

Trouble Ticket Integration with Zabbix in Large Environment

Presentation



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Presentation

Z Share beta
Zabbix templates, modules & more

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Zabbix Database Monitoring **Popular**

ORACLE MSSQL MYSQL DB2 & POSTGRESQL
Version 7.0

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Applications

Cloud

Cooling (A/C)

Databases

Zabbix database Model

Zabbix Database Model with main tables used for Reports developments. To be read with [Workbench](#).

It contains comments on main numeric fields contained in Zabbix database tables.

Summary

- 1. Introduction**
- 2. Issues**
- 3. Plugin Architecture**
- 4. External Specifications**
- 5. Technical Details**

Part 1

Introduction

- > What are we talking about ?**
- > Large Environment ?**
- > Trouble Ticket ?**

What are we talking about ?

Zabbix TroubleTicket Connexion

- **Two ways connexion**
- **APIs**
- **Connector Database** (Zabbix TroubleTicket Link)

Large Environment

- **1000 tickets per day**

Trouble Ticket ?

- **Lists of issues** (Most of the time : Source = mail or phone)
- **Manage issues** (Most of the time through HelpDesk)

→ **ServiceNow is a SaaS Trouble Ticketing System widely used in Large environments**

What is a Large Environment ?

- **More than 14 000 servers , 1 million items**
- **Some servers with over 10 000 items**
- **Some servers with over 10 000 triggers**
- **More than 100 Zabbix administrators developing Application Templates**

Part 2

Issues

The Problem

Large Environments rely on TroubleTicket tool and HelpDesk for managing IT issues. Bridging Zabbix with over 5000 servers and HelpDesk manually is a painful and impossible project.

SwissLife Case Study



Case Study

Objective:

Migrate IBM Tivoli monitoring 6.2 to an open source monitoring tool.

Requirements:

More flexibility (upgrade, administration), monitored all servers and devices, create automatic and manual ticket in ServiceSnow.

Outcome:

Reduced administrative operations, low cost, Zabbix support pricing, Zabbix community.

SwissLife Presentation



About Swiss Life

The Swiss Life Group is a European leader in pensions and financial solutions.

The Swiss Life company offers individuals and comprehensive pension consultations via its own agents and distribution partners.

SwissLife Presentation



Swiss Life Group

Turnover: €18,9 billion

Managed assets : €223 billion

7600 employees around the world

Swiss Life France

Turnover: €4,24 billion

Managed assets : €26 billion

1 224 000 clients

2188 employees

IT System Department

220 employees

1500 Servers (Windows / Linux)

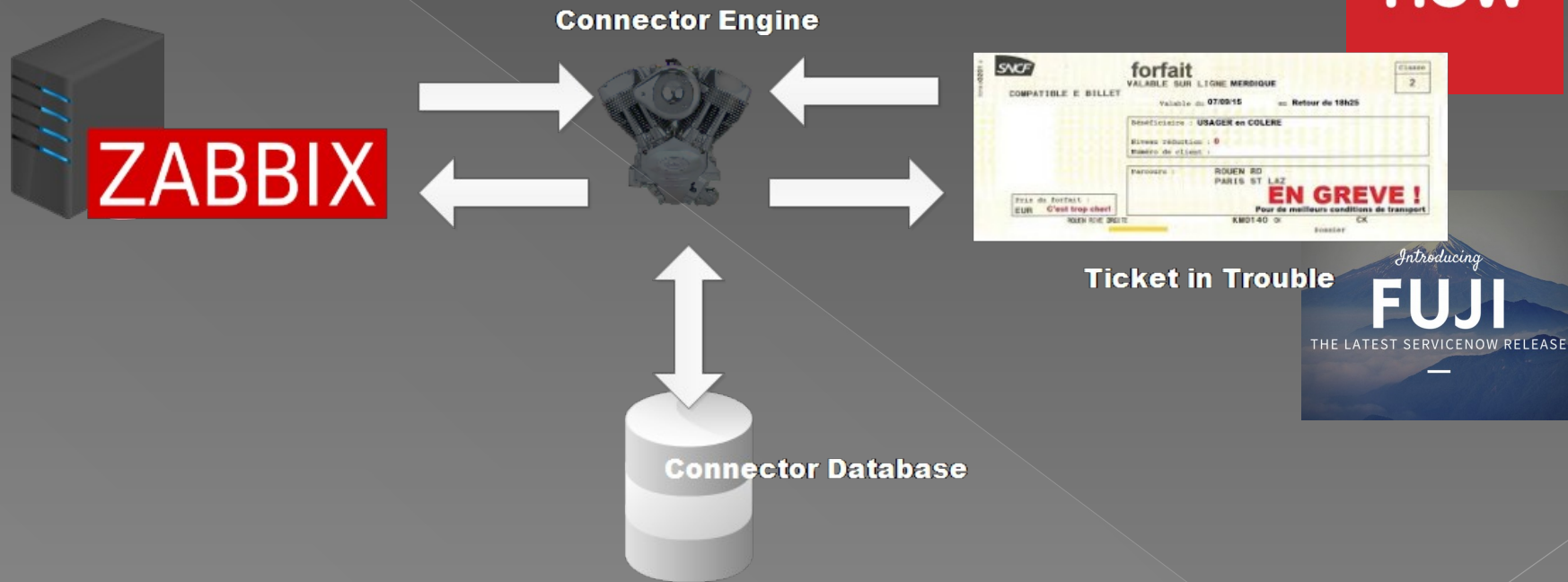
97% Virtual servers (VMWare)

