



WP2 – Monitoring the infrastructure - Results

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What is network monitoring?

The term **network monitoring** describes the use of a system that constantly monitors a computer network for slow or failing components and that notifies the network administrator in case of outages.

In the fields of SDN, network monitoring service monitors through Internet all other SDN services (portals, DMs, etc) to confirm that they are accessible and available, notify persons in charge to take action in case of service failure and keep statistics.

What is being monitored until now?

A total of 100 services... (90 on February 2013)

- ✓ 7 SeaDataNet Services
- ✓ 2 GeoSeas Services
- ✓ 43 SeaDataNet Download Managers
- ✓ 25 GeoSeas Download Managers
- ✓ 23 UBSS Download Managers

Monitored Services statistics

In the next slides, statistics are presented about the availability results of the 100 services derived from 5 service groups (4 service groups on February 2013). The results are presented per service group and refer to a monitoring period of approximately 8 months (from 03-01-2013 to 18-09-2013).

The 5 service groups are:

- ✓ SeaDataNet Services
- ✓ GeoSeas Services
- ✓ SeaDataNet Download Managers (SeaDataNet DMs)
- ✓ GeoSeas Download Managers (GeoSeas DMs)
- ✓ UBSS Download Managers (UBSS DMs)

'SeaDataNet Services' results from 03-01-2013 to 18-09-2013

Service	% Time OK	% Time Critical
ROSCOP homepage	98.910% (98.910%)	1.090% (1.090%)
CDI homepage 1	99.965% (99.965%)	0.035% (0.035%)
CDI homepage 2	99.965% (99.965%)	0.035% (0.035%)
EDIOS homepage	99.965% (99.965%)	0.035% (0.035%)
EDMERP homepage	99.965% (99.965%)	0.035% (0.035%)
EDMO homepage	99.965% (99.965%)	0.035% (0.035%)
SeaDataNet homepage	99.836% (99.836%)	0.164% (0.164%)
Average	99.796% (99.796%)	0.204% (0.204%)

‘GeoSeas Services’ results from 03-01-2013 to 18-09-2013

Service	% Time OK	% Time Warning	% Time Critical
Geoseas Godiva Service	98.695% (98.695%)	0.390% (0.390%)	0.916% (0.916%)
Geoseas Thredds Service	98.686% (98.686%)	0.390% (0.390%)	0.925% (0.925%)
Average	98.690% (98.690%)	0.390% (0.390%)	0.920% (0.920%)

