

An Introduction to Nagios for the End-user

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What is Nagios?

- System & Network monitoring application
- Example features
 - **Monitor**
 - Network Services (SMTP, POP3, HTTP, NNTP, PING, etc)
 - Host Resources (processor load, disk usage, etc.)
 - **Define event handlers for proactive problem resolution**
 - Run during service or host events
 - **Notify contacts when service or host events occur or recover**
 - **View (via Web Interface)**
 - Past/Present network status

Tailored Service/Host Monitoring

- Major directives (host & service checks)
 - **contact_groups**
 - Name of contact group to receive notifications
 - **notification_interval** (default, 16 hr)
 - How often to **re-notify** contact that service remains in NON-OK state
 - **notification_period** (default, 24x7)
 - Time-period during which notifications can be sent

Major directives cont'd...

- **notification_options**
 - Specifies which states to send notifications for
 - E.g., Warning, Recovery, etc..
 - **Host notification_options**
 - Down, Unreachable, Recover
 - **Service notification_options**
 - Warning, Unknown, Critical, Recover
- **max_check_attempt**
 - Number of times to **retry** the service check before sending notifications
-

Service Checks follow a logic

- 1) Identify a NON-OK state
 - 2) Verify the NON-OK state (sanity checks)
 - 3) Send Notifications
-

- **Nagios enforces service check logic with directives**
 - **normal_check_interval**
 - Service is in OK state or **Hard** NON-OK state
 - Time units to wait to retry check
 - **retry_check_interval**
 - Time units to wait to retry check when in NON-OK state
 - **max_check_attempts** (service in NON-OK state)
 - **Maximum number of times to retry service check**

State Types

- **What are they?**
 - Soft state
 - Hard state
- **What is special about them?**
 - Softs states are optionally logged (**Enabled**)
 - Nagios only sends notifications for
 - Hard NON-OK States
 - Hard Recoveries

State Types (cont'd)

- **Soft**

- Service or host check results in non-OK state
- Has not yet been rechecked the number of times specified by `<max_check_attempts>`
- Recovery from soft state

- **Hard**

- Service or host remains in non-OK state after `<max_check_attempts>`
- Service recovers from Hard State
- Non-OK state but Host is down or unreachable

Service/Host groups

- Nagios allows one or more services or hosts to be grouped together
- Benefits to the End-user
 - Web Interface provides Group Display
 - 24/7 Centralized status information for all group members

Notifications

- **When does Nagios send notifications?**
 - Hard State change has occurred
 - E.g., Hard Non-OK state or Hard Recovery
- **Who gets notified?**
 - Members of contact group specified for that service
- **Filters**
 - Program Wide (globally disable/enable)
 - Service & Host (Specified by [notification_options](#))
 - Contact Filters (Specified by [notification_options](#))

Nagios emailed me... What does it mean??

[NAGIOS] ** PROBLEM alert - glastlnx23/Current Load is CRITICAL ** NAGIOS | X

★ Nagios Monitoring to nagios

[show details](#) 11:09 AM (2 hours ago)

[Reply](#) ▼

***** Nagios 2.10 *****

Notification Type: PROBLEM

Service: Current Load

Host: glastlnx23

Address: [134.79.200.43](#)

State: CRITICAL

Date/Time: Fri Aug 8 08:09:55 PDT 2008

Additional Info:

CHECK_NRPE: Socket timeout after 10 seconds.

Nagios Web Interface

- Accessible only behind SLAC firewall
- Location
 - <http://glastInx02.slac.stanford.edu/nagios/>
- Quick Tutorial
 - How to View
 - Detailed status information about a host
 - History activity history of a host/service
 - Information about particular service/host group

Tactical Overview

The screenshot displays the Nagios web interface in a browser window. The page title is "Nagios" and the URL is "http://glastInx02.slac.stanford.edu/nagios/". The interface is organized into several sections:

