



MEETUP ONLINE '21

INTEGRATING ZABBIX WITH SERVICENOW

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ZABBIX

WHY INTEGRATE WITH OTHER TOOLS?

In addition to Zabbix, many organizations use centralized ITSM systems. These can be populated with manual tasks, but they can also receive events from Zabbix.

- ✓ Automatically create events/incidents in your ITSM system
- ✓ Define assignees for your issues, task lists, SLA's, etc.
- ✓ Provide additional information about the issue
- ✓ Automatically resolve the issues in the ITSM system as soon as they are resolved in Zabbix

VAST SELECTION OF INTEGRATIONS

Ever since implementing Webhook media type, Zabbix development team has kept releasing new integrations for the most popular ITSM and messaging solutions

<input type="checkbox"/> Name ▲	Type	Status
<input type="checkbox"/> Brevis.one	Webhook	Enabled
<input type="checkbox"/> Discord	Webhook	Enabled
<input type="checkbox"/> Email	Email	Enabled
<input type="checkbox"/> Email (HTML)	Email	Enabled
<input type="checkbox"/> Express.ms	Webhook	Enabled
<input type="checkbox"/> Heartbeat_MO_PP	Webhook	Enabled
<input type="checkbox"/> iLert	Webhook	Enabled
<input type="checkbox"/> iTop	Webhook	Enabled
<input type="checkbox"/> Jira	Webhook	Enabled
<input type="checkbox"/> Jira ServiceDesk	Webhook	Enabled
<input type="checkbox"/> Jira with CustomFields	Webhook	Enabled
<input type="checkbox"/> ManageEngine ServiceDesk	Webhook	Enabled
<input type="checkbox"/> Mattermost	Webhook	Enabled
<input type="checkbox"/> MS Teams	Webhook	Enabled
<input type="checkbox"/> Opsgenie	Webhook	Enabled
<input type="checkbox"/> OTRS	Webhook	Enabled



PREPARING OUR ENVIRNMOMENT

Let's focus on one of these new webhook based media types and see how we can integrate Zabbix with ServiceNow in a few simple steps.

- ✓ We will be using the latest Zabbix 5.4 version
- ✓ ServiceNow webhook is supported starting from version 5.0
- ✓ If you're missing the media type due to upgrading from an older version, you're free to import it from the Zabbix official Git page

*<https://git.zabbix.com/projects/ZBX/repos/zabbix/browse/templates/media/servicenow>

SERVICENOW MEDIA TYPE

Most of our media types will always have fields that require additional input from our side

- ✓ Service user and service user password
- ✓ Authentication token
- ✓ Custom fields depending on each ITSM system such as custom severities, channel names, etc.

With ServiceNow we need to configure the service user and the user password.

We can also map severity levels to urgency levels

servicenow_password	<PLACE PASSWORD HERE>	Remove
servicenow_sys_id	{EVENT.TAGS.__zbx_servicenow.	Remove
servicenow_url	{ALERT.SENDTO}	Remove
servicenow_user	<PLACE USERNAME HERE>	Remove
urgency_for_average	2	Remove
urgency_for_disaster	1	Remove
urgency_for_high	2	Remove
urgency_for_information	3	Remove
urgency_for_not_classified	3	Remove
urgency_for_warning	3	Remove

SERVICENOW MEDIA TYPE

We can also add custom fields and deliver custom information to our ServiceNow issue.

- ✓ We need to reference the custom field ID in ServiceNow
- ✓ The field ID should be our parameter name
- ✓ We can provide custom information by using built in macros, user macros and plain text

urgency_for_high	2	Remove
urgency_for_information	3	Remove
urgency_for_not_classified	3	Remove
urgency_for_warning	3	Remove
u_event_url	{\$ZABBIX.URL}/tr_events.php?trig	Remove
u_recovery_time	{EVENT.RECOVERY.DATE} {EVE	Remove

PROCESSING TAGS AND GENERATING MENU ENTRIES

- ✓ In the media type we need to specify that we wish to process JSON values as tags
- ✓ We also need to define which tags will be used for the menu entry URLs

