  - SERVICE=conn,http,ftp
- **REPEAT** – repeat notification, default 30m
  - REPEAT=1h
- **TIME** – time range for notification
  - TIME=\*:0730:2100
- **COLOR** – only notify for certain color
  - COLOR=red

# Outage Notification

- DURATION – Only alert if outage is longer than time indicated
  - DURATION > 10m
  - DURATION < 2h
- RECOVERED – Sends alert when host/service returns
- SCRIPT – Used to code alternative alert mechanism, eg. SMS page
- Wildcards and macros are supported in hostnames and recipient addresses

# Outage Notification

- This notification configuration:

```
HOST=conn2,db2b
```

```
MAIL curly@vmassist.com
```

```
MAIL moe@vmassist.com
```

```
MAIL larry@vmassist.com
```

- Becomes:

```
$ZLINUX=%(conn|db2b)
```

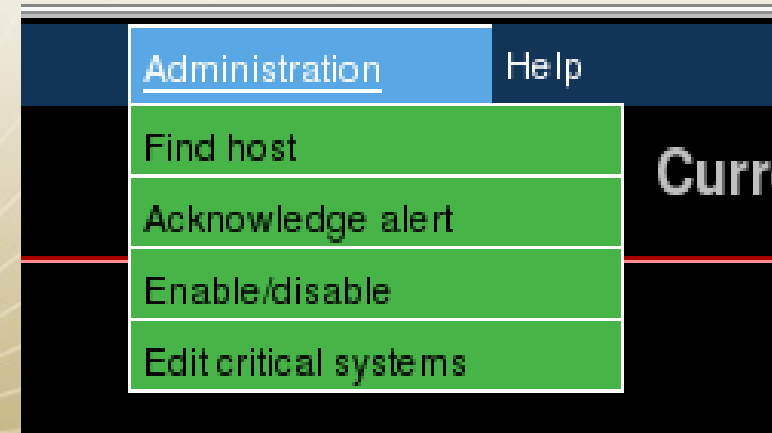
```
$ZSUPPORT=%(curly|moe|larry)@vmassist.com
```

```
HOST=$ZLINUX
```

```
MAIL $ZSUPPORT
```

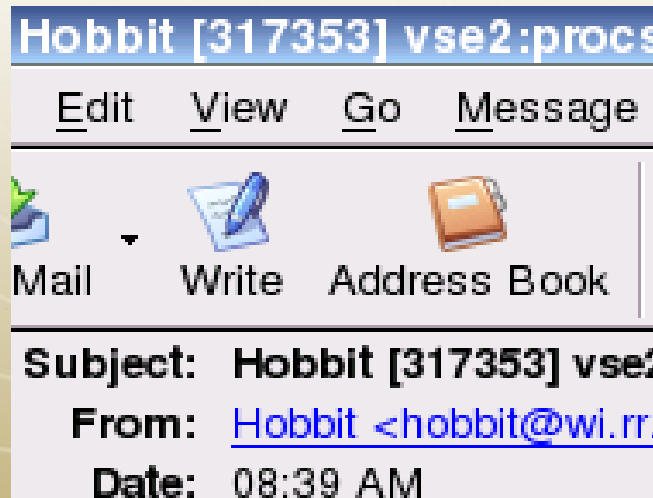
# Hobbit Administration

- The Administration menu
- Find Host
- Acknowledge alert
- Enable/Disable
- Maintain Critical Hosts



# Alert Acknowledgment

- An administrator can acknowledge an alert
  - Stops notification
  - Changes web page
  - Visual cue that the issue is being resolved
- Each alert includes an acknowledgment code



# Alert Acknowledgment

- On 'Administration Menu' click Acknowledge Alert



A screenshot of a Mozilla Firefox browser window displaying the 'Hobbit Acknowledge Alert' page. The browser title is 'Hobbit - Acknowledge Alert - Mozilla Firefox'. The address bar shows the URL 'http://192.168.201.12/hobbit-seccgi/bb-ack.sh'. The page has a dark background with a red sidebar on the left containing the word 'Hobbit'. A navigation menu at the top includes 'Views', 'Reports', 'Administration', and 'Help'. The 'Administration' menu is open, showing options: 'Find host', 'Acknowledge alert', and 'Enable/disable'. The main content area is titled 'Acknowledge Alert' and shows the date 'Thu Apr 28 11:04:12 2005'. Below this, there are three input fields: 'Estimated time to resolve issue: 60 minutes', 'Explanation/Cause of problem:', and 'Acknowledgment Code:'. A 'Send' button is located below the fields. The footer of the page reads 'Hobbit Monitor 4.0'.



