

Guide for CIM Modeling Painter

Platform Component Library

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1. Introduction

1.1 Introduction to CIM & CIMOM

The Common Information Model (CIM) allows for the exchange of management information in a platform-independent and technology-neutral way. It is an object-oriented model, describing an organization's computing and networking environments (its hardware, software and services). All managed elements are positioned within this model, clarifying semantics, streamlining integration and reducing costs by enabling end-to-end multi-vendor interoperability in management systems.

The CIM Object Manager (CIMOM) manages CIM objects on a WBEM-enabled system. A CIM object is a representation, or model, of a managed resource, such as a printer, disk drive, or CPU. When a WBEM client application accesses information about an object, the CIMOM contacts either the provider for that object or the CIM Object Manager Repository. Providers are classes that communicate with managed objects to access data. A WBEM client application might request data from a managed resource that is not available from the CIM Object Manager Repository. In this case, the CIM Object Manager forwards the request to the provider for that managed resource. The provider dynamically retrieves the information.

1.2 About the authors

All of the owners of this technology are from IBM China System and Technology Lab (CSTL):

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1.3 Introduction to CIM Association Discovery

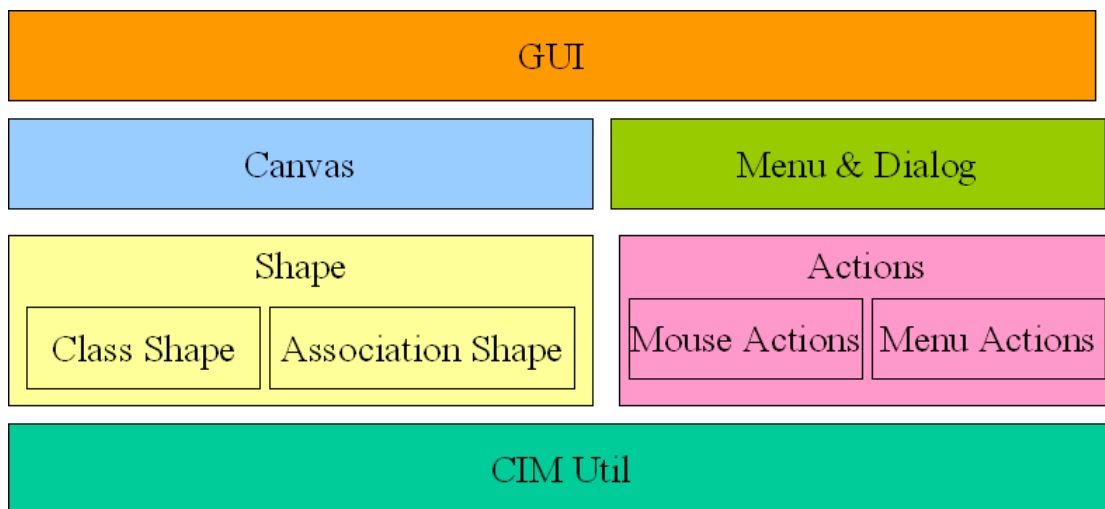
CIM Association Discovery is a graphic painting tool which will discover the association relating to one CIM class, or possible association paths between two CIM classes. And the more important and fascinating point is: this tool can draw the discovered associations in class diagram, and permitting customers to drag or adjust the painted objects on canvas.

1.3.1 Objective of CIM Association Discovery

- Discovers the associations relating to one CIM class;

- Discovers the possible association paths between two CIM classes;
- Provides customers a graphic painting tool to draw association paths and CIM class in class diagram;
- Provides customers a way to drag or adjust painted objects on canvas;
- Provides customers a way to customize the line color, text color, or background color of the painted CIM class object;
- Provides customers a way to show CIM instances of one CIM class;
- Provides customers a way to save canvas to JPEG files;
- Provides customers a way to copy the painted canvas to clipboard.

1.3.2 Architecture



1.3.3 Core modules

● Shape

It defines two sub components: Class Shape, and Association Shape. They will be responsible for storing its own attributes and painting themselves.

● Actions

There are two types of actions implemented in this tool: Mouse Actions, and Menu Actions.

Mouse actions are responsible for action implementations of different types of mouse actions: right click, left selection click, drag.

Menu actions are responsible for the implementations of menu.

● CIM Util

It implements all the operations to query in CIMOM, and the methods to discover association paths.