Cisco UCS / VNX – EMC (250TB)

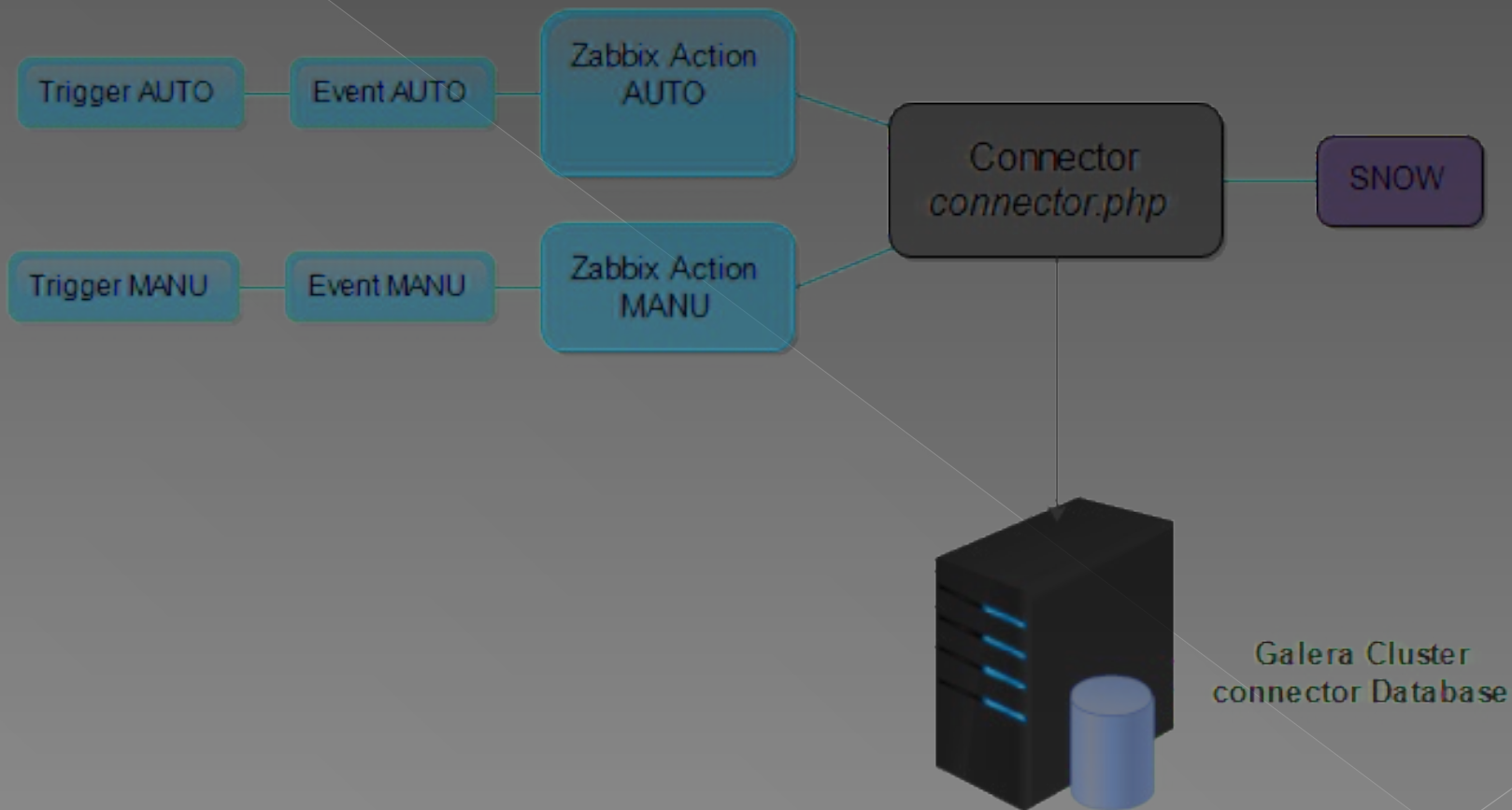
Part 3

Plugin Architecture

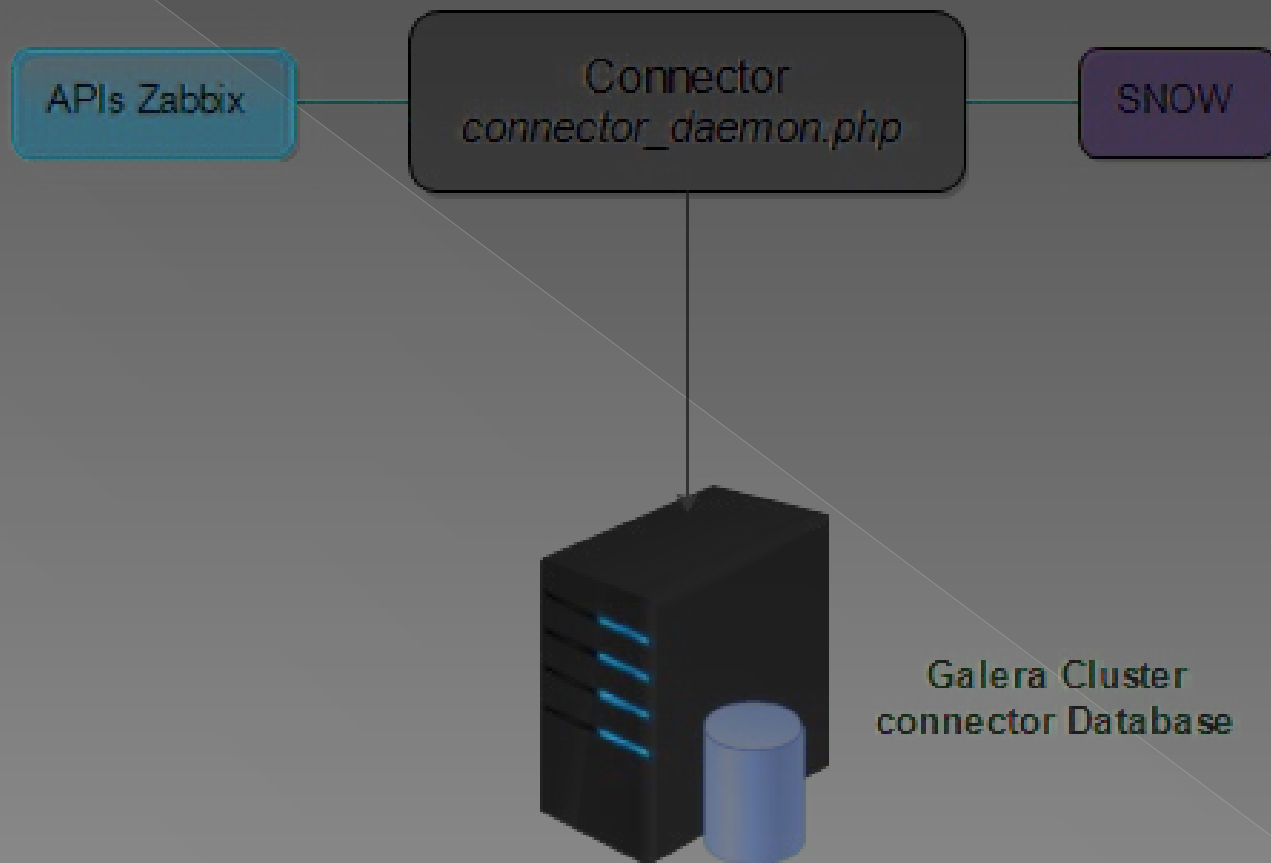
Plugin Architecture



Plugin Architecture



Plugin Architecture



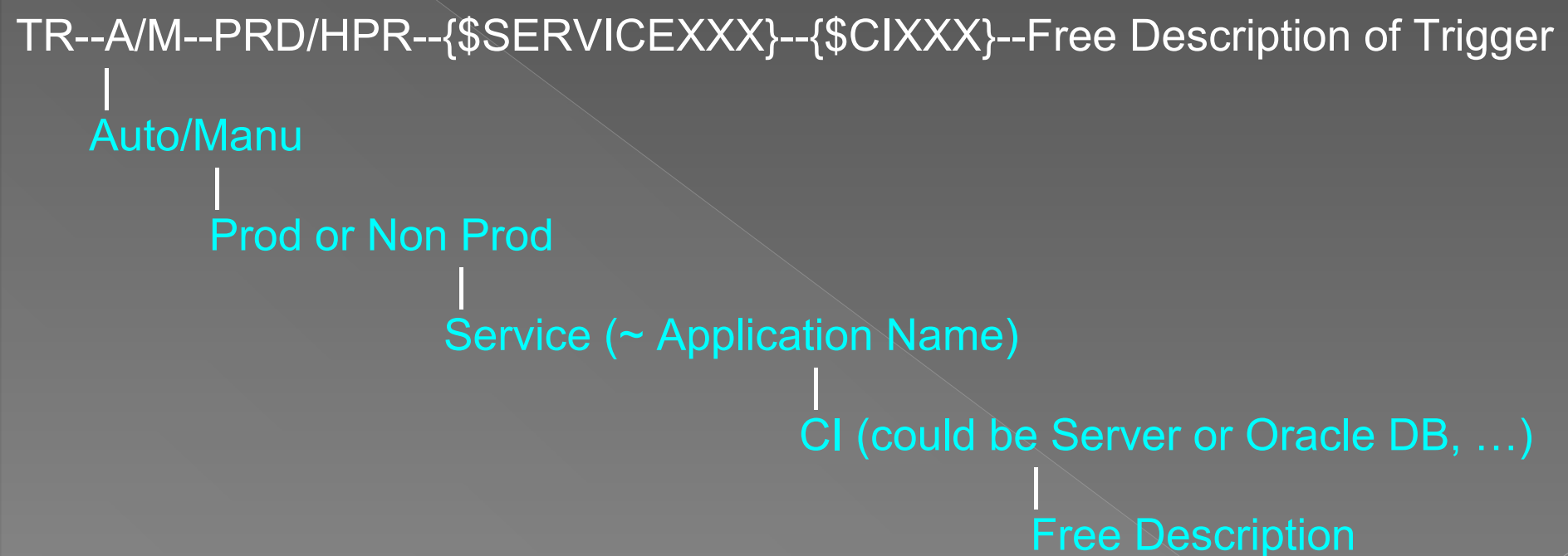
Part 4

External Specifications

Some of the Functionalities

- **Opens automatically a ServiceNow Ticket via Snow APIs**
Full Automatic (based on Trigger name TR--A)
