

Monitoring Services

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2nd SeaDataNet Training Session, 20-22 May 2014 – UNESCO/IOC Project office for IODE, Ostend, Belgium



Outline

- □ Introduction to Network Monitoring
- Monitored Services
- Monitoring Portal
- Access Portal Web application
- Login as "SeaDataNet user"
- Portal's Main menu
- Monitoring Network
- Current State -> Services
- □ Current State -> Service Groups
- □ State Reports -> Service(s) Availability Index
- □ State Reports -> State Breakdowns (Availability)
- □ State Reports -> State History (Trends)
- □ Alerts Reports -> Latest Critical Events
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- □ Add other service(s)-> Add your service
- Account
- □ Contact -> Send your request/comments
- Planned portal changes



Introduction to Network Monitoring

- The term **network monitoring** describes the use of a system that constantly monitors a <u>computer network</u> for slow or failing components and notifies (via email, SMS, e.t.c.) the <u>network and local administrators</u> in case of outages.
- In the framework of SeaDataNetII project a network monitoring system was developed in order to monitor the SeaDataNet components (Download Managers, Central Catalogues, Common Vocabularies, Central Authentication Service) that is based on Nagios software.
- To correct the SDN modules' malfunctions local administrators need more than a notification email, they need to have access to Nagios log files to get more detailed information about the source of the problem.
- A user friendly **Monitoring Portal** is designed and developed for local administrators who are responsible to maintain their services up and running.



Monitored Services

The SeaDataNet components that are monitored are divided into two groups of services:

- The Core services, which are centrally-based provided services:
 - Common Data Index (CDI) portal
 - European Directory of Marine Organisations (EDMO) portal
 - European Directory of the initial Ocean-observing Systems (EDIOS) portal
 - European Directory of Marine Environmental Research Projects (EDMERP) portal
 - European Directory of Marine Environmental Research Projects (EDMED) portal
 - Cruise Summary Reports (CSR) portal
 - SeaDataNet homepage
 - SDN Central Authentication Service
 - Common Vocabularies Web Services
- The Local services, which are services that are provided by the partners' infrastructures.
 - 85 Download Managers supporting SeaDataNet, GeoSeas, UBSS and EMODNet-Chemistry projects 2nd SeaDataNet Training Session,

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Monitoring Portal

- The Monitoring Portal is an online web interface that is addressed to local administrators who are responsible to maintain their services up and running smoothly. The portal provides to users the capability:
 - to search and access a variety of detailed information about their own servers and services status and logs
 - to view all SeaDataNet's services status of operation (availability)
 - > to record and show the history of their servers/services operation status
 - > to calculate a percentage of their services uptime (availability indicator)
- In order to access the portal it is required to:
 - Be the responsible person for the maintenance of a local or core SDN service (e.g. SDN Download Manager)
 - Register as SeaDataNet user and obtain a SeaDataNet user ID (if not registered)
 - Send an email to <u>cdi-support@maris.n</u>l to add your download service at the monitoring system by providing the necessary information: name, edmo code and country of your organisation, person(s) notified by the system contact info (full name and email) and SeaDataNet user ID(s), if you have installed DM or other download service, URL of your download service, project(s) you are involved (SeaDataNet, GeoSeas, UBSS, EMODnet Chemistry)



Access Portal Web application

To access the portal open your web browser and type the following URL:

http://seadatanetnm.hcmr.gr/portal.

