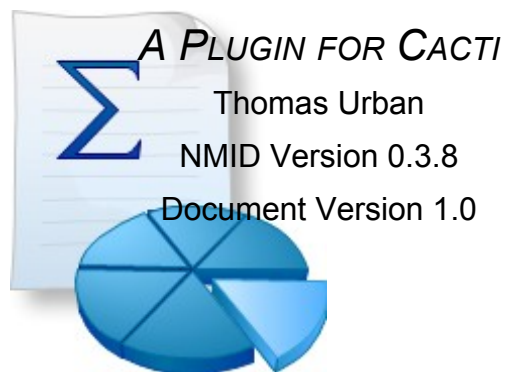


# NETWORK MANAGEMENT INVENTORY DATABASE





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# 1 INTRODUCTION

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## 1.1 ABOUT NETWORK MANAGEMENT INVENTORY DATABASE

The goal of the Network Management Inventory Database (NMID) Plugin for Cacti is to ease administrative efforts of network administrators by providing integration parts into other network management applications like CiscoWorks, CiscoACS or Freeradius.

NMID uses the Cacti database as inventory information for providing the necessary information to the corresponding plugins.

NMID falls into the Configuration discipline within the network management FCAPS<sup>1</sup> disciplines.

## 1.2 WHO SHOULD USE NMID

Network administrators in charge of several different network management systems should use NMID as the single source of information for all other systems. NMID reduces the administrative effort to manage the network information within all the systems and enables network support to focus on the network instead of management of the applications.

## 1.3 FEATURES

NMID is designed to as a main component responsible for the basic functionality and several addons which are responsible for the actual network management system integration. Connectors are provided for the communication between cacti and the network management systems.

### 1.3.1 ADDITIONAL FUNCTIONALITY

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- Web-Service ( SOAP ) Interface for NMS integration base on NuSoap

### 1.3.2 SUPPORTED NETWORK MANAGEMENT SYSTEMS

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- Smokeping
- CiscoWorks LMS
- Crannog / Fluke Networks NetFlow Tracker

## 1.4 LICENCE

The Cacti Plugin itself is released under the GPL. The different addons for the network management systems can have other licences.

## 1.5 SUPPORT

Different support options will be provided.

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<sup>1</sup>Fault, Configuration, Accounting, Performance, Security



### **1.5.1 SUPPORT FORUM**

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Coming soon.

Please use the [Cacti Forum](#) for now.

### **1.5.2 SUPPORT BY EMAIL**

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Please send support question to [support@urban-software.de](mailto:support@urban-software.de) providing the following information:

- What version do you use
- What operating system do you use
- What nmid plugins did you enable
- What additional plugins do you use
- What error did you see. Please provide screenshots if possible.

### **1.5.3 NMID HOMEPAGE**

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<http://www.urban-software.de/fcaps/fault-management/nmid.html>



## 2 NMID ADMINISTRATION

The nmid plugin provides the basic functionality for all other nmid addons.

### 2.1 INSTALLATION

Place the nmid plugin into the cacti plugins directory.

To enable the plugin add the following line to the global.php file:

```
$plugins[] = 'nmid';
```

Add the following lines to *lib/html\_tree.php* at around line 795:

```
if (!empty($leaf_id)) {  
    do_hook_function('tree_after',$host_name.','.$get_request_var("leaf_id"));  
}
```

This line needs to be put right before the following lines:

```
    print "</table>";  
}  
  
function find_first_folder_url() {
```



## 2.2 CONFIGURATION

Within the configuration screen all necessary information can be set. Also this screen allows the selection of the supported network management systems.

The screenshot displays the Cacti web interface's configuration page for NMID. The top navigation bar includes 'console' and 'graphs' tabs. The left sidebar lists various system utilities and management options. The main content area is titled 'Cacti Settings (NMID)' and features a series of tabs: 'General', 'Paths', 'Poller', 'Graph Export', 'Visual', 'Authentication', and 'NMID'. The 'NMID' tab is active, revealing a form with multiple sections for configuration. These sections include 'NMID - Additional Settings' with fields for 'Show NMID as Tab', 'Default RW SNMP Community', 'Default Tacacs Key', 'Device Login UsersID', 'Device Login Password', and 'Device Login Enable Password'. Below this is the 'NMID - Smokeping - General' section, which contains fields for 'Smokeping URL', 'Smokeping Graph Type', 'Show Smokeping link next to graph', 'Smokeping UserID', and 'Smokeping Password'. The 'NMID - Smokeping Server' section follows, with four entries for 'Smokeping URL - Server 1' through 'Server 4'. The 'NMID - NF Tracker' section includes fields for 'NF Tracker URL', 'NF Tracker UserID', 'NF Tracker Password', and 'NF Tracker TopN Count'. The 'NMID - Webservice' section has a 'WebService Password' field. Finally, the 'NMID - Eisco Works - General' section is partially visible at the bottom. A green cactus icon is positioned in the left sidebar. At the bottom right of the configuration area, there are 'cancel' and 'save' buttons.