2. Steps to use this tool

- 1) Install IBM jre 1.4.2;
- 2) Extract CIMModelingPainter.zip to some place, like D:\. You should see directory D:\CIMModelingPainter.
- 3) Download SBLIMCIMClient.jar library and save it to d:\CIMModelingPainter\lib;
- 4) Enter D:\CIMModelingPainter folder, and execute “run.bat” file.

Notes: when unzipping “CIMModelingPainter.zip”, please pay attention to the name of target folder, if the name of folder is too long or contains any Complex language words, the execution may fail.

2.1 Download SBLIMCIMClient library

Go to url:

http://sourceforge.net/project/showfiles.php?group_id=128809&package_id=164895 (If the url doesn't work, please go to <http://www.sourceforge.net> and search “SBLIM”)

Download: sblimCIMClient.jar, the version should be 1.2.6

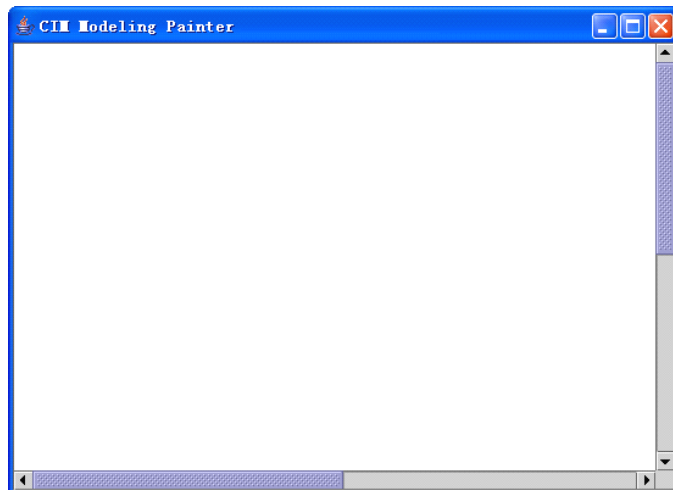
Save to: “CIMModelingPainter\lib”

Notes: sblimCIMClient library is required in our tool, and it must be placed under “CIMModelingPainter\lib\” folder, without it, our tool can't run correctly.

3. Operations in this tool

3.1 Connect

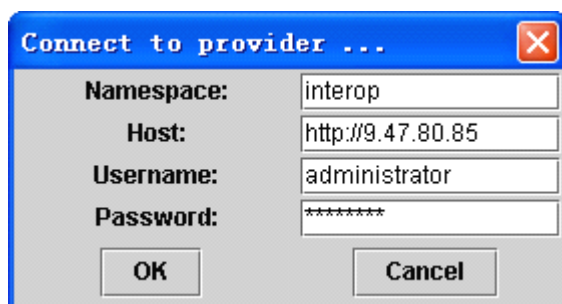
When you execute this tool, it just displays a frame with white background as follows:



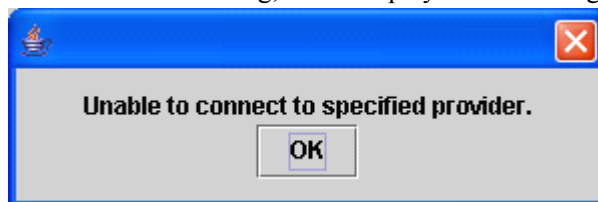
Then please do right click and a menu with only one item “connect...” will display:



Select it and a single dialog will display:

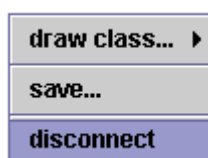


Enter the correct parameters and click “OK” button, the tool will connect to the target CIMOM. If the connection is wrong, it will display an alert dialog about this:

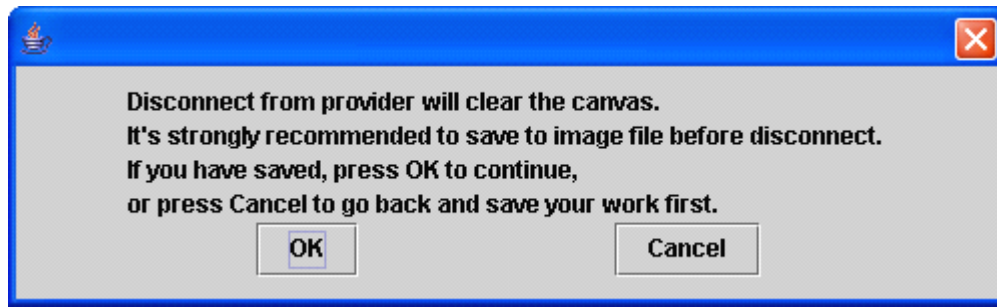


3.2 Disconnect

When you have successfully connected to the CIMOM, do right click and a menu will display:



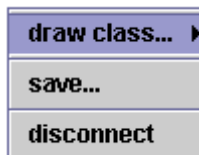
Select “disconnect” and it will prompt:



Click “ok” button and the disconnection is done.

