

# TOM — Toggle Management for MIB-II

*Expanding possibilities...*

for  
Unicenter TNG 2.x and NSM 3.0

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## Introduction

TOM — Toggle-Management for Mib-II is an API integration into Unicenter's event management (EM), agent technology (AT) and world view (WV) and uses the full performance and the power of this message-processing environment.

Unicenter NSM Agent Technology Managers include a Mib-II Policy to monitor SNMP-enabled systems using SNMP get requests. The policy uses MIB-II's ifTable to calculate the Severity of a single woldview object "Mib-II" per monitored system.

Although the state of each individual interface can be viewed using node-view there is no possibility to disable the monitoring of any individual interfaces. The system monitors **all** Mib-II objects of a system.

Today's networking and server environments are quite complex and therefore toggling on and off certain interfaces is a key minimum requirement of network and system administrators.

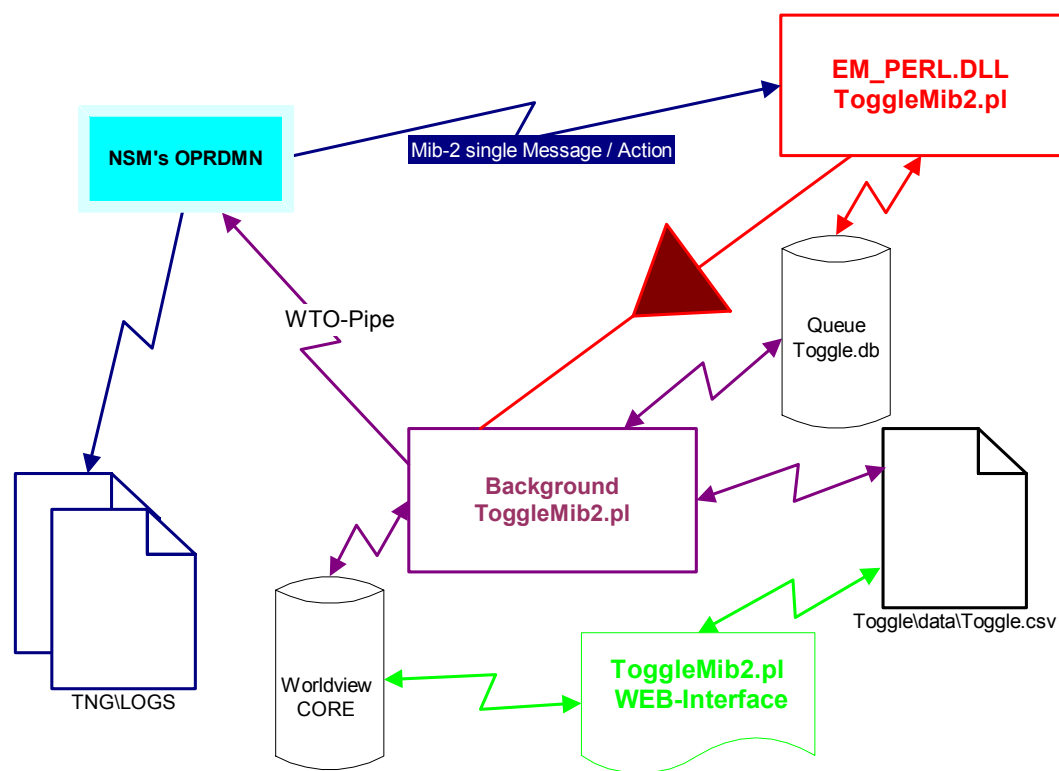
TOM provides this add-on for NSM with several additional benefits:

- Integration to NSM with a single message / action.
- A powerful Web-Interface displays a real time Mib-II summary over the context menu of the Unicenter TNG 2D map.
- Simple toggling of interfaces – the toggle state is preserved over successive restarts of NSM.
- Interface and toggle-information is stored in a single CSV-File. A copy of the file can be easily edited with Excel etc. Mass changes are therefore simple and easy to do.
- The toggle-management CSV-File is extended automatically by NSM-messages or with detailed SNMP-information from the Web-Interface (zero administration).
- TOM detects outside configuration changes automatically without restart (smart config).