Manual (TR--M), needs acknowledge from operator
- **Fill in automatically Snow fields with Zabbix macros**
Caller, Environment, CI, Application, Server, Team, Category, Subcategory, Dates,...
- **Correlate Zabbix events automatically with Snow tickets**
(same trigger source)
- **Correlate Zabbix events manually with Snow tickets**
(different triggers sources)
- **Sends back Correlation confirmations to Operators**
- **Monitor Snow tickets status and update Zabbix via APIs**
when ticket is closed or resolved
- **Others: http proxy, debug, logs, ...**

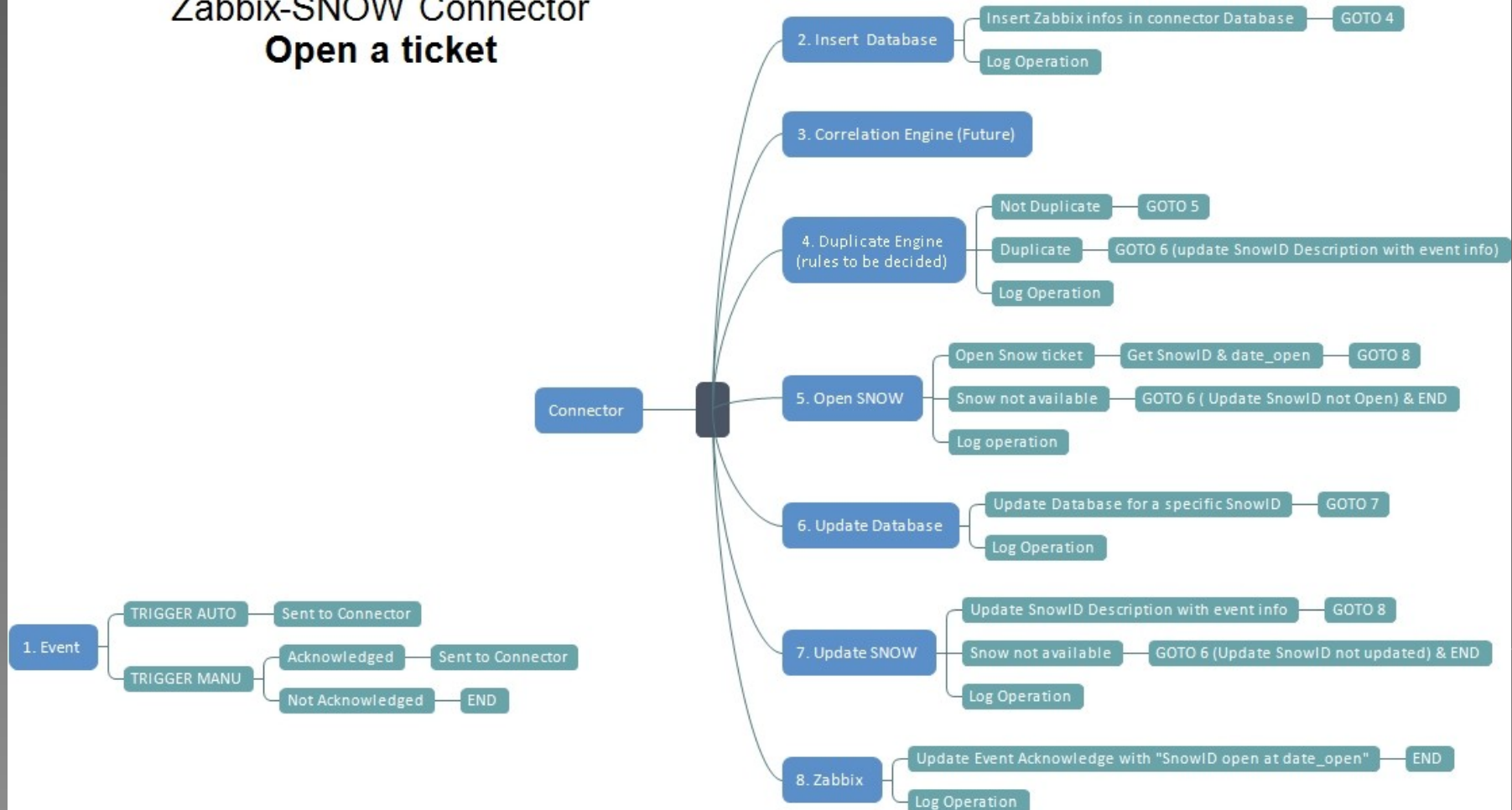
Triggers Nomenclature



Nota Bene: Some détails come from Host Inventory

External Specifications

Zabbix-SNOW Connector Open a ticket



External Specifications

Zabbix-SNOW Connector Close a ticket (daemon)