3.3 Draw CIM class


When you have successfully connected to the CIMOM, do right click and a menu will display:



There are two possible ways to draw a CIM class:

- Type class name

There is a backend thread running to query all CIM classes out as soon as the connection is established, and when the mouse moves to “draw class...” and the query hasn’t been finished, the extended menu will be:

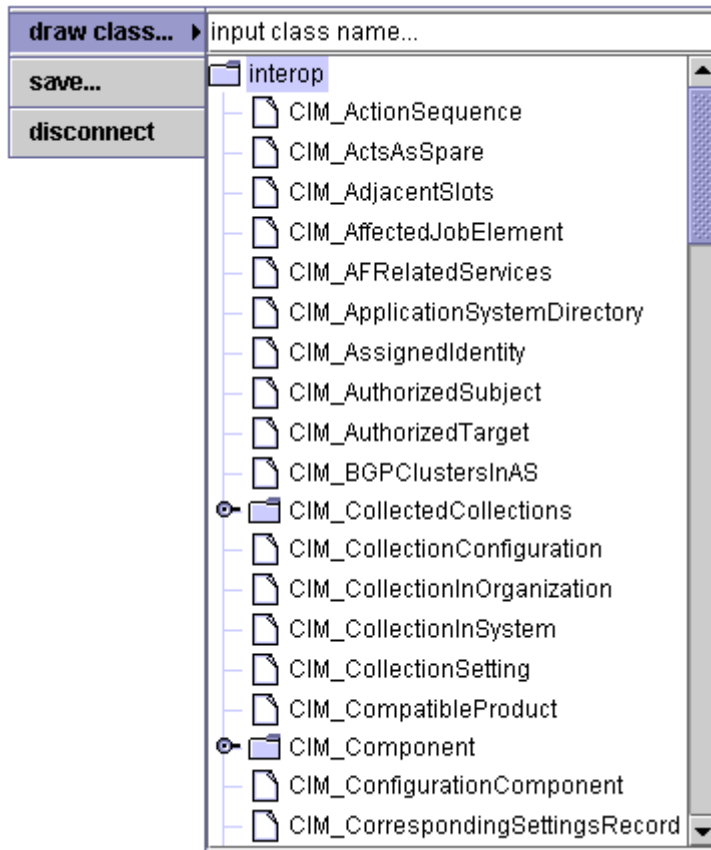
draw class...	input class name...
save...	 Loading...
disconnect	

“Loading” shows the query is still going on, so please type the class name in the text field and press “Enter” on keyboard:

cim_computersystem

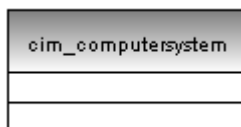
☐ Select from class tree

If the backend query thread has completed, the extended menu will be:



Then you can select CIM class from the tree, and when you click on one, the name will be updated into the text field. **Then again, click the text field and press “Enter” on keyboard.**

