Monitoring Your FileMaker Server

Installing Zabbix Agent

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This document is one in a series of guides that walk you through how to install, configure, and use Zabbix to monitor your FileMaker servers. The full set of guides is available at https://www.soliantconsulting.com/filemaker-zabbix. By this point, you should already have Zabbix server installed on a Linux machine – either as an appliance or installed from scratch – as well as the Zabbix agent installed on one or more FileMaker Server machines.

Zabbix Templates

Zabbix monitors servers and other devices (called hosts) by collecting data (called items) from those hosts. You can tag items with applications which are words or phrases you specify and are used to group and organize the items. Triggers are then used to evaluate the collected item data, and actions are set up to run in response to the triggers. The types of actions that can be taken include sending notifications and issuing remote commands (which are to be performed on the monitored hosts). In addition to automated actions, you can view the collected data in graphs, screens (which can be configured to show multiple graphs and other elements), and dashboards.

Some (although not all) of these configuration entities can be exported as an XML template and shared across different Zabbix installations. Both FileMaker Inc. and Soliant Consulting have released a set of templates that can greatly speed up the time it takes to set up your Zabbix server and monitor your FileMaker Server(s).

- FileMaker Inc. templates: https://community.filemaker.com/en/s/article/Using-Zabbix-for-Monitoring-FileMaker-Server
- Soliant Consulting templates: https://github.com/soliantconsulting/FileMaker-Server-Zabbix-Templates

As you download the templates, you will note that even though there are multiple templates, they are all contained within a single XML file.

Here is a partial list of the configuration entities that have and have not been included in the Soliant Consulting template:

Included:

- Host Groups – used for organizing hosts and templates

- Applications

- Items

- Triggers

- Graphs

- Host Screens – used to display data from a single host

Not included:

- Actions (because they depend greatly on your priorities and users/email environment)

- Global Screens – used to display data from multiple hosts

- Dashboards

Importing Templates

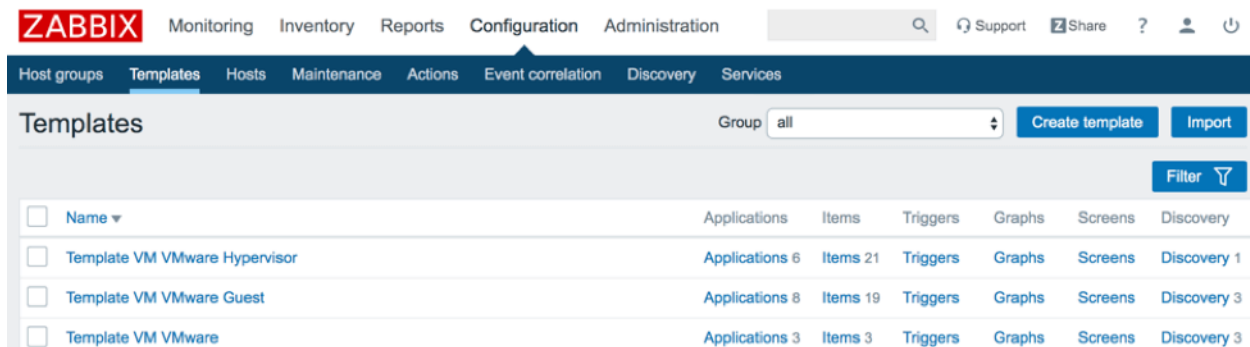To import a template, log into the Zabbix frontend and navigate to **Configuration** > **Templates**.

Figure 1. Use the Zabbix frontend to import templates

Click **Import** to go to the import screen, select the template XML file, leave the default import rules, and click **Import**.
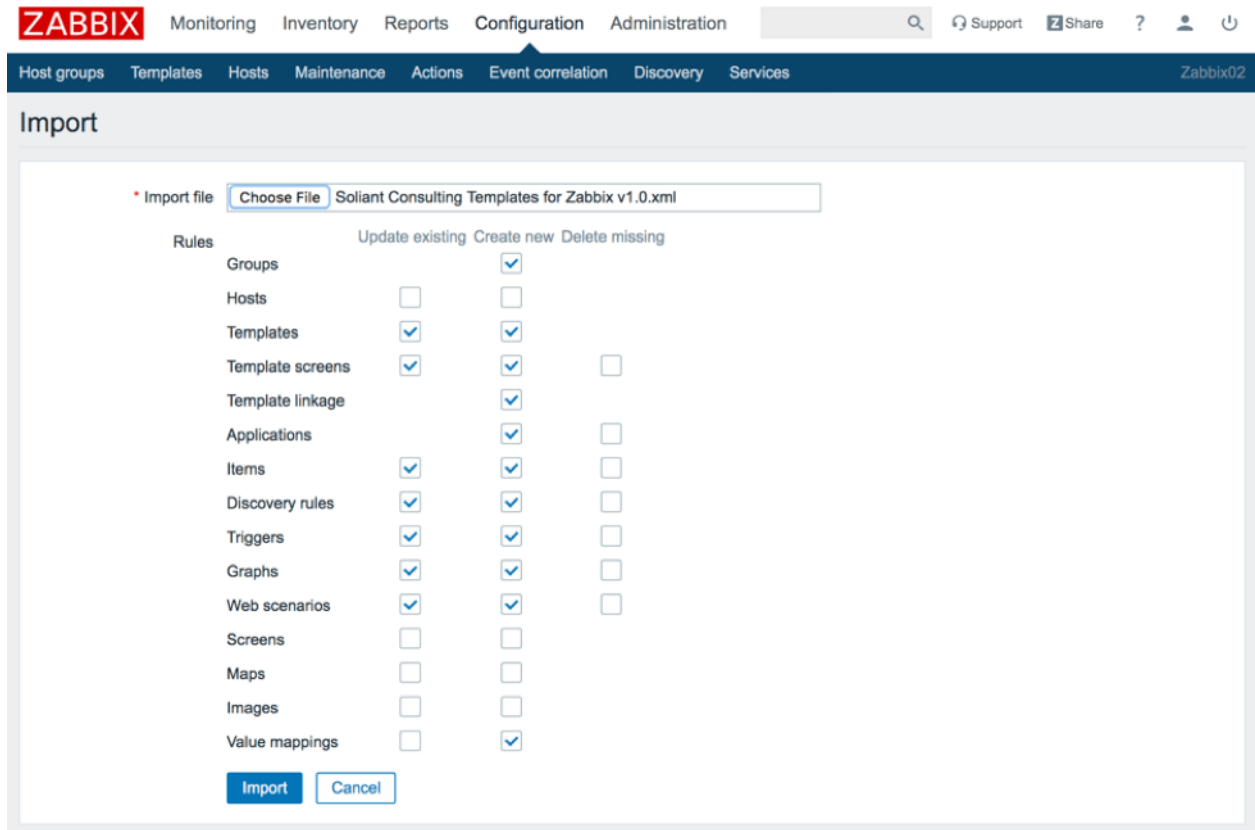
Figure 2. Import the template XML file

Navigate once again to **Configuration** > **Templates** and select **Templates/Soliant** as the group to only display the templates that were imported and to exclude the predefined templates that come by default with a Zabbix installation.

Figure 3. Template list shows only the templates that were imported

Template Organizational Scheme

To strike a balance between complexity and flexibility, and to minimize the amount of customization required after importing, we've organized the Soliant templates in these two tiers:

- Top-level templates – Intended to be linked to hosts.

- Component templates – Nested inside one or more top-level templates.

There are three top-level templates – one for each FileMaker Server platform: Windows, macOS, and FileMaker Cloud. These are the only ones that you would select when adding a template to your FileMaker Server host.

The component templates exist to account for variation in cross-platform compatibility. For example, the **perf_counter** item collects data from the Windows Performance Monitor (Perfmon) tool, so this item will only work with a Windows host.

Using component templates also facilitates configuring Zabbix to monitor different FileMaker Server versions and configurations. For example, as of the writing of this white paper, the Admin API v2 is only supported with FileMaker Server 18, so items that rely on the Admin API v2 are grouped in their own template.

The following schematic visualizes how the top-level and component templates fit together:
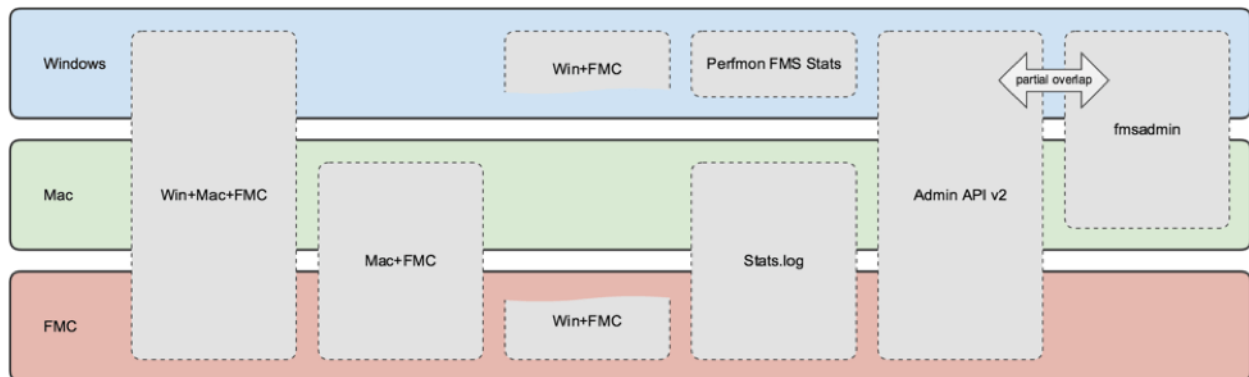

Figure 4. Schematic of top-level and component templates

To view just the top-level templates, select Templates/Soliant/Top-Level in the Group dropdown. Similarly, you can select Templates/Soliant/Component to view just those templates.

The names of the three top-level templates make their intention self-explanatory: when deciding which one to link to the host you wish to monitor, choose the one that corresponds to that host's operating system:

The component templates deserve a bit more explanation:

- **Soliant FMS WinMacFMC** – Includes items that work on all three FileMaker Server platforms.

- **Soliant FMS WinFMC** – Includes items that work on Windows and FileMaker Cloud but not on macOS.

- **Soliant FMS MacFMC** – Includes items that work on macOS and FileMaker Cloud but not on Windows.

- **Soliant FMS Admin API v2** – Includes FileMaker Server configuration data collected from the Admin API v2.

- **Soliant FMS fmsadmin** – Includes FileMaker Server configuration data collected from the fmsadmin CLI utility. The fmsadmin CLI tool has diminished capabilities when running on FileMaker Cloud, so for this reason, the fmsadmin component template is only included with the Windows and macOS top-level templates.

- **Soliant FMS Perfmon FMS Stats** – Includes Windows Performance Monitor (Perfmon) counters that have counterparts in the FileMaker Server Stats.log file.

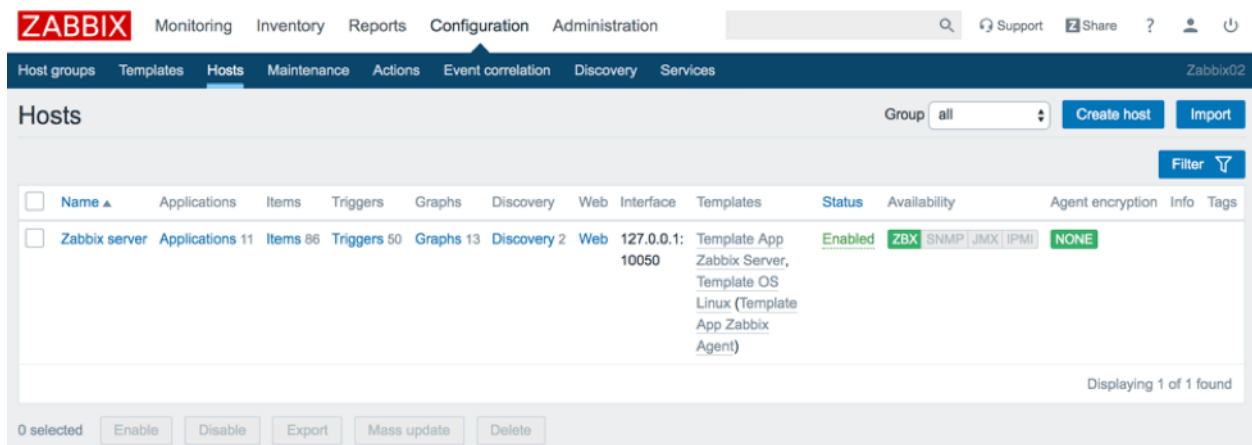- **Soliant FMS Stats.log** – Includes items collected from the Stats.log file.