SeaDataNet license	*		
User license Agreement for use of Database	Title	Mr •	
	* Family Name		
The SeaDataNet Consortium and its suppliers own all intellectual	* First Name		
PARTICULAR THE LIMITATIONS ON:: USE CONTAINED IN SEC	* Country	•	
TRANSFERABILITY IN SECTION 5; WARRANTY AND FEEDBAC	* Organization		
AGREEMENT IS ENFORCEABLE LIKE ANY WRITTEN NEGOTI/ AGREEMENT IS ENFORCEABLE AGAINST YOU AND ANY LEG	* Activity type		
WHOSE BEHALF IT IS USED. IF YOU DO NOT AGREE, DO NO	* Legal status		
Definitions	* Email		
For the purpose of this licence:	Phone		
	Address		
1 "Database" means sets of marine observations, collected from v	Zip		
standardised and disseminated in unlined formats by one of more a	City		
2 "Intellectual Property Rights" means all patents, claims in patents applications for any of the foregoing and the right to apply for any of database rights, design rights, inventions, confidential information	Newsletters, conferences .		
similar or equivalent rights, whether registrable or not, subsisting if			
◎ I agree ⊙ I do not agree	* please enter the word abov	re	
Next Cancel	Register Car	ncel	
	Ord On - De la Mart Tradis	the Original and	

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Login as "SeaDataNet user"

SeaDataNet



Portal's Main Menu

Monitoring Network

SeaDataNet

About the portal

Document Library

View all services on map

Current State

Services

Service Groups

State Reports

Service(s) Availability Index

State Breakdowns (Availability)

State History (Trends)

Alerts Reports

Latest Critical Events

Alerts Summary

Alerts Histograms

Add other service(s)

Add your Service

Account

Change your personal info

Sign-out user sb30fad!

Contact

Send your request/comments

General Overview

In computer networks, **network management** refers to the activities, methods, procedures, and tools that pertain to the **operation**, **administration**, **maintenance**, and **provisioning** of networked systems.Network management is essential to command and control practices and is generally carried out of a network operations center.

- Operation deals with keeping the network (and the services that the network provides) up and running smoothly. It includes monitoring the network to spot problems as soon as possible, ideally before users are affected.
- Administration deals with keeping track of resources in the network and how they are assigned. It includes all the "housekeeping" that is necessary to keep the network under control.
- Maintenance is concerned with performing repairs and upgrades for example, when equipment must be replaced, when a router needs a patch for an operating system image, when a new switch is added to a network. Maintenance also involves corrective and preventive measures to make the managed network run "better", such as adjusting device configuration parameters.
- Provisioning is concerned with configuring resources in the network to support a given service.

In order to be an operationally robust and state-of-the-art infrastructure SeaDataNet system does **Network Monitoring**. It is the **operation part** of the **Network Management**. For **Network Monitoring** a system (e.g **Nagios**) is used that constantly monitors a computer network for slow or failing components and that notifies the network administrator (via email, SMS or other alarms) in case of outages.

HCMR-HNODC (leader of the SDN Network Monitoring task) has adopted an open source software Nagios which offers monitoring and alerting services for servers, switches, applications, and services. It alerts the users when things go wrong and alerts them a second time when the problem has been resolved.

The **portal is an online service** based on the **Nagios software** designed and developed so as all partners can view the infrastructure's **network monitoring**. This means that all portal users can be informed about the **operation (availability)** of all the system's services. They also have the capability to search and access a variety of detailed information about their own servers and services status and logs.

List of monitoring services

The **portal's services** are divided into two groups of services:

- The Core services, which are centrally-based provided services.
- The Local services, which are services that are provided by the partners' infrastructures. Such service is "Download Manager" (DM).

The total 99 services and their starting date (being monitored for the first time) are the following:

	Core Services			Local Services			
ts	#	Service	Starting Date	#	Service	Starting Date	
	1	CDI homepage 1	2012-06-29 21:00:00	1	Ankara University Download Manager	2012-06-27 12:11:37	

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"Monitoring Network"





> Clicking on a service additional information about its state is displayed

> > $\langle \langle |$

Status Information

No route to host

Current State -> Services

About the portal

Document Library

View all services on map

Current State

Services

Service Groups

State Reports

Service Information Last Updated: Wed May 14 12:44:54 EEST 2014 Updated every 90 seconds Nagios® Core™ 2.4.1 - www.nagios.org Logged in assb30fad