'SeaDataNet DMs' results from 03-01-2013 to 18-09-2013

Service	% Time OK	% Time Critical
CNR Download Manager	100.000% (100.000%)	0.000% (0.000%)
IMGW Download Manager	100.000% (100.000%)	0.000% (0.000%)
ENEA Download Manager	100.000% (100.000%)	0.000% (0.000%)
IOI Download Manager	100.000% (100.000%)	0.000% (0.000%)
IBSS Download Manager	100.000% (100.000%)	0.000% (0.000%)
BGODC-IOBAS Download Manager	99.753% (99.753%)	0.247% (0.247%)
IOLR Download Manager	100.000% (100.000%)	0.000% (0.000%)
INSTM Download Manager	93.749% (93.749%)	6.251% (6.251%)
IGEWE Download Manager	100.000% (100.000%)	0.000% (0.000%)
TSU Download Manager	99.930% (99.930%)	0.070% (0.070%)
SHODB Download Manager	90.845% (90.845%)	9.155% (9.155%)
MI Download Manager	100.000% (100.000%)	0.000% (0.000%)
IMR Download Manager	100.000% (100.000%)	0.000% (0.000%)
VLIZ Download Manager	100.000% (100.000%)	0.000% (0.000%)
EPA Download Manager	100.000% (100.000%)	0.000% (0.000%)
MRI Download Manager	100.000% (100.000%)	0.000% (0.000%)
IHPT Download Manager	100.000% (100.000%)	0.000% (0.000%)
MHI-MIST Download Manager	99.922% (99.922%)	0.078% (0.078%)
IORAS-SIO Download Manager	99.973% (99.973%)	0.027% (0.027%)
IOPAN Download Manager	100.000% (100.000%)	0.000% (0.000%)
SMHI Download Manager	100.000% (100.000%)	0.000% (0.000%)
RHMI Download Manager	99.979% (99.979%)	0.021% (0.021%)
FMI Download Manager	100.000% (100.000%)	0.000% (0.000%)
IZOR Download Manager	99.965% (99.965%)	0.035% (0.035%)
BODC Download Manager	100.000% (100.000%)	0.000% (0.000%)
HNODC Download Manager	100.000% (100.000%)	0.000% (0.000%)
OGS Download Manager	100.000% (100.000%)	0.000% (0.000%)
NIOO Download Manager	100.000% (100.000%)	0.000% (0.000%)
MSI Download Manager	99.868% (99.868%)	0.132% (0.132%)
MSI-NIB Download Manager	100.000% (100.000%)	0.000% (0.000%)
PANGEA Download Manager	100.000% (100.000%)	0.000% (0.000%)
ICES Download Manager	99.973% (99.973%)	0.027% (0.027%)
IMBK Download Manager	100.000% (100.000%)	0.000% (0.000%)
NIMRD Download Manager	99.992% (99.992%)	0.008% (0.008%)
RSHU Download Manager	100.000% (100.000%)	0.000% (0.000%)
BSH Download Manager	99.941% (99.941%)	0.059% (0.059%)
NERI Download Manager	100.000% (100.000%)	0.000% (0.000%)
NIOZ Download Manager	100.000% (100.000%)	0.000% (0.000%)
IFREMER Download Manager	100.000% (100.000%)	0.000% (0.000%)
CYOC Download Manager	99.914% (99.914%)	0.086% (0.086%)
MUMM Download Manager	100.000% (100.000%)	0.000% (0.000%)
IEO Download Manager	99.852% (99.852%)	0.148% (0.148%)
SHOM Download Manager	99.962% (99.962%)	0.038% (0.038%)
Average	99.619% (99.619%)	0.381% (0.381%)

'Geo-Seas DMs' results from 03-01-2013 to 18-09-2013

Service	% Time OK	% Time Critical
IGG-NRC Download Manager	99.847% (99.847%)	0.153% (0.153%)
UB Download Manager	100.000% (100.000%)	0.000% (0.000%)
BGODC-IOBAS Download Manager	99.753% (99.753%)	0.247% (0.247%)
LNEG Download Manager	100.000% (100.000%)	0.000% (0.000%)
EGK Download Manager	100.000% (100.000%)	0.000% (0.000%)
OGS-RIMA Download Manager	100.000% (100.000%)	0.000% (0.000%)
TNO Download Manager	100.000% (100.000%)	0.000% (0.000%)
NGU Download Manager	99.952% (99.952%)	0.048% (0.048%)
BGR Download Manager	100.000% (100.000%)	0.000% (0.000%)
BGS Download Manager	99.608% (99.608%)	0.392% (0.392%)
BRGM Download Manager	100.000% (100.000%)	0.000% (0.000%)
PGI Download Manager	100.000% (100.000%)	0.000% (0.000%)
CDG-CNRS Download Manager	99.992% (99.992%)	0.008% (0.008%)
UCC Download Manager	100.000% (100.000%)	0.000% (0.000%)
GEUS Download Manager	99.976% (99.976%)	0.024% (0.024%)
BODC Download Manager	100.000% (100.000%)	0.000% (0.000%)
GSI Download Manager	100.000% (100.000%)	0.000% (0.000%)
LU Download Manager	74.912% (74.912%)	25.088% (25.088%)
IGME-ES Download Manager	100.000% (100.000%)	0.000% (0.000%)
NOA Download Manager	100.000% (100.000%)	0.000% (0.000%)
BSH Download Manager	99.941% (99.941%)	0.059% (0.059%)
IGME-GR Download Manager	100.000% (100.000%)	0.000% (0.000%)
IFREMER Download Manager	100.000% (100.000%)	0.000% (0.000%)
MUMM Download Manager	100.000% (100.000%)	0.000% (0.000%)
SHOM Download Manager	99.962% (99.962%)	0.038% (0.038%)
Average	98.958% (98.958%)	1.042% (1.042%)

