

Zabbix supports Ops

Clever use of Event Tags in Remote Commands



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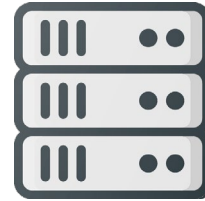
ZABBIX
TRAINING PARTNER

Simple Use Case

Basic Remote Action



- Monitoring
- Webserver availability
 - Certificate validity



Webserver



- Remote Command
- Restart Webserver



Simple Use Case

Basic Item/Trigger Configuration



Items

Name ▲	Triggers	Key	Interval	History	Trends
HTTPS certificate valid	Triggers 1	certificate.isvalid["-h","{HOST.CONN}"]	1m	1w	365d
HTTPS service is running	Triggers 1	net.tcp.service[https]	1m	1w	365d

Trigger

Severity	Name ▲	Operational data	Expression
High	HTTPS certificate is invalid on {HOST.NAME}		{IntelliTrend App HTTPS Service:certificate.isvalid["-h","{HOST.CONN}"].max(#3)}=0
High	HTTPS service is down on {HOST.NAME}		{IntelliTrend App HTTPS Service:net.tcp.service[https].max(#3)}=0



Simple Use Case

Basic Action Configuration



Action

Action Operations Recovery operations Update operations

* Name

Type of calculation A or B

Conditions	Label	Name	Action
A	Trigger equals	IntelliTrend App HTTPS Service: HTTPS certificate is invalid on IntelliTrend App HTTPS Service	Remove
B	Trigger equals	IntelliTrend App HTTPS Service: HTTPS service is down on IntelliTrend App HTTPS Service	Remove

Condition filtered by trigger



Simple Use Case

Basic Action Configuration



Action

Operations

Steps	Details	Start in	Duration	Action
1	Run remote commands on current host	Immediately	Default	Edit Remove
2	Send message to user groups: Zabbix administrators via all media	01:00:00	Default	Edit Remove

Operation details

Steps - (0 - infinitely)

Step duration (0 - use action default)

Operation type

* Target list

Target	Action
Current host	Remove

[New](#)

Type

Authentication method

* User name

Password

Port

* Commands

Command is specific to app



Simple Use Case

Different Types



How to manage different types of
webservers and techniques?



Simple Use Case

Mix of different types and techniques



Monitoring

- Webserver availability
- Certificate validity

Items and trigger can be the same



Webserver
Debian/Apache2



Docker
MyWebContainer



Webserver
Debian/Nginx



Kubernetes
MyWebService



Webserver
RHEL/Apache2



Basic Use Case

Mix of different types and techniques



Webserver
Debian/Apache2

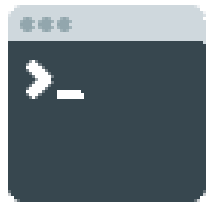


Docker
MyWebContainer



Webserver
Debian/Nginx





Remote Command

- Restart Webserver



Kubernetes
MyWebService



Webserver
RHEL/Apache2

But, how do Remote Commands look like?



Basic Use Case

Mix of different types and techniques



Webserver
Debian/Apache2

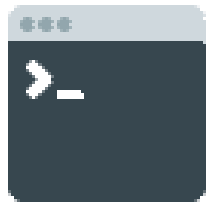


Docker
MyWebContainer



Webserver
Debian/Nginx





Remote Command

- Restart Webserver



Kubernetes
MyWebService



Webserver
RHEL/Apache2

kubectl scale deployment <myWebDeployment> --replicas=0
kubectl scale deployment <myWebDeployment> --replicas=1

Remote Commands differ...

```
systemctl restart apache2  
systemctl restart httpd.service  
service httpd restart  
systemctl restart nginx  
service nginx reload
```



Simple Use Case

Mix of different types and techniques



The challenge

- How can we still use Templates to define items and trigger and separate actions to execute the proper Remote Command?
- How can we pass additional specific information to the Remote Command?



Simple Use Case Help with Event Tags



What are Event Tags
and how can they help?