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 VLIZ Download Manager On Host

VLIZ Server (dlmgr.vliz.be)

Member of EMODNet Chemistry Download Manager, SeaDataNet Download Manager

193.191.134.45

Service(s) Availability Index		Service State Information	
State Breakdowns (Availability)	Current Status: Status Information:	OK (for 2d 0h 15m 26s) HTTP OK: HTTP/1.1 200 OK - 276 bytes in 0.142 second response	
State History (Trends)	Performance Data: Current Attempt:	time=0.141966s;;;0.000000 size=276B;;;0 1/30 (HARD state)	
Alerts Reports	Last Check Time: Check Type:	05-14-2014 12:39:28 ACTIVE	
Latest Critical Events	Check Latency / Duration:	0.115 / 0.188 seconds	
Alerts Summary	Next Scheduled Check: Last State Change:	05-14-2014 12:49:28 05-12-2014 12:29:28	
Alerts Histograms	Last Notification:	N/A (notification 0)	
Add other service(s)	In Scheduled Downtime? Last Update:	NO (0.00% state change) NO 05-14-2014 12:44:51 (0d 0h 0m 3s ago)	
Add your Service	Active Checks: ENABL	ED	
Account	Passive Checks: ENABL Obsessing: ENABL	ED	
Change your personal info	Notifications: ENABL Event Handler: ENABL	ED	
Sign-out user sb30fad!	Flap Detection: ENABL	ED	

HTTP OK: HTTP/1.1 200 OK - 276 bytes in 0.158 second response time

bytes in 0.086 second response time

HTTP OK HTTP/1 1 200 OK - 276

Results 0 - 100 of 108 Matching Services

HTTP OK: HTTP/1.1 200 OK - 276 bytes in 0.180 second response time

HTTP OK: HTTP/1.1 200 OK - 254 bytes in 0.159 second response time

HTTP OK: HTTP/1.1 200 OK - 328 bytes in 0.070 second response time

HTTP OK: HTTP/1.1 200 OK - 276 bytes in 0.084 second response time

HTTP OK: HTTP/1.1 200 OK - 203194 bytes in 1.196 second response time

HTTP OK: HTTP/1.1 200 OK - 276

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> Clicking on a service additional information about its state is displayed

Current State -> Service Groups

About the portal	Service Information Last Updated: Wed May 14 12:44:54	4 EEST 2014	Service VLIZ Download Manager
Document Library	Updated every 90 seconds Nagios® Core ™ 3.4.1 - www.nagios	s.org	On Host
View all services on map	Logged in as sb30fad		VLIZ Server
Current State	View Information For This Host View Status Detail For This Host View Alert History For This Service		(dlmgr.vliz.be)
Services	View Trends For This Service View Alert Histogram For This Servi	ice	Member of EMODNet Chemistry Download Manager,
Service Groups	View Availability Report For This Se View Notifications For This Service	ervice	SeaDataNet Download Manager
State Reports			193.191.134.45
Service(s) Availability Index		Service State	e Information
State Breakdowns (Availability)	Current Status: Status Information:	OK (for 2d 0h 15r TTP OK: HTTP/1.1	n 26s) 200 OK - 276 bytes in 0.142 second response
State History (Trends)	Performance Data: ti	me=0.141966s;;;0.0	000000 size=276B;;;0
Alerts Reports	Current Attempt: 1. Last Check Time: 0 Check Type: A	/30 (HARD state) 5-14-2014 12:39:28 CTIVE	3
Latest Critical Events	Check Latency / Duration: 0	.115 / 0.188 second	is
Alerts Summary	Next Scheduled Check: 0 Last State Change: 0	5-14-2014 12:49:28 5-12-2014 12:29:28	3
Alerts Histograms	Last Notification: N	I/A (notification 0)	
Add other service(s)	Is This Service Flapping? In Scheduled Downtime? Last Update: 0	NO (0.00% state) NO 5-14-2014 12:44:51	change) I (0d 0h 0m 3s ago)
Add your Service	Active Checks: ENABLE	2	
Account	Passive Checks: ENABLED Obsessing: ENABLED	2	
Change your personal info	Event Handler: ENABLE	5	
Sign-out user sb30fad!	Flap Detection: ENABLE	C	