# Alert Acknowledgment

- Enter duration of outage, explanation and acknowledgment code
- Hit Send
- Red icon turns to a check mark to indicate acknowledgment

VM/VSE systems	conn	cpu	ftp	getvis	info	paging	pg_util	procs	sp_util	trends
vm1	◆	◆	◆	-	◆	◆	◆	◆	◆	◆
vse1	⊗	-	-	-	◆	-	-	-	-	◆
vse2	✓	-	-	◆	◆	-	-	⊗	◆	◆

**Thu Apr 28 13:29:39 2005 conn NOT ok**

Service conn on vse2 is not OK : Host does not respond to ping

System unreachable for 3 poll periods (428 seconds)

⊗ 192.168.201.3 is unreachable

Status unchanged in 0 hours, 7 minutes  
 Status message received from 192.168.201.12  
 Current acknowledgment: System abend  
 Acked by: rks0 (192.168.1.101)  
 Next update at: 14:25 2005-04-28



# Enable/Disable

- Remove a host or service from testing cycle
- Use for planned outages
- Reinstate the host or service (explicitly or after 'down' time)
- Select the host and test to disable
  - The 'Info' icon for any host also provides Enable/Disable
- Enter a reason and timeframe and whether to disable now or schedule for another time
- Individual tests or ALL tests can be disabled and re-enabled



Current Status

Currently disabled tests  
No tests disabled

Scheduled actions  
No tasks scheduled

Select what to Disable

Hosts

- conn
- conn2
- db2b
- hobbit
- vm1
- vse1
- vse2

Tests

- ALL
- conn
- cpu
- disk
- files
- ftp
- memory
- msgs
- ports
- procs

Filter hostlist

Hostname pattern

Pagename pattern

IP address pattern

Apply filters

Cause: System maintenancel

Duration: 4 hours - OR - until OK:

Disable now

Schedule disable at

July 28 2006 16 14

Apply Preview



# Hobbit

# Maintenance

Mon Jul 31 09:18:26 2006

## Current Status

### Currently disabled tests

- conn

#### All hosts

- ALL
- conn
- cpu
- disk
- files
- ftp
- memory
- msgs

Enable

#### conn

```
conn
Disabled by: rks0 @ 192.168.1.60
Reason: System maintenance

Until: Mon Jul 31 13:18:21 2006

-----
ftp
Disabled by: rks0 @ 192.168.1.60
```

- ALL
- conn
- ftp
- cpu
- disk
- procs
- ports
- msgs

Enable

### Scheduled actions

No tasks scheduled

## Select what to Disable

### Hosts

- conn
- conn2
- db2b
- hobbit
- vm1
- vse1
- vse2

### Tests

- Select a host --

### Filter hostlist

Hostname pattern

Pagename pattern

IP address pattern

Apply filters

Cause:

Duration: 4 hours - OR - until OK:

Disable now

Schedule disable at

July 31 2006 9 18

Apply

Preview

Hobbit Servers [bbd](#) [bbgen](#) [bbtest](#) [conn](#) [cpu](#) [disk](#) [files](#) [hobbitd](#) [http](#) [info](#) [memory](#) [msgs](#) [ports](#) [procs](#) [trends](#)

hobbit															
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Linux for zSeries [conn](#) [cpu](#) [disk](#) [files](#) [ftp](#) [info](#) [memory](#) [msgs](#) [ports](#) [procs](#) [trends](#)

conn												
conn2												
db2b		-	-	-			-	-	-	-		

VM/VSE systems [conn](#) [cpu](#) [diskutil](#) [ftp](#) [getvis](#) [info](#) [paging](#) [pg\\_util](#) [procs](#) [trends](#) [vmspool](#) [vsespool](#)

vm1					-							-
vse1		-	-	-	-		-	-	-		-	-
vse2				-				-			-	

# Hobbit reports

- Event Log report
  - Similar to the non-green view
  - You can control how far back to go
  - You can control how many events to show
- Availability report will show the percentage of time that each host and service is available
  - Enter a date range and either Critical events (red), non-green events or all events
- Snapshot report
  - A point in time display of how the Hobbit web page looked

# Hobbit reports

- Config report
  - List of all configuration values
- Metrics report
  - Graphical comparison of trending data
- Ghost clients report
  - Machines that report to Hobbit but are not configured in bb-hosts



Starting  minutes ago ( Default 1440 )

- OR -

From:  (ccyy/mm/dd@hh:mm:ss)

To:  (ccyy/mm/dd@hh:mm:ss)

Max # of events  ( Default 100 )

Hosts to match  ( ex: ^host.\*\$ )

Hosts to skip  ( ex: ^host.\*\$ )

Pages to match  ( ex: ^webservers.\*\$ )

Pages to skip  ( ex: ^webservers.\*\$ )

Tests to match  ( ex: cpu|vmstat )

Tests to skip  ( ex: cpu|vmstat )

Colors to match  ( ex: red|green )

Ignore dialup hosts

[View log](#)



Views

Reports

Administration

Help

Hobbit

Eventlog

Mon Jul 31 09:37:22 2006

18 events received.