Event Tags

Quick overview



In Zabbix 3.2, Event Tags were introduced on trigger level.
In Zabbix 4.2, Event Tag support was added on host and template level.

Event Tags allow to:

- ... identify problems in a log file and close them separately.
- ... see Event Tag information in the frontend.
- ... use information extracted from item value as tag value.
- ... identify problems better in notifications.
- ... simplify configuration tasks by using tags on the template level.
- ... create triggers with tags from low-level discovery (LLD).
- ... automatically close problems using global event correlation.
- ... filter Actions and provide Event Tag macros in actions.



Event Tags Examples



Trigger **Tags** Dependencies

Trigger tags Inherited and trigger tags

Name	Value	Action
<input type="text" value="Service"/>	<input type="text" value="Websserver"/>	Remove

[Add](#)

Event tag on trigger level

Host **Templates** IPMI **Tags** Macros Inventory Encryption

Name	Value	Action
<input type="text" value="RC"/>	<input type="text" value="On"/>	Remove

[Add](#)

Event tag on host level

Event tag in problem view

Severity	Recovery time	Status	Info	Host	Problem	Duration	Ack	Actions	Tags
High		PROBLEM		www1.intellitrend.de	HTTPS certificate is invalid on www1.intellitrend.de	1m 2s	No		<input type="button" value="RC: On"/> <input type="button" value="Service: Websserver"/>



Simple Use Case

Design and Implementation

- Define Event Tags on host level to enable / select actions.
- Define Macros on host level to use the proper service name and mechanism in the Remote Commands.
- Use Event Tags as a filter condition in Zabbix Actions.



Design and Implementation

Host Macros and Tags



Host Templates IPMI Tags **Macros** Inventory Encryption

Host based macros

Host macros Inherited and host macros

Macro	Value	Description	
<input type="text" value="{ \$SERVICEMGR }"/>	= <input type="text" value="systemctl"/>	<input type="text" value="used in actions"/>	Remove
<input type="text" value="{ \$WEBSERVER }"/>	= <input type="text" value="apache2"/>	<input type="text" value="used in actions"/>	Remove

Host based tags

Host Templates IPMI **Tags** Macros Inventory Encryption

Name	Value	Action
<input type="text" value="RC"/>	<input type="text" value="On"/>	Remove
<input type="text" value="Service"/>	<input type="text" value="Webserver"/>	Remove

[Add](#)



Design and Implementation

Action Conditions



* Name

Type of calculation A and B

Conditions	Label	Name	Action
	A	Value of tag <i>Service</i> contains <i>Webserver</i>	Remove
	B	Value of tag <i>RC</i> contains <i>On</i>	Remove

Action conditions
based on Event Tags



Design and Implementation Action Command



Operation details

Steps - (0 - infinitely)

Step duration (0 - use action default)

Operation type

* Target list

Target	Action
Current host	Remove
New	

Type

Authentication method

* User name

Password

Port

* Commands

```
if [ "${SERVICEMGR}" == "systemctl" ]; then \  
logger "Zabbix Action restarting {WEBSERVER} for Service {EVENT.TAGS.Service}"; \  
systemctl restart {WEBSERVER}  
fi; \  
if [ "${SERVICEMGR}" == "service" ]; then \  
logger "Zabbix Action restarting {WEBSERVER} for Service {EVENT.TAGS.Service}"; \  
service {WEBSERVER} restart  
fi
```

Target = C-Host



Design and Implementation

Problem View



Problem view with Action Information

Severity	Recovery time	Status	Info	Host	Problem	Duration	Ack	Actions	Tags
High		PROBLEM		www1.intellitrend.de	HTTPS certificate is invalid on www1.intellitrend.de	24s	No	1 →	RC: On Service: Webserver

Corresponding Action Log

Action	Type	Recipient	Message	Status
Restart Webserver ET			Command: www1.intellitrend.de:if ["systemctl" == "systemctl"]; then \ logger "Zabbix Action restarting apache2 for Service Webserver"; \ systemctl restart apache2 fi; \ if ["systemctl" == "service"]; then \ logger "Zabbix Action restarting apache2 for Service Webserver"; \ service apache2 restart fi	Executed



Design and Implementation



What about a service on
Kubernetes?