Process tags	<input checked="" type="checkbox"/>
Include event menu entry	<input checked="" type="checkbox"/>
* Menu entry name	ServiceNow: {EVENT.TAGS.__zbx_servicenow_number}
* Menu entry URL	{EVENT.TAGS.__zbx_servicenow_link}
Description	<div style="border: 1px solid #ccc; height: 150px;"></div>
Enabled	<input checked="" type="checkbox"/>

ADDING ADDITIONAL INFORMATION TO THE PROBLEM

- ✓ By selecting "Process tags" in the Media type we will process the returned JSON values as additional tags with which we can populate the existing problem events
- ✓ The list of processed values/tags is defined in the JS code of the webhook

```
if (process_tags) {  
    result.tags.__zbx_servicenow_sys_id = response.sys_id;  
    result.tags.__zbx_servicenow_link = params.servicenow_url +  
        (params.servicenow_url.endsWith('/') ? '' : '/') + 'incident.do?sys_id=' +  
response.sys_id;  
    result.tags.__zbx_servicenow_number = response.number;  
}
```

SERVICENOW JSON RESPONSE EXAMPLE

```
{  
  "result":{  
    "parent":"","  
    "made_sla":"true",  
    "caused_by":"","  
    ...  
    "task_effective_number":"INC0010027",  
    "approval_history":"","  
    "number":"INC0010027",  
    ...  
  }  
  ...  
  "sys_id":"e0f8dbb72fb97010ea685d8b2799b67a",  
    "contact_type":"","  
    "reopened_by":"","  
    ...  
    "correlation_id":"","  
    "location":"","  
    "category":"inquiry"  
  }  
}
```

We are interested in grabbing only task number and sys_id. They will be used to create a menu entry on the problem and generate a URL linking to the ServiceNow incident

PROCESSING TAGS AND GENERATING MENU ENTRIES

- ✓ The resulting problem entry will contain menu links and tags populated from the JSON response

The screenshot displays a Zabbix problem entry for a network device. The problem is titled "Device unreachable" and is associated with the host "Network device". The severity is "Average" and the duration is "7s". The problem was first detected at 07:00 and last updated at 07:36:40. The menu includes "LINKS" (ServiceNow: INC0010028) and "HISTORY" (Test A). The tags section shows "Location: DC 1" and "zbx_servicenow_nu.". The tag value is "__zbx_servicenow_number: INC0010028".

Time	Severity	Recovery time	Status	Info	Host	Problem	Duration	Ack	Actions	Tags
07:36:40	Average				Network device	Device unreachable	7s	No	1	Location: DC 1 zbx_servicenow_nu.
07:00										

CREATING A SERVICE USER

- ✓ We also need to create a ServiceNow user in Zabbix and assign media with the ServiceNow URL to it

Media

Type	ServiceNow	▼
* Send to	https://dev83322.service-now.com/	
* When active	1-7,00:00-24:00	
Use if severity	<input checked="" type="checkbox"/> Not classified	
	<input checked="" type="checkbox"/> Information	
	<input checked="" type="checkbox"/> Warning	
	<input checked="" type="checkbox"/> Average	
	<input checked="" type="checkbox"/> High	
	<input checked="" type="checkbox"/> Disaster	
Enabled	<input checked="" type="checkbox"/>	

CREATING AN ACTION

When creating actions that will invoke our ServiceNow integration, we can utilize it for any type of operation:

- ✓ Send problem alerts
- ✓ Send recovery messages
- ✓ Update existing issues when the problem event gets updated

Action Operations 3

* Default operation step duration

Pause operations for suppressed problems

Operations

Steps	Details	Start in	Duration	Action
1	Send message to users: ServiceNow via ServiceNow	Immediately	Default	Edit Remove

[Add](#)

Recovery operations

Details	Action
Notify all involved	Edit Remove

[Add](#)

Update operations

Details	Action
Send message to users: ServiceNow via ServiceNow	Edit Remove

[Add](#)

SNOW INTEGRATION - TESTING

- ✓ To test my ServiceNow integration I signed up for a ServiceNow development instance
- ✓ This grants me access to dev tools and the ServiceNow incident management

The screenshot shows the ServiceNow Service Management interface. The top navigation bar includes the ServiceNow logo, the text "Service Management", and a user profile for "CU Creator User". Below this is a "Filter navigator" and a "New" button. A search bar is present with "Number" selected as the search criteria. A notification banner states: "Incident INC0010024 has been permanently closed". Below the notification, a filter bar shows "All > Caller = Creator User > Active = true > Universal Request is empty". The main content area displays a table of incidents with columns for "Number", "Opened", and "Short description".