Each top-level template has been linked to all eligible component templates so that it inherits their configuration entities (items, triggers, etc.). For example, the **Mac** template has been linked to the **WinMacFMC** and **MacFMC** templates (among others) but not to **WinFMC**, since the items in that template will not work on macOS.

The **Admin API v2** and **fmsadmin** templates both collect FileMaker Server configuration data but through different mechanisms. Some of the items overlap, and others don't. Review the items available in each template and decide which one you'd like to use. Note that to use the Admin API v2, your host must be FileMaker Server 18 with a custom SSL certificate. Zabbix server must also be able to reach the host via port 443. You can also choose to keep both sets of items enabled, in which case, you will end up collecting some redundant data. (You are not restricted to enabling/disabling items at the template level; you can also disable individual items within a template. We'll cover this in more detail in a following section.)

Similarly, both of the **Perfmon FMS Stats** and **Stats.log** templates collect FileMaker Server statistics but through different mechanisms. The data collected with either mechanism is essentially identical. Our Windows top-level template makes use of the Perfmon FMS Stats component template. However, as Perfmon does not work on macOS and Linux, the other two top-level templates use the Stats.log component template.

Adding a host

To add a host, navigate to **Configuration** > **Hosts**.

Figure 5. Adding a host

Click **Create host** and take the following steps on the **Host** tab:

- Enter the hostname (as set in the agent's config file) and optionally a visible name (a 'friendly' name).

- Select **FMS** as the group. (The FMS group will have been created as part of importing the Soliant Consulting template. You can select a different group if you would like.)

- Specify either a DNS name or an IP address or both and select the one that you would like Zabbix to use as the default means of communicating with the host.

Figure 6. Specify the host properties

On the **Templates** tab, select the top-level template you would like to use. We will use the Windows template in the examples shown in this document. Don't forget to click the blue **Add** link to add the selected template to this list of linked templates.
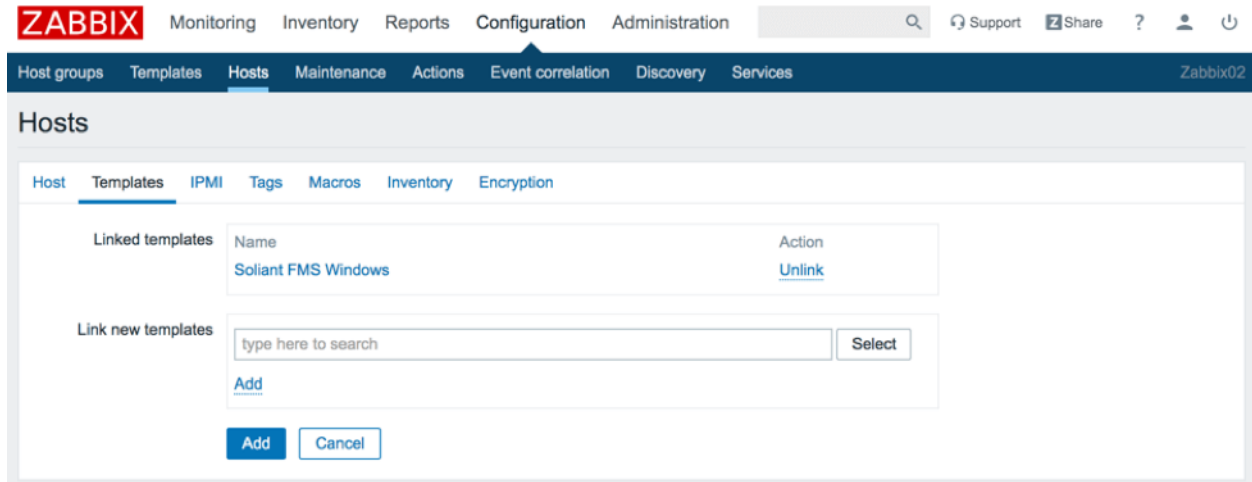
Figure 7. Select the top-level template to use

Switch to the **Macros** tab and then to the **Inherited and host macros** sub-tab. Macros are variables which make it possible to specify values in items, triggers, and other places that would otherwise have to be hardcoded. The top-level template selected during the previous step will have several macros already defined.

Click **Change** next to each macro whose value needs to change to accurately reflect the environment of the host that is being added.

Figure 8. Change the macro's effective value

{FMS_U} and {FMS_P} are the credentials you would use to log into the FileMaker Server admin console.

Click the blue **Add** button to add the host.

Figure 9. List displays host that was added

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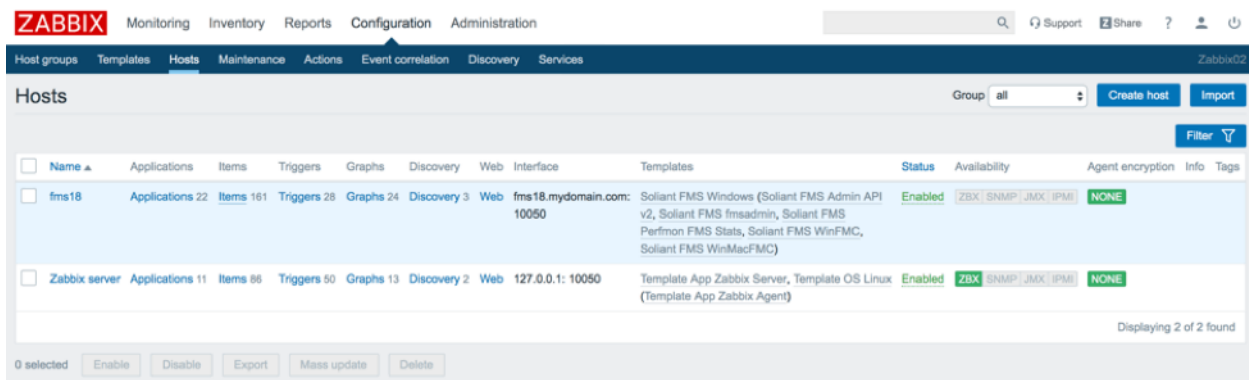
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Items

Now that you have added a host and linked it to a template, you will want to finetune which items are enabled and how they are configured for data collection, the severity classification for certain triggers, and triggers important to your deployment. For instance: you may not care that the Data API is not running, or you may want a notification when the user load exceeds 20 users.

We will provide a few examples of how to do this, but there may be quite a few other customizations which could be appropriate for your situation. Our advice is to review the list of all configuration entities (applications, items, triggers, graphs, etc.) attached to the host and decide which ones require additional customization.

Item Status – Disabling an Individual Item

One of the items collects data from the Web Publishing Engine (WPE) log. If your FileMaker Server installation does not have WPE enabled, you could choose to disable this item. Doing so will lighten the load for the Zabbix server (by a tiny amount). If there was a trigger tied to this item, then disabling the item would also have the effect of disabling the trigger.
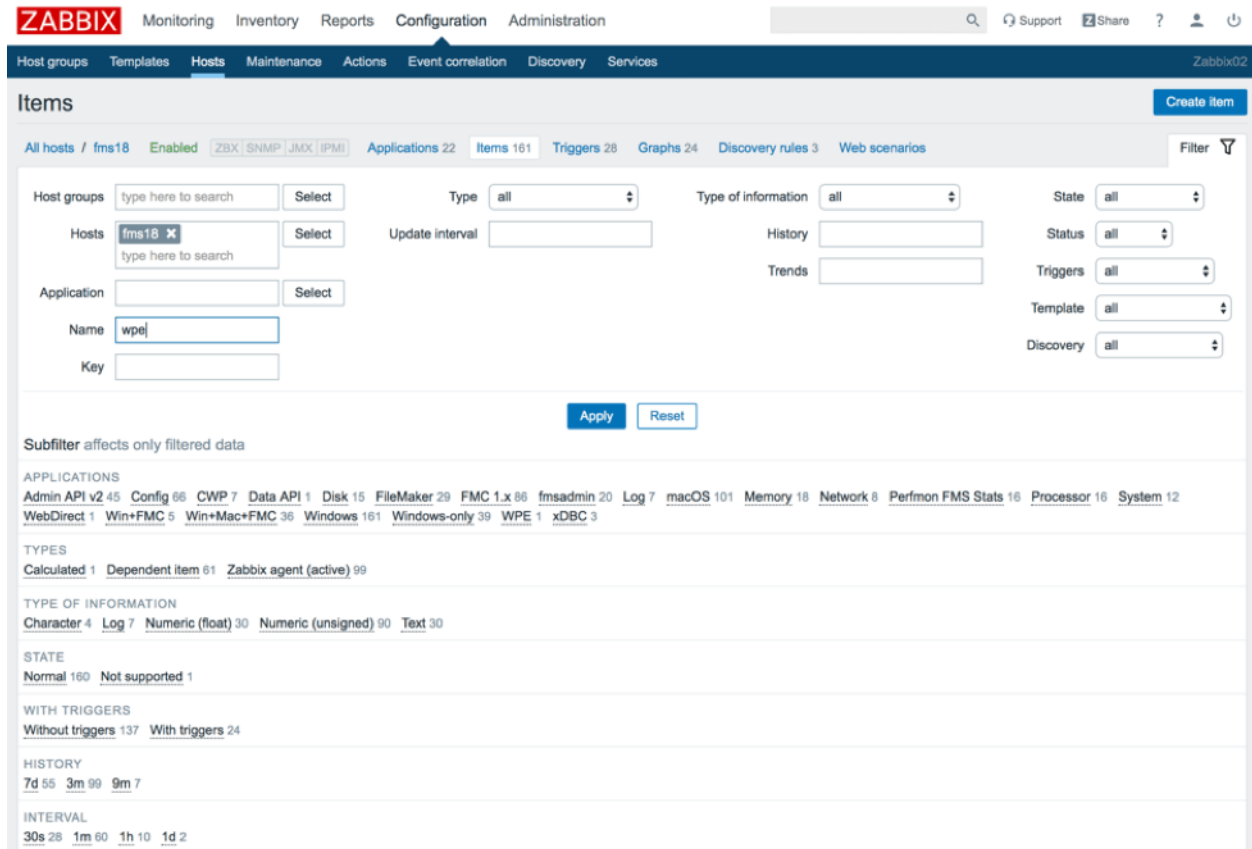
Navigate to **Configuration** > **Hosts** and click **Items** next to the host you want to configure. (An alternate way to arrive at the items screen is to click on the hostname first and then click on Items in the following screen.)

Figure 10. Click "Items" to the right of the host you want to configure

If the search/filter area is not shown, click **Filter** to display it. (Clicking Filter will toggle the display of that section.) Type "wpe" in the **Name** field and click **Apply**.