TOM was designed upon the requirement during a project with the leading Tyrolean energy supplier to represent the states of toggled on Host-, Router- and Switch-interfaces only. Toggled off interfaces should not appear in Unicenter's core and should not create notifications.

## Concept

TOM is linked to Unicenter over several APIs. TOM is integrated as menu entry on the Mib2 Class of 2D. A message / action calls the API of TOM to perform and sends the Mib-II message to the queue of TOM. A background processing daemon performs all necessary work to show toggled on interfaces in 2D only. Furthermore messages appear only for toggled on interfaces. Finally the Web-interface of TOM allows a real time glance at the status of individual servers, routers and switches.



**Figure 1 Interfaces of the Toggle Management for Mib-II**

Figure 1 outlines the working principle of TOM. NSM's oprdmn triggers via the EM\_PERL.DLL the ADD-function of ToggleMib2.pl. It appends the complete message into the toggle queue. It starts an independent background daemon to perform all necessary operations with this message and the toggle file. The background daemon stays in a waiting loop as long as there are messages to process.

For each interface toggled on worldview objects are created and the severity is set. Messages are passed back to event management.

## Components

TOM consists of several components that need to be configured correctly to enable a correct operation.

### Background Daemon

The background daemon is used to process mass messages without a high system load. TOM was designed to have a small as possible system load on the NSM server. When the distributed state machine starts up a state change appears for each Mib-II interface.

Because of the design TOM processed all these messages at a minimal load for the NSM server.

Worldview objects are created by directly using the API. Event messages are sent back to NSM with wtopipe – a utility that was designed to create arbitrary mass NSM messages.

### WEB-Interface

The WEB interface allows an “agent-style” view to systems having Mib-II enabled. Each interface may toggled on or off.

### EM\_PERL.DLL

TOM is driven by a DLL-call from a message / action which loads an PERL-interpreter in the process space of CAOPRDMN.

### PERL

The program which interprets Perl and makes the computer do what it says.

### Wtopipe

Is a utility to set any parameter of a message and write it into the console of Unicenter.

### WV-CORE

The architecture allows more than just one processing daemon. Additional daemons may be added to AEP. Currently a Service Level Report Daemon is in development phase.

### Enterprise Management Interface

The architecture allows more than just one processing daemon. Additional daemons may be added to AEP. Currently a Service Level Report Daemon is in development phase.

## Using TOM

Tom allows you to store interfaces to monitor permanently in a text file. The file is a tab separated list. The list will be automatically expanded with data when the WEB-Interface or a new interface arrives through a NSM message.

The first line in the CSV contains a comment which describes each individual field: #Toggle      Node    Interface Index      Interface  
Description    Physical Address    Administrative      Status  
Operational Status    IP Address    Subnet Mask      Last    Access  
User # Optional comments start here

You may use a copy of the file to edit the file with Excel. Please do not open the file itself because Excel performs an exclusive lock making the file unavailable for TOM.

The WEB-Interface is available from Unicenter 2D to toggle off or on individual interfaces. The WEB-Interface performs a real time view to the interfaces of a networking device to make the identification of the correct interfaces easier.

Toggle	Interface Index	Interface Description	Physical Address	Administrative Status	Operational Status	IP Address	Subnet Mask
<input type="checkbox"/>	1	ATM1 0	N/A	Down(2)	Down(2)	N/A	N/A
<input type="checkbox"/>	2	ATM1 1	N/A	Up(1)	Up(1)	N/A	N/A
<input type="checkbox"/>	3	ATM1 2	N/A	Down(2)	Down(2)	N/A	N/A
<input type="checkbox"/>	4	ATM1 3	N/A	Down(2)	Down(2)	N/A	N/A
<input type="checkbox"/>	5	FastEthernet0/0	0x00D0586E9F40	Up(1)	Up(1)	N/A	N/A
<input type="checkbox"/>	6	Null0	N/A	Up(1)	Up(1)	N/A	N/A
<input type="checkbox"/>	7	ATM1 0-atm layer	N/A	Down(2)	Down(2)	N/A	N/A

For all Mib-2 Messages in Unicenter NSM the Message/Action  
“\* Mib-II \* \* \* \* (\*)” is triggered and checks the interface if it is toggled  
on . If not the message is ignored. However if it is toggled on a  
Worldview Object is created and the status of the object is set.