- Tactical Monitoring Overview:** Located at the top left, it provides a summary of the system's status, including the last update time (Fri Aug 8 09:44:30 PDT 2008), update frequency (every 90 seconds), and the Nagios version (2.10).
- Monitoring Performance:** Located at the top right, it displays key performance indicators such as Service Check Execution Time, Service Check Latency, Host Check Execution Time, Host Check Latency, and the number of Active and Passive Host/Service Checks.
- Network Outages:** A section indicating the current number of network outages, which is 0.
- Hosts:** A table showing the status of monitored hosts: 0 Down, 0 Unreachable, 98 Up, and 0 Pending.
- Services:** A table showing the status of monitored services: 1 Critical, 1 Warning, 0 Unknown, 586 Ok, and 0 Pending. Below this table, there are two red boxes indicating "1 Unhandled Problems".
- Monitoring Features:** A table showing the status of various monitoring features: Flap Detection (Disabled), Notifications (Enabled), Event Handlers (Enabled), Active Checks (Enabled), and Passive Checks (Enabled).
- Reporting:** A section on the left side of the page containing links to various reporting tools like Trends, Availability, Alert Histogram, Alert History, Alert Summary, Notifications, and Event Log.
- Configuration:** A section on the left side of the page containing a link to View Config.
- Network Health:** A section on the right side of the page showing the overall health of the network, with Host Health and Service Health both indicated as "OK" by green bars.

Detailed Status Information about Host

Nagios
http://glastlnx02.slac.stanford.edu/nagios/
Google

cointelpro - Google Video
Stuff Educat...ople Like
Priceline.com..., car rental
Westgate La... Hotels.com
Beachfront ... Hotels.com
CheapTickets...ults Matrix
Toughest Su...YTimes.com
http://guest...vp_email.pl

Nagios

General

- [Home](#)
- [Documentation](#)

Monitoring

- [Tactical Overview](#)
- [Service Detail](#)
- [Host Detail](#)
- [Hostgroup Overview](#)
- [Hostgroup Summary](#)
- [Hostgroup Grid](#)
- [Servicegroup Overview](#)
- [Servicegroup Summary](#)
- [Servicegroup Grid](#)
- [Status Map](#)
- [3-D Status Map](#)
- [Service Problems](#)
- [Host Problems](#)
- [Network Outages](#)

Reporting

- [Trends](#)
- [Availability](#)
- [Alert Histogram](#)
- [Alert History](#)
- [Alert Summary](#)
- [Notifications](#)
- [Event Log](#)

Configuration

- [View Config](#)

Current Network Status
 Last Updated: Fri Aug 8 09:55:58 PDT 2008
 Updated every 90 seconds
 Nagios® 2.10 - www.nagios.org
 Logged in as ?

Host Status Totals

Up	Down	Unreachable	Pending
1	0	0	0

Service Status Totals

Ok	Warning	Unknown	Critical	Pending
19	0	0	0	0

All Problems
 0

All Types
 1

All Problems
 0

All Types
 19

Service Status Details For Host 'glastlnx04.slac.stanford.edu'