Figure 11. Filter to find a specific item

This search should yield a single item, named **Log - wpe**. Click the green **Enabled** link in the Status column to disable this item. (The filter section has been hidden in the screenshot below to conserve screen space.)
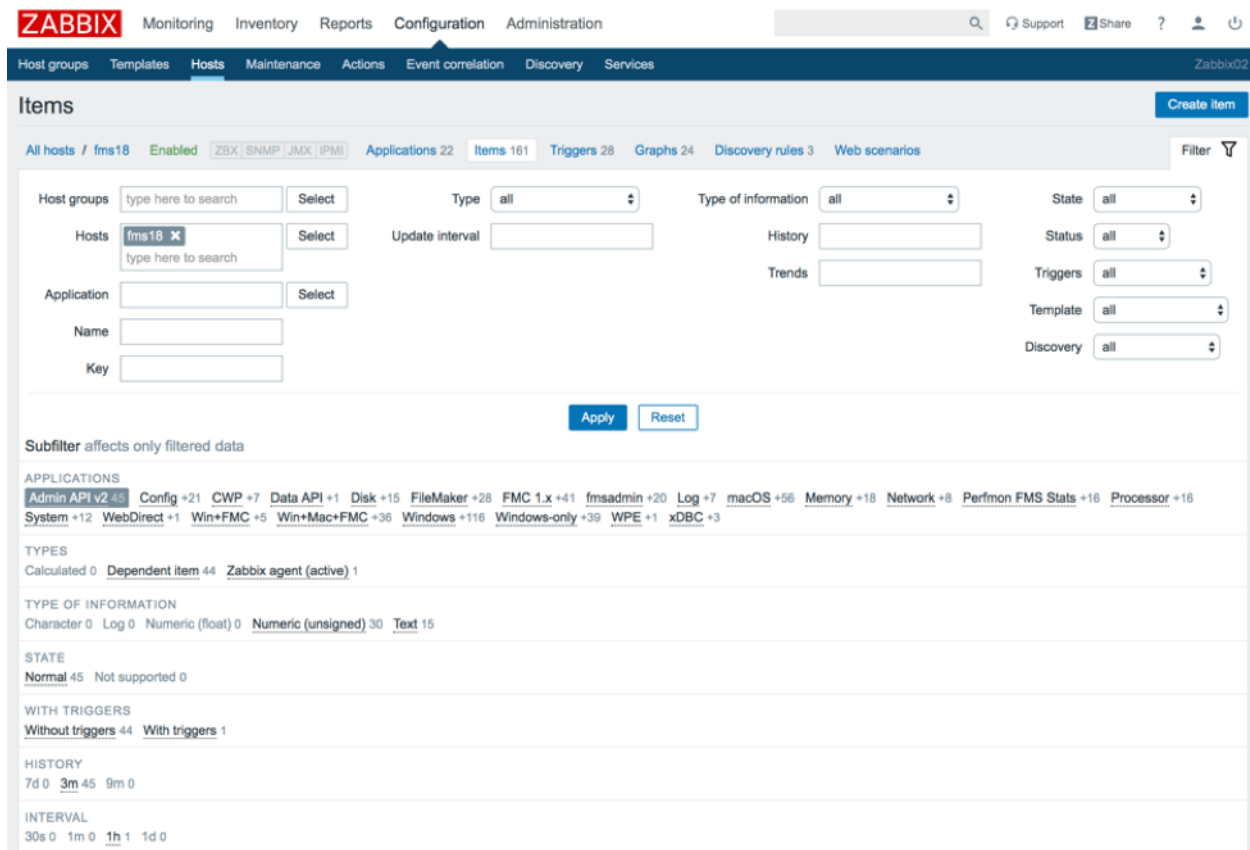

Figure 12. Item has been disabled

Using Mass Update to Disable a Group of Items

If your FileMaker Server installation does not support the Admin API v2, you may want to disable those items (and all associated triggers). To do so, navigate to **Configuration > Hosts** and click **Items** next to the host you want to modify. This time we will search for the items we want to disable by filtering by the **Admin API v2** application.

In Zabbix parlance, applications are just tags defined by you (or the template you are using). They provide a means of categorizing items, which makes it easier to filter for items. They are also used for grouping items when displaying a list of collected item values.

Click on the **Admin API v2** application in the filter area. The filter will be applied immediately. (Note that if you were to then click on another application filter, the effect would be an OR search, not an AND search; i.e., items that have been tagged with either one or the other application will be displayed.)
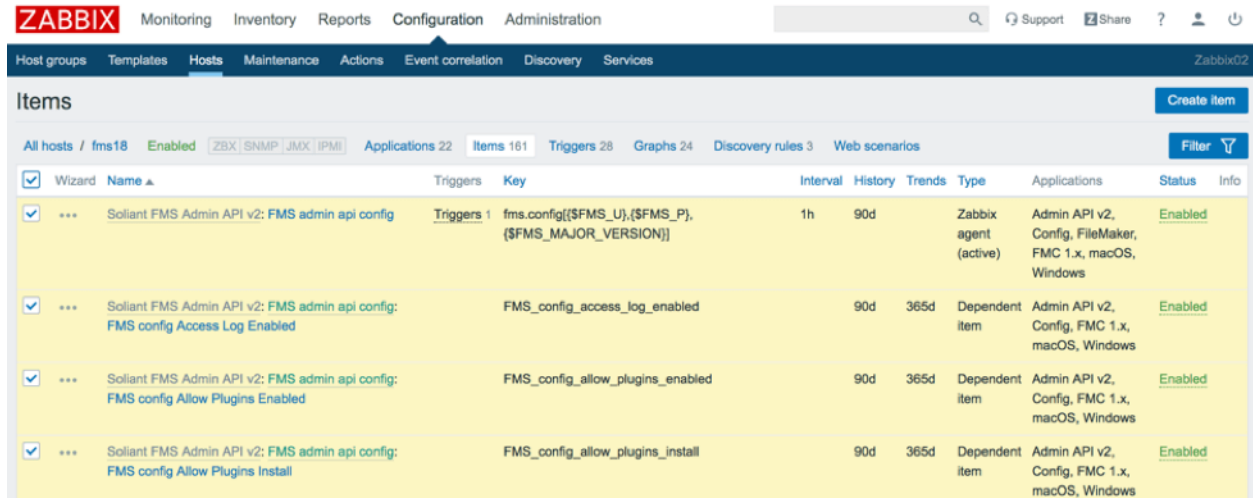
Figure 13. Items filtered by Admin API v2
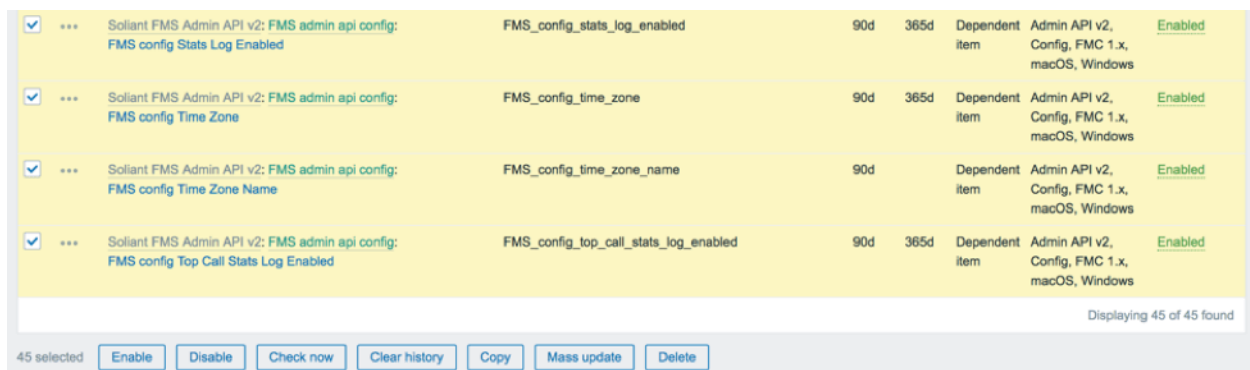
Click the checkbox at the top of the list to select all items in the search results.

Figure 14. Checkbox marked to select all items in the search results

Then scroll to the bottom of the page and click **Mass update**.

Figure 15. Click the "Mass update" button

Scroll down to the bottom of the mass update screen, click the **Status** checkbox, and select **Disabled** in the dropdown. Then click **Update**.

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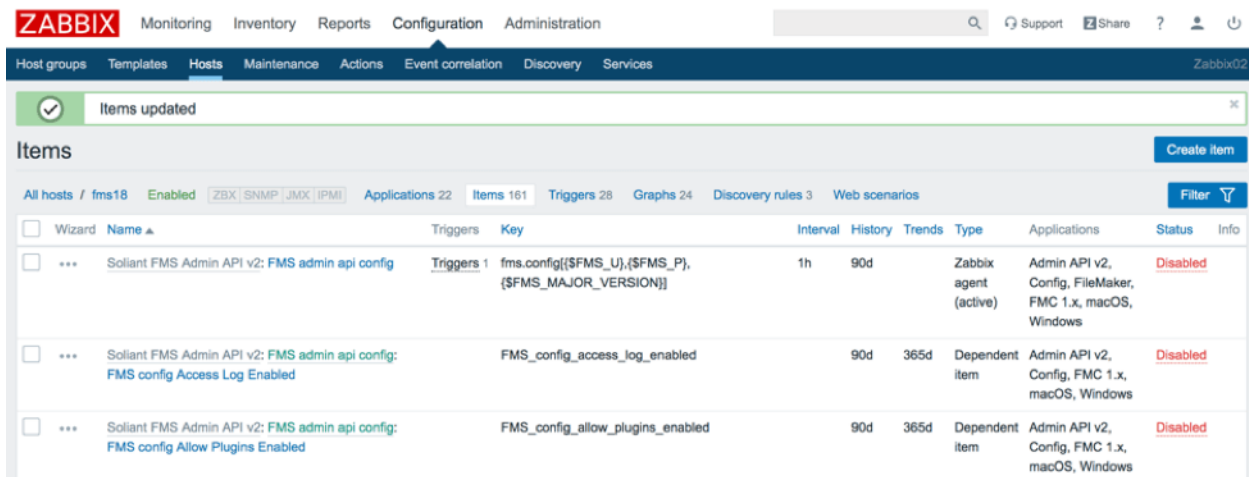
Figure 16. "Status" checkbox marked and "Disabled" selected from the dropdown

All of the items that were selected will now be disabled.

Figure 17. All items are disabled

Mass Update can be used in this way to make many different kinds of changes to a group of selected items. We will cover several of these in the next few sections:

- Item type

- Time intervals

- Applications

Item Type

Most of the items in our templates are configured to use the passive-mode **Zabbix agent** type. (See the **Zabbix Agent** white paper for a discussion of active and passive modes.)

One advantage of having the items run in passive mode is that you can collect item data on demand as opposed to having to wait for the collection interval to pass. To do so, select the items you want to collect, scroll down to the bottom of the page, and click **Check now**. Using passive mode does however require that port 10500 is open on the host. If you prefer not to do that, you can change all of the items to active mode.

Changing the type of an item works a little differently from changing the enabled/disabled status. You must do this at the template level instead of the host level, so you will need to navigate to **Configuration** > **Templates** and click on **Items** next to the template whose items you want to modify. If you try to change the item type from a host context, you will notice that the **Type** field is displayed with a gray background to indicate that it is not editable.

Once you arrive at the item detail screen (from a template context), filter by **Zabbix agent** type (don't skip this step!), select all items, click **Mass Update**, select the **Type** checkbox, select **Zabbix agent (active)** to indicate you want the agent to run in active mode, and click **Update**.

Time Intervals

There are three kinds of time intervals to be aware of:

- The **update interval** controls how frequently the data is collected.
- The **history storage period** controls how long the individual data points are kept.
- The **trend storage period** controls how long summarized data is kept.