Additionally the same message appears in the console with the  
prefix: ToggleMib2:

Use this message for notifications.

## Installation

The instructions assume that ToggleMib2 will be installed in the directory C:\Scripts\Toggle . For a different directory changes are needed accordingly.

### 00- PERL

Download and Install Activestate Perl 5.6.x for Windows from <http://www.activestate.com/Products/Download/Download.plex?id=ActivePerl> . Please note that only version **5.6.x** will be supported by TOM. Install Perl in i.e. C:\Perl and do not use a directory with blanks inside.

### 01- Install TOM-ZIP

Extract the TOM.ZIP file to C:\Scripts . Select “use folder names” when extracting.

Move the directories **bin**, **data** and **logs** to the directory **C:\Scripts\Toggle** .

### 02- Em-Perl-DLL

The package contains the Perl 5.6.x version of the em\_perl.dll.

The system variable PATH must point to the directory where “em\_perl.dll” will be copied. (Start -> Settings -> Control Panel -> System -> Environment). This will allow you to use the EXTERNAL action without having to specify the full path to the DLL.

Set the system variable “CAIOPRPERL” to the path of the ToggleMib2.pl file (Start -> Settings -> Control Panel -> System -> Environment ; make sure it's a system variable !) i.e “CAIOPRPERL” “C:\Scripts\Toggle\bin\ToggleMib2.pl”

As your Perl script uses modules, set the system variable “PERL5LIB” to the location(s) where Perl can find your modules (typically C:\PERL\LIB;C:\PERL\SITE\LIB;C:\Scripts\Toggle\bin).

### 03- WV-PERL

Extract WV-Perl into the directory C:\Perl\site . Select “use folder names”.

### 04- EM-PERL

Extract EM-Perl into the directory C:\Perl\site . Select “use folder names”.

**05- DB-FILE**

Extract the file DB\_File-1.806.zip to a temporary directory and install it with the following command:

```
ppm install DB_File.ppd
```

**06- DB-FILE-Lock**

Extract the file DB\_File-Lock.zip to a temporary directory and install it with the following command:

```
ppm install DB_File-Lock.ppd
```

**07- TNGEX.DLL**

Extract the file tngex\_dll.zip to a temporary directory and copy the DLL-File to the BIN-directory of TND i.e. C:\TND\BIN .

**08- Internet Explorer**

Add the internet explorer to your system PATH: (Start -> Settings -> Control Panel -> System -> Environment)

**09- WV-Classes**

Add the following Unicenter Woldview class: Managed\_Interface derived from the class Interface.

**10- ToggleMib2.pl**

Modify the settings in the BEGIN-block, section configure of ToggleMib2.pl.

```
$TOM::rootdir="C:\\Scripts\\Toggle"; # CONFIGURE The installation directory of TOM
$TOM::url="http://nsm021/Toggle/ToggleMib2.pl"; # CONFIGURE The WEB-URL-Address of TOM
$TOM::perl="C:\\Perl\\bin\\perl.exe"; # CONFIGURE The path to the perl.exe file
$TOM::tngrep='nsm021'; # CONFIGURE The name of the NSM repository
$TOM::tnguser='sa'; # CONFIGURE The database user for the NSM repository
$TOM::tngpwd='demo'; # CONFIGURE The database password for the NSM repository
```

**11- Menue-Entry for class Mib2**

Start class wizard with "Edit Class" at a Mib2 object and enter the following:

Caption: **Toggle Mgmnt**

Method:

Name: **ToggleMgmnt**      Type: **Exe**      Command: **iexplore.exe**

Parameters:

**"http://nsm021/toggle/togglemib2.pl?class=\$class\$&&name=&name&&&address=&address&&&get\_auth\_name=&get\_auth\_name&"**



## 12- Load the message actions

Open a command prompt. Change to the directory C:\Scripts\Toggle\Kit\data and execute

**cautil -f mesg-act.txt**

## 13- Reboot the NSM server

Reboot your server (due to the system variables that must be set, stopping and starting the Unicenter services isn't enough) at the end of all installation steps.