Enigma NMS – Clusters and Templates

Enigma NMS has very powerful custom grouping mechanism, which we call "**Cluster**". With clusters you can quickly group Sites, Nodes, Interfaces, Server Processes and Applications. Clusters are present in most reports and views throughout the system as filtering option. Also you can configure "Notification Email" in Cluster, which allows custom alert forwarding to specific email address.

However in large enterprise network environment inevitably there could be a lot of activity such as network node additions, decommissioning and changes effecting node name and interface label and interface status. All this creates a challenge with keeping Clusters content relevant and up to date. This could be quite time and labour consuming exercise, as incorrect Cluster content could lead to incorrect results in network reports and incorrect alert forwarding.

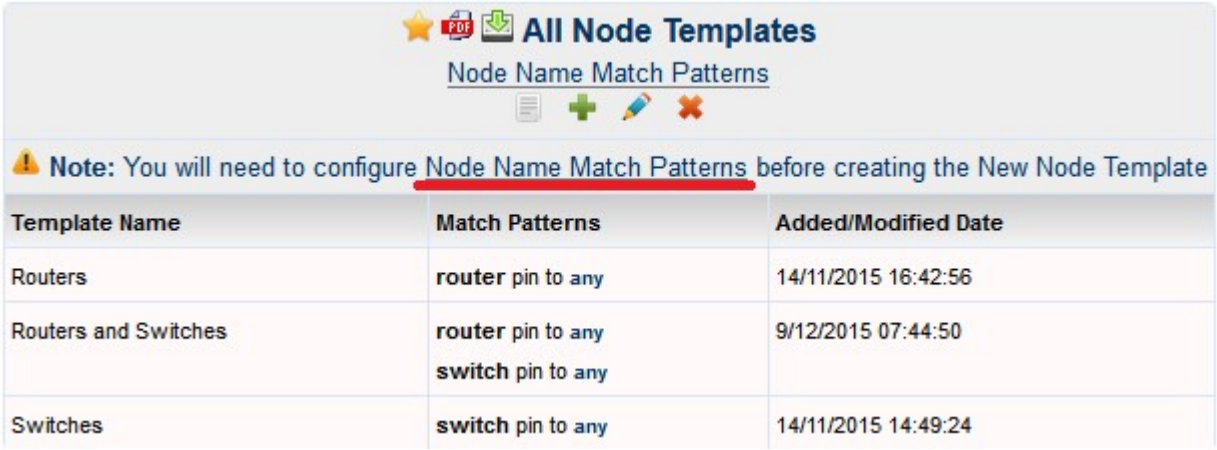
In order to address above challenges we have developed Site, Node and Interfaces Templates, which allow keeping Cluster content up to date dynamically and automatically, thus reducing maintenance overhead.

Nodes, Interface and Site Templates are avail via:

Main Menu → FOR MANAGERS

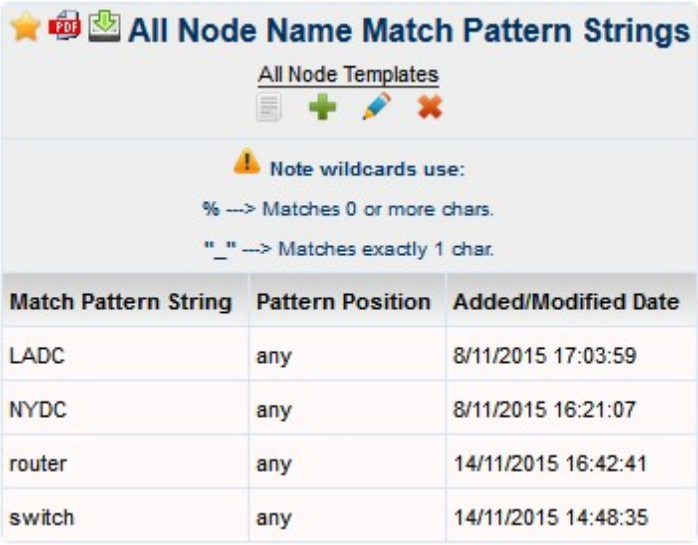
Node Templates.

Main Menu → FOR MANAGERS → Node Templates



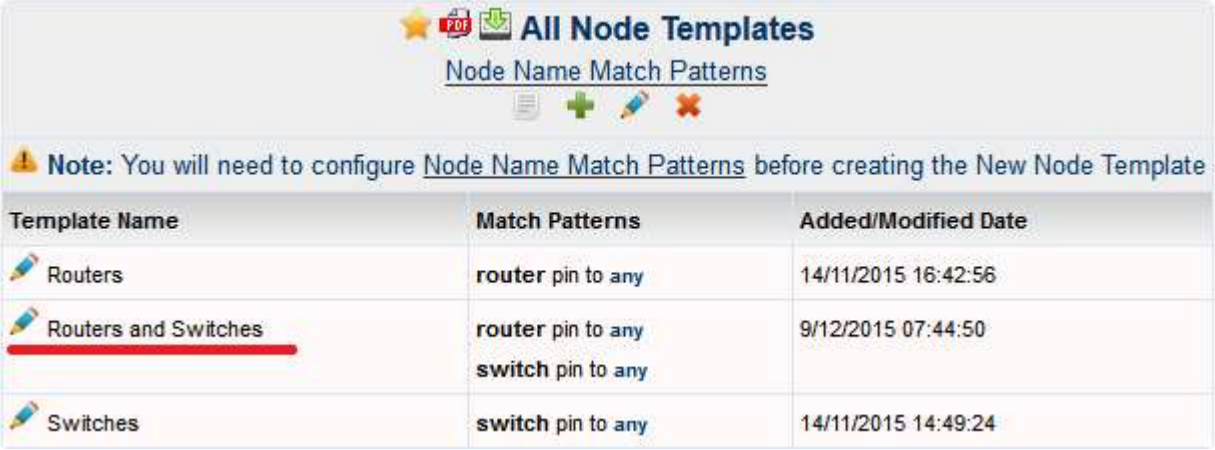
Template Name	Match Patterns	Added/Modified Date
Routers	**router** pin to any	14/11/2015 16:42:56
Routers and Switches	**router** pin to any **switch** pin to any	9/12/2015 07:44:50
Switches	**switch** pin to any	14/11/2015 14:49:24