After the history storage period elapses, numeric data is summarized on an hourly basis to conserve storage space. The individual data points are discarded, and the minimum, maximum, average, and the total number of values are kept for every hour. Note, this is done only for numeric data types. Non-numeric data (log entries, configuration settings, etc.) is discarded after the history storage period elapses.
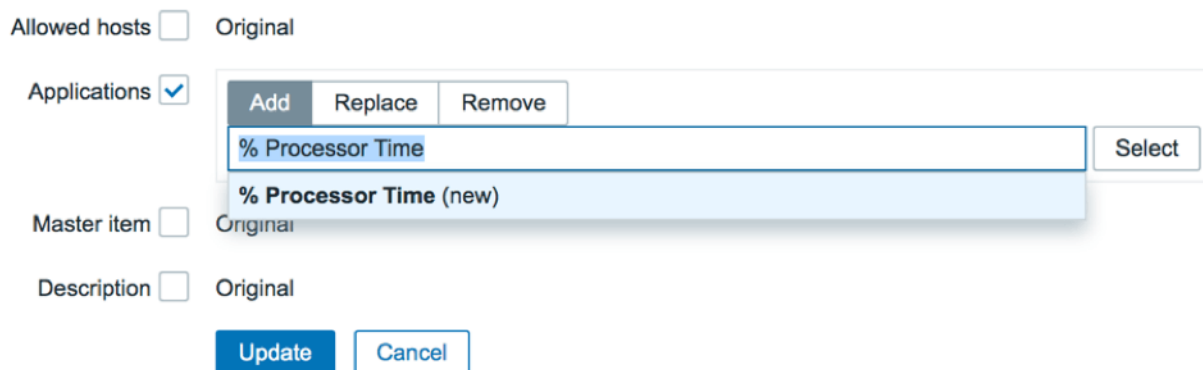
You can adjust the time intervals for an individual item or, using Mass Update, for a group of items. As was the case with item statuses, time intervals can be changed both for a host or for a template.

Applications

You can add/edit/delete applications – both for an individual host or for a template – to change how the items are tagged to suit your needs. You can prepare the application tags you want to use in the **Configuration** > **Templates** > **Applications or Configuration** > **Hosts** > **Applications** area. It is also possible to create new applications on the fly when using Mass Update.

Let's take a closer look at this using an example. The template already has an application tag for "Processor." Some of the items tagged with this application measure the % processor time for both the overall processor and for the individual FileMaker Server processes. Suppose we want to be able to quickly filter on just these items for one of the hosts we are monitoring.

To do this, navigate to **Configuration** > **Hosts**, click **Items** next to the host where you want to make the change, type "% processor time" in the **Name** field, and click Apply. Select the items you want to modify and click **Mass Update**. Select the **Applications** checkbox and then select the **Add** tab. Type "% Processor Time" and then select the option in the dropdown to create the new application. Then click **Update**.

Figure 18. Creating a new application with % processor time

A new % Processor Time application will be created, and all of the items that were selected will be tagged with it.

User parameters

Each item is uniquely defined by an item key which describes the type of data that will be collected. Most items in the Soliant Consulting template make use of item keys that are predefined by Zabbix, but there is one item – belonging to the **Admin API v2** component template – which uses a custom item key that we have defined in the Zabbix agent configuration file.

Such an item is called a **user parameter**. The agent configuration file defines not only the item key for a user parameter but also the command that will be used to collect the item data.

In our template, we have named this item "FMS admin api config," and, for a Windows host, we define it in the agent configuration file as follows:

UserParameter=fms.config[*],powershell.exe -NoProfile -ExecutionPolicy Bypass -file "C:\Program Files\zabbix-agent\scripts\fms_config.ps1" $1 $2 $3

In order for this item to function properly, the fms_config.ps1 file has to exist in the specified path on the host. (The agent configuration file will follow the same format for macOS and FileMaker Cloud hosts although the file and path will be different.) Our agent installation guide provides instructions on how to set this up.

All of the other items belonging to the Admin API v2 component template rely on this item – their item types are configured as Dependent Items, which means they derive their value from another item. So, if you want to make use of the Admin API v2 items, this user parameter item will need to be set up properly on your host.

Triggers

Zabbix triggers evaluate data that has been collected using items. The evaluation is done using a **problem expression**. This is a logical expression that you can create so that if it evaluates as true, we know there is a problem. In short; triggers determine whether there is a problem or not.

For example, the following item key collects the percentage of disk space that is free on the C: drive.

vfs.fs.size[C:,pfree]

We can use the following problem expression to indicate that there is a problem when the most recently collected value is less than 5%. Note that the item key is referenced inside of the expression.

vfs.fs.size[C:,pfree].last(0)<5

To declare that the problem has been resolved, we can rely on the same problem expression, or we can use a separate **recovery expression**, or we can do neither, which means the problem would have to be closed manually.

Trigger Status

As was the case with items, triggers can be disabled – both individually and using Mass Update. Review the list of triggers provided in the template you are using and disable the ones that don't apply for your host. For instance, if you do not have the Data API enabled, disable the **FMS process not running - Data API - Windows** trigger.

Trigger Severity

Each trigger is assigned a severity, which is a designation that you make. The severity of a problem is a subjective assessment that can vary depending on the situation, so for this reason, our advice is to review the severities of the triggers defined in the template and change them as you deem appropriate.

Modifying Triggers

Let's take a look at how we would go about changing the severity of a trigger. The FileMaker Server event log records a series of messages depending on what events transpire on the server. The list of possible messages can be viewed [here](#). Several of the messages are warnings about possible consistency check issues. For example:

634 – Warning – Database "%1" consistency check skipped by administrator, database opened. Use of this database could result in data corruption.

If you are getting notifications about event log errors, but no warnings, you would miss this message. However, consistency check warnings are indicators of possible serious issues. Our template has a trigger which will create a problem event if it notices this (or similar) message in the event log.

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Suppose you are reviewing the triggers used by your host, you notice that the severity of this particular trigger has been set as **Average**, and you would like to change it to **High**.

To see the list of triggers used by a host, navigate to **Configuration** > **Hosts** and click **Triggers** next to the host you are interested in. Type "consistency" in the **Name** search field and click **Apply**, or simply look for "Possible consistency check issue" in the list of all triggers shown. (In Figure 18, the filter section has been toggled off, which you can do by clicking on the Filter tab.)
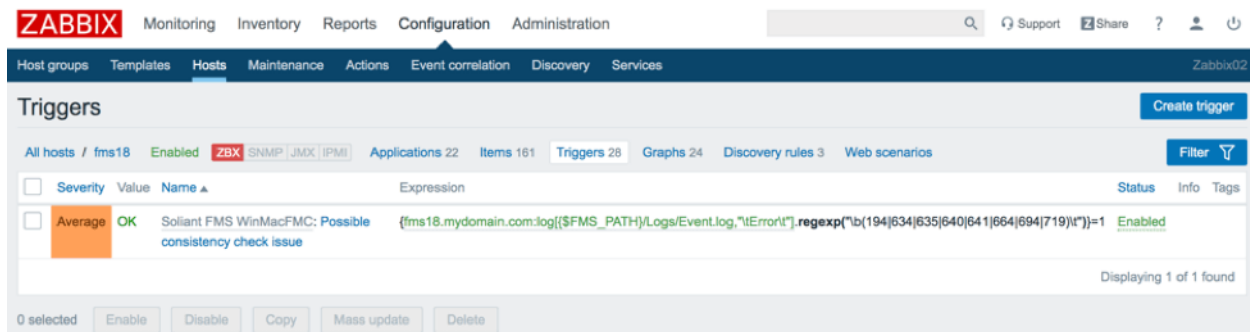

Figure 19. Triggers List with filter section toggled off

Click on the trigger name to view the details.

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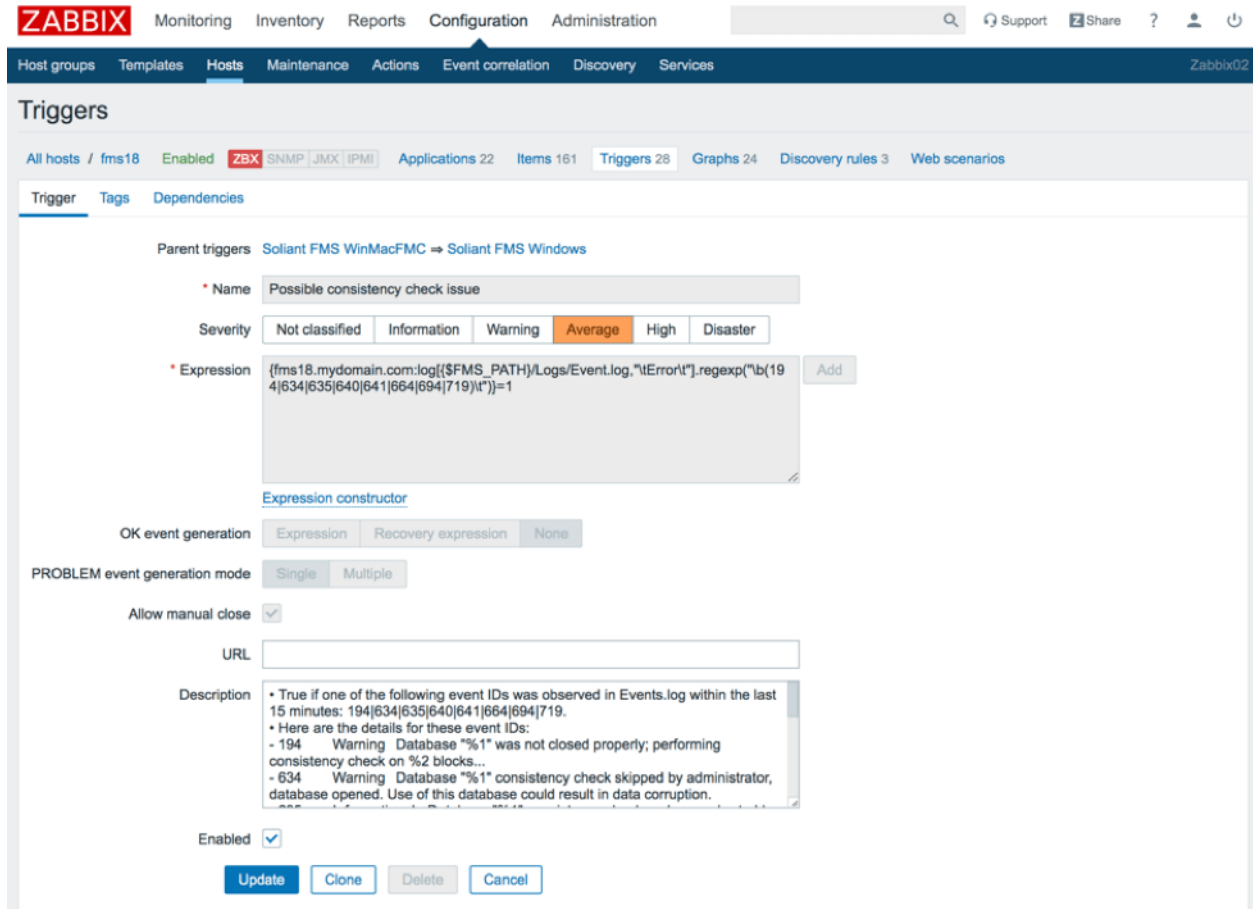Soliant Consulting, Inc.