'UBSS DMs' results from 07-01-2012 to 02-01-2013

Service	% Time OK	% Time Critical
BSTU Download Manager	99.853% (99.853%)	0.147% (0.147%)
Ankara University Download Manager	98.987% (98.987%)	1.013% (1.013%)
IBSS Download Manager	100.000% (100.000%)	0.000% (0.000%)
BGODC-IOBAS Download Manager	99.755% (99.755%)	0.245% (0.245%)
IU-IMS Download Manager	99.941% (99.941%)	0.059% (0.059%)
IGS Download Manager	98.710% (98.710%)	1.290% (1.290%)
YugNIRO Download Manager	99.579% (99.579%)	0.421% (0.421%)
UMG Download Manager	100.000% (100.000%)	0.000% (0.000%)
SNU Download Manager	99.254% (99.254%)	0.746% (0.746%)
TSU Download Manager	99.931% (99.931%)	0.069% (0.069%)
GAMMA Download Manager	100.000% (100.000%)	0.000% (0.000%)
BSCS Download Manager	99.750% (99.750%)	0.250% (0.250%)
DEU-IMST Download Manager	93.299% (93.299%)	6.701% (6.701%)
IKI-RAS Download Manager	98.763% (98.763%)	1.237% (1.237%)
ONU Download Manager	100.000% (100.000%)	0.000% (0.000%)
DHMO Download Manager	99.968% (99.968%)	0.032% (0.032%)
MHI-MIST Download Manager	99.923% (99.923%)	0.077% (0.077%)
IORAS-SIO Download Manager	99.973% (99.973%)	0.027% (0.027%)
MHI-UB Download Manager	99.264% (99.264%)	0.736% (0.736%)
RHMI Download Manager	99.979% (99.979%)	0.021% (0.021%)
IFR Download Manager	100.000% (100.000%)	0.000% (0.000%)
NIMRD Download Manager	99.992% (99.992%)	0.008% (0.008%)
UKRSCES Download Manager	97.575% (97.575%)	2.425% (2.425%)
Average	99.326% (99.326%)	0.674% (0.674%)

Comparison with previous results

The previous results (time duration almost 1 year from 2012-2013) were presented in the 4th TTG meeting on February 2013. By comparing the average amount of critical events per service group the following conclusions can be reached:

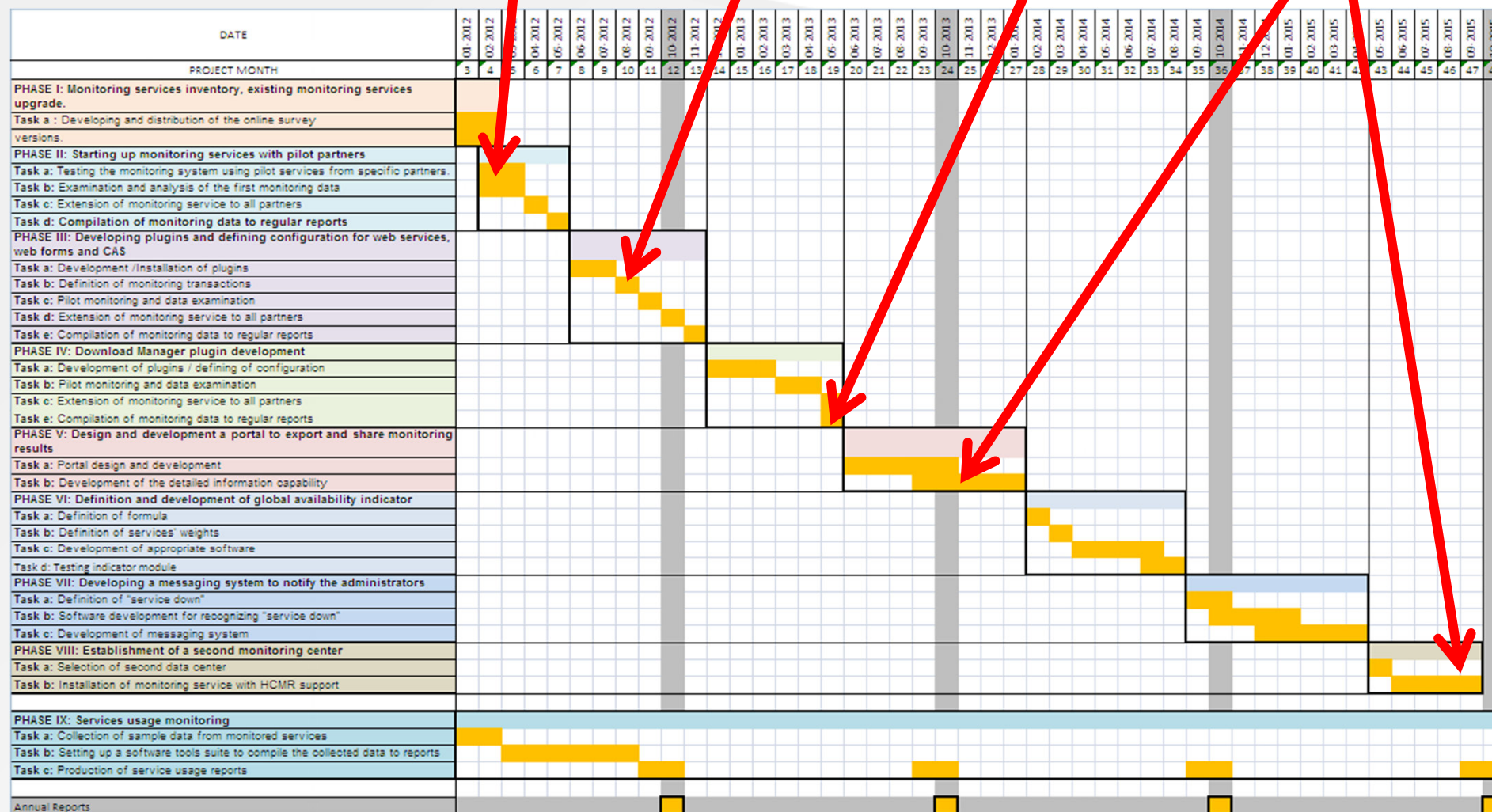
- ✓ ***SeaDataNet Services group:*** increased by 0.157%,
- ✓ ***SeaDataNet Download Managers group:*** decreased by 0.48%,
- ✓ ***GeoSeas Download Managers group:*** increased by 0.2%,
- ✓ ***UBSS Download Managers group:*** decreased by 2,323%.

Overall Progress on Monitoring

- ☐ A new development linux server is installed in order to implement the new software. In this server Nagios and NagVis have been installed (identical with the production server but without the notification capability).
- ☐ NagVis visualization tool for Nagios has been updated to the latest version.
- ☐ A modified version of Nagdb (a Nagios add-on is installed), a tool that stores status information in a database by reading nagios log file and updating the database in near real-time. HCMR changed nagdb source code to add in database the detailed status and unix timestamp information of nagios log file and also to keep in database all event history.
- ☐ Login using LDAP user authentication,
- ☐ A beta version of the monitoring portal is already designed and developed (Phase V of the Monitoring Plan).
- ☐ A second identical nagios has been installed in OGS data centre with HCMR support (Phase VIII).