Host ↑↓	Service ↑↓	Status ↑↓	Last Check ↑↓	Duration ↑↓	Attempt ↑↓	Status Information
glastlnx04.slac.stanford.edu	Current Load	OK	08-08-2008 09:54:22	0d 1h 41m 36s	1/4	OK - load average: 0.03, 0.04, 0.00
	Ping	OK	08-08-2008 09:52:13	5d 21h 13m 1s	1/4	PING OK - Packet loss = 0%, RTA = 0.13 ms
	Pipeline Job Control glast	OK	08-08-2008 09:53:03	6d 1h 4m 6s	1/4	OK: Rmi-Server found at glast-jobcontrol01.slac.stanford.edu:1099
	Pipeline Job Control glast - imx	OK	08-08-2008 09:53:53	0d 14h 15m 29s	1/4	OK: Expected OK got OK
	Pipeline Job Control glastmc	OK	08-08-2008 09:54:43	6d 1h 4m 41s	1/4	OK: Rmi-Server found at glast-jobcontrol01.slac.stanford.edu:1099
	Pipeline Job Control glastmc - imx	OK	08-08-2008 09:50:33	0d 21h 55m 2s	1/4	OK: Expected OK got OK
	Pipeline Job Control glastraw	OK	08-08-2008 09:51:23	6d 1h 4m 41s	1/4	OK: Rmi-Server found at glast-jobcontrol01.slac.stanford.edu:1099
	Pipeline Job Control glastraw - imx	OK	08-08-2008 09:52:13	0d 14h 14m 29s	1/4	OK: Expected OK got OK
	SSH	OK	08-08-2008 09:53:03	161d 12h 46m 45s	1/4	SSH OK - OpenSSH_5.0 (protocol 2.0)
	Web App CalibrationTrending - tomcat02	OK	08-08-2008 09:53:53	56d 18h 21m 17s	1/4	OK: Expected 1 got 1
	Web App ServerMonitoring - tomcat02	OK	08-08-2008 09:54:43	56d 18h 20m 39s	1/4	OK: Expected 1 got 1
	Web App cruisecontrol - tomcat02	OK	08-08-2008 09:50:33	56d 18h 20m 1s	1/4	OK: Expected 1 got 1
	ext delay TEST - Pipeline Job Control glast - imx	OK	08-08-2008 09:51:23	0d 14h 14m 49s	1/4	OK: Expected OK got OK
	ext delay TEST - Pipeline Job Control glastmc - imx	OK	08-08-2008 09:52:14	0d 14h 16m 19s	1/4	OK: Expected OK got OK
	ext delay TEST - Pipeline Job Control glastraw - imx	OK	08-08-2008 09:53:04	0d 14h 15m 29s	1/4	OK: Expected OK got OK
	ext delay TEST - Web App CalibrationTrending - tomcat02	OK	08-08-2008 09:53:54	6d 1h 4m 6s	1/4	OK: Expected 1 got 1
	ext delay TEST - Web App ServerMonitoring - tomcat02	OK	08-08-2008 09:54:44	6d 1h 4m 5s	1/4	OK: Expected 1 got 1
	ext delay TEST - Web App cruisecontrol - tomcat02	OK	08-08-2008 09:55:34	6d 1h 3m 39s	1/4	OK: Expected 1 got 1
	glast-tomcat02	OK	08-08-2008 09:51:24	73d 14h 51m 16s	1/4	HTTP OK HTTP/1.1 200 OK - 0.082 second response time

19 Matching Service Entries Displayed

Detailed Status Information about Service

Nagios

http://glastlnx02.slac.stanford.edu/nagios/

Google

cointelpro - Google Video Stuff Educat...ople Like - Priceline.com..., car rental Westgate La... Hotels.com Beachfront ... Hotels.com CheapTickets...ults Matrix Toughest Su...YTimes.com http://guest...vp_email.pl

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- Service Problems
- Host Problems
- Network Outages

Show Host:

- Comments
- Downtime
- Process Info
- Performance Info
- Scheduling Queue

Reporting

- Trends
- Availability
- Alert Histogram
- Alert History
- Alert Summary
- Notifications
- Event Log

Configuration

- View Config

Service Information

Last Updated: Fri Aug 8 09:57:44 PDT 2008
Updated every 90 seconds
Nagios® 2.10 - www.nagios.org
Logged in as ?

[View Information For This Host!](#)
[View Status Detail For This Host!](#)
[View Alert History For This Service](#)
[View Trends For This Service](#)
[View Alert Histogram For This Service](#)
[View Availability Report For This Service](#)
[View Notifications For This Service](#)

Service Current Load

On Host
glastlnx04
[\(\[glastlnx04.slac.stanford.edu\]\(http://glastlnx04.slac.stanford.edu\)\)](http://glastlnx04.slac.stanford.edu)

Member of
No servicegroups.