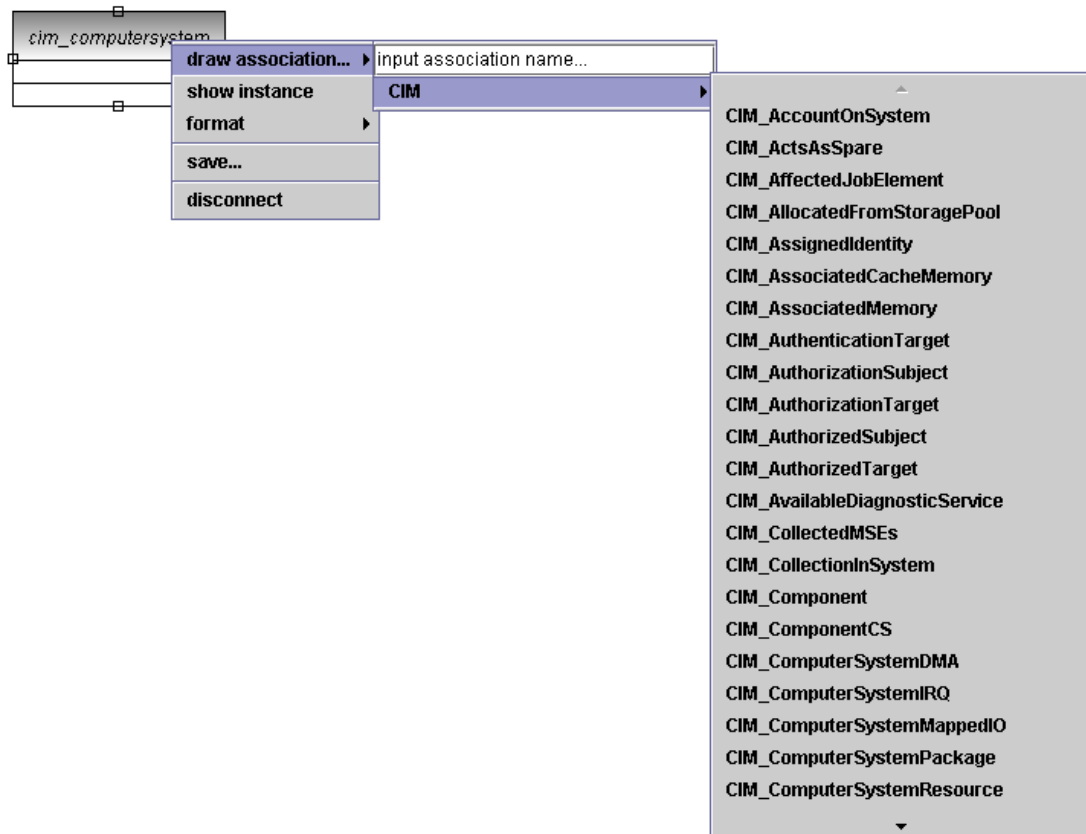
Normally, the target class will be drawn there:



Notice: if the class you select is an association class, nothing will be drawn, so please ensure the selected class is not an association class!

3.4 Draw association

Move the mouse on top of one painted CIM class object and do right click, a menu will display:



There are also two ways to input the name of association class:

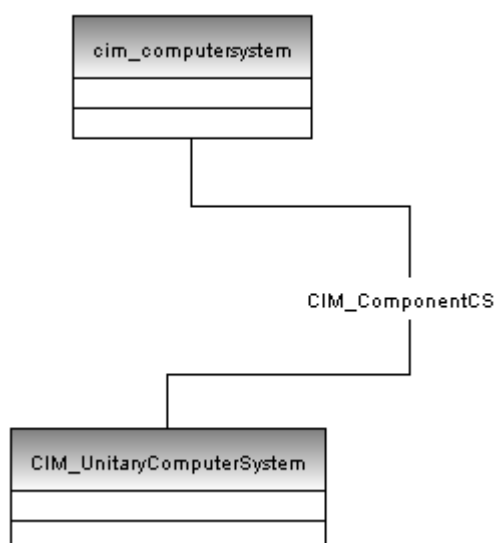
- ☐ Type class name

Please type the class name in the text field and press “Enter” on keyboard.

- ☐ Select from listed sub menu

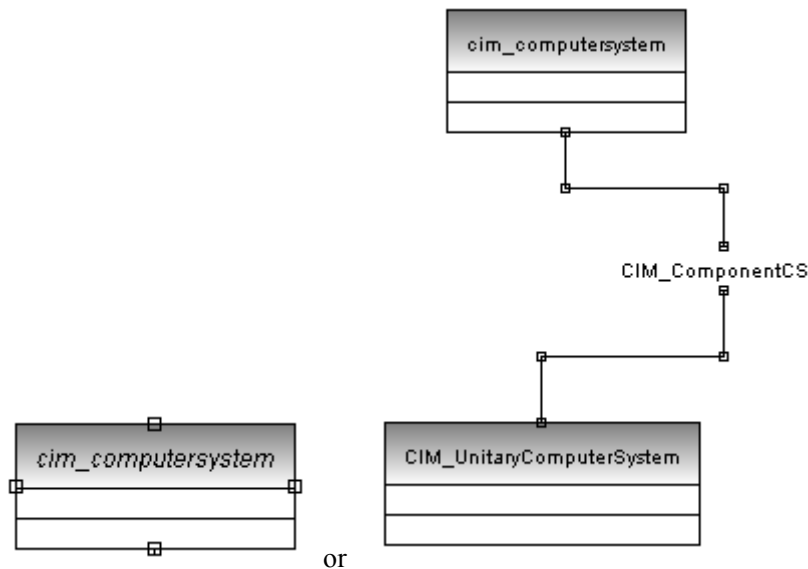
Move the mouse to one target association class on the sub menu list, and do left click.