Part 5

Technical Details

Automatic Tickets

CONFIGURATION OF ACTIONS

Action **Conditions** **Operations**

Name: TRIGGER AUTO -> Send Alert to connector

Default subject: {TRIGGER.STATUS}; {TRIGGER.NAME}

Default message: Trigger: {TRIGGER.NAME}
Trigger status: {TRIGGER.STATUS}
Trigger severity: {TRIGGER.SEVERITY}
Trigger URL: {TRIGGER.URL}

Item values:
1. {ITEM.NAME1} ({HOST.NAME1};{ITEM.KEY1});

Recovery message ☐

Enabled ☒

Conditions

1 AND / OR (A) and (B) and (C)

Label	Name	Action
(A)	Maintenance status not in <i>maintenance</i>	Remove
(B)	Trigger value = <i>PROBLEM</i>	Remove
(C)	Trigger name like <i>TR--A--</i>	Remove

New condition

Trigger name like

[Add](#)

Automatic Tickets

CONFIGURATION OF ACTIONS

Action

Conditions

Operations

Default operation step duration

3600 (minimum 60 seconds)

Action operations

Steps	Details	Start in	Durat
1	Run remote commands on current host	Immediately	60

Operation details

Step

From

1

To

1 (0 - infinitely)

Step duration

60 (minimum 60 seconds, 0 - us

Operation type

Remote command

Target list

Target	Action
Current host	Remove
New	

Type

Custom script

Execute on

☐ Zabbix agent

☒ Zabbix server

Commands

/etc/zabbix/connectorSNOW/connector.php AUTO
"{DATE}" "{TIME}" "{HOST.HOST}" "{EVENT.DATE}"
"{EVENT.TIME}" "{EVENT.ID}" "{EVENT.ACK.STATUS}"
"{EVENT.STATUS}" "{ITEM.ID}" "{ITEM.VALUE}"
"{TRIGGER.ID}" "{TRIGGER.NAME}"
"{TRIGGER.SEVERITY}" "{TRIGGER.DESRIPTION}"







Automatic Tickets




Number	<input type="text" value="IN0127340"/>	Status	<input type="text" value="Assigned"/>
* Caller	<input type="text" value="supervision zabbix (zabt)"/> <input type="button" value="Q"/> <input type="button" value="⚠"/> <input type="button" value="i"/>	Opened by	<input type="text"/>
Asset Tag	<input type="text"/> <input type="button" value="Q"/>	Assignment group	<input type="text" value="sup team"/> <input type="button" value="Q"/>
Location	<input type="text"/> <input type="button" value="Q"/> <input type="button" value="i"/>	Assigned to	<input type="text"/> <input type="button" value="Q"/>
* Environment	<input type="text" value="Test"/>	* Category	<input type="text" value="Supervision"/>
Configuration Item	<input type="text" value="linux627"/> <input type="button" value="Q"/>	* Subcategory	<input type="text" value="Alerte"/>
Application	<input type="text" value="Test Appli"/> <input type="button" value="Q"/>	Composant	<input type="text" value="-- None --"/>
Service	<input type="text" value="Test Service"/> <input type="button" value="Q"/>	Contact type	<input type="text" value="Phone"/>
Impact	<input type="text" value="1 - High"/>	Created	<input type="text" value="2016-08-20 10:04:30"/>
Urgency	<input type="text"/>	Opened	<input type="text" value="2016-08-20 10:04:30"/>
Priority	<input type="text" value="3 - Moderate"/>	SLA resolution due date	<input type="text"/> <input type="button" value="📅"/>
* Short description	<input type="text" value="Test Trigger for Snow Auto"/>		

Automatic Tickets

Description

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Date_Alerte:2016.08.20 10:04:30 Criticité_Alerte:P2 Warning Alerte:TR-HPR- Test Trigger for Snow Auto Valeur_de_Déclenchement:2073642933

p

url http://192.168.1.53/zabbix/tr_status.php?hostid=10266

Automatic Tickets

ALARM ACKNOWLEDGES: TR--A--HPR--Serveur distribue--linux627-- Test Trigger for Snow Auto

api_rw (api_rw api_rw)

Aug 20th, 2016 10:32:29

AM

Ticket IN0127341 opened automatically by Zabbix on 2016-08-20 10:32:29 CEST

api_rw (api_rw api_rw)

Aug 20th, 2016 10:37:14

AM

Ticket IN0127341 closed in SNOW on 2016-08-20 10:37:04 CEST with code Solved (Permanently) and notes : Close notes from Service Now.