134.79.200.91

Service State Information

Current Status:	OK
Status Information:	OK - load average: 0.03, 0.04, 0.00
Performance Data:	load1=0.030;15.000;30.000;0; load5=0.040;10.000;25.000;0; load15=0.000;5.000;20.000;0;
Current Attempt:	1/4
State Type:	HARD
Last Check Type:	ACTIVE
Last Check Time:	08-08-2008 09:54:22
Status Data Age:	0d 0h 3m 22s
Next Scheduled Active Check:	08-08-2008 09:59:22
Latency:	0.195 seconds
Check Duration:	0.045 seconds
Last State Change:	08-08-2008 08:14:22
Current State Duration:	0d 1h 43m 22s
Last Service Notification:	N/A
Current Notification Number:	0
Is This Service Flapping?	N/A
Percent State Change:	N/A
In Scheduled Downtime?	NO
Last Update:	08-08-2008 09:57:30

Active Checks:	ENABLED
Passive Checks:	ENABLED
Obsessing:	ENABLED
Notifications:	ENABLED
Event Handler:	ENABLED
Flap Detection:	ENABLED

Service Commands

- [Disable active checks of this service](#)
- [Re-schedule the next check of this service](#)
- [Submit passive check result for this service](#)
- [Stop accepting passive checks for this service](#)
- [Stop obsessing over this service](#)
- [Disable notifications for this service](#)
- [Schedule downtime for this service](#)
- [Disable event handler for this service](#)
- [Disable flap detection for this service](#)

Service group overview

Nagios

http://glastInx02.slac.stanford.edu/nagios/

Oracle (Oracle Servers)

Host	Status	Services	Actions
glast-oracle01.slac.stanford.edu	UP	1 OK	
glast-oracle02.slac.stanford.edu	UP	1 OK	
glast-oracle04.slac.stanford.edu	UP	1 OK	

Pipeline (Pipeline)

Host	Status	Services	Actions
ccsvl09.in2p3.fr	UP	1 OK	
glastInx02.slac.stanford.edu	UP	7 OK	
glastInx04.slac.stanford.edu	UP	6 OK	
glastInx07.slac.stanford.edu	UP	2 OK	
glastInx12.slac.stanford.edu	UP	3 OK	
glastInx16.slac.stanford.edu	UP	2 OK	
glastInx23.slac.stanford.edu	UP	2 OK	

User Space (User Space)

Host	Status	Services	Actions
surrey01.slac.stanford.edu	UP	1 OK	

Web Applications (Web Applications)

Host	Status	Services	Actions
glastInx03.slac.stanford.edu	UP	3 OK	
glastInx04.slac.stanford.edu	UP	3 OK	
glastInx08.slac.stanford.edu	UP	3 OK	
glastInx09.slac.stanford.edu	UP	3 OK	
glastInx10.slac.stanford.edu	UP	4 OK	
glastInx12.slac.stanford.edu	UP	2 OK	
glastInx13.slac.stanford.edu	UP	1 OK	
glastInx16.slac.stanford.edu	UP	14 OK	
glastInx17.slac.stanford.edu	UP	6 OK	
glastInx18.slac.stanford.edu	UP	7 OK	
glastInx19.slac.stanford.edu	UP	2 OK	

Web Servers (Web Servers)

Host	Status	Services	Actions
confluence.slac.stanford.edu	UP	1 OK	
glast-ground.slac.stanford.edu	UP	1 OK	
glast-win01.slac.stanford.edu	UP	1 OK	
glast-win02.slac.stanford.edu	UP	1 OK	
glastInx02.slac.stanford.edu	UP	1 OK	
jira.slac.stanford.edu	UP	1 OK	
web007.slac.stanford.edu	UP	1 OK	
www-glast.stanford.edu	UP	1 OK	

Xrootd (Xrootd)

Host	Status	Services	Actions
glast-rdr.slac.stanford.edu	UP	1 OK	
glastInx03.slac.stanford.edu	UP	1 OK	
sulky02.slac.stanford.edu	UP	1 OK	
sulky07.slac.stanford.edu	UP	1 OK	
sulky08.slac.stanford.edu	UP	1 OK	
wain006.slac.stanford.edu	UP	1 OK	
wain007.slac.stanford.edu	UP	1 OK	
wain008.slac.stanford.edu	UP	1 OK	
wain017.slac.stanford.edu	UP	1 OK	
wain018.slac.stanford.edu	UP	1 OK	
wain019.slac.stanford.edu	UP	1 OK	
wain020.slac.stanford.edu	UP	1 OK	
wain021.slac.stanford.edu	UP	1 OK	