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State Reports -> Service(s) Availability Index

About the portal	<u>Calcu</u>	late Availa	bility Index			
Document Library	This for	m calculates i	real-time the av	vailability	of a service in a	specific period of time on perceptage basis
View all services on map	1110 101			anabiney		
Current State	Select:	VLIZ Downloa	d Manager	•		
current state	From:	2014-04-01				
Services	To:	2014-05-14				
Service Groups		Calculate				
State Reports	Availabi	lity of VLIZ D	ownload Manag	jer servio	ce for the specified	d period is 99.89%
Service(s) Availability Index						
State Breakdowns (Availability)						The calculated availability index is the percentage of
State History (Trends)						the UP state for a single
Alerts Reports						service
Latest Critical Events						
Alerts Summary						

PAN-EUROPEAN INFRASTRUCTURE FOR OCEAN & MARINE DATA MANAGEMENT The Availability report displays the time frame the report covered, a table including the time period a service was at a state type as percentage and some criteria to filter the resulted table

State Reports -> State Breakdowns or Availability

y on map	Service Availability Last Updated: Wed May 1 Nagios® Core™ 3.4.1 - w Logged in as an312d4	Report 14 14:08:28 EEST 2014 www.nagios.org 01-01	All Servi -2014 00:00:00 to 0 Duration: 133d 13	i ces 5-14-2014 14:00 3h 8m 28s	First assum Unsp 8:23 [Current	ed service state: ecified • Report period: time range] • [Availability report	Backtracked archives: 4 Update t completed in 0 min 1 fec
			Service State	Breakdown	S:		% Time
	Host	Service	% Time OK	Warning	% Time Unknown	% Time Critical	Undetermined
	109.69.1.121	IGEWE Download Manager	41.467% (73.302%)	0.000% (0.000%)	0.000% (0.000%)	15.103% (26.698%)	43.430%
bility Index	150.145.136.19	CNR Download Manager	98.961% (98.961%)	0.000% (0.000%)	0.000% (0.000%)	1.039% (1.039%)	0.000%
IS	153.19.95.2	IMGW Download Manager	99.662% (99.662%)	0.000% (0.000%)	0.000% (0.000%)	0.338% (0.338%)	0.000%
	192.107.65.6	ENEA Download Manager	92.605% (92.605%)	0.000% (0.000%)	0.000% (0.000%)	7.395% (7.395%)	0.000%
ends)	192.167.185.229	ISMAR Ancona Download Manager	52.077% (100.000%)	0.000% (0.000%)	0.000% (0.000%)	0.000% (0.000%)	47.923%
	192.171.196.70	Common Vocabularies	99.056% (99.056%)	0.000% (0.000%)	0.000% (0.000%)	0.944% (0.944%)	0.000%
ents	193.188.45.233	IOI Download Manager	99.772% (99.772%)	0.000% (0.000%)	0.000% (0.000%)	0.228% (0.228%)	0.000%
	193.42.157.76	IBSS Download Manager	99.628% (99.628%)	0.000% (0.000%)	0.000% (0.000%)	0.372% (0.372%)	0.000%
IS	193.68.190.38	BGODC-IOBAS Download	99.787% (99.787%)	0.000%	0.000% (0.000%)	0.213% (0.213%)	0.000%

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Monitoring Network

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State Reports -> State History (T

rvice State Trends

This graph shows the service's state over time, along with markings of time for when the state changed, and a percentage breakdown of the relative states on the right.

A healthy service might look similar to the above screenshot, with a few blips or none at all.