Mon Jul 31 09:18:21 2006	conn	conn	◆	→	⊞
Mon Jul 31 09:18:21 2006	conn	ftp	◆	→	⊞
Mon Jul 31 09:18:21 2006	conn	cpu	◆	→	⊞
Mon Jul 31 09:18:21 2006	conn	disk	◆	→	⊞
Mon Jul 31 09:18:21 2006	conn	procs	⊞	→	⊞
Mon Jul 31 09:18:21 2006	conn	ports	⊞	→	⊞
Mon Jul 31 09:18:21 2006	conn	msgs	◆	→	⊞
Mon Jul 31 09:18:21 2006	conn	files	⊞	→	⊞
Mon Jul 31 09:18:21 2006	conn	memory	◆	→	⊞
Mon Jul 31 08:35:33 2006	conn	cpu	!	→	◆
Mon Jul 31 07:42:59 2006	conn	ftp	⊞	→	◆
Mon Jul 31 07:42:59 2006	db2b	ftp	⊞	→	◆
Mon Jul 31 07:42:59 2006	conn	conn	✖	→	◆
Mon Jul 31 07:40:31 2006	conn	memory	⊞	→	◆
Mon Jul 31 07:40:31 2006	conn	msgs	⊞	→	◆
Mon Jul 31 07:40:30 2006	conn	disk	⊞	→	◆
Mon Jul 31 07:40:30 2006	conn	cpu	⊞	→	!
Mon Jul 31 07:37:59 2006	db2b	conn	⊞	→	◆





http://192.168.201.6/hobbit-cgi/bb-rep.sh

Google "cy arp" +configuration

Views Reports Administration Help

Hobbit

Availability Report

Mon Jul 31 09:38:31 2006

### Hobbit Monitor Availability Report

July 1 2006 - to - July 31 2006

Display all events

Generate Report

Generate spreadsheet

Hobbit Monitor 4.2-RC-20060712



Hobbit Availability Report Jul 19 2006 - Jul 31 2006

Hobbit Servers [bbd](#) [bbgen](#) [bbtest](#) [conn](#) [cpu](#) [disk](#) [files](#) [hobbitd](#) [http](#) [memory](#) [msgs](#) [ports](#) [procs](#)

hobbit									<u>99.99</u>				
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Linux for zSeries [conn](#) [cpu](#) [disk](#) [files](#) [ftp](#) [memory](#) [msgs](#) [ports](#) [procs](#)

conn	<u>57.22</u>				<u>99.99</u>					
conn2	<u>99.98</u>			<u>99.90</u>				<u>97.01</u>		
db2b		-	-	-		-	-	-	-	-

VM/VSE systems [conn](#) [cpu](#) [diskutil](#) [ftp](#) [getvis](#) [paging](#) [pg\\_util](#) [procs](#) [vmspool](#) [vsespool](#)

vm1					-						-
vse1		-	-	-	-	-	-	-	-	-	-
vse2	<u>91.22</u>			-			-		-		



http://192.168.201.6/hobbit-cgi/bb-snapshot.sh

Google "cy arp" +configuration

Views Reports Administration Help

Hobbit

Snapshot Report

Mon Jul 31 09:53:21 2006

### Hobbit Snapshot Report

July 30 2006 8 20 00

Generate Report

Hobbit Monitor 4.2-RC-20060712



Hobbit

Snapshot Report

Sun Jul 30 08:20:00 2006

Hobbit Servers

[bbd](#) [bbgen](#) [bbtest](#) [conn](#) [cpu](#) [disk](#) [files](#) [hobbitd](#) [http](#) [memory](#) [msgs](#) [ports](#) [procs](#)

hobbit													
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Linux for zSeries

[conn](#) [cpu](#) [disk](#) [files](#) [ftp](#) [memory](#) [msgs](#) [ports](#) [procs](#)

conn										
conn2										
db2b		-	-	-		-	-	-	-	-

VM/VSE systems

[conn](#) [cpu](#) [diskutil](#) [ftp](#) [getvis](#) [paging](#) [pg\\_util](#) [procs](#) [vmspool](#) [vsespool](#)

vm1					-					-
vse1		-	-	-	-	-	-	-	-	-
vse2				-			-		-	



Hobbit

Metrics Report

Mon Jul 31 09:56:29 2006

### Metrics Report

July 31 2006 - to - July 31 2006

- |        |                         |
|--------|-------------------------|
| conn   | ALL                     |
| conn2  | CPU load (Windows/Unix) |
| db2b   | CPU utilization (Unix)  |
| hobbit | Disk                    |
| vm1    | RAM/Swap                |
| vse1   | Ping times              |
| vse2   |                         |