Manual Tickets

CONFIGURATION OF ACTIONS

Action **Conditions** **Operations**

Name: TRIGGER MANU -> Send Alert to connector if acknowledged

Default subject: {TRIGGER.STATUS}: {TRIGGER.NAME}

Default message: Trigger: {TRIGGER.NAME}
Trigger status: {TRIGGER.STATUS}
Trigger severity: {TRIGGER.SEVERITY}
Trigger URL: {TRIGGER.URL}

Item values:
1. {ITEM.NAME1} ({HOST.NAME1}:{ITEM.KEY1}):

Recovery message ☐

Enabled ☒

CONFIGURATION OF ACTIONS

Action **Conditions** **Operations**

Type of calculation: AND / OR (A) and (B)

Conditions

Label	Name	Action
(A)	Maintenance status not in <i>maintenance</i>	Remove
(B)	Trigger name like <i>TR--M--</i>	Remove

New condition

Trigger name like

Add

Manual Tickets

CONFIGURATION OF ACTIONS

Action

Conditions

Operations

Default operation step duration

60 (minimum 60 seconds)

Action operations

Steps	Details	Start in	Duration (sec)
2 - 100	Run remote commands on current host	00:01:00	60

Target list

Target

Current host

New

Type

Custom script

Execute on

☐ Zabbix agent

☒ Zabbix server

Commands

/etc/zabbix/connectorSNOW/connector.php MANU
"{DATE}" "{TIME}" "{HOST.HOST}" "{EVENT.DATE}"
"{EVENT.TIME}" "{EVENT.ID}" "{EVENT.ACK.STATUS}"
"{EVENT.STATUS}" "{ITEM.ID}" "{ITEM.VALUE}"
"{TRIGGER.ID}" "{TRIGGER.NAME}"
"{TRIGGER.SEVERITY}" "{TRIGGER.DESRIPTION}"
'{EVENT.ACK.HISTORY}'

Conditions

Label	Name	Action
(A)	Event acknowledged = Ack	Remove

New

Manual Tickets : noticket

ALARM ACKNOWLEDGES: TR--M--PRD--Serveur distribue--linux627-- Test Trigger for Snow Manu

Admin (Zabbix Administrator)	Aug 20th, 2016 10:04:07 AM
noticket	
api_rw (api_rw api_rw)	Aug 20th, 2016 10:04:33 AM
Confirmation : This event will not be linked to any SNOW ticket.	

Add comment by "Admin (Zabbix Administrator)"

Message

Save and return Save Cancel

Manual Tickets : link to ticket

ALARM ACKNOWLEDGES: TR--M--PRD--Serveur distribue--linux627-- Test Trigger for Snow Manu

Admin (Zabbix Administrator)	Aug 20th, 2016 10:40:54 AM
IN0127341	
api_rw (api_rw api_rw)	Aug 20th, 2016 10:41:36 AM
Confirmation : This event is linked to Ticket IN0127341	

Add comment by "Admin (Zabbix Administrator)"

Message

Save and return Save Cancel

Zabbix Events Correlation

SZ supervision zabbix (zabbsup)

2016-08-20 10:21:31

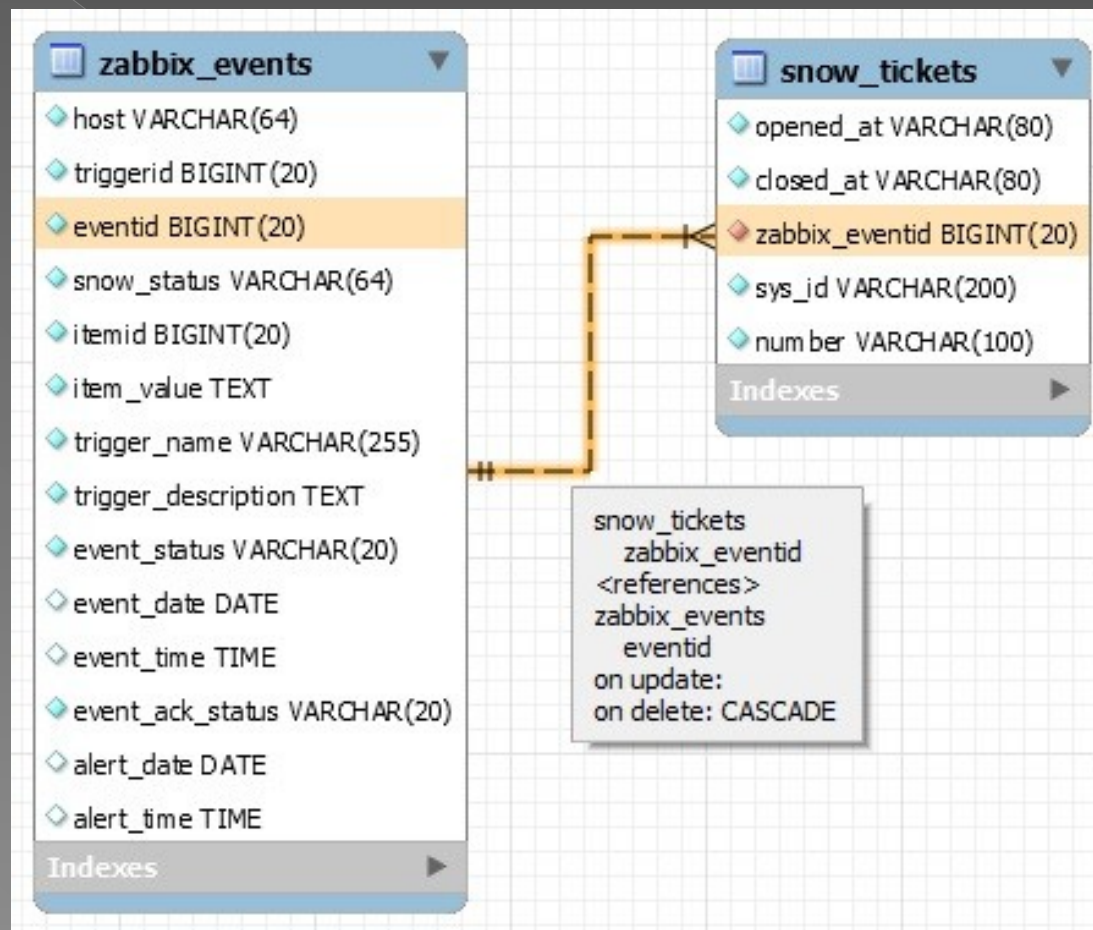
New event (1124) Zabbix on 2016.08.20 at 10:21:24 for this ticket