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Figure 20. Trigger details

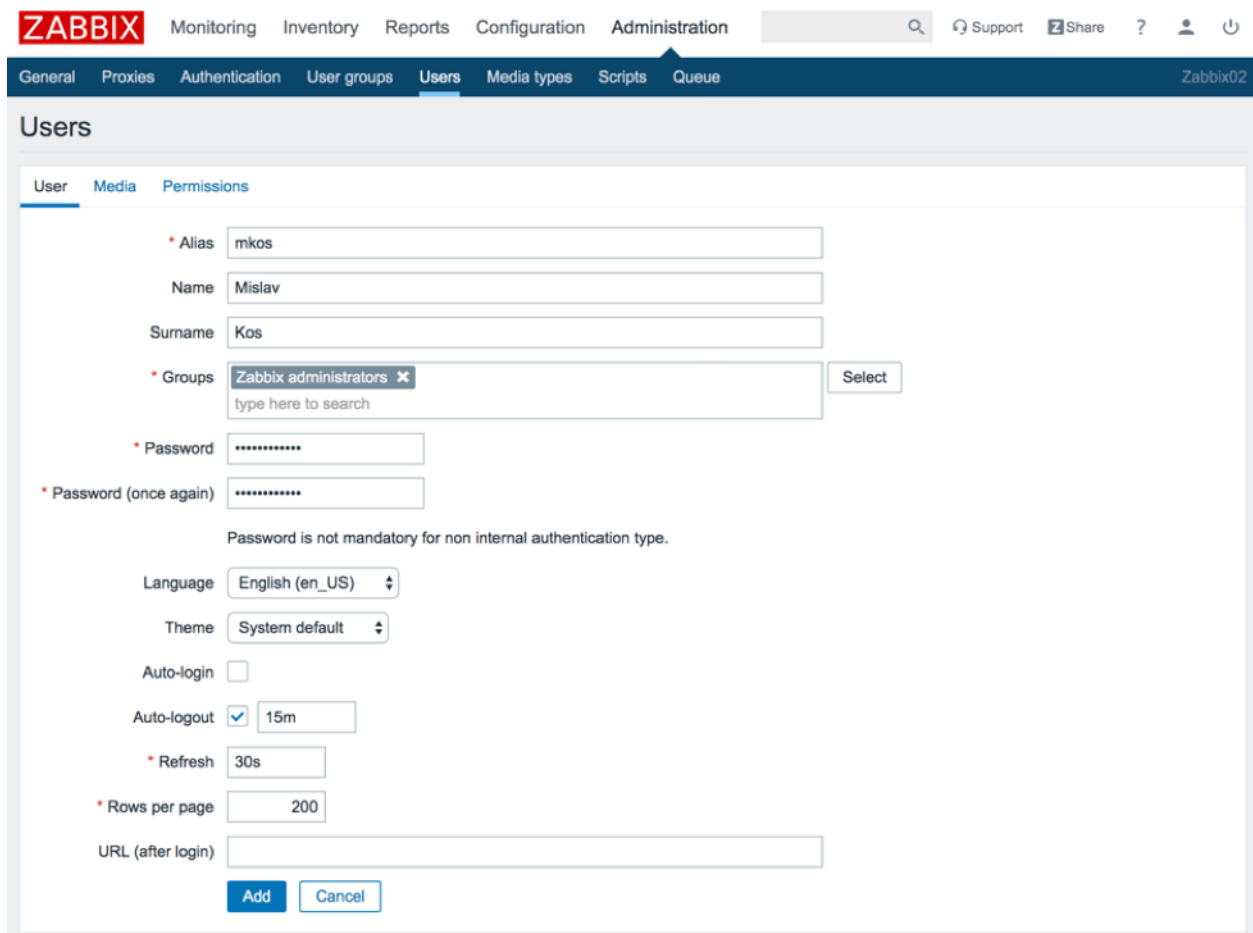To change the severity, simply select a new value and click **Update**.

Note that some of the trigger attributes – for example, name and problem expression – are shown with a gray background, which means they are not editable. Because this trigger is inherited by the host through a template, these attributes can only be modified in the template. In this example, this trigger was originally defined in the **Soliant FMS WinMacFMC** template, which is inherited by the **Soliant FMS Windows** template.

Click the blue **Soliant FMS WinMacFMC** link at the top to view this trigger from the context of that template. All of the attributes will now be editable but do keep in mind that changing the values will affect the behavior for all hosts that use this template.

Users

It is a good idea to create a dedicated account for each user who will log into the Zabbix frontend.

Navigate to **Administration** > **Users**, click **Create user**, and fill in the user details. We'll use the provided **Zabbix administrators** group for our new user.

Figure 21. Create user and add to the Zabbix administrators group

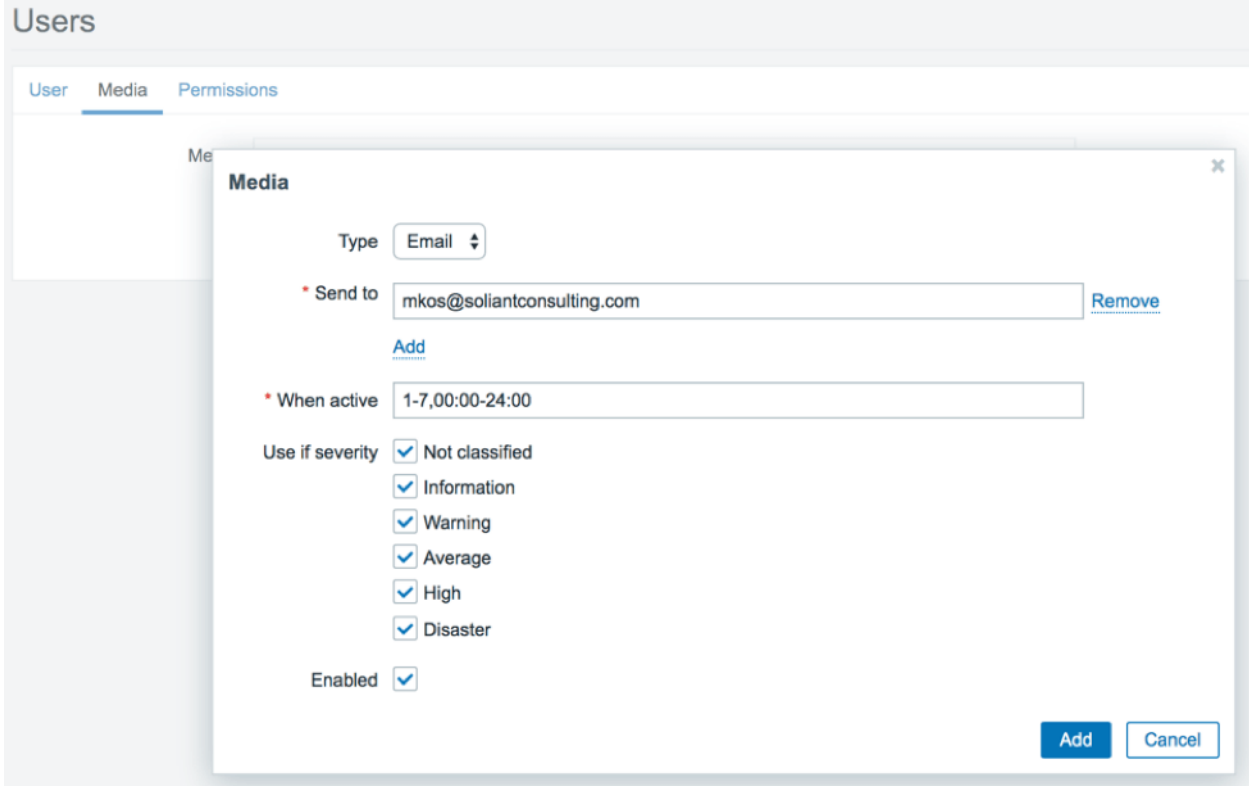Switch to the **Media** tab, click **Add** next to **Media**, and enter your email address.

Figure 22. Enter email address in the Media popup
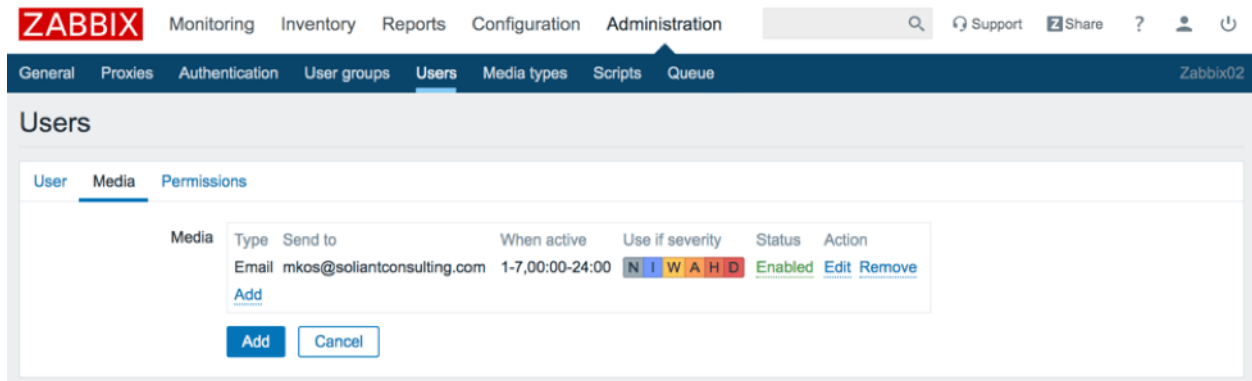
Click **Add**.

Figure 23. Email address added in field on the Media tab
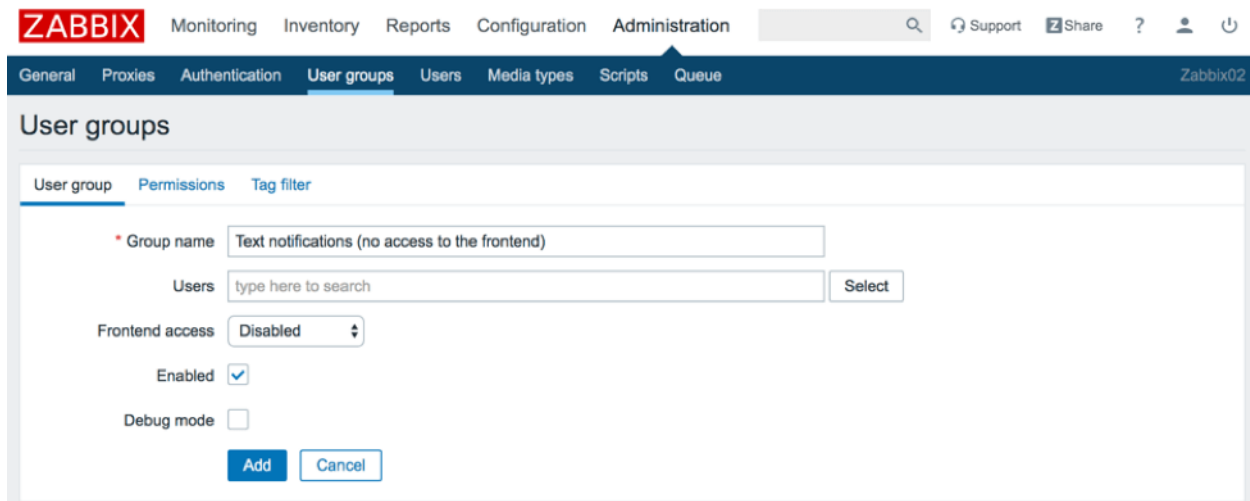
Click **Add** again to add the user.

User Groups

Zabbix already provides a **Zabbix administrators** group which can be used for your accounts. But we will create a new user group here, both to illustrate how this is done, and because we will need this new group later to send out text alerts.

Navigate to **Administration** > **User groups**, click **Create user group**, and specify a **Group name**. The **Frontend access** field allows you to specify if the accounts in these groups will be internal or LDAP (Active Directory). In our case, we are disabling access to the frontend (a.k.a. the Zabbix web interface), because accounts belonging to this user group will be used solely for sending out text messages. The reason for this will be explained in a later section.