	Number	Opened	Short description
<input type="checkbox"/>	INC0010028	2021-08-13 00:36:44	[PROBLEM] Device unreachable
<input type="checkbox"/>	INC0010023	2021-08-12 03:02:52	Unable to connect to office wifi
<input type="checkbox"/>	INC0010022	2021-08-12 02:58:35	Unable to connect to office wifi

SNOW INTEGRATION – USER PERMISSIONS

The API user needs to have at least the following permissions:

- ✓ rest_api_explorer
- ✓ sn_incident_write

The screenshot shows the Snowflake Roles management interface. At the top, there are tabs for 'Entitled Custom Tables', 'Roles (10)', 'Groups (1)', 'Delegates', and 'Subscriptions'. Below the tabs is a navigation bar with 'Roles', an 'Edit...' button, and a search field. A filter is applied: 'User = Creator User > Role Name >= rest_api'. The main table lists roles with columns for 'Role', 'State', and 'Inherited'. Two rows are highlighted with red boxes: 'rest_api_explorer' (Active, Inherited: false) and 'sn_incident_write' (Active, Inherited: false).

	Search	State	Inherited
<input type="checkbox"/>	rest_api_explorer	Active	false
<input type="checkbox"/>	sn_app_eng_studio.user	Active	true
<input type="checkbox"/>	sn_g_app_creator.app_creator	Active	true
<input type="checkbox"/>	sn_incident_read	Active	true
<input type="checkbox"/>	sn_incident_write	Active	false
<input type="checkbox"/>	sn_table_builder.user	Active	true

SNOW INTEGRATION – ACTIVITIES

- ✓ The problem message gets displayed in the description field of the incident

Configuration item	<input type="text"/>	Assigned to	<input type="text"/>
* Short description	<input type="text" value="[RESOLVED] Device unreachable"/>		
Description	<p>Problem started at 12:23:38 on 2021.08.15 Problem name: Device unreachable Host: Network device Severity: Average Operational data: 0 Original problem ID: 29699</p>		

SNOW INTEGRATION – PROBLEM UPDATES

✓ Subsequent problem updates and recovery messages get displayed in the Activity feed:

Additional comments (Customer visible)

Activities: 3

CU Creator User Additional comments • 2021-08-15 09:26:54

Problem has been resolved in 25s at 12:26:49 on 2021.08.15
Problem name: Device unreachable
Host: Network device
Severity: High
Original problem ID: 29701

CU Creator User Additional comments • 2021-08-15 09:26:48

Zabbix Administrator (Admin) acknowledged, commented and changed severity from Average to High problem at 2021.08.15 12:26:44.
Test ACK!

Current problem status is PROBLEM, acknowledged: Yes.

SNOW INTEGRATION – ADDITIONAL INFORMATION

- ✓ To add some additional information and make your integration more robust, we can utilize built-in and user macros
- ✓ In this example I will update my message template with a problem event URL
- ✓ I will use built-in and user macros to achieve this

Create a ***{ZABBIX.URL}*** global user macro

☰ Macros ▾

Macro	Value	
<input type="text" value="{SNMP_COMMUNITY}"/>	<input type="text" value="public"/>	<input type="button" value="T"/>
<input type="text" value="{ZABBIX.URL}"/>	<input type="text" value="http://192.168.1.79/zabbix/"/>	<input type="button" value="T"/>

Add

SNOW INTEGRATION – ADDITIONAL INFORMATION

- Combine ***{\$ZABBIX.URL}*** user macro with built in macros – ***{TRIGGER.ID}*** and ***{EVENT.ID}***