Time Table of Monitoring Plan

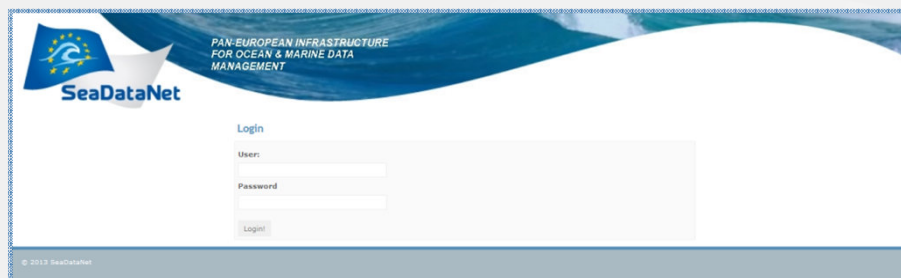


Design & Development of Portal

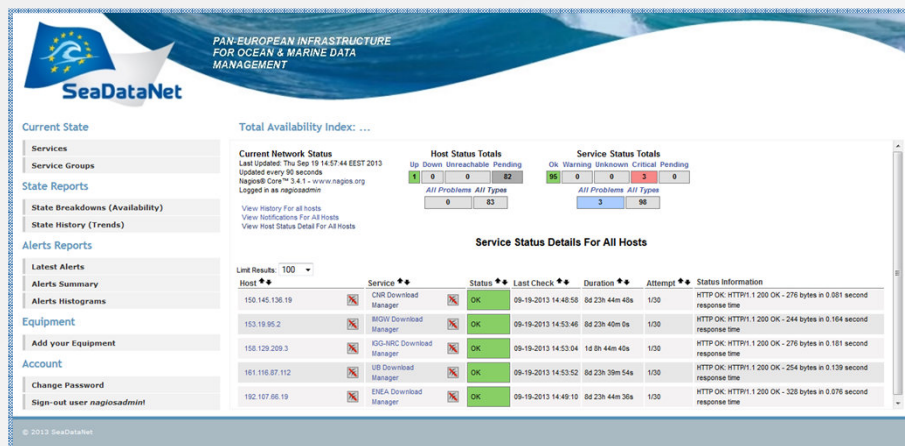
For the portal's purposes the following features have been implemented:

- ✓ Login using LDAP user authentication,
- ✓ Capability to change password
- ✓ View only capabilities of service(s) to portal users which are:
 - Visibility of the availability of their service(s) (simple users) or all services on a service group (group users),
 - Reporting the historical state records and alert response for later analysis,
 - State & Alert Histograms,
 - Latest Alerts report .
- ✓ Administration capabilities to portal administrator (schedule downtime events, enable/disable notifications, e.t.c),
- ✓ Request for a new equipment to be monitored, which is sent directly to portal administrator (HCMR),

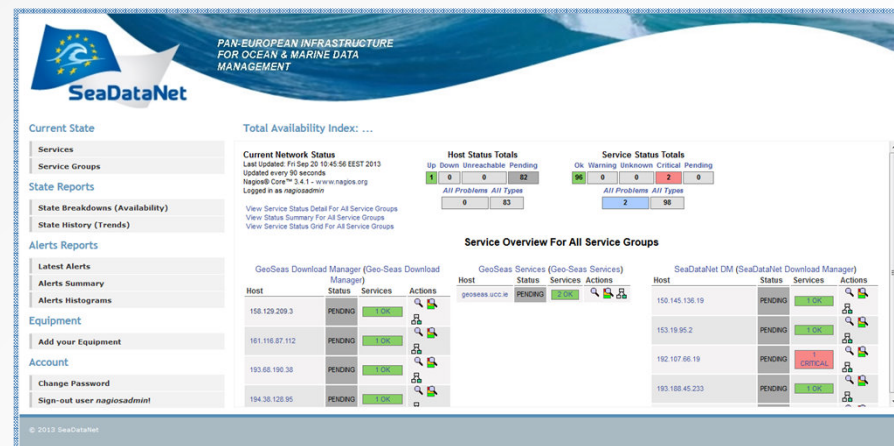
Design & Development of Portal – Login & Current Service State



Login Page (LDAP user authentication)