> *Note: If you decide to use LDAP for your user group, you will still have to create individual user accounts in Administration > Users for every user who needs access. This is different from what you may be used to with FileMaker where you can simply create one externally authenticated account for an entire Active Directory group which then delegates authentication for all users belonging to that group to Active Directory.*

Figure 24. Creating a user group with Frontend access disabled

Switch to the **Permissions** tab, specify the **FMS** host group (which was added as part of importing the Soliant template), select to **Include subgroups**, and select **Read** permissions.
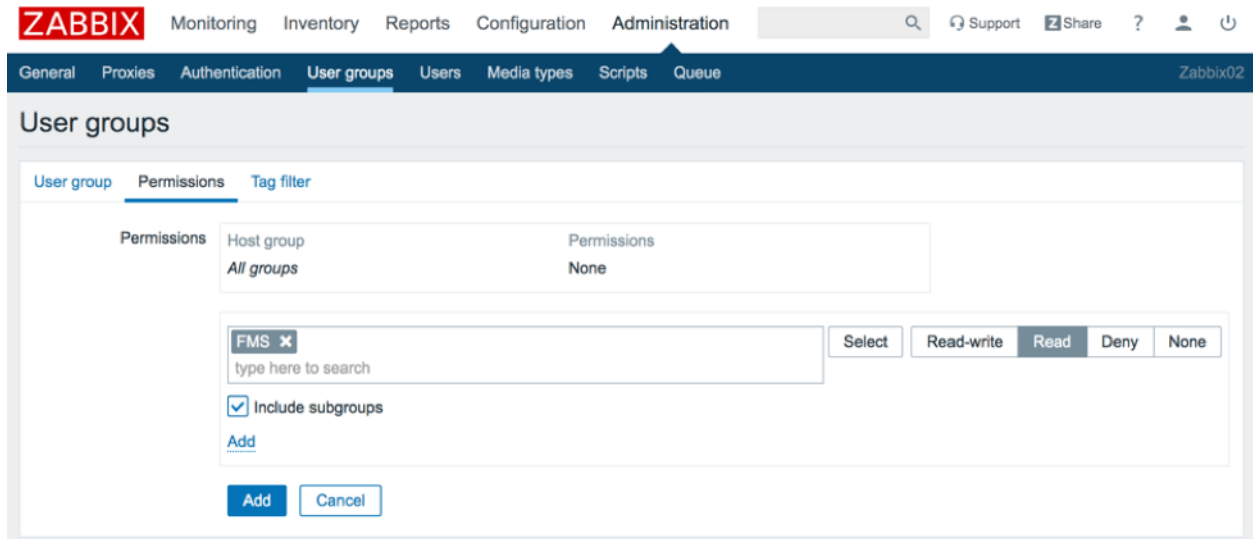
Figure 25. Setting User group permissions to include subgroups and read permissions

Click the blue **Add** link to add the host group. (Don't click the blue **Add** button yet at this point.)
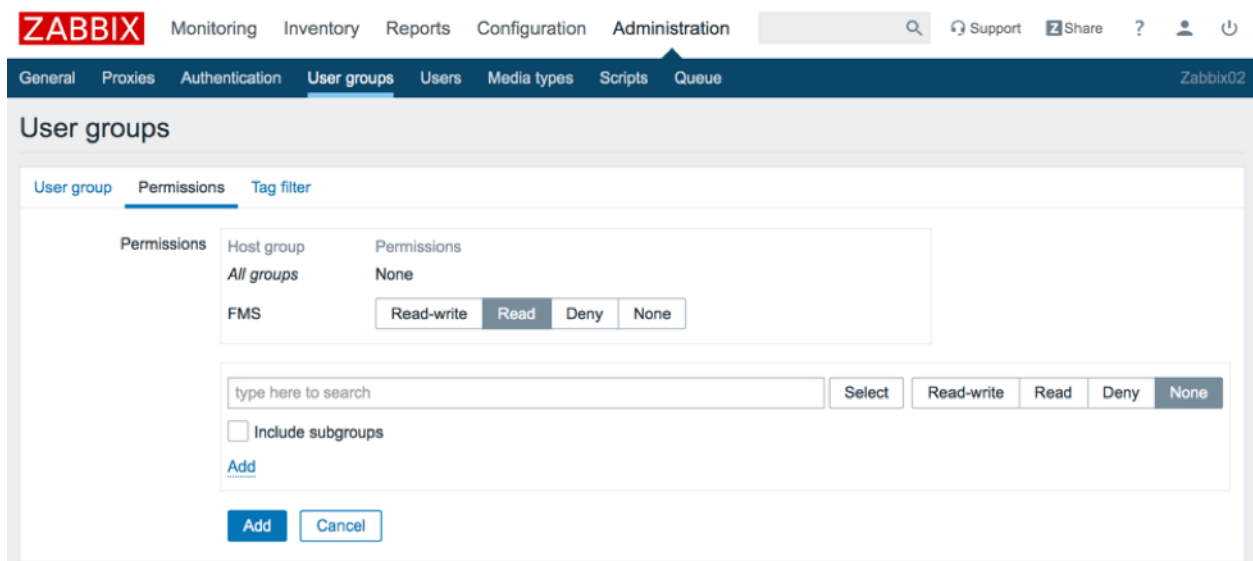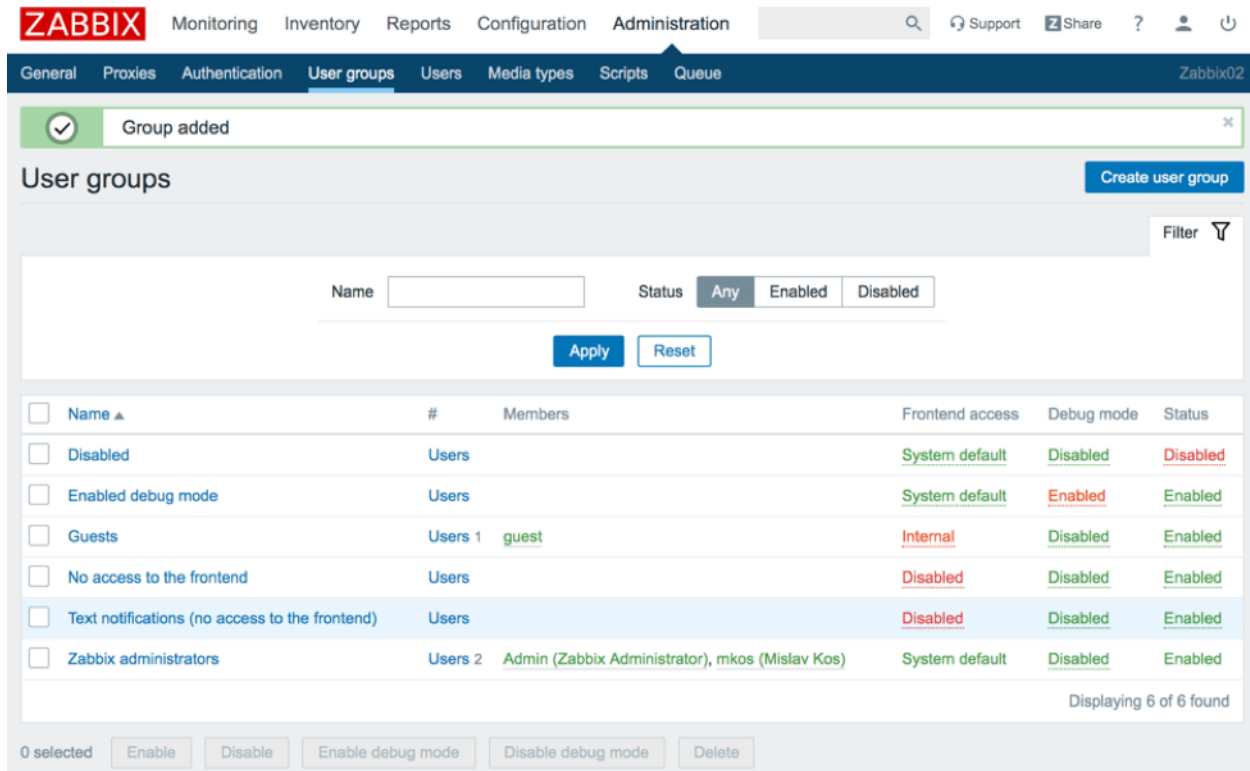

Figure 26. Host group added

Now click the blue **Add** button to add the new user group.

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Figure 27. New user group is displayed in the User groups list

Actions

Having problems identified automatically is nice but not very useful if you have to log in to the Zabbix frontend in order to see that a problem occurred.
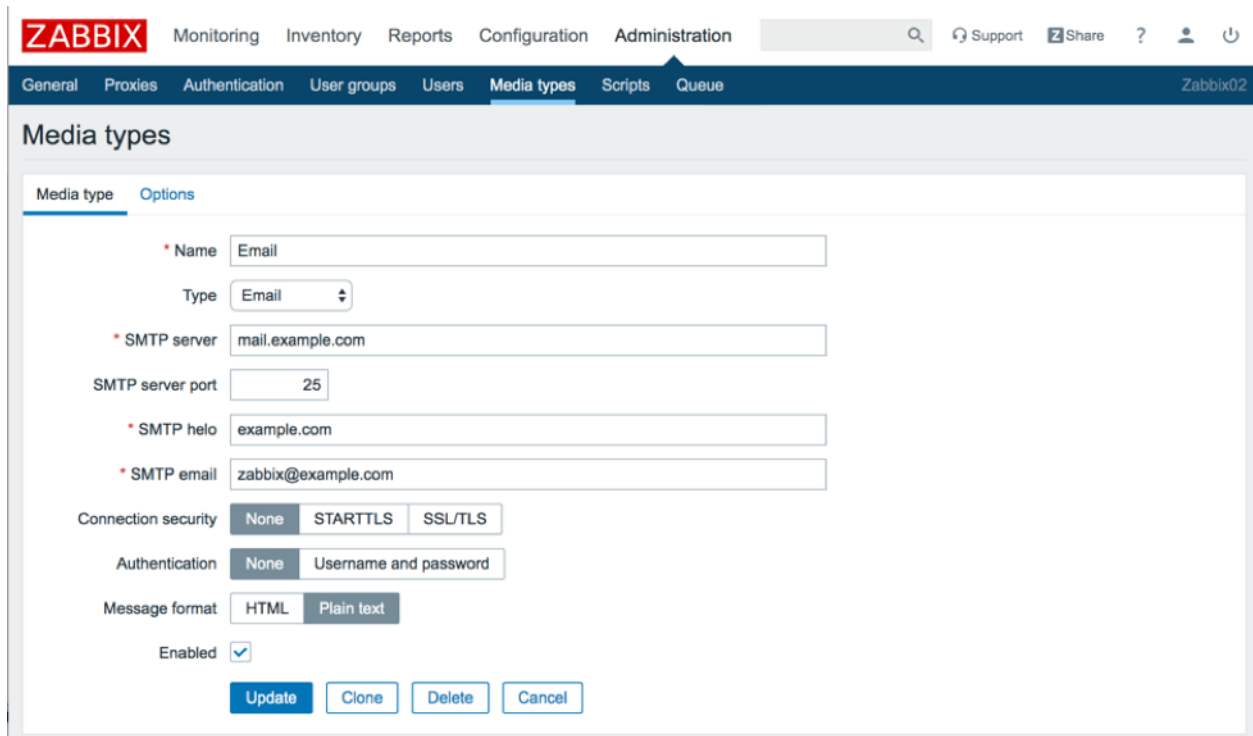
Creating actions solves this issue. There are two types of actions:

- Notifications – Sent via email, text, or even chat (Slack, RingCentral Glip, etc.)
- Remote commands – Executed on the host; e.g., restart FileMaker Script Engine

Unfortunately, actions cannot be shared using a template, so you will have to create them from scratch.

Email Notifications

To enable email notification messages, we first have to enter the SMTP email server information. Navigate to **Administration** > **Media types** and click on the **Email** media type. Enter the information for your SMTP server and click **Update**.

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Figure 28. Add information for your SMTP server

We have already specified an email address for one of the users in the **Zabbix administrators** group in the Users section of this white paper, so now we are ready to create a new action to send an email (using the **Email** media type) to all users belonging to the **Zabbix administrators** user group. As an example, we will set up the action to send emails for triggers whose severity is average or higher.