SZ supervision zabbix (zabbsup)

2016-08-20 10:04:30

Assignment group	DOI Prod Pilotage
Caller	supervision zabbix (zabbsup)
Category	Supervision
Configuration Item	[Empty]
Contact type	Phone
Description	Date_Alerte:2016.08.20 10:04:30 Criticité_Alerte:P2 Warning Alerte:TR-HPR- Test Trigger for Snow Auto Valeur_de_Déclenchement:2073642933
Impact	2 - Medium
Location	[Empty]
Opened by	[Empty]
Priority	3 - Moderate
Short description	Test Trigger for Snow Auto
Status	Assigned
Subcategory	Alert
Urgency	2 - Medium
Service	Serveur distribué
Default JCL	false
Environment	Test

Connector Database



Connector Database

```
mysql> select * from zabbix_events;
+-----+-----+-----+-----+-----+-----+-----+
| host      | triggerid | eventid | snow_status      | itemid | item_value | trigger_name |
| event_date | event_time | event_ack_status | alert_date | alert_time | hostid |
+-----+-----+-----+-----+-----+-----+-----+
| linux627 | 15368 | 1121 | ticket_open      | 28091 | 2073642933 | TR--A--HPR--Serveur distribue--linux627--
| 2016-08-20 | 10:04:24 | No | 2016-08-20 | 10:04:30 | 10266 |
| linux627 | 15369 | 1119 | ticket_not_allowed | 28093 | 2073642933 | TR--M--PRD--Serveur distribue--linux627--
TR--M-- Test Trigger for Snow Manu | PROBLEM | 2016-08-20 | 10:00:24 | Yes | 2016-08-20 | 10:04:33
| linux627 | 15368 | 1124 | ticket_updated    | 28091 | 2125759221 | TR--A--HPR--Serveur distribue--linux627--
| 2016-08-20 | 10:21:24 | No | 2016-08-20 | 10:21:28 | 10266 |
| linux627 | 15368 | 1126 | ticket_open      | 28091 | 1262714989 | TR--A--HPR--Serveur distribue--linux627--
| 2016-08-20 | 10:32:24 | No | 2016-08-20 | 10:32:28 | 10266 |
| linux627 | 15369 | 1128 | ticket_updated    | 28093 | 3316395057 | TR--M--PRD--Serveur distribue--linux627--
TR--M-- Test Trigger for Snow Manu | PROBLEM | 2016-08-20 | 10:40:24 | Yes | 2016-08-20 | 10:41:34
+-----+-----+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```