Message template

Message type: Problem recovery

Subject: [{EVENT.STATUS}] {EVENT.NAME}

Message:

```
Problem name: {EVENT.NAME}
Host: {HOST.NAME}
Severity: {EVENT.SEVERITY}
Original problem ID: {EVENT.ID}
|
Incident URL: {$ZABBIX.URL}tr_events.php?triggerid={TRIGGER.ID}&eventid={EVENT.ID}
```

Update Cancel

SNOW INTEGRATION – ADDITIONAL INFORMATION

✓ This way our incident in SNOW will now contain a direct URL redirecting us to the event:

Activities: 2

API USER Additional comments • 2021-08-15 10:42:56

Problem has been resolved in 1s at 13:42:46 on 2021.08.15
Problem name: Device unreachable
Host: Network device
Severity: Average
Original problem ID: 29732
<http://www.zabbix.com>

Incident URL: http://192.168.1.79/zabbix/tr_events.php?triggerid=19472&eventid=29732

Trigger details

Host	Network device
Trigger	Device unreachable
Severity	Average
Problem expression	last(/Network device/testa)=0
Recovery expression	
Event generation	Normal
Allow manual close	Yes
Enabled	Yes

SNOW INTEGRATION – TROUBLESHOOTING

- As with all other media types, make sure that you have created a ServiceNow user and assigned a ServiceNow media to it

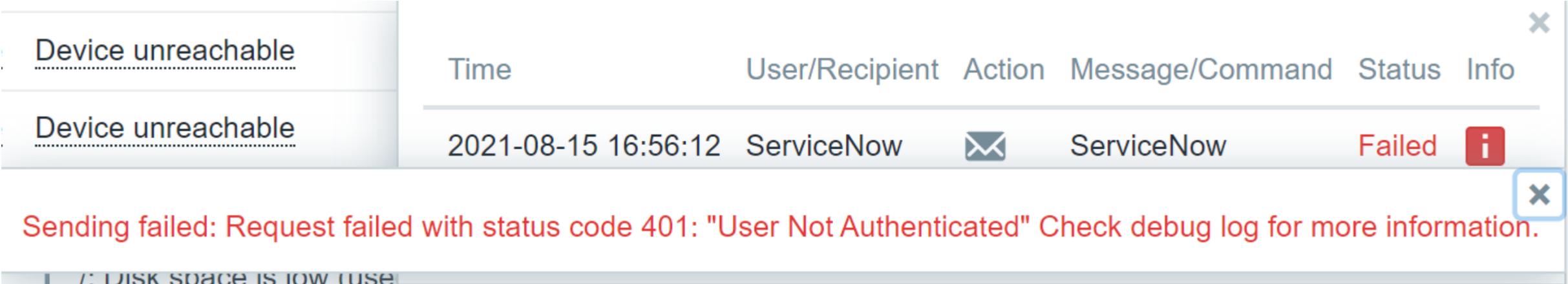
Time	User/Recipient	Action	Message/Command	Status	Info
2021-08-15 16:50:56	ServiceNow	✉		Failed	
2021-08-15 16:50:54		📅			No media defined for user.

- Make sure that the Media contains a proper service now URL

Time	User/Recipient	Action	Message/Command	Status	Info
2021-08-15 16:53:23	ServiceNow	✉	ServiceNow	Failed	
2021-08-15 16:					Sending failed: Error: cannot get URL: Couldn't resolve host name.

SNOW INTEGRATION – TROUBLESHOOTING

- ✓ Make sure that your *servicenow_user* and *servicenow_password* parameters are defined correctly in the media type



Device unreachable	Time	User/Recipient	Action	Message/Command	Status	Info
Device unreachable	2021-08-15 16:56:12	ServiceNow	✉	ServiceNow	Failed	

Sending failed: Request failed with status code 401: "User Not Authenticated" Check debug log for more information.

- ✓ Make sure that the ServiceNow user has proper API permissions

SNOW INTEGRATION – NOTES

- ✓ The integration is one-way, meaning changes performed in Zabbix will be reflected in ServiceNow, but not the other way around.
- ✓ When performing additional customizations – adding new fields, changing user roles, etc., make sure that you are referring to the correct version of the ServiceNow documentation
- ✓ Keep an eye out on the Zabbix release notes. The Media types may get updated and change from time to time.



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QUESTIONS?

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THANK YOU!

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