Navigate to **Configuration** > **Actions** and click **Create** action. In the **Action** tab of the detail screen, give the action a name and specify a new condition where trigger severity is greater than or equal to average.
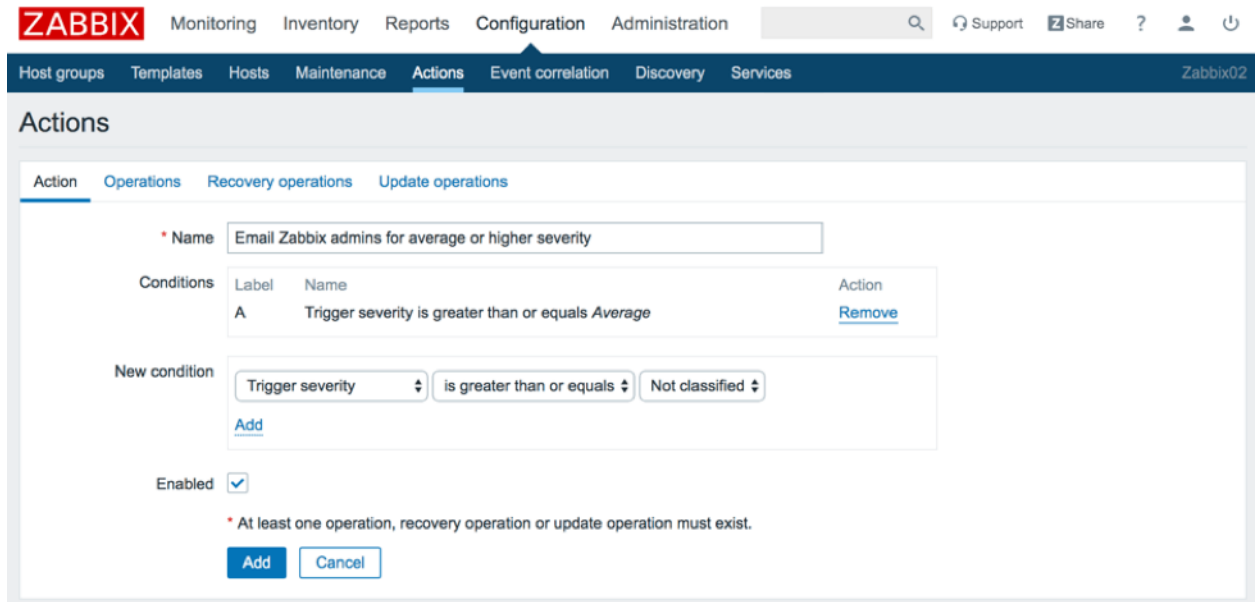
Figure 29. Add the action name and new condition

Click the blue **Add** link to add the new condition, but don't click the blue **Add** button yet. Instead, switch to the **Operations** tab and add the following to the bottom of the default message to provide additional helpful information in the emails that will be sent out:
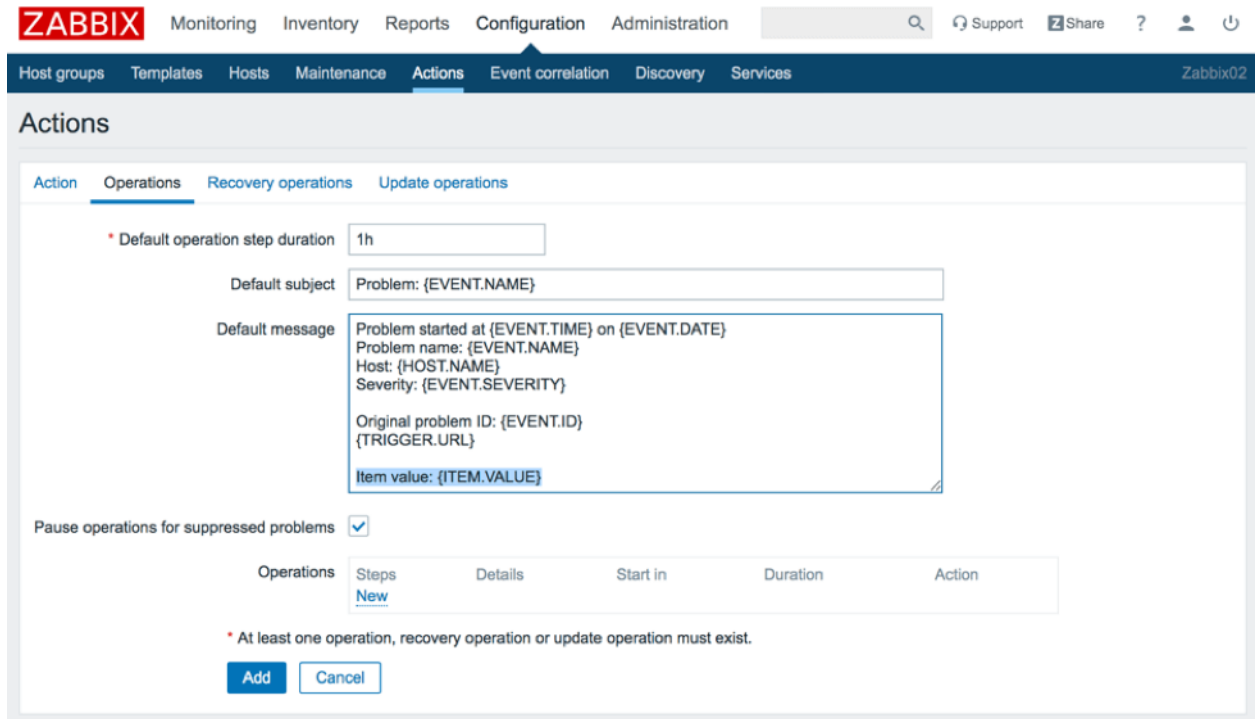
Item value: {ITEM.VALUE}

Figure 30. Item value added to the bottom of the default message

Click **New** to create a new operation step. Then click **Add** next to **Send to User groups** and select the **Zabbix administrators** user group. The **Operation type** is already set to **Send a message**, so we can leave that is. If we wanted to configure a remote command instead of sending a message, this is where we would specify that. Select the **Email** media type as the **Send only to** value.

Figure 31. Add the new operation step with 'Send only to' set to Email

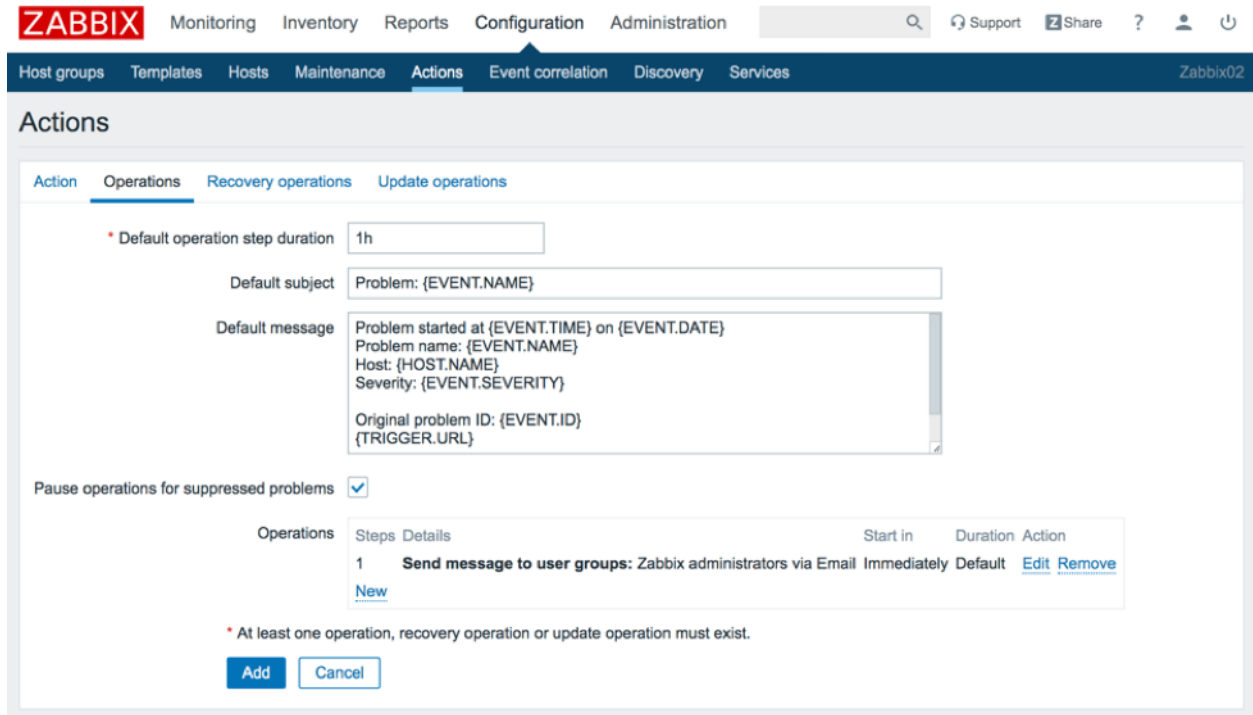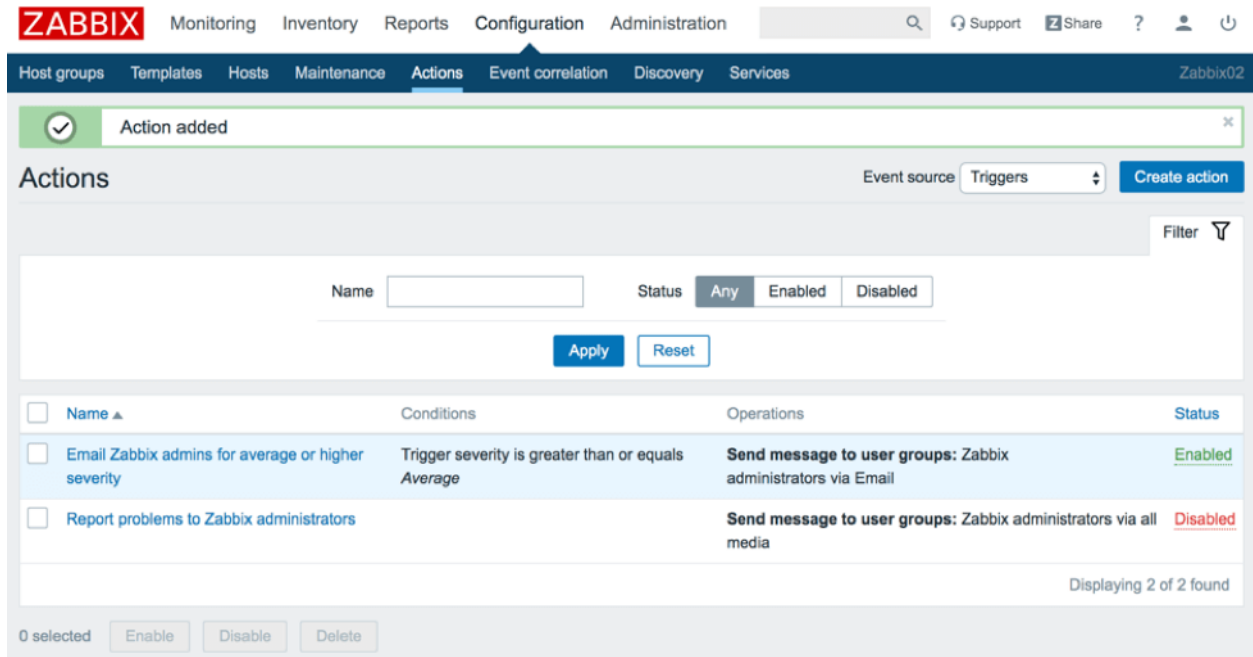Click the blue **Add** link to add the new operation step.