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Alerts Reports -> Latest Critical Events



SeaDataNet

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Monitoring Network

About the portal

Document Library

View all services on map

Current State

Services Service Groups **State Reports**

Service(s) Availability Index State Breakdowns (Availability) State History (Trends

Alerts Reports

Latest Critical Events **Alerts Summary**

Select service: All

View Alerts

Latest Alerts Details

Number of Latest Alerts: 16 Date Event Date Event Service **Status Information** Started Ended NIOO 2014-05-15 CRITICAL - Socket timeout after 10 seconds Download 02:29:10 Manager RSHU 2014-05-14 Download CRITICAL - Socket timeout after 10 seconds 15:41:47 Manager LNODO

The late	est crit	tical e	ever	nts
report s	hows:			

 \checkmark the total number of these events

 \checkmark the service that was in a critical state for the last seven days

 \checkmark the start and end date of each recorded event

 \checkmark the event duration

✓ detailed information about the cause of the event

5)	Download Manager	2014-05-14 11:37:41	2014-05-14 12:16:11	Connection refused	00:38:30	
	MUMM Download Manager	2014-05-14 08:51:07	2014-05-14 09:01:04	CRITICAL - Socket timeout after 10 seconds	00:09:57	
	IZOR Download	2014-05-13 17:27:04	2014-05-13 20:06:54	CRITICAL - Socket timeout after 10 seconds	02:39:50	E.

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The alerts summary report shows:

 \checkmark the total number critical events

 \checkmark the service that was in a critical state for the specified period of time

 \checkmark the start and end date of each recorded event

✓ the event duration

Duration

00:38:30

00:09:57

02:39:50

02:10:00

02:09:46

67:19:56

00:29:56

79:29:58

✓ detailed information about the cause of the event

Service(s) Availability Index

State Breakdowns

(Availability)

SLALE REPOILS

State History (Trends)

Alerts Reports

Latest Critical Events

Alerts Summary

Alerts Histograms

Add other service(s)

Add your Service

Account

Change your personal info

Sign-out user sb30fad!

Contact

Send your request/comments



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RSHU	2014-05-10	2014-05-13	Connection refused
Download	02:31:39	10:01:37	
Common	2014-05-11	2014-05-11	CRITICAL - Socket timeout after 10 seconds
Vocabularies	01:59:16	02:29:12	
IGEWE Download Manager	2014-05-12 12:13:34	2014-05-15 07:33:30	No route to host

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Connection refused

Alerts Reports -> Alerts Summary

Date Event Date Event

2014-05-14 2014-05-14

2014-05-14 2014-05-14

2014-05-13 2014-05-13

2014-05-13 2014-05-13

2014-05-13 2014-05-13

Ended

12:16:11

09:01:04

20:06:54

12:16:41

12:11:31

Started

2014-05-14

15:41:47

11:37:41

08:51:07

17:27:04

10:06:41

10:01:45

Service

Download

Manager

HNODC

Download

Manager

Download

Manager

Download

Manager

IGEWE

cas service

nagios service

IZOR.

MUMM

RSHU

Alerts Details

Number of Alerts: 81 **Status Information**

CRITICAL - Socket timeout after 10 seconds

CRITICAL - Cannot access to CAS login page (HTTP/1.1 400 Bad Request)



This report's components are:

 \checkmark The variables used to configure the report, such as the time frame covered and the time taken to generate the report are displayed.

✓ An histogram showing the service's number of events over time, along with markings of time for the types of

 \checkmark A table, on the right of the histogram, with math formulas (min, max, sum, average) for each event type is provided.

Alerts Reports -> Alerts Histe



Current State

Services

Service Groups

State Reports

Service(s) Availability Index

State Breakdowns (Availability)

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Alerts Reports

Latest Critical Events

Alerts Summary

Alerts Histograms

Add other service(s)

Add your Service

Account

Change your personal info

Sign-out user sb30fad!