Nagios

General

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- Documentation

Monitoring

- Tactical Overview
- Service Detail
- Host Detail
- Hostgroup Overview
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- Hostgroup Grid
- Servicegroup Overview
- Servicegroup Summary
- Servicegroup Grid
- Status Map
- 3-D Status Map
- Service Problems
- Host Problems
- Network Outages

Show Host:

glastInx04

Comments

Downtime

Process Info

Performance Info

Scheduling Queue

Reporting

- Trends
- Availability
- Alert Histogram
- Alert History
- Alert Summary
- Notifications
- Event Log

Configuration

- View Config

Service status information about all group members

The screenshot shows the Nagios web interface with the following components:

- Browser:** Nagios, URL: http://glastInx02.slac.stanford.edu/nagios/
- Current Network Status:** Last Updated: Fri Aug 8 10:03:32 PDT 2008. Updated every 90 seconds. Nagios@ 2.10 - www.nagios.org. Logged in as ?
- Host Status Totals:**

Up	Down	Unreachable	Pending
98	0	0	0
All Problems		All Types	
0		98	
- Service Status Totals:**

Ok	Warning	Unknown	Critical	Pending
4	0	0	0	0
All Problems		All Types		
0		4		
- Service Status Details For Service Group 'MySQL Servers'**

Host	Service	Status	Last Check	Duration	Attempt	Status Information
glastInx01.slac.stanford.edu	MySQL Master	OK	08-08-2008 10:00:29	161d 12h 50m 59s	1/4	Uptime: 1239206 Threads: 37 Questions: 290613313 Slow queries: 15 Opens: 402755 Flush tables: 1 Open tables: 64 Queries per second avg: 234.516
glastInx02.slac.stanford.edu	MySQL Slave	OK	08-08-2008 10:00:30	101d 23h 2m 20s	1/4	Uptime: 1241640 Threads: 1 Questions: 2857160 Slow queries: 0 Opens: 78665 Flush tables: 1 Open tables: 61 Queries per second avg: 2.301
glastInx06.slac.stanford.edu	MySQL FMX	OK	08-08-2008 10:01:24	84d 19h 20m 1s	1/4	Uptime: 7327113 Threads: 2 Questions: 28738089 Slow queries: 308 Opens: 364 Flush tables: 1 Open tables: 64 Queries per second avg: 3.922
	MySQL MOOT	OK	08-08-2008 10:02:15	84d 19h 19m 21s	1/4	Uptime: 7327157 Threads: 2 Questions: 37535830 Slow queries: 28 Opens: 564 Flush tables: 1 Open tables: 64 Queries per second avg: 5.123

4 Matching Service Entries Displayed
- Navigation Menu (Left):**
 - General: Home, Documentation
 - Monitoring: Tactical Overview, Service Detail, Host Detail, Hostgroup Overview, Hostgroup Summary, Hostgroup Grid, Servicegroup Overview, Servicegroup Summary, Status Map, 3-D Status Map
 - Service Problems: Host Problems, Network Outages
 - Reporting: Trends, Availability, Alert Histogram, Alert History, Alert Summary, Notifications, Event Log
 - Configuration: View Config

How to Make Service/Host Monitoring Requests?

- Create task in JIRA
- Assign to **ecephas**

Conclusion

- Provided an End-user overview of Nagios
- Explained
 - Service check logic for Nagios
 - Difference between Soft and Hard states
 - How Notifications work
 - What Gets Logged By Nagios
 - What output from email notifications mean
 - Basic overview of Web Interface

Additional Info

- Need more information about Nagios
 - http://nagios.sourceforge.net/docs/2_0/toc.html
- Who maintains Nagios
 - Emmanuel Cephas, Jr.
 - ecephas@slac.stanford.edu
 - AIM
 - Miyagi48

Questions?