

Title: PM-bulk_interface_updates

Date: 13-Oct-2014

Purpose:

This script provides you the capability to update interface speeds (In and Out) in bulk. The script uses web service calls to CA Performance Center and the Data Aggregator.

Prerequisites:

Perl

This script is written in Perl, so you will need to have a system with Perl installed. To download and install Perl, you can follow instructions here: <http://learn.perl.org/installing/>

The following Perl packages are used within the migration scripts, so please ensure they have been installed:

1. REST::Client
2. XML::Tidy
3. Path::Class

The Perl packages listed above are available at <https://metacpan.org/>.

To install these packages simply run the following command from your system where Perl is installed:

```
cpanm Module::Name  
Example: cpanm REST::Client
```

cpanm will download, extract and install the package you have requested for.

Note: As stated in the install instructions for Perl, please have App::cpanminus installed before installing other Perl packages.

PM - Data Aggregator

Currently there is a typo in one of the XML schema definition files. It needs to be updated before this script can be used.

Please follow these instructions to update the file:

1. Logon to your Data Aggregator system.
2. Go to the following directory:
/opt/IMDataAggregator/apache-karaf-2.3.0/xsd
3. Open up the following file using a file editor:
basefiltersselect.xsd
4. Find the following line:
`<xs:enumeration value="STARTS_WTIH"/>`

5. Update the above line with the following:
`<xs:enumeration value="STARTS_WITH"/>`
6. Save the file and exit the editor.

PM Version support

This script is supported on PM 2.3.4.

Caveats:

These scripts are developed by CA Engineering Services (SWAT). They are to be used with the understanding that it is at Your Own Risk. It is recommended the end user test this in a lab environment before work is done with any live data!! CA Support does not support these scripts. SWAT will use a 'best effort' to support and maintain as priorities permit.

Process:

Define a group in CAPC

The first step is to define a group in CAPC and populate the group with interfaces. Here's an example of a group defined in CAPC and populated with interfaces:

The screenshot shows the CAPC Groups interface. On the left, a sidebar lists various groups, with 'Update_Interfaces' selected. The main panel displays the 'Items' tab for this group, showing a list of 12 interfaces. The list includes columns for Interface Name, Description, Device, Alias, Index, and Added By. The interfaces are listed in a table with checkboxes for selection.

Interface Name	Description	Device	Alias	Index	Added By
Fa0/0	FastEthernet0/0	cis7204-96	"Connected to fa2/0"	1	Rule
Fa1/0	FastEthernet1/0	cis7204-96	"Connected to Fa2/0"	2	Rule
Fa1/0	FastEthernet1/0	cis7204-96	"Connected to Fa3/0"	2	Rule
Fa2/0	FastEthernet2/0	cis7505-96	"Connected to Fa1/0"	11	Rule
Fa2/1	FastEthernet2/1	cis7505-96	"Connected to E1 o"	12	Rule
Fa3/0	FastEthernet3/0	cis7204-96	"Connected to Fa3/0"	4	Rule
Fa3/0	FastEthernet3/0	cis7204-96	"Connected to fa3/0"	4	Rule
Fa3/0/0	FastEthernet3/0/0	cis7505-96	"Connected to Fa1/0"	8	Rule
Fa3/1/0	FastEthernet3/1/0	cis7505-96	"Connected to E1 o"	9	Rule
Fa4/0	FastEthernet4/0	cis7204-96	"Connected to fa0/0"	5	Rule

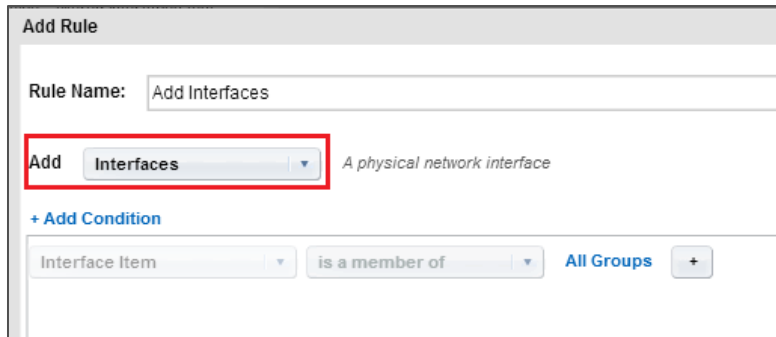
At the bottom of the interface, there are buttons for 'Add Group', 'Remove Group', 'Add Item Type', and 'Add Rule'. The 'Max Per Page' is set to 10.

Populate group using Rules

Important: Currently the script does not support the manual addition of interfaces to a group – interfaces must be populated using rules.