Normally, the association and the CIM class on the other end will be drawn there:



3.5 Do selection & multi-selection

Move mouse on top of a painted CIM class object or an association class object and do left click, the target object will be selected:



If you want to do multi-selection, please press “ctrl” key when doing selection;
And “ctrl”+ “a” operation can help to select all objects at the same time.

3.6 Drag objects

Firstly use methods described in section 3.5 to select your target objects, then press the left button of mouse without releasing, then move your mouse to the target position.

Notice: both CIM class object and association class object can be dragged; and multiple objects can be dragged at the same time.

3.7 Delete CIM class or association

Firstly use methods described in section 3.5 to select your target objects, then press “Delete” key on your keyboard.

3.8 Format in color

In this tool, the color of painted object can be changed.

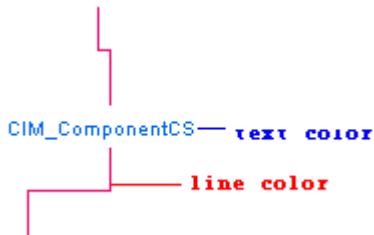
There are three types of color for CIM class object:

- ☐ Line color
- ☐ Text color
- ☐ Background color

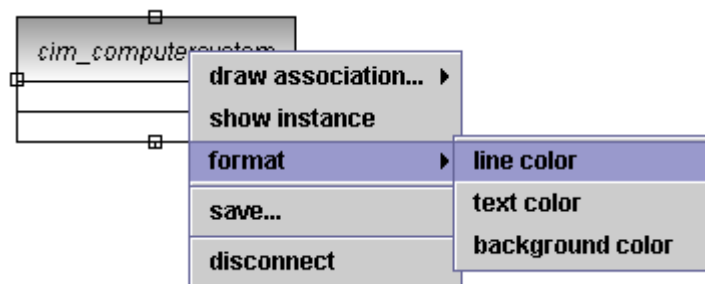


And two types of color for association class object:

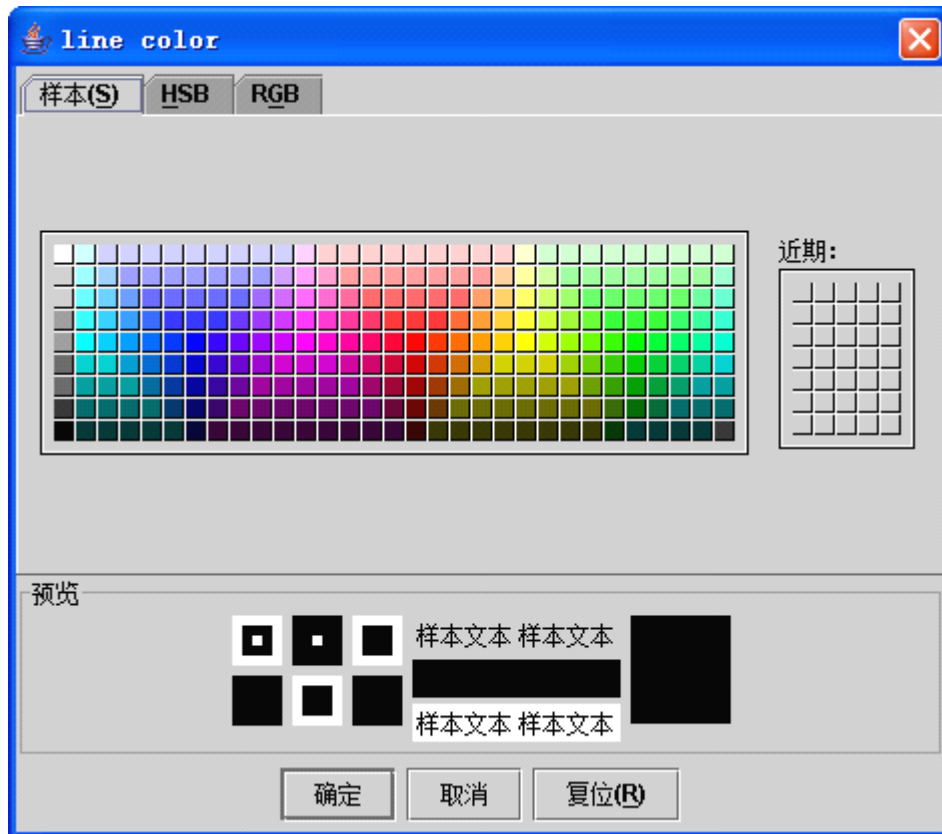
- ☐ Line color
- ☐ Text color



Firstly use methods described in section 3.5 to select your target objects, then do right click and the menu will display:



Select one sub menu: “line color”, or “text color”, or “background color”, then a color chooser dialog will display:

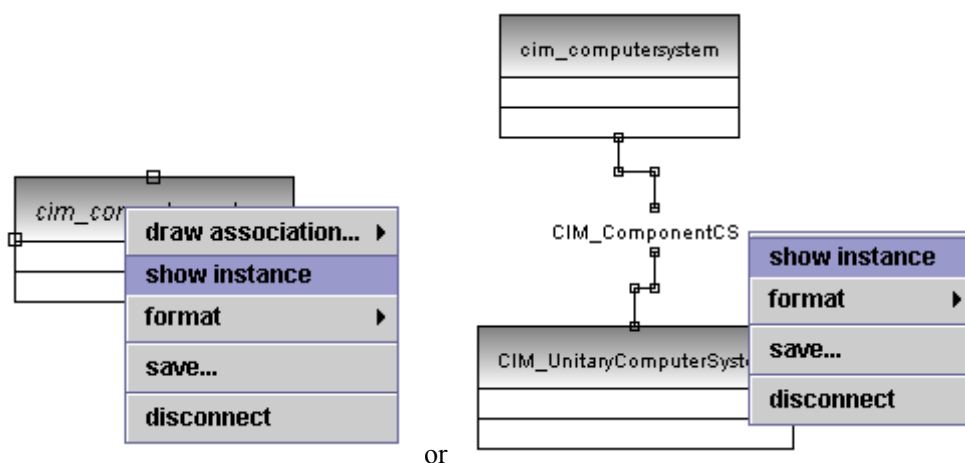


Then choose the target color and press “OK” button.

Notice: Color change can also be done to multiple objects at the same time when these objects are multi-selected.

3.9 Show instance

Move mouse on top of a painted CIM class object or an association class object and do right click, then the menu will display:

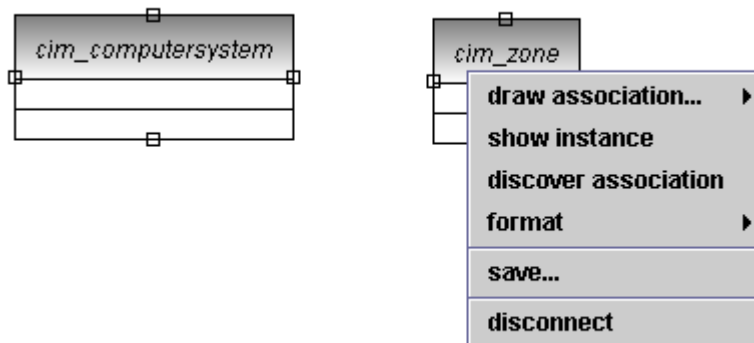


Select “show instance” and the instance dialog will display:

cim_computersystem		
Object Path	Property	Value
interop:CIM_ComputerSystem.CreationClassName="CIM_...		
	string Caption	SubSystem_1
	string CreationClassName	CIM_ComputerSystem
	uint16 Dedicated	
	string Description	
	string ElementName	SubSystem_1
	uint16 EnabledDefault	2
	uint16 EnabledState	5
	string[] IdentifyingDescriptions	
	datetime InstallDate	
	string Name	ComputerSystem:2006.9.20:16:19:48:994:540
	string NameFormat	
	uint16 OperationalStatus	[2]
	string[] OtherDedicatedDescriptions	
	string OtherEnabledState	
	string[] OtherIdentifyingInfo	
	uint16 PowerManagementCapabilities	
	string PrimaryOwnerContact	
	string PrimaryOwnerName	
	uint16 RequestedState	12
	uint16 ResetCapability	
	string[] Roles	
	string Status	
	string[] StatusDescriptions	
	datetime TimeOfLastStateChange	

3.10 Discover association paths between two CIM Classes

Select two CIM class objects (press the ctrl button to choose objects), and then right click any one of these two selected objects. A menu will pop up on canvas:



Click “discover association” on popped up menu. A dialog box is displayed to confirm previous selection. Press “Submit” button to continue.