The following sections exist in the configuration screen:



## 2.2.1 NMID - ADDITIONAL SETTINGS

NMID - Additional Settings	
<b>Show NMID as Tab</b> Show NMID as Tab on top. You need to reload the page before the change is visible.	<input type="checkbox"/> Show NMID as Tab
<b>Default RW SNMP Community</b> Default Read-Write Community. Needed for CiscoWorks and other Network Management systems.	private
<b>Default Tacacs Key</b> Default Tacacs Key. Needed for CiscoACS.	tacacskey
<b>Device Login UsersID</b> Userid used to login to the network devices. Needed for CiscoWorks and other Network Management systems.	phalek
<b>Device Login Password</b> Password used to login to the network devices. Needed for CiscoWorks and other Network Management systems.	XXXXXXXXXX XXXXXXXXXX
<b>Device Login Enable Password</b> Password used to get into enable mode. Needed for CiscoWorks and other Network Management systems.	XXXXXXXXXX XXXXXXXXXX

The additional settings sections provides all necessary default settings for creating working configuration files for the network management systems. This information includes:

- Show NMID as Tab

This information enables or disables the Tab on the top. When this function is disabled, all relevant information is shown in the console menu.

- Default Read-Write SNMP community
- Default Tacacs Key
- Default Device Login UserID
- Default Device Login Password
- Default Device Enable Password

This information will be used by e.g. CiscoWorks or CiscoACS in order to create a valid import file. This information can also be used for automated command execution on cisco devices.



## 2.2.2 NMID - SMOKEPING

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The smokeping section provides necessary information for the local or remote smokeping setup. The following information needs to be setup:

- Smokeping URL
- Smokeping Graph Type ( Detail Graph, Overview Graph )
- Show Smokeping link next to graph
- Smokeping UserID ( optional )
- Smokeping Password ( optional )

This information is used to display the smokeping graphs in the graphs section and to deploy the smokeping target section to the smokeping host.

Up to 4 smokeping servers can be configured.

## 2.2.3 NMID - NF TRACKER

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Within the NF Tracker section all information for accessing the NF Tracker web-interface can be set. This includes:

- NF Tracker URL
- NF Tracker UserID
- NF Tracker Password
- NF Tracker TopN Count

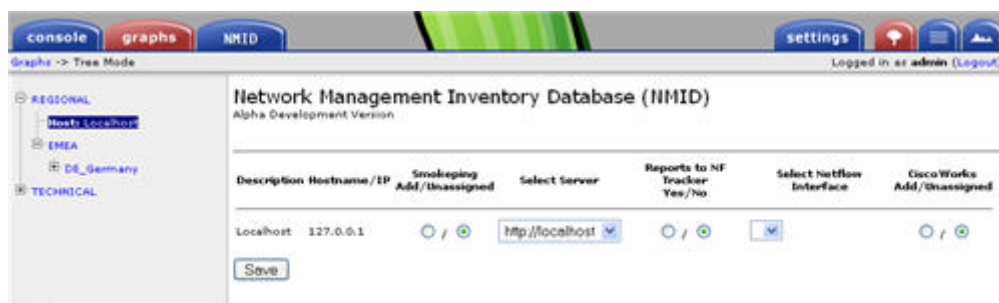
## 2.2.4 NMID - WEBSERVICE SUPPORT

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The web service needs to be protected with a password. This can be set within this section.

## 2.3 DEVICE CONFIGURATION SCREEN

The device configuration screen which is accessible through the top NMID tab can be used to assign or remove devices to each of the enabled network management systems. Each of the nmid plugins provide their own section for this screen.







## 3 PLUGINS

### 3.1 SMOKEPING PLUGIN

The Smokeping plugin allows the user to assign devices to one of the 4 definable smokeping servers. The target section for the smokeping configuration can then be retrieved via the webservice plugin which is described later on.

#### 3.1.1 REQUIREMENTS

A working smokeping installation is required. Also access to the smokeping web interface from the cacti server needs to be enabled ( e.g. Firewall settings ).

The webservice plugin needs to be enabled.

The cgi needs the following Perl modules installed:

```
use CGI;
use LWP::Simple;
use LWP::UserAgent;
use SOAP::Lite;
```

#### 3.1.2 INSTALLATION/SETUP

Place the nmidSmokeping plugin into the cacti plugins directory. In order to view the smokeping graphs within the graph tree the file getSmokePingPath.pl needs to be put into the cgi-bin path. It must be callable with `http://cactihost/cgi-bin/getSmokePingPath.pl`.