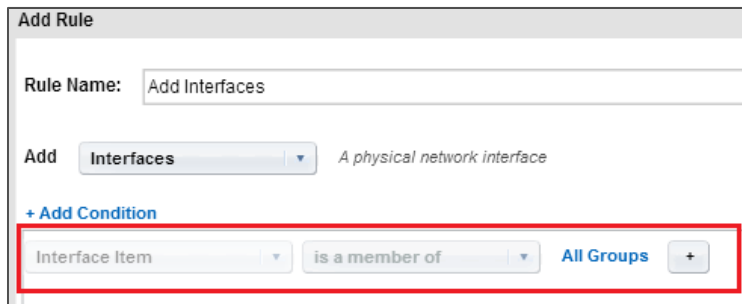
There are certain requirements and limitations when defining rules and conditions to populate the group with interfaces.

1. When defining a rule make sure the 'Add' option is set to 'Interfaces'



The screenshot shows the 'Add Rule' form. The 'Rule Name' field contains 'Add Interfaces'. The 'Add' dropdown menu is set to 'Interfaces', which is highlighted with a red box. To the right of the dropdown, the text 'A physical network interface' is visible. Below the dropdown, there is a '+ Add Condition' link. Under this link, there is a condition row with 'Interface Item' in the first dropdown, 'is a member of' in the second dropdown, and 'All Groups' in the third dropdown, followed by a '+' button.

2. The first condition in the rule (created automatically) should always have the group membership set to 'All Groups'.



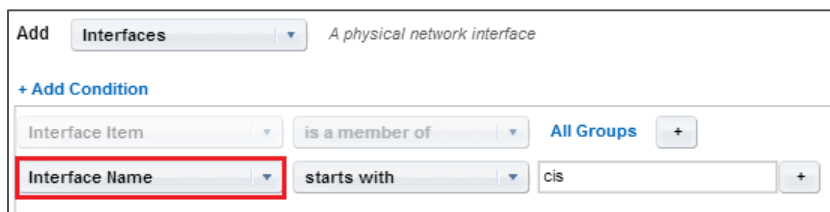
The screenshot shows the 'Add Rule' form. The 'Rule Name' field contains 'Add Interfaces'. The 'Add' dropdown menu is set to 'Interfaces', with the text 'A physical network interface' to its right. Below the dropdown, there is a '+ Add Condition' link. Under this link, there is a condition row with 'Interface Item' in the first dropdown, 'is a member of' in the second dropdown, and 'All Groups' in the third dropdown, followed by a '+' button. This entire condition row is highlighted with a red box.

3. At least one additional condition on interfaces must be defined.

If you don't define at least one interface condition, in addition to the one that gets created automatically to define group membership, the script will not execute.

This will prevent updating all interfaces discovered in IM – the goal here is to narrow down/filter down the number of interfaces that need speed updates.

Examples:



The screenshot shows the 'Add Rule' form. The 'Rule Name' field contains 'Add Interfaces'. The 'Add' dropdown menu is set to 'Interfaces', with the text 'A physical network interface' to its right. Below the dropdown, there is a '+ Add Condition' link. Under this link, there are two condition rows. The first row has 'Interface Item' in the first dropdown, 'is a member of' in the second dropdown, and 'All Groups' in the third dropdown, followed by a '+' button. The second row has 'Interface Name' in the first dropdown (highlighted with a red box), 'starts with' in the second dropdown, and 'cis' in the third dropdown, followed by a '+' button.



The screenshot shows the 'Add Rule' form. The 'Rule Name' field contains 'Add Interfaces'. The 'Add' dropdown menu is set to 'Interfaces', with the text 'A physical network interface' to its right. Below the dropdown, there is a '+ Add Condition' link. Under this link, there are two condition rows. The first row has 'Interface Item' in the first dropdown, 'is a member of' in the second dropdown, and 'All Groups' in the third dropdown, followed by a '+' button. The second row has 'Interface Description' in the first dropdown (highlighted with a red box), 'is like' in the second dropdown, and 'Cisco' in the third dropdown, followed by a '+' button.

Add **Interfaces** A physical network interface

[+ Add Condition](#)

Interface Item	is a member of	All Groups	+
Interface Alias	is like	unrouted	+

4. Currently only the following interface conditions are supported:

Interface Name	Interface Name
Interface Description	Interface Description
Interface Alias	Interface Alias

5. In addition to the interface conditions, you can define device conditions.
Currently only the following device conditions are supported:

Device Name	Device Name
-------------	-------------

6. Currently only the following operators for a condition are supported:

starts with	starts with
ends with	ends with
is equal to	is equal to
is like	is like

7. Multiple interface conditions defined in a rule is supported.

Examples:

Add **Interfaces** A physical network interface

[+ Add Condition](#)