Request directly for a new service to be monitored by Nagios. The portal team will examine the case and will notify the user by email if and when the service will be added to the system, and therefore can be viewed by the portal interface.

Add other service(s) -> Add your service

11	MANAGEMENT		
SeaDataNet			
Monitoring Network	Request to add service to the moni Please describe in the fields below the ser	itoring system vice your centre wishes to be monitored.	
About the portal		* Choose the project in which the service belongs to:	
Document Library	Service		
View all services on map	* Type:	SeaDataNet II 🔹	
Current State			
Services	Web page 👻	* Email:	
Service Groups		smpalon@hcmr.gr	E
State Reports	* Title of the service:	anparop growing.	
Service(s) Availability Index	Monitoring portal	Type the technical contact person's email	
State Breakdowns		Comments about the service:	
(Availability)	A sort descriptive text	This is seen to see the the the termination	
State History (Trends)	* URL:	information about the availability of the services	
Alerts Reports	http://seadatanetnm.hcmr.gr/portal	monitored by <u>Nagios</u> system .	
Latest Critical Events			
Alerts Summary	Type the URL of the service		
Alerts Histograms	* IP Address:		
Add other service(s)	105 251 27 49	Request to add	-
Add your Service	133.231.37.40		
Account	Type the IP address of the service host		Developed & Designed by HCMR-HNODC

Account

SeaDataNet

 Change your personal info page

✓ Logout

* Title	Mrs 💌
* Family Name	Balopoulou
* First Name	Stavroula
* Country	Greece
Organization	HCMR
* Activity type	REC - Research
* Legal status	GOV - Governmental
* Email	smpalop@ath.hcmr.gr
Phone	
Address	
Zip	
City	
Newsletters, conferences	5
Validate Ca	incel



Contact -> Send your request/comments

About the portal

Document Library

View all services on map

Current State

Services

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State Reports

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Add other service(s)

Add your Service

Account

Change your personal info

Sign-out user sb30fad!

Contact

Send your request/comments

Send Request Form

Please describe in the fields below your request to change the IP or address of your service/host or your comments or e.t.c.

Stavroula Balopou	lou			
* Email:				
smpalop@hcmr.g	gr			
* Organization:				
HCMR-HNODC				
	and the second			
* Choose the typ	e of your request:	1		
* Choose the typ	e of your request:			
* Choose the typ Schedule Downtim	e of your request: ne Event	•		
* Choose the typ Schedule Downtim	e of your request: e Event	¥		
* Choose the typ Schedule Downtim * Describe your r	e of your request le Event request as free te	• •		
* Choose the typ Schedule Downtim * Describe your r	e of your request	×		
* Choose the typ Schedule Downtim * Describe your r On the 28th of N the HNODC Dow	e of your request request as free te May from 9:00 to	xt 13:00 GMT time		
 Choose the typ Schedule Downtim Describe your r On the 28th of N the HNODC Dow because of datal 	e of your request request as free te May from 9:00 to mload Manager will base maintenance.	xt 13:00 GMT time I be down		
 Choose the typ Schedule Downtim Describe your r On the 28th of N the <u>HNODC</u> Dow because of datal 	e of your request request as free te May from 9:00 to mload Manager wil base maintenance.	xt 13:00 GMT time I be down		
 Choose the typ Schedule Downtim Describe your r On the 28th of N the HNODC Dow because of datal 	e of your request request as free te May from 9:00 to mload Manager wil base maintenance.	xt 13:00 GMT time I be down		

Portal users can send their requests for:

✓ changing the IP or address of service

- ✓ scheduling downtime events
- ✓ making comments
- ✓ other

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Planned portal changes

SeaDataNet

- Confirmation that any request you made through the portal's "Send your request/comments" capability is sent to the monitoring team
- Addition of Download Manager's installed version in the list of local monitored services
- ✓ A user manual for the Monitoring Portal will be available soon at the portal's Document Library



Thank you!