Search association

From node:

cim_computersystem

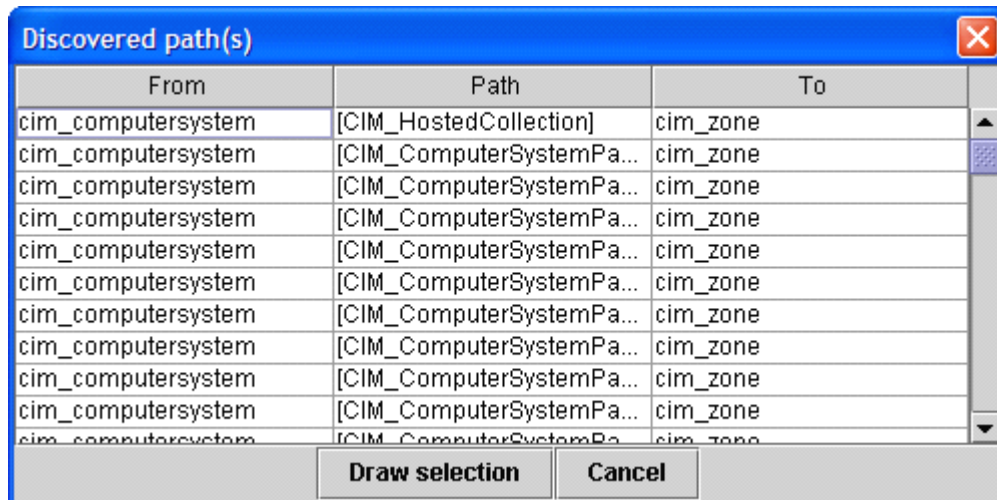
To node:

cim_zone

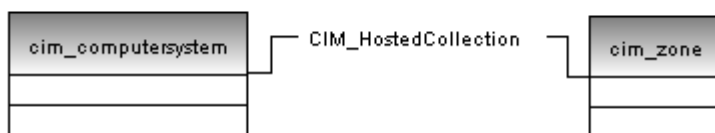
Submit

Cancel

All discovered path(s) are listed in one table:



Select one or more path(s) and click the “Draw selection” button. All selected path(s) will be drawn between two CIM class objects:

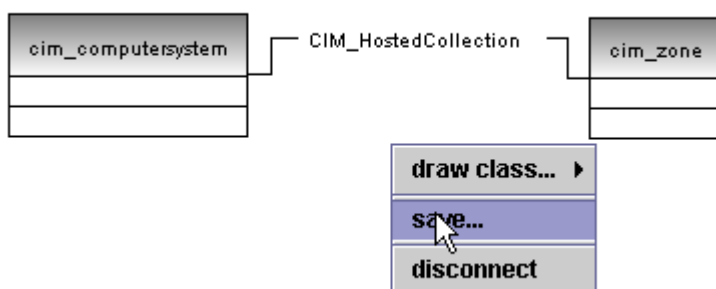


3.11 Copy to clipboard

Press “ctrl + a” to choose all objects displayed on canvas. All objects will be copy to clipboard in the form of picture when you press “ctrl + c”.

3.12 Save to jpeg file

Right click in the blank space of canvas, and there will be pop-up menu displayed. Select “save” item and you will be prompted to input the location of jpeg file.



3.13 Exit

Click the exit button of window to quit.

4. Common problems and answers

4.1 Can't execute the tool

Solution: Make sure JRE installed properly and environment variables set correctly.

4.2 Can't connect to CIMOM

Solution: Make sure SBLIM CIM Client for Java installed. You can download it from <http://sblim.wiki.sourceforge.net/CimClient>. If you still fail to connect to the CIMOM, please check your network settings and status of the CIMOM.

4.3 Can't enumerate all CIM classes

Solution: Check your network settings and status of the CIMOM.

4.4 Can't draw class

Solution: click the text field and press "Enter" on keyboard.