Interface Item	is a member of	All Groups	+	[delete]
Interface Name	starts with	Fa	+	[delete]
Interface Description	is like	FastEther	+	[delete]

Add **Interfaces** *A physical network interface*

+ Add Condition

Interface Item	is a member of	All Groups	+	[delete]
Interface Name	starts with	Fa	+	[delete]
Interface Description	is like	FastEther	+	[delete]
Interface Alias	is like	connected	+	[delete]

8. Conditions with OR operators are supported.

Example:

Add **Interfaces** *A physical network interface*

+ Add Condition

Interface Item	is a member of	All Groups	+	[delete]
Interface Name	starts with	Fa	+	[delete]
Interface Description	is like	FastEther	+	[delete]
Interface Alias	is like	connected	+	[delete]
OR unrouted				✗

9. Device conditions are supported as long as an interface condition, at least one, is also defined.

Example:

Add **Interfaces** *A physical network interface*

+ Add Condition

Interface Item	is a member of	All Groups	+	[delete]
Interface Name	starts with	Fa	+	[delete]
Interface Description	is like	FastEther	+	[delete]
Interface Alias	is like	connected	+	[delete]
OR unrouted				✗
Device Name	is like	cis72	+	[delete]

Important: CA Performance Center is case insensitive on the user defined values for a condition, but due to some limitations on the web services, the script is case sensitive on user defined values. So please keep this in mind when defining values for a condition.

Let's consider the example below:

Add **Interfaces** *A physical network interface*

+ Add Condition

Interface Item	is a member of	All Groups	+	
Interface Name	starts with	vl	+	

Here we have defined a rule for a group in CAPC so that it filters on interface names starting with a lowercase 'v' and a lower case 'l'.

Here is a listing of interfaces that match this condition:

Properties Rules Items						
Show items: Direct Items						
▼ Interfaces (52) + Add Interfaces - Remove Interfaces						
<input type="checkbox"/>	Interface Name	Description	Device	Alias	Index	Added By
<input type="checkbox"/>	VI1	Vlan1	cis7606-9	Vlan1	52	Rule
<input type="checkbox"/>	VI1	Vlan1	UPDATED		54	Rule
<input type="checkbox"/>	VI100	Vlan100	cis7606-9	Vlan100	131	Rule
<input type="checkbox"/>	VI101	Vlan101	cis7606-9	Vlan101	64	Rule
<input type="checkbox"/>	VI200	Vlan200	cis7606-9	Vlan200	132	Rule
<input type="checkbox"/>	VI246	Vlan246	cis7606-9		65	Rule
<input type="checkbox"/>	VI525	Vlan525	cis7606-9	vlan525	67	Rule
<input type="checkbox"/>	VLAN-1	unrouted VLAN 1	UPDATED		55	Rule
<input type="checkbox"/>	VLAN-1	unrouted VLAN 1	cis7606-9		69	Rule
<input type="checkbox"/>	VLAN-10	unrouted VLAN 10	UPDATED		75	Rule

As you can see above, interface names starting with an uppercase 'V' and 'L' are added as well – so CAPC is case insensitive to user defined values.

The web service calls that are performed by the script are case sensitive, so if you wanted the script to also update these interfaces starting with an uppercase 'V' and 'L', you would need to add an OR operator to the condition and enter 'VL'.

Add Interfaces A physical network interface

+ Add Condition

Interface Item is a member of All Groups +

Interface Name starts with VI +

OR VL ✖

Execute IM-bulk_interface_updates.pl

Execute the script in the following manner with the input fields in the same sequence:

```
IM-bulk_interface_updates.pl <DA_IP/Hostname>:<DA_PORT> <PC_IP/Hostname>:<PC_PORT>
<PC_USER>:<PC_PASS> <GROUP NAME> <SpeedIn> <SpeedOut>
```

Where:

<DA_IP/Hostname>
Data Aggregator IP or Hostname.

<DA_PORT>
Data Aggregator port.
Default is 8581.

<PC_IP/Hostname>
CA Performance Center IP or Hostname

<PC_PORT>

CA Performance Center port.
Default is 8181.

<PC_USER>

CA Performance Center user with administrative rights.
Example: admin

<PC_PASS>

Password for CA Performance Center user.

<GROUP NAME>

Name of group defined in CAPC populated with interfaces that need updating of speeds.

<SpeedIn>

SpeedIn value that will be changed on the interfaces - bps.

<SpeedOut>

SpeedOut value that will be changed on the interfaces - bps.

Example:

IM-bulk_interface_updates2.pl IM-DA:8581 IM-PC:8181 admin:admin Update_Interfaces 1544000 1544000

Please report any issues or feedback to: [Kishan Silva Ratnayake](#)