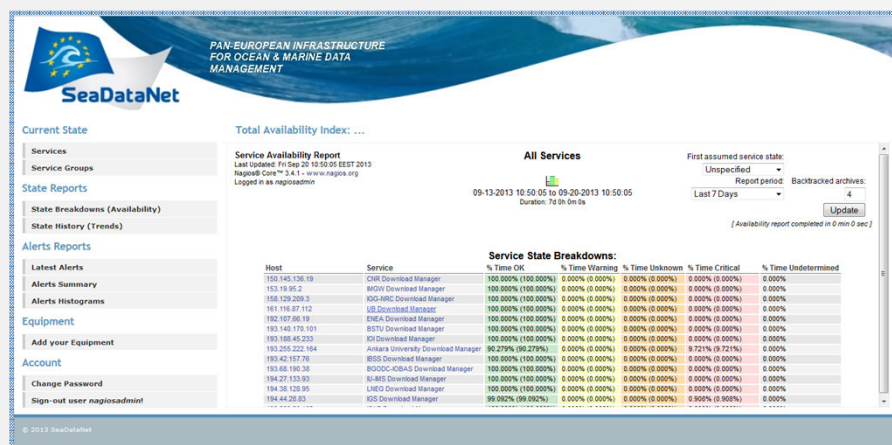
Current Service(s) Status Details



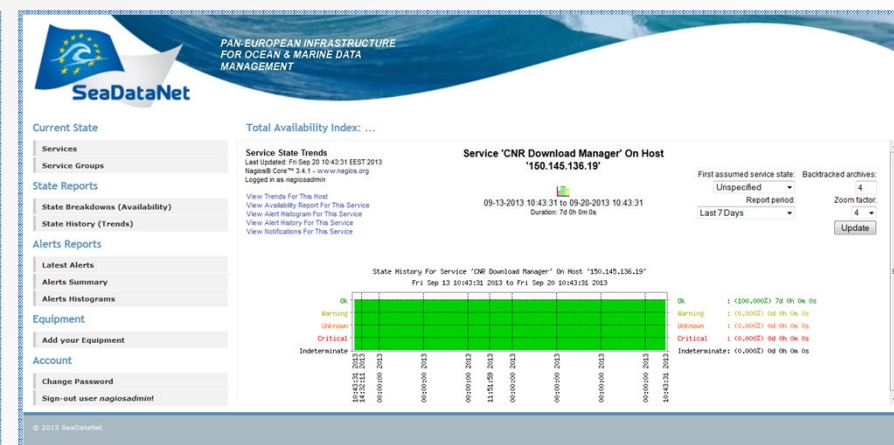
Services Overview for Service Groups

Design & Development of Portal – State Reports

Table & Graph reports of all Service(s) state using time period as criteria. The results are presented on percentage basis.