To enable the plugin add the following line to the global.php file:

```
$plugins[] = 'nmidSmokeping';
$plugins[] = 'nmidWebService'; // Mandatory !
```

Edit the getNetFlowHistory.pl file and change the following lines at the top to match your configuration:

```
#!/usr/bin/perl
# for windows:
#!"D:\path\to\perl.exe"

...

### START OF WEB SERVICE SETTINGS ###
my $webservice_password = '';
my $webservice_url = 'http://cactihost/plugins/nmidWebService/webservice.php?wsdl';
my $tmp_dir = '/tmp/';
### END OF WEB SERVICE SETTINGS ###
```



### 3.1.3 CONFIGURATION

The following screen shows the possible smokeping settings ( from the demo installation ):

NMID - Smokeping - General	
<b>Smokeping URL</b> This is the relative URL used to connect to Smokeping . (ex: /cgi-bin/smokeping.cgi).	<input type="text" value="/cgi-bin/smokeping.cgi"/>
<b>Smokeping Graph Type</b> Choose which Smokeping graph type to display.	<input type="text" value="Detail Graph"/> ▼
<b>Show Smokeping link next to graph</b> Show Smokeping link next to graph.	<input checked="" type="checkbox"/> Show Smokeping link next to graph
<b>Smokeping UserID</b> UserID used to connect to Smokeping (htaccess).	<input type="text" value="phalek"/>
<b>Smokeping Password</b> Password used to connect to Smokeping (htaccess).	<input type="password" value="XXXXXXXXXX"/> <input type="password" value="XXXXXXXXXX"/>
NMID - Smokeping Server	
<b>Smokeping URL - Server 1</b> This is the server URL used to connect to Smokeping . (ex: http://1.2.3.4).	<input type="text" value="http://cacti.urban-software.de"/>
<b>Smokeping URL - Server 2</b> This is the server URL used to connect to Smokeping . (ex: http://1.2.3.4).	<input type="text"/>
<b>Smokeping URL - Server 3</b> This is the full URL used to connect to Smokeping . (ex: http://1.2.3.4).	<input type="text"/>
<b>Smokeping URL - Server 4</b> This is the full URL used to connect to Smokeping . (ex: http://1.2.3.4).	<input type="text"/>



## 3.2 NETFLOW TRACKER PLUGIN

The NetFlow Tracker plugin allows the display of netflow statistics from Fluke NetFlow Tracker within cacti's graph tree. The plugin cannot create any configuration parameters for NF Tracker.

### 3.2.1 REQUIREMENTS

A working installation of Flukes NetFlow Tracker needs to be available and the web-interface needs to be accessible from the cacti server. A valid userid and password needs to be setup on the NF Tracker server.

A valid licence for [ChartDirector](#) from Advanced Software Engineering is needed to display the netflow graphs.

Please contact the support email for further details on how to obtain the addon.

### 3.2.2 INSTALLATION/SETUP

Place the nmidNFTracker plugin into the cacti plugins directory. In order to view the NF Tracker graphs within the graph tree the file getNetFlowHistory.pl needs to be put into the cgi-bin path. It must be callable with `http://cactihost/cgi-bin/getNetFlowHistory.pl`.

To enable the plugin add the following line to the global.php file:

```
$plugins[] = 'nmidNFTracker';
```

### 3.2.3 CONFIGURATION

The following screen shows the possible NF Tracker settings:

NMID - NF Tracker	
<b>NF Tracker URL</b> This is the full URL used to connect to the NF Tracker server. (ex: <code>http://1.2.3.4:8000/</code> ).	<input type="text" value="http://localhost:8000"/>
<b>NF Tracker UserID</b> UserID used to connect to NF Tracker.	<input type="text" value="phalek"/>
<b>NF Tracker Password</b> Password used to connect to NF Tracker.	<input type="password" value=""/> <input type="password" value=""/>
<b>NF Tracker TopN Count</b> Number of TopN addresses to show.	<input type="text" value="10"/>



### 3.3 CISCOWORKS *PLUGIN*

The initial CiscoWorks plugin will create a working CiscoWorks import file in CSV Version 3 format. This file is automatically created and can be retrieved via the webservice plugin.

#### 3.3.1 REQUIREMENTS

---

- none

#### 3.3.2 INSTALLATION/SETUP

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Place the nmidCiscoWorks plugin into the cacti plugins directory.

To enable the plugin add the following line to the global.php file:

```
$plugins[] = 'nmidCiscoWorks';
```



## 3.4 WEBSERVICE PLUGIN

The webservice plugin provides a password protected interface to the network management configuration files.

### 3.4.1 REQUIREMENTS

- nuSOAP
- WebService password set

### 3.4.2 INSTALLATION/SETUP

Place the nmidCiscoWorks plugin into the cacti plugins directory.

To enable the plugin add the following line to the global.php file:

```
$plugins[] = 'nmidWebService';
```

### 3.4.3 CONFIGURATION

The following screen shows the possible WebService settings:

NMID - WebService	
<b>Web Service Password</b> Password used to connect to the webservice	<input type="password" value="XXXXXXXXXX"/>
	<input type="password" value="XXXXXXXXXX"/>

### 3.4.4 USAGE

```
<?php
// Pull in the NuSOAP code
require_once('./lib/nusoap.php');

// Create the client instance
$client = new soapclient('http://server/plugins/nmidWebService/webservice.php');

// Call the soap method for retrieving the CiscoWorks CSV file
// web-service password is "Test123"
$result = $client->call('getCiscoWorksConfig',
    array( 'password' => 'test123' )
);

print_r($result);

// Call the soap method for retrieving SmokePing config
// web-service password is "Test123"
$result = $client->call('getSmokePingConfig',
    array( 'password' => 'test123',
           'server' => 'nmid_spserver1' )
);

// Display the result
print_r($result);
?>
```