Generate Report



http://192.168.201.6/hobbit-cgi/hobbit-hostgraphs.sh?start-mon=

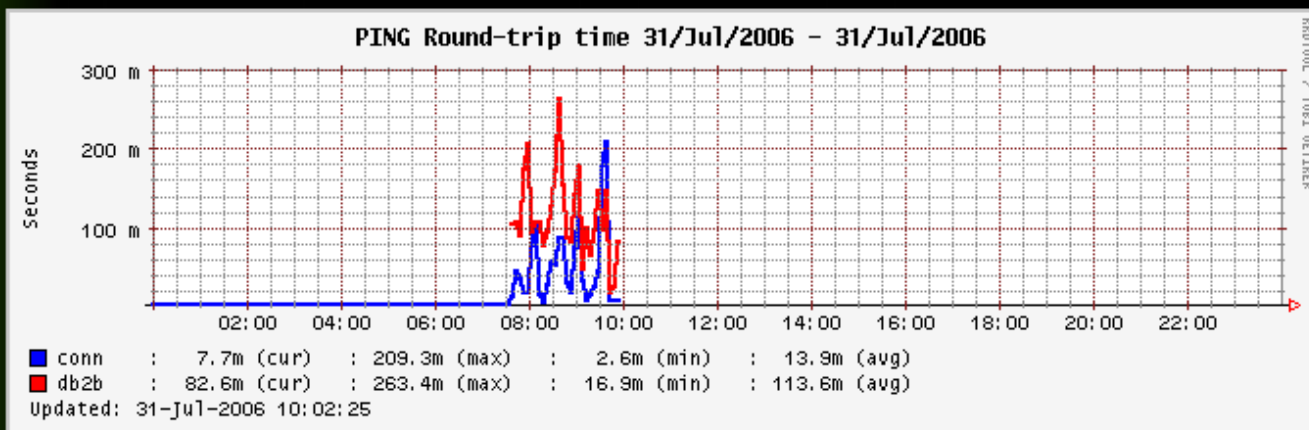
cy arp" +configuration

Views Reports Administration Help

Hobbit

Metrics Report

Mon Jul 31 10:02:23 2006



# User comments



Ladies and Gentlemen of the list

I would like to take a moment to publicly thank Henrik for his time.

Not only did Henrik write an amazing tool, but he released it as open source, allowing all of us to benefit from his effort.

Henrik didn't ask for anything in return.

I work for a financial company. Their philosophy is, if it's free, it must be worth exactly what we paid for it.

I proved them wrong. I showed them Hobbit is fantastic application which has, in the past 3 months, proven itself over and over. But then at the end of last month, Hobbit had a serious problem. My colleagues laughed.

"You running open source. Let's see where you get your support from."

I mailed this list, and Henrik jumped into action.

We discussed it on the list for a while, then took it offline. Later, we were joined offline by Stefan Loos.

Henrik wrote new versions. Inserted more logging.

Analysed data we sent

him. Debugged his code. Wrote new versions again.

We did rebuilds, monitored problems, gathered logs, collected data, and made it all available to Henrik.

Eventually, Henrik mailed us a final new hobbitd.c and asked us to rebuild the application.

Touch wood, but so far (48 hours later) everything looks good. People, Henrik worked hard on this bug. 12 days, for no reward. He had no problem with his Hobbit, and no incentive to fix ours, except for a commitment to the open source community, and to us. We are not entitled to Henrik's software, bug fixes, support, time or advice. It is something Henrik gives us of his own free will, and for that I am most grateful.

Henrik, thank-you.



# User comments



I also work for a financial company and also was given looks of disapproval when I suggested and implemented Hobbit....but we also had similar results! So far we have had three vendors with their "Amazing fix-everything" products that cost hundreds of thousands of dollars, require dozens of servers, and an army of people to get them working. ALL of them have been shown the door! The bottom line is that Hobbit just plain works! ...and the support from Henrik and this message board has fixed any problem better and faster than any commercial support I have ever dealt with (try calling HP !! - you better have a lot of time and patience!)

Thanks Henrik!  
Kevin





# Wrapping up...

- Enterprise class monitoring solution
- Open Source
- Under heavy development, but feature rich
- Runs on Linux (including zSeries!)
- Can be well integrated into the zSeries environment
- Easy to install and configure
- Expandable, very useful and performs well

# Questions...



Rich Smrcina  
rsmrcina@vmassist.com