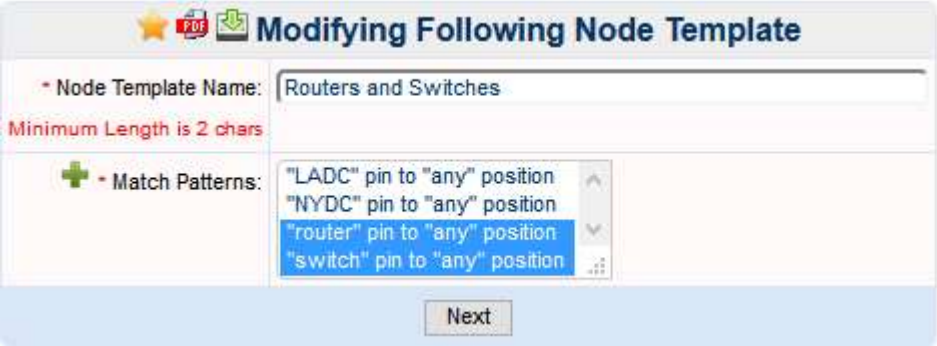
Before you can create the Node Template, you will need to create at least one Node Name Match Pattern. Click on "**Node Name Match Patterns"** link.

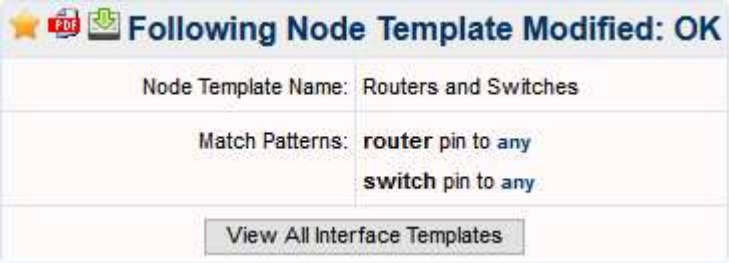


Match Pattern String	Pattern Position	Added/Modified Date
LADC	any	8/11/2015 17:03:59
NYDC	any	8/11/2015 16:21:07
router	any	14/11/2015 16:42:41
switch	any	14/11/2015 14:48:35

When you are adding a new template "➕" or modifying "✏" existing Node Template you will have to define Template Name and select at least one Match Pattern, please see below:







Site Templates

Main Menu → FOR MANAGERS → Site Templates

Site Templates are configured exactly the same way as Node Templates.

Interface Templates

Main Menu → FOR MANAGERS → Interface Templates

All Interface Templates

Interface Match Patterns

Apply Template to the Port Monitor

Note: You will need to configure Interface Match Patterns before creating the New Interface Template

Template Name	Match Patterns	Applied to Port Monitor / Role	Linked Node Template	Linked Site Template	Added/Modified Date
ADSL And Router Links	**172.16.1.** pin to start **ADSL** pin to any **Laptop** pin to any **Printer** pin to any **Router** pin to any **Test** pin to any	Y - Additional	**Routers and Switches** Node Match Patterns **router** pin to any **switch** pin to any		24/03/2016 19:12:57
Combined WAN and Router Ports	**ADSL** pin to any **Router** pin to any **Telstra** pin to any **WAN** pin to any	N			9/11/2015 15:56:25
Environment Monitor	**Environ** pin to any	N			4/03/2016 09:31:47
WAN Ports	**Telstra** pin to any **WAN** pin to any	N			18/10/2015 18:20:09
Watermelon	**Watermelon** pin to any	N			9/11/2015 16:01:43

Before you configure Interface Template, you will have to add at least one "**Interface Match Patterns**". Click on the link "**Interface Match Patterns**".

All Interface Match Patterns

All Interface Templates

Note wildcards use:

% ---> Matches 0 or more chars.

"_" ---> Matches exactly 1 char.

Match Pattern String	Pattern Position	Added/Modified Date
172.16.1.	start	24/03/2016 19:12:12
ADSL	any	19/10/2015 07:56:38
Environ	any	4/03/2016 09:31:05
Laptop	any	16/11/2015 09:51:41
Printer	any	16/11/2015 09:51:34
Router	any	18/10/2015 17:02:15
Telstra	any	18/10/2015 18:18:48
Test	any	16/11/2015 09:53:47
WAN	start	21/10/2015 09:55:38
WAN	any	18/10/2015 18:18:35
Watermelon	any	9/11/2015 16:01:15

Interface Templates are different from Node and Site Templates:

- **Interface Template can be overlayed by Node and Site Templates, which allows more accurate detection of required interfaces.**
- **Interface Templates can also be applied to the Port Monitor, please note that only one Interface Template can be applied to the Port Monitor.**

Following is the example of modification of Interface Template. Click on "🖊" link:

All Interface Templates

Interface Match Patterns

Apply Template to the Port Monitor

Note: You will need to configure Interface Match Patterns before creating the New Interface Template