Design and Implementation Host Macros and Tags



Host based macros

Host Templates IPMI Tags **Macros** Inventory Encryption

Host macros Inherited and host macros

Macro	Value	Description	
<input type="text" value="{ \$DEPLOYMENT }"/>	= <input type="text" value="nginx-deployment"/>	<input type="text" value="used in actions"/>	Remove

Host based tags

Host Templates IPMI **Tags** Macros Inventory Encryption

Name	Value	Action
<input type="text" value="Kubernetes"/>	<input type="text" value="value"/>	Remove
<input type="text" value="RC"/>	<input type="text" value="On"/>	Remove
<input type="text" value="Service"/>	<input type="text" value="Webserver"/>	Remove



Design and Implementation

Action Conditions



Action Operations Recovery operations Update operations

* Name

Type of calculation (A and B) and C

Label	Name	Action
A	Value of tag <i>Service</i> contains <i>Webserver</i>	Remove
B	Value of tag <i>RC</i> contains <i>On</i>	Remove
C	Tag name does not contain <i>Kubernetes</i>	Remove

Update previous
Action conditions



Action Operations Recovery operations Update operations

* Name

Type of calculation (A and B) and C

Label	Name	Action
A	Value of tag <i>Service</i> contains <i>Webserver</i>	Remove
B	Value of tag <i>RC</i> contains <i>On</i>	Remove
C	Tag name contains <i>Kubernetes</i>	Remove

Add new Action



Design and Implementation Action Command



Operation details

Steps - (0 - infinitely)

Step duration (0 - use action default)

Operation type

* Target list

Target	Action
Host: Kubernetes Manager	Remove
New	

Type

Authentication method

* User name

Password

Port

* Commands

```
logger "Zabbix Action restarting kubernetes deployment
${DEPLOYMENT}"; \
kubectl scale deployment ${DEPLOYMENT} --replicas=0 && \
kubectl scale deployment ${DEPLOYMENT} --replicas=1
```

Target = K-Manager



Design and Implementation

Problem View



Problem view with Action Information

Severity	Recovery time	Status	Info	Host	Problem	Duration	Ack	Actions	Tags
High		PROBLEM		www2.intellitrend.de	HTTPS certificate is invalid on www2.intellitrend.de	15s	No	1 →	Kubernetes RC: On Service: Webserver

Corresponding Action Log

Action	Type	Recipient	Message	Status
Restart Webserver Kubernetes			Command: Kubernetes Manager:logger "Zabbix Action restarting kubernetes deployment nginx-deployment"; \ kubectl scale deployment nginx-deployment --replicas=0 && \ kubectl scale deployment nginx-deployment --replicas=1	Executed



Clever use of Event Tags in Remote Commands



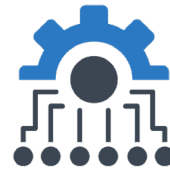
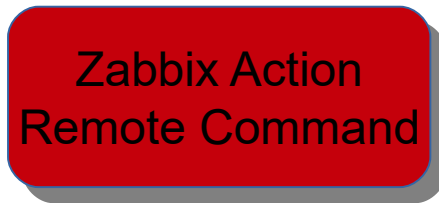
Can we do better?



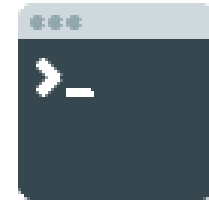
Advanced use of Remote Commands Using a Taskrunner



Execute Remote Commands through a Taskrunner by Zabbix



Taskrunner



Remote Host

Command 1

Command 2

...