Figure 32. New operation step is shown in the 'Operations' field

The Operations tab defines the operations (i.e., actions) that will be taken when a problem is first *identified*. The **Recovery operations** and **Update operations** tabs define the actions that will be taken when a problem is *resolved* or *updated*. (We haven't covered problem updates yet, so we'll do so briefly here. Once a problem is created, it can be updated by navigating to **Monitoring** > **Problems** and working with the problem there. For example, an update can take the form of acknowledging the problem. Doing so lets others know that you are on the case.)

It's a good idea to receive email notifications not just for when a problem is identified but also for when it is resolved or updated. Repeat the steps documented above to create the same operation step in the recovery and update tabs. Finally, click **Add** to add the action.
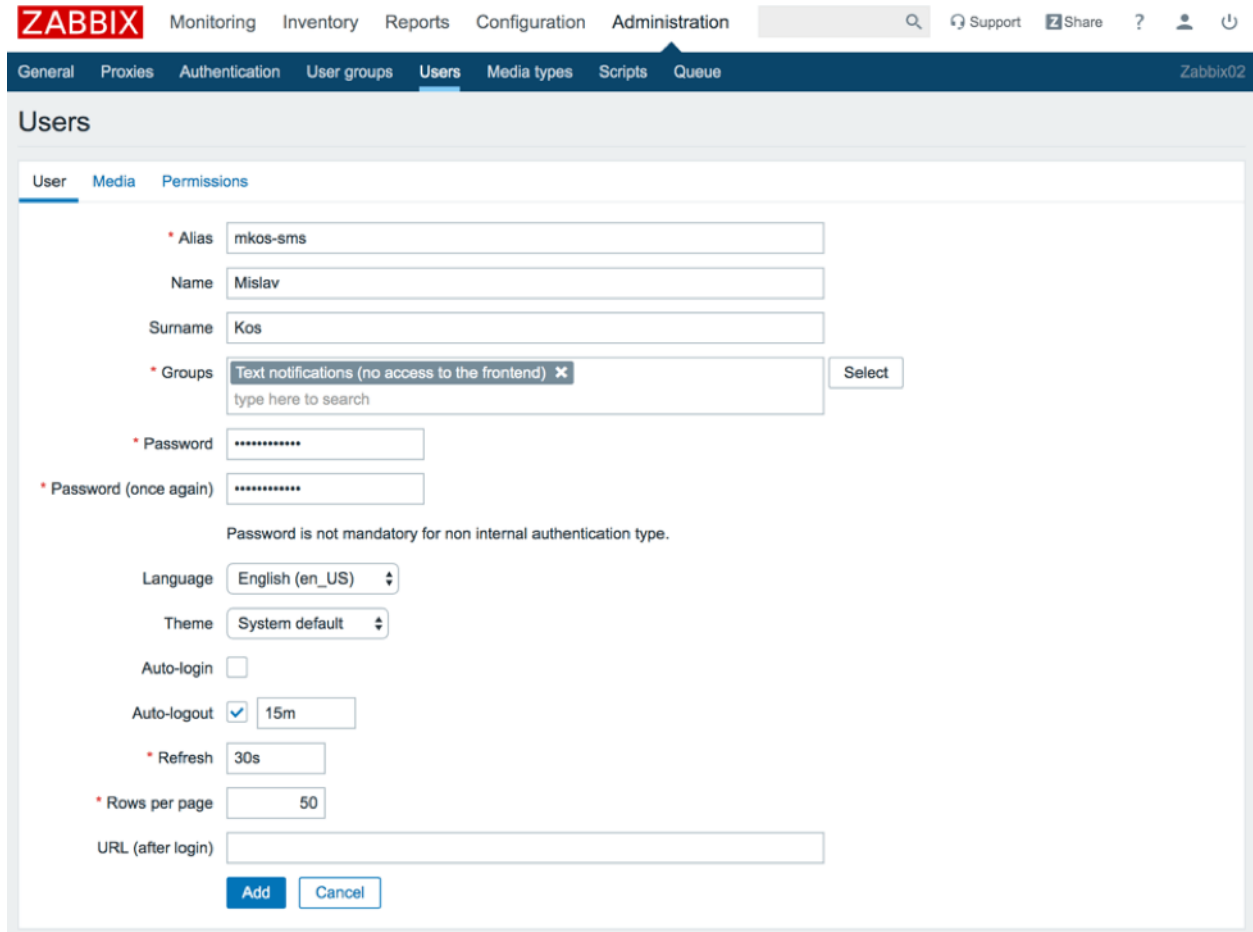
Figure 33. New action is added and displayed in the Actions list

Text Notifications

The predefined SMS media type can be used to send text message notifications, but this approach requires that a GSM modem is connected to the Zabbix server. Fortunately, there is an alternative, more practical way of sending text alerts.

We have already specified a **Text notifications (no access to the frontend)** user group in the **User Groups** section of this white paper. Now we'll need to create a new user account belonging to that group.

Navigate to **Administration** > **Users** and click **Create new user**. Enter in the basic user information and attach this user to the user group we created earlier.

Figure 34. Enter information for new user

Switch to the **Media** tab and click the blue **Add** link next to Media. We'll keep the **Type** as **Email** even though we are setting up text alerts. Many telecoms provide an SMS gateway which can be used to send SMS to mobile phones via email. Construct the email address by using your phone number as the local-part of the email address (i.e., the part preceding the @ symbol) and the SMS gateway as the domain. For example, the email address for the +1-312-555-1234 phone number, serviced by T-Mobile, will take the form of 3125551234@tmomail.net. Here is a partial list of SMS gateways that are available.

Carrier	SMS Gateway
Alltel	@message.allte.com
AT&T	@txt.att.net
Boost Mobile	@sms.myboostmobile.com

Carrier	SMS Gateway
Cricket	@sms.cricketwireless.net
Cricket Wireless	@sms.cricketwireless.net
Google Fi (Project Fi)	@msg.fi.google.com
Metro PCS	@mymetropcs.com
Project Fi	@msg.fi.google.com
Republic Wireless	@text.republicwireless.com
Sprint	@messaging.sprintpcs.com
T-Mobile	@tmomail.net
U.S. Cellular	@email.uscc.net
Verizon	@vtext.com
Virgin Mobile	@vmobl.com
Xfinity Mobile	@vtext.com

Consider changing **When active** to a time period that corresponds to regular business hours. If you plan on enabling a separate action that sends out email notifications, you will still get those 24/7. In that case, it may not be necessary to also receive those same messages as text alerts during night hours.
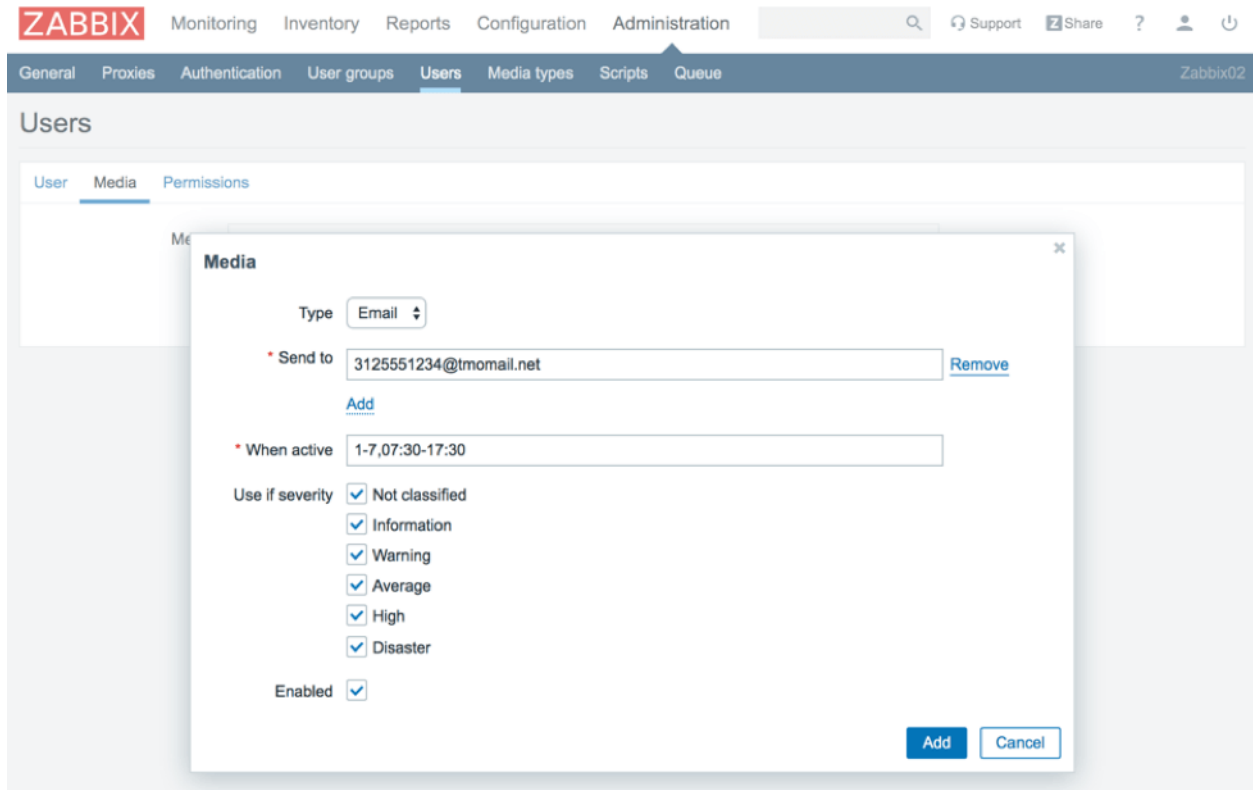
Figure 35. Change 'When active' to correspond with regular business hours

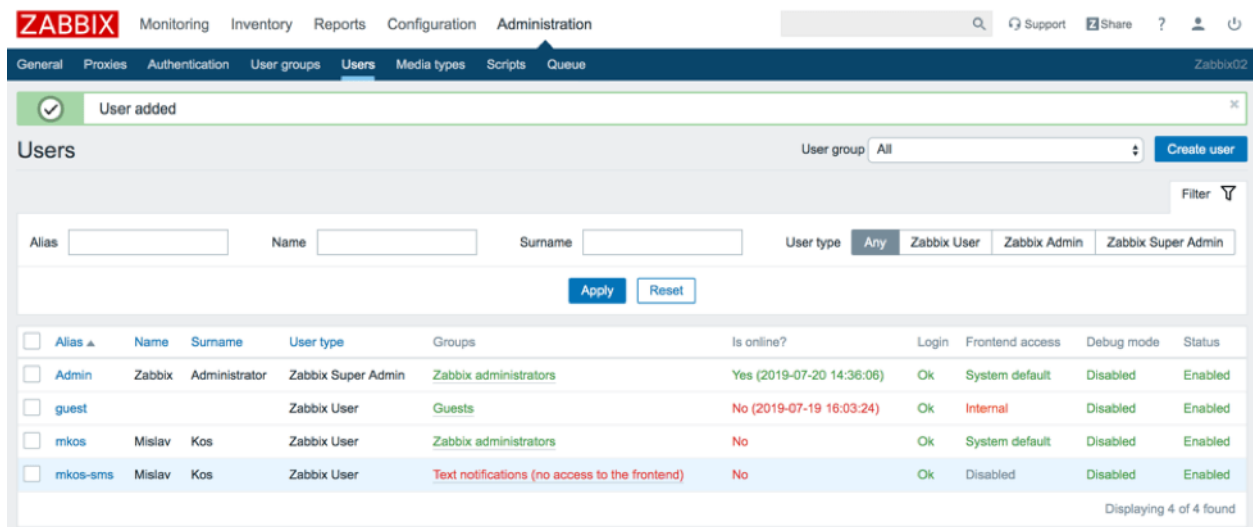