Template Name	Match Patterns	Applied to Port Monitor / Role	Linked Node Template	Linked Site Template	Added/Modified Date
ADSL And Router Links	**172.16.1.** pin to start **ADSL** pin to any **Laptop** pin to any **Printer** pin to any **Router** pin to any **Test** pin to any	Y - Additional	**Routers and Switches** Node Match Patterns **router** pin to any **switch** pin to any		24/03/2016 19:12:57
Combined WAN and Router Ports	**ADSL** pin to any **Router** pin to any **Telstra** pin to any **WAN** pin to any	N			9/11/2015 15:56:25
Environment Monitor	**Environ** pin to any	N			4/03/2016 09:31:47
WAN Ports	**Telstra** pin to any **WAN** pin to any	N			18/10/2015 18:20:09
Watermelon	**Watermelon** pin to any	N			9/11/2015 16:01:43

Modifying Following Interface Description Template

* Interface Description Template Name: ADSL And Router Links

Minimum Length is 2 chars

* Match Patterns:
"172.16.1." pin to "start" position
"ADSL" pin to "any" position
"Environ" pin to "any" position
"Laptop" pin to "any" position

Please be careful here!

If Optional Node or Site Templates below are selected,

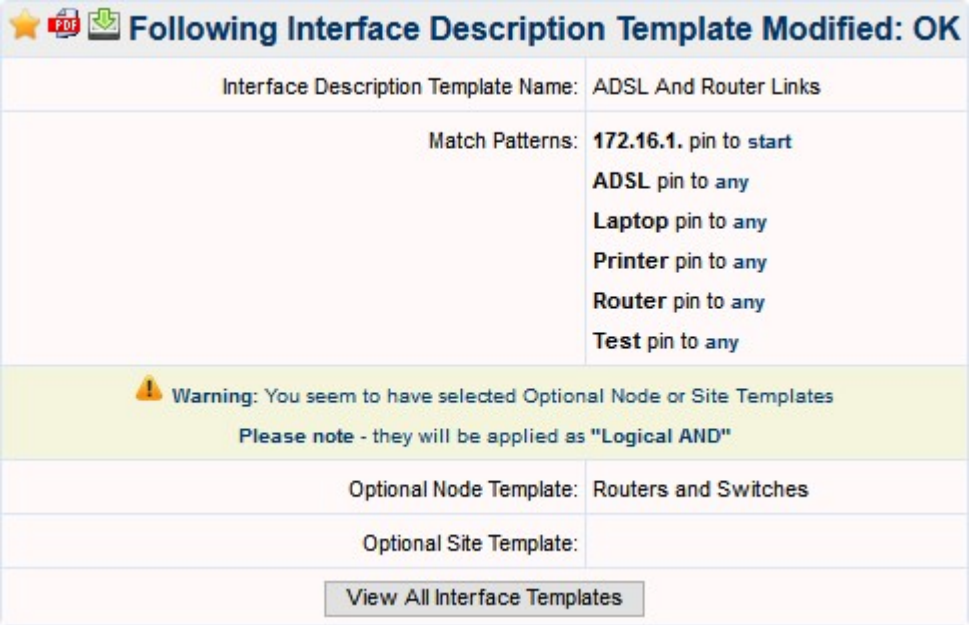
they will be applied as **"Logical AND"**

Select Optional Node Template: Routers and Switches

Select Optional Site Template: --- No Site Template Selected ---

Next

Define the template name, select relevant Match Patterns and overlaying Node and Site Templates if applicable and click "Next" button.



Following Interface Description Template Modified: OK

Interface Description Template Name:	ADSL And Router Links
Match Patterns:	**172.16.1.** pin to start **ADSL** pin to any **Laptop** pin to any **Printer** pin to any **Router** pin to any **Test** pin to any
Warning: You seem to have selected Optional Node or Site Templates Please note - they will be applied as "Logical AND"	
Optional Node Template:	Routers and Switches
Optional Site Template:	

View All Interface Templates

Please note that Enigma NMS uses internal logic to determine if particular interface needs to be monitored for Operational Status changes i.e. UP/Down Events.

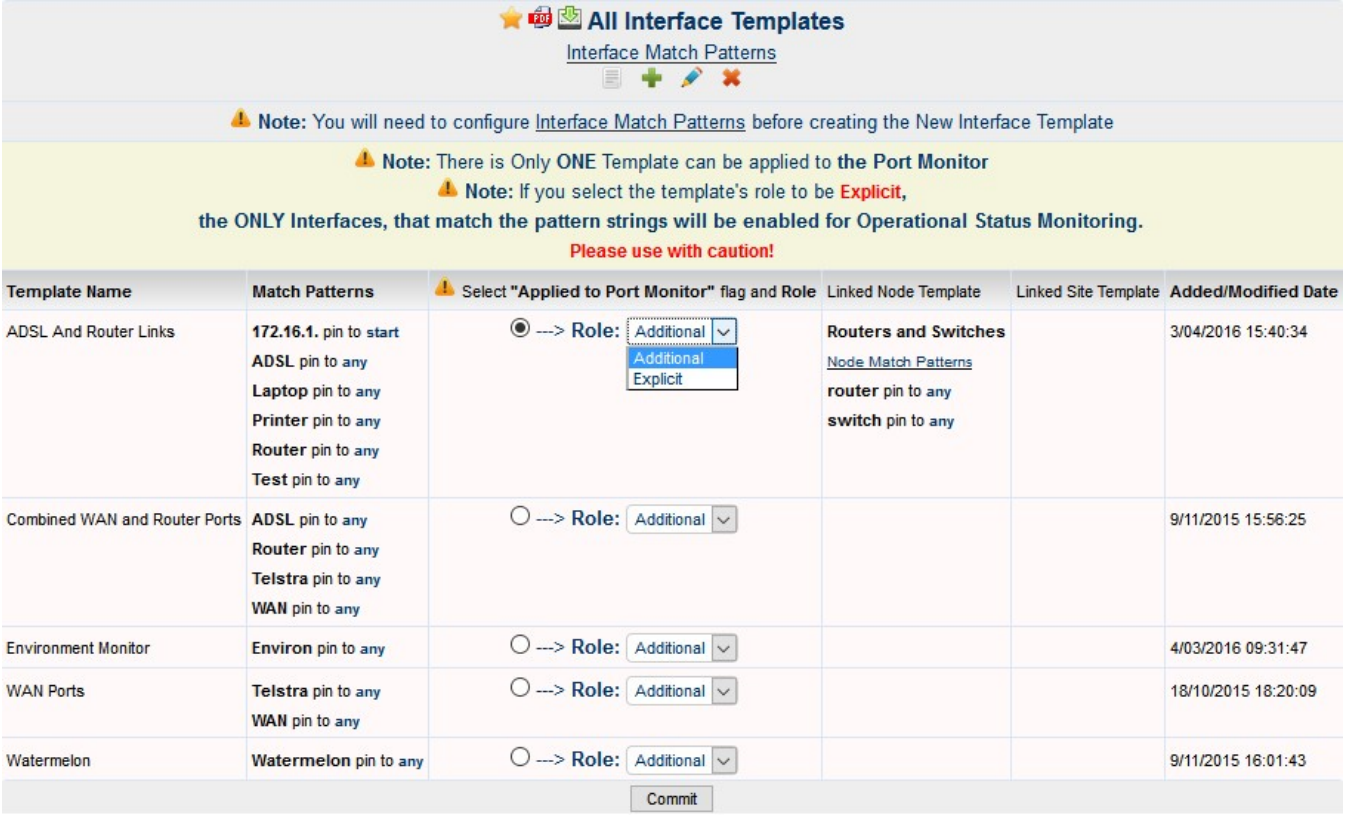
According to Enigma NMS default logic, interface operational status will be monitored and alerted upon if:

- **Interface is a trunk port between two network devices, e.g. switch←→switch or switch← →Router, which also includes layer 2 and 3 ether-channels.**
- **Interface is a routed link with a valid IP Address.**
- **Interface has multiple MACs visible on it, the default MAC count is 3 MACs, which can be modified via relevant system settings.**

Also if Interface satisfies any of the above conditions it has to be in Operational “Up” state before the monitoring is turned on. But once the monitoring has been turned it stays on.

The default logic can be overwritten manually on per node basis or in bulk by Interface Summary Report or by Interface Template if it is applied to Port Monitor.

If you need to apply Interface Template to the Port Monitor, click on “Apply Template to the Port Monitor” link:



The “**Role**” flag determines how Interface Template is affecting the Port Monitor. If the role is set to be “Additional” then interfaces matching the relevant match patters and overlaying Node and Site Templates will be added to the Port Monitor without affecting interfaces, which are already covered by Port Monitor.

If the role is set to “Explicit” then **ONLY** interfaces matching the relevant match patters and overlaying Node and Site Templates will be added to the Port Monitor and all non-matching interfaces will be removed from the Port Monitor.

Please have full understanding and exercise maximum care when you apply Interface Templates to the Port Monitor.

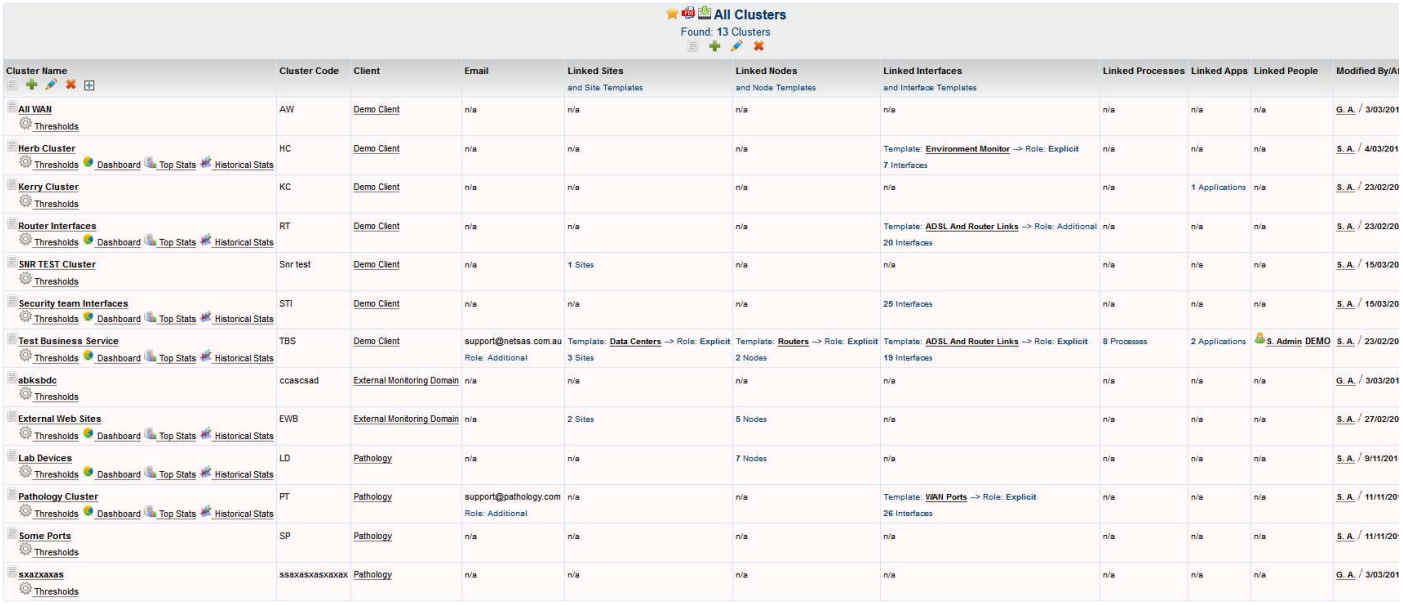
Since we have covered Templates we will move onto the Clusters.