```
mysql> select * from snow_tickets;
+-----+-----+-----+-----+-----+
| opened_at      | closed_at      | zabbix_eventid | sys_id      | number |
+-----+-----+-----+-----+-----+
| 2016-08-20 10:04:30 CEST | 2016-08-20 10:28:02 CEST | 1121 | e2c60c263799e200489af01643990e40 | IN0127340 |
| 2016-08-20 10:32:29 CEST | 2016-08-20 10:37:04 CEST | 1126 | 5c3dc42237d9e200489af01643990e90 | IN0127341 |
| 2016-08-20 10:32:29 CEST | 2016-08-20 10:37:04 CEST | 1128 | 5c3dc42237d9e200489af01643990e90 | IN0127341 |
+-----+-----+-----+-----+-----+
```

Code

2. Connector Code

- **connector.php** launched by Zabbix action, open ticket.
- **connector_daemon.php** launched by scheduler, regularly check if a ticket is closed ; if yes, updates Zabbix with the information from Trouble Ticket.
- **connector_library.php** Connector Libraries
- **connector_versions.txt** Versionning

APIs Zabbix Libraries :

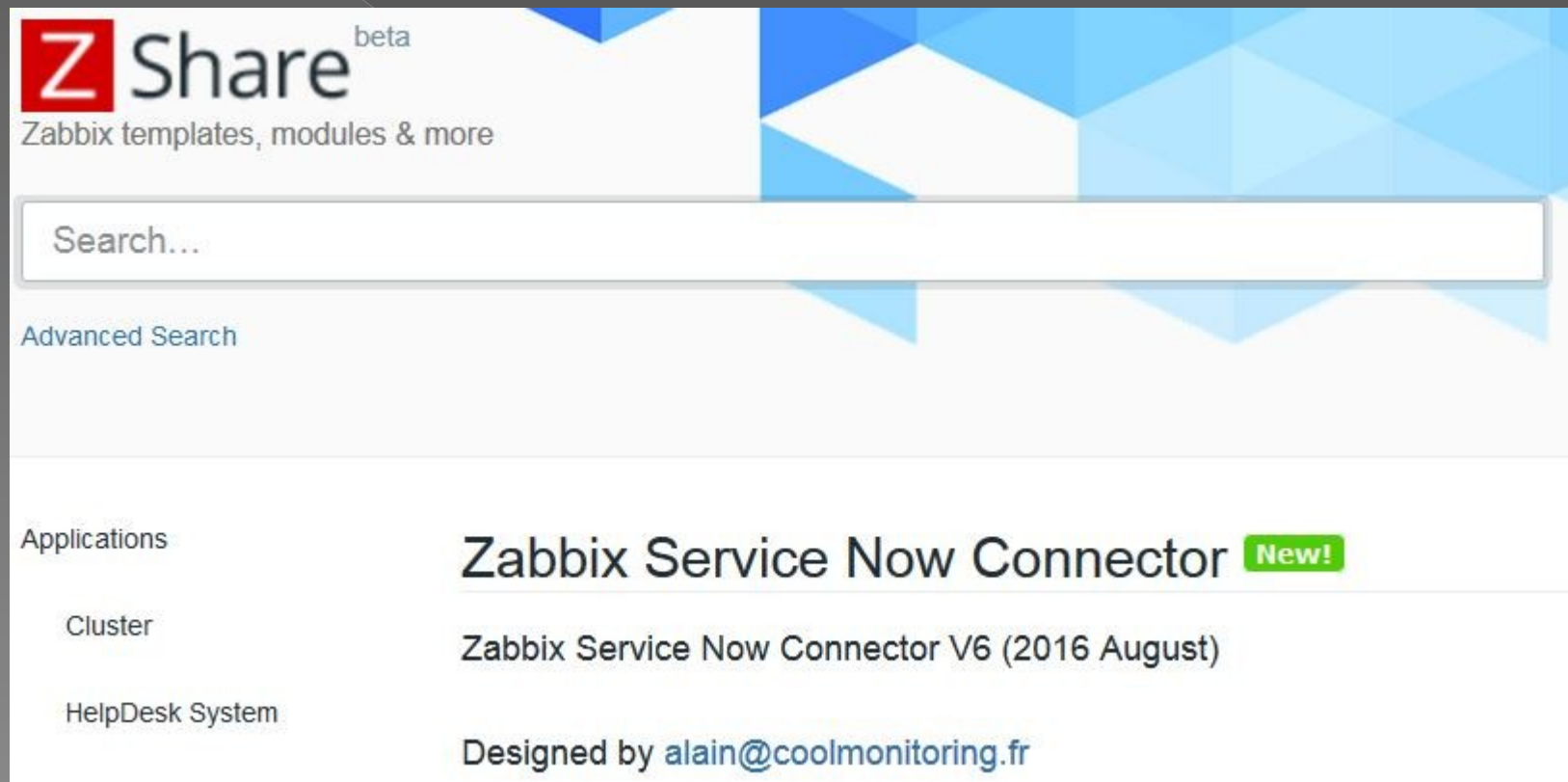
- PhpZabbixApi_Library/ directory
- From <https://github.com/confirm/PhpZabbixApi> project

Supported Versions

Connector Release V6 synchronized with :

- Zabbix V2.2.x (must be OK with 2.4 and 3.0 but not tested)**
- ServiceNow Fuji Version**

Released as OpenSource On Zabbix Share



The screenshot shows the Zabbix Share website. At the top left is the logo with a red 'Z' and the text 'Share beta' and 'Zabbix templates, modules & more'. Below the logo is a search bar with the placeholder text 'Search...'. Under the search bar is a link for 'Advanced Search'. The main content area is divided into two columns. The left column has a header 'Applications' and a list of items: 'Cluster' and 'HelpDesk System'. The right column features a large heading 'Zabbix Service Now Connector' with a green 'New!' badge. Below this heading is the text 'Zabbix Service Now Connector V6 (2016 August)' and at the bottom, 'Designed by alain@coolmonitoring.fr'.

Z Share beta
Zabbix templates, modules & more

Search...

[Advanced Search](#)

Applications

- Cluster
- HelpDesk System

Zabbix Service Now Connector **New!**

Zabbix Service Now Connector V6 (2016 August)

Designed by alain@coolmonitoring.fr

Merci pour votre attention !

Alain Ganuchaud

Cool Monitoring

alain@coolmonitoring.fr

Questions?

Follow us on Twitter:

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