Command n



Advanced use of Remote Commands

Easier Integration

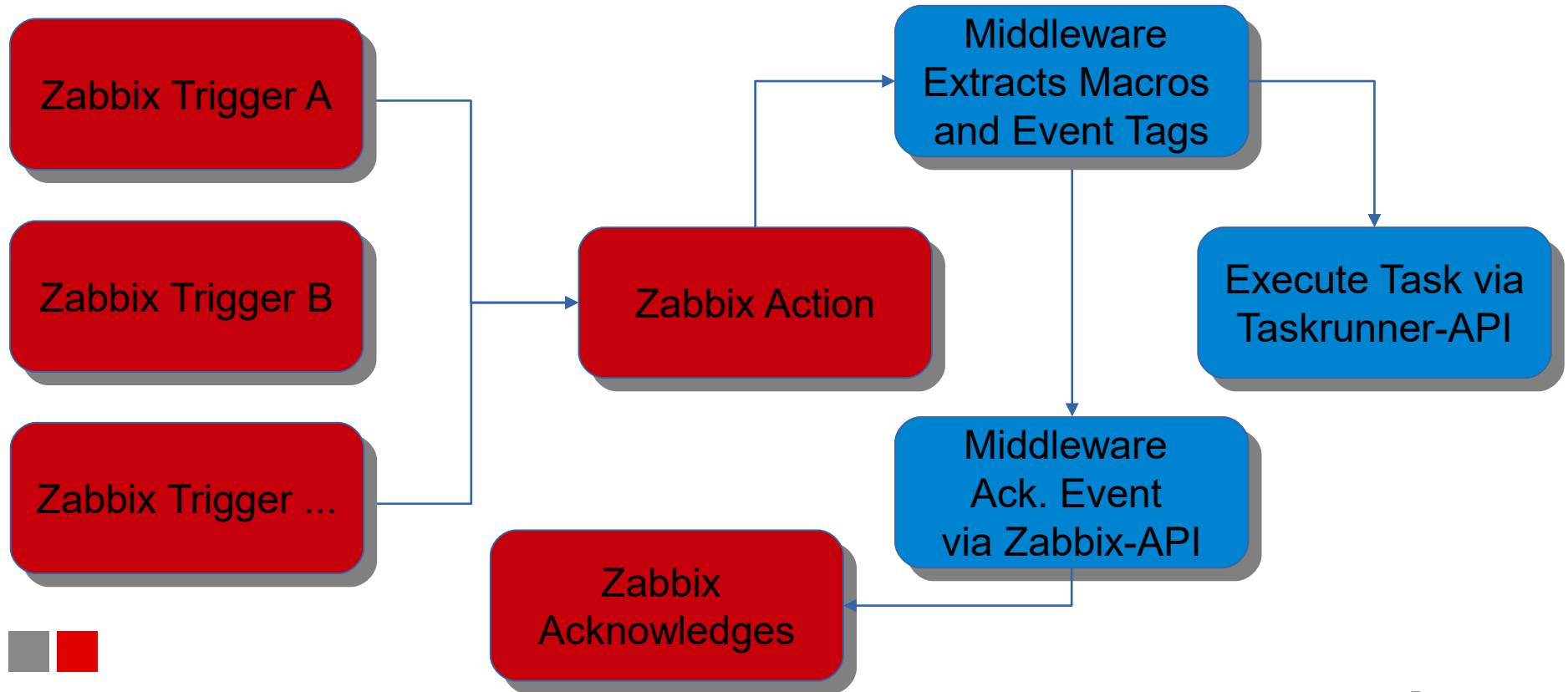


Advantages

- ✓ Soft migration from standard Ops actions to Zabbix Remote Commands.
- ✓ Easier overall maintenance of Actions, no duplicated sets of commands.
- ✓ Less error prone definition of Remote Commands.
- ✓ Easier testing of Zabbix Remote Commands.
- ✓ Preserved output from executed remote actions.
- ✓ Central location for access credentials and keys.



Advanced use of Remote Commands Simplified Actions with Taskrunner



Zabbix supports Ops

Clever use of Event Tags in Remote Commands

Thank You!



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