Clusters

As stated at the beginning of this article clusters are flexible and custom way to group various system objects together.

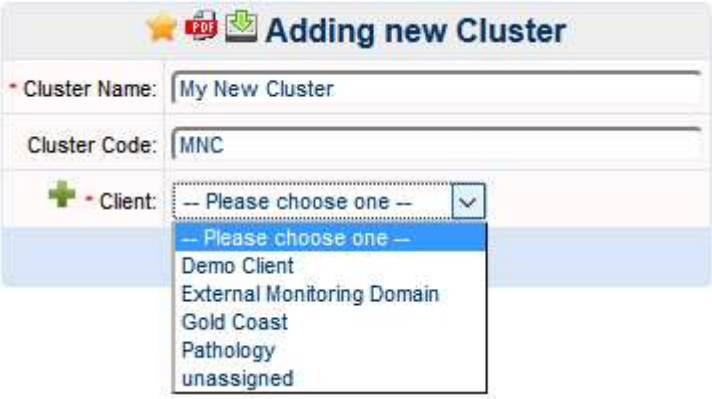
Clusters can be accessed via

Main Menu → CLIENTS → All Clusters



Cluster Name	Cluster Code	Client	Email	Linked Sites and Site Templates	Linked Nodes and Node Templates	Linked Interfaces and Interface Templates	Linked Processes	Linked Apps	Linked People	Modified By/At
All WAN Thresholds	AW	Demo Client	n/a	n/a	n/a	n/a	n/a	n/a	n/a	G. A. / 3/03/201
Herb Cluster Thresholds Dashboard Top Stats Historical Stats	HC	Demo Client	n/a	n/a	n/a	Template: Environment Monitor --> Role: Explicit 7 Interfaces	n/a	n/a	n/a	S. A. / 4/03/201
Kerry Cluster Thresholds	KC	Demo Client	n/a	n/a	n/a	n/a	n/a	1 Applications	n/a	S. A. / 23/02/20
Router Interfaces Thresholds Dashboard Top Stats Historical Stats	RT	Demo Client	n/a	n/a	n/a	Template: ADSL And Router Links --> Role: Additional 20 Interfaces	n/a	n/a	n/a	S. A. / 23/02/20
SNR TEST Cluster Thresholds	Snr test	Demo Client	n/a	1 Sites	n/a	n/a	n/a	n/a	n/a	S. A. / 15/03/20
Security team Interfaces Thresholds Dashboard Top Stats Historical Stats	STI	Demo Client	n/a	n/a	n/a	25 Interfaces	n/a	n/a	n/a	S. A. / 15/03/20
Test Business Service Thresholds Dashboard Top Stats Historical Stats	TBS	Demo Client	support@netsas.com.au Role: Additional	Template: Data Centers --> Role: Explicit 3 Sites	Template: Routers --> Role: Explicit 2 Nodes	Template: ADSL And Router Links --> Role: Explicit 19 Interfaces	8 Processes	2 Applications	S. Admin DEMO	S. A. / 23/02/20
abksbdc Thresholds	ccascsad	External Monitoring Domain	n/a	n/a	n/a	n/a	n/a	n/a	n/a	G. A. / 3/03/201
External Web Sites Thresholds Dashboard Top Stats Historical Stats	EWB	External Monitoring Domain	n/a	2 Sites	5 Nodes	n/a	n/a	n/a	n/a	S. A. / 27/02/20
Lab Devices Thresholds Dashboard Top Stats Historical Stats	LD	Pathology	n/a	n/a	7 Nodes	n/a	n/a	n/a	n/a	S. A. / 9/11/201
Pathology Cluster Thresholds Dashboard Top Stats Historical Stats	PT	Pathology	support@pathology.com Role: Additional	n/a	n/a	Template: WAN Ports --> Role: Explicit 26 Interfaces	n/a	n/a	n/a	S. A. / 11/11/20
Some Ports Thresholds	SP	Pathology	n/a	n/a	n/a	n/a	n/a	n/a	n/a	S. A. / 11/11/20
sxazxaxas Thresholds	ssaxasxasxaxax	Pathology	n/a	n/a	n/a	n/a	n/a	n/a	n/a	G. A. / 3/03/201

To create a new cluster, please click on "➕" icon:



Please note that Cluster Client is used as a filter for User Visibility of the clusters. Only users who belong to relevant client or belong to the relevant Workgroup, which is linked to particular client, will be able to see the cluster.

Click on “View All Clusters” button to see all clusters.

All Clusters
Found: 14 Clusters

Cluster Name	Cluster Code	Client	Email	Linked Sites and Site Templates	Linked Nodes and Node Templates	Linked Interfaces and Interface Templates	Linked Processes	Linked Apps	Linked People	Modified By/At
All WAN Thresholds	AW	Demo Client	n/a	n/a	n/a	n/a	n/a	n/a	n/a	G. A. / 3/03/2016
Herb Cluster Thresholds Dashboard Top Stats Historical Stats	HC	Demo Client	n/a	n/a	n/a	Template: Environment Monitor --> Role: Explicit 7 Interfaces	n/a	n/a	n/a	S. A. / 4/03/2016
Kerry Cluster Thresholds	KC	Demo Client	n/a	n/a	n/a	n/a	n/a	1 Applications	n/a	S. A. / 23/02/201
My New Cluster Thresholds	MNC	Demo Client	n/a	n/a	n/a	n/a	n/a	n/a	n/a	S. A. / 3/04/2016
Router Interfaces Thresholds Dashboard Top Stats Historical Stats	RT	Demo Client	n/a	n/a	n/a	Template: ADSL And Router Links --> Role: Additional 20 Interfaces	n/a	n/a	n/a	S. A. / 23/02/201
SNR TEST Cluster Thresholds	Snr test	Demo Client	n/a	1 Sites	n/a	n/a	n/a	n/a	n/a	S. A. / 15/03/201

Click on the “My New Cluster” link. Now you can modify the cluster content by clicking on “✏” icon.