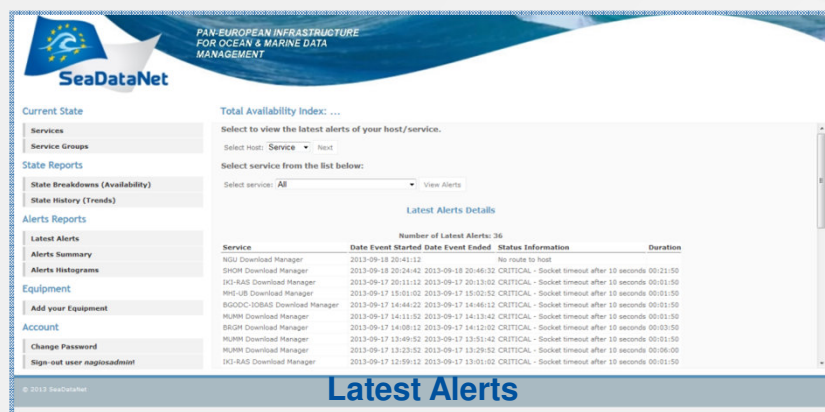


Service State Breakdowns

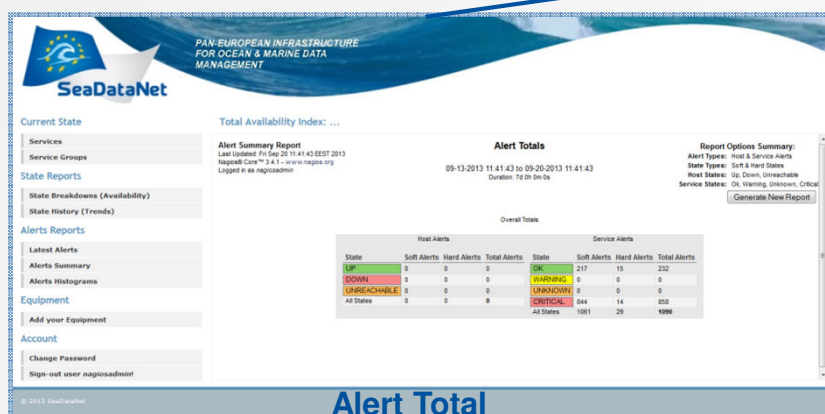


Service Availability diagram

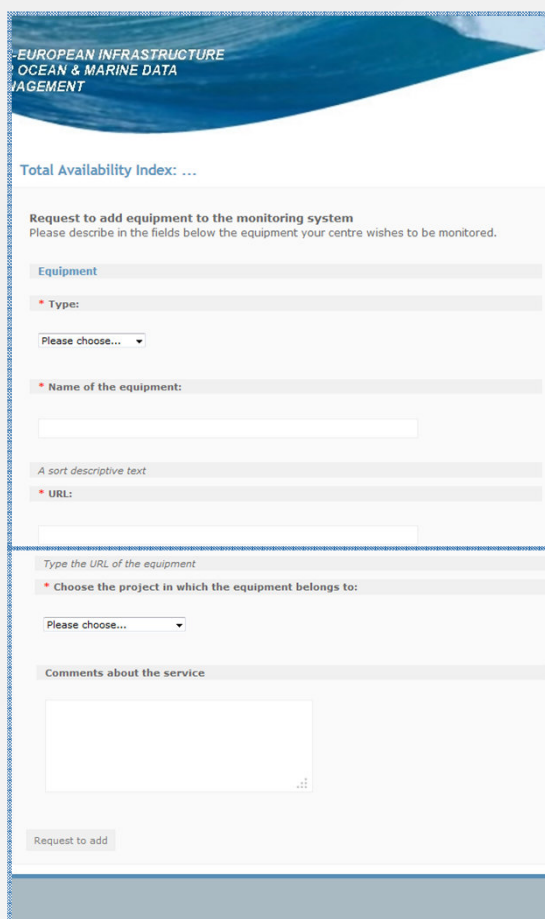
Design & Development of Portal – Alert Reports



Latest Alerts => view recent alerts for service(s), their duration and their detailed state information
Alert Total & Alert Histogram => total number of alerts per event type



Design & Development of Portal – Add Equipment Form



EUROPEAN INFRASTRUCTURE
FOR OCEAN & MARINE DATA
MANAGEMENT

Total Availability Index: ...

Request to add equipment to the monitoring system
Please describe in the fields below the equipment your centre wishes to be monitored.

Equipment

* Type:
Please choose... ▼

* Name of the equipment:

A sort descriptive text

* URL:

Type the URL of the equipment

* Choose the project in which the equipment belongs to:
Please choose... ▼

Comments about the service

Request to add

A new functionality that is implemented, is the capability of portal users to directly request for a new equipment to be monitored by Nagios. The portal's administrator will notify the user when the equipment will be monitored, and therefore can be viewed in the portal interface.

Portal's Status of work

We are currently improving the beta version of the portal. Hopefully this phase will be completed in October when the first version of the portal will be launched.

Future Plans

In our short term plans is to work on:

- ✓ adding new service types (CAS, Vocabularies) in nagios monitoring system,
- ✓ the definition & development of the global availability indicator which will also be incorporated in the portal (Phase VI)
- ✓ automatic generation of the availability reports (based on the global availability indicator)
- ✓ establish a mechanism to cross check alerts with OGS nagios system so as to avoid false alerts.

Thank you!