Single Cluster
All Clusters Thresholds

Cluster Name:	My New Cluster
Cluster Code:	MNC
Client:	Demo Client
Notification Email Address:	n/a
Linked Site Template:	n/a
Linked Sites:	n/a
Linked Node Template:	n/a
Linked Nodes:	n/a
Linked Interface Template:	n/a
Linked Interfaces:	n/a
Linked Processes:	n/a
Linked Applications:	n/a
Linked People:	n/a
Added/Moded by/at:	S. A. / 3/04/2016 16:24:06

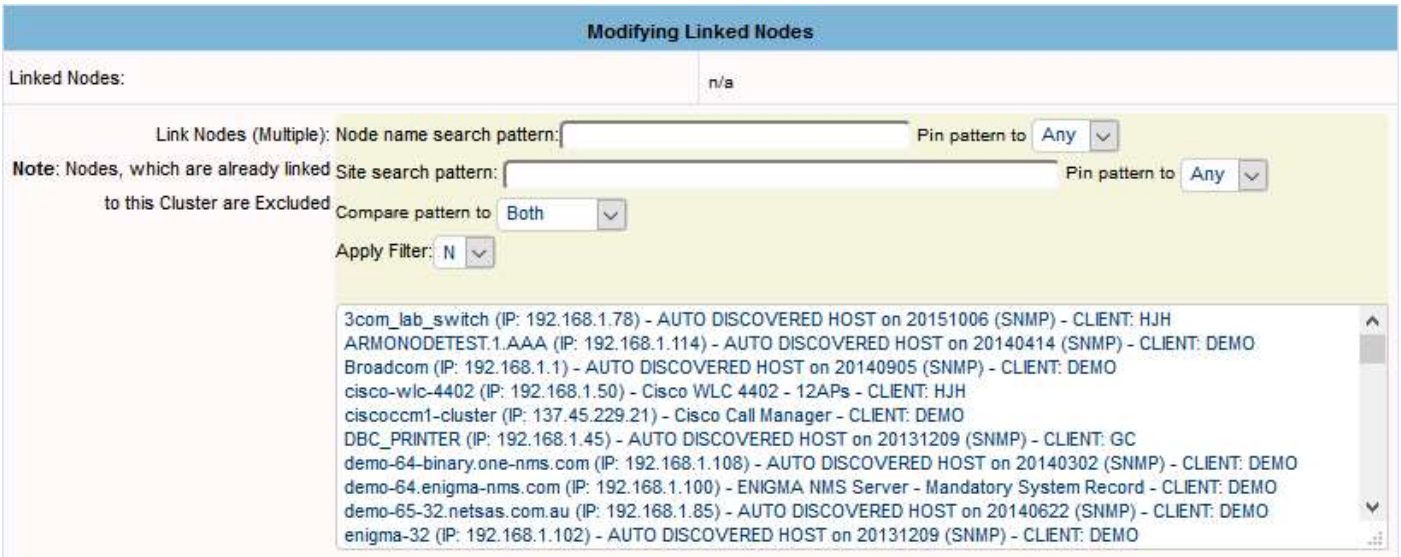
Single Cluster
All Clusters Thresholds

Cluster Name:	My New Cluster
Cluster Code:	MNC
Client:	Demo Client
Notification Email Address:	n/a
Linked Site Template:	n/a
Linked Sites:	n/a
Linked Node Template:	n/a
Linked Nodes:	n/a
Linked Interface Template:	n/a
Linked Interfaces:	n/a
Linked Processes:	n/a
Linked Applications:	n/a
Linked People:	n/a
Added/Moded by/at:	S. A. / 3/04/2016 16:24:06

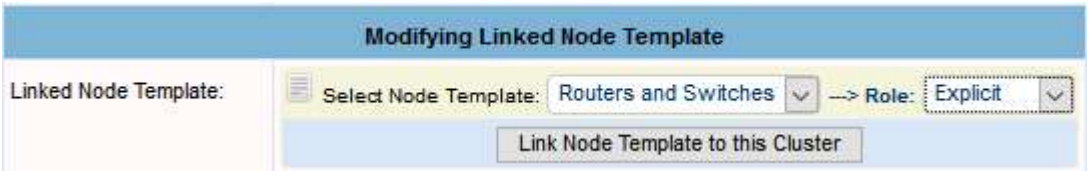
You can click on “✏” within particular object e.g. Linked Sites, Nodes, and Interfaces etc.
You can add objects manually or you can use relevant templates. Even when you are adding objects manually system provides you with the set of filtering options to assist in finding required objects faster.
Please see below example for adding Nodes, click on “✏” for Linked Nodes:

Modifying Linked Nodes

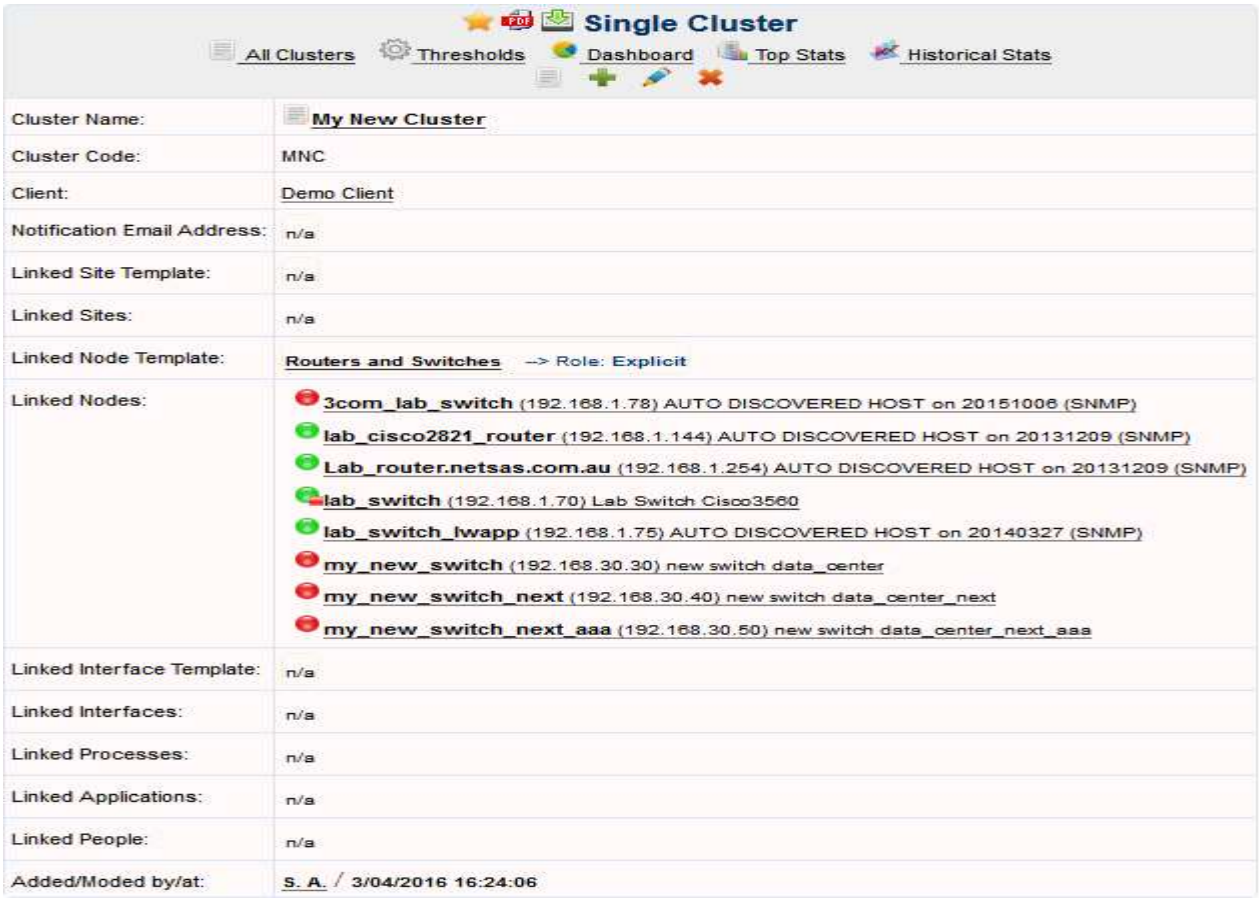
Linked Nodes:	n/a



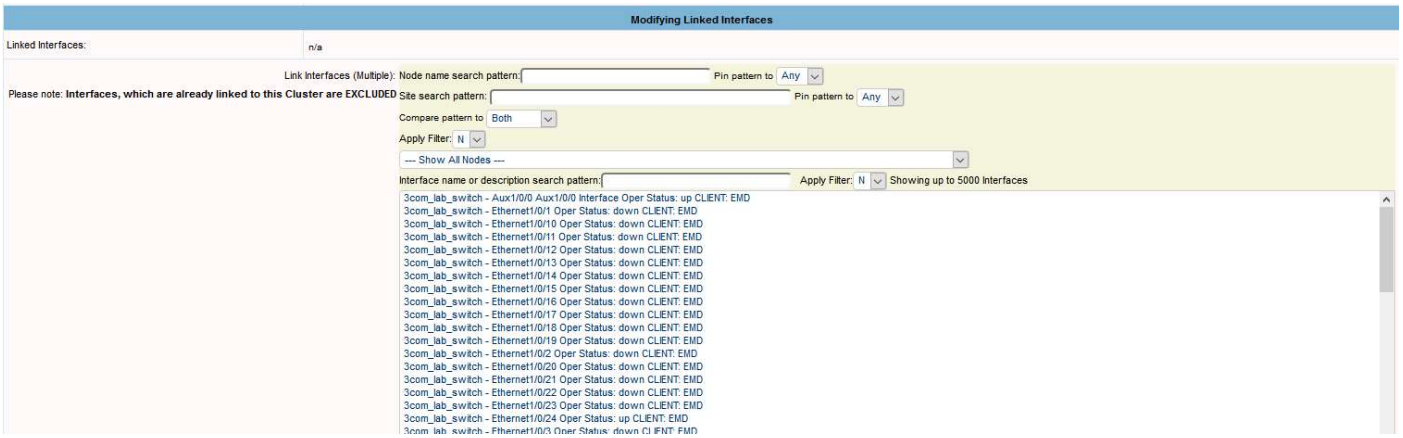
Or you can use the Node Template, click on "✏" for Linked Node Template:



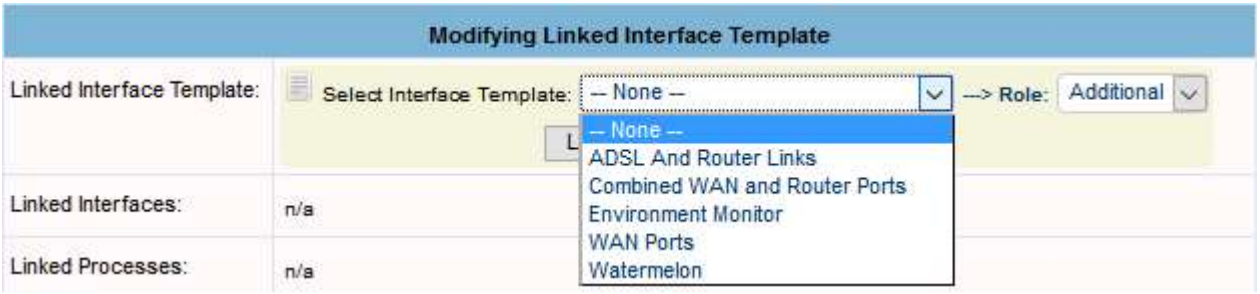
After you click on "Link Node Template to this Cluster" button, system will find all nodes, which match relevant template and add them to the cluster. Please note the Role is set to "Explicit" meaning that all nodes which maybe currently linked to this cluster but don't match the template will be removed from this cluster. Background process will regularly refresh cluster content and if new nodes added to the database, match the Node Template, they will be added to the cluster, keeping this cluster's content dynamically up to date.

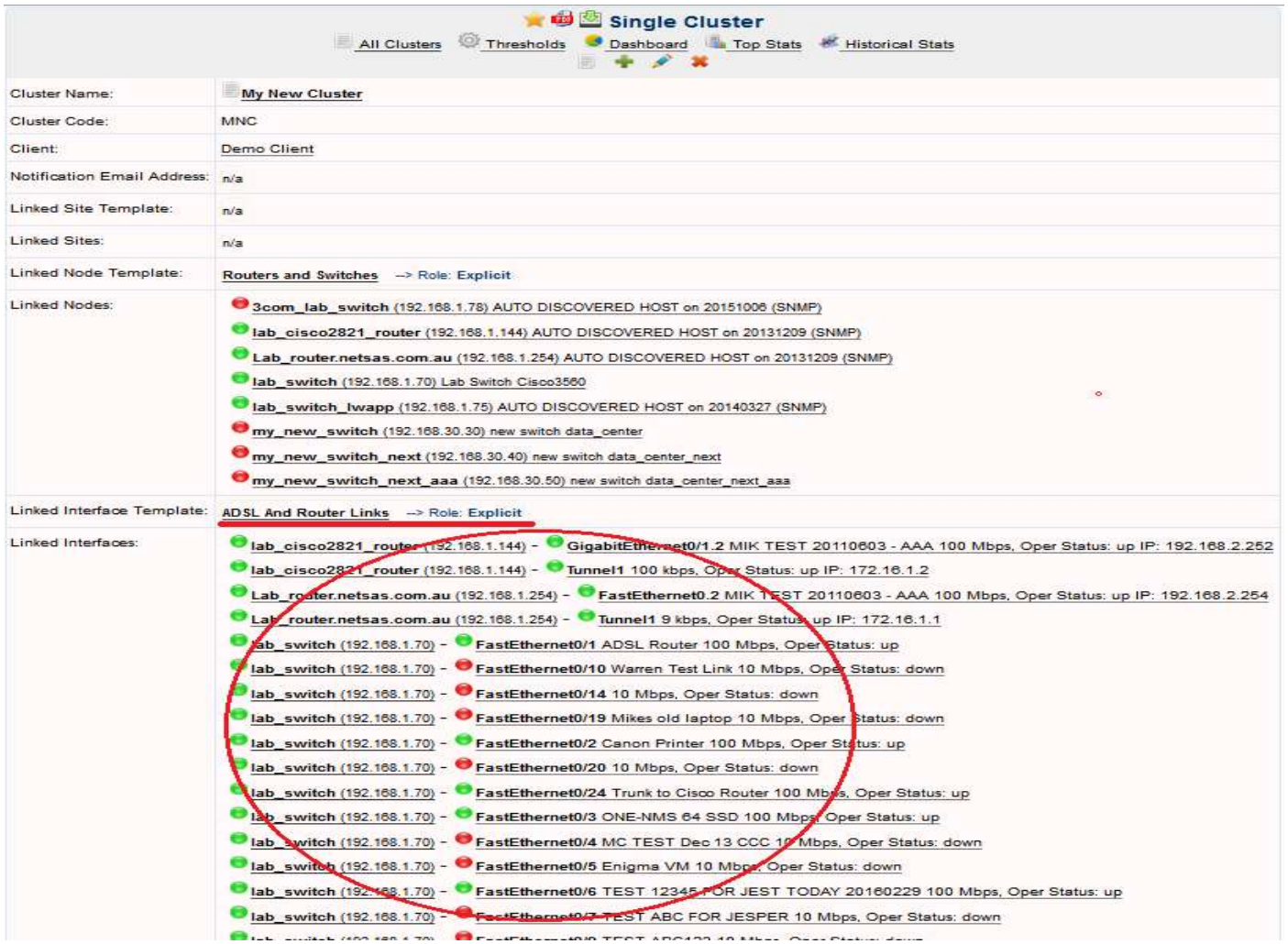


You can group Interfaces the same way. To configure the Email address, please click on "🖊" icon at the top and on "🖊" at the "Linked Interfaces" line:



Of for the Interface Template, please click on "🖊" icon at the top and on "🖊" at the "Linked Interface Template" line:





Please note the cluster field called “Notification Email Address”. If configured all alerts for relevant Nodes and Interfaces will be sent to email address. To configure the Email address, please click on “ ” icon at the top and on “ ” at the “Notification Email Address” line:

Please note the “Role” flag. If it is set to Explicit then alerts for relevant nodes and interfaces will be sent ONLY to this email address, overwriting the default notification logic:

Interface → Node → Client → Workgroup → On-Call Engineer.

Once you configure cluster content it will become avail as filtering option on the most reports and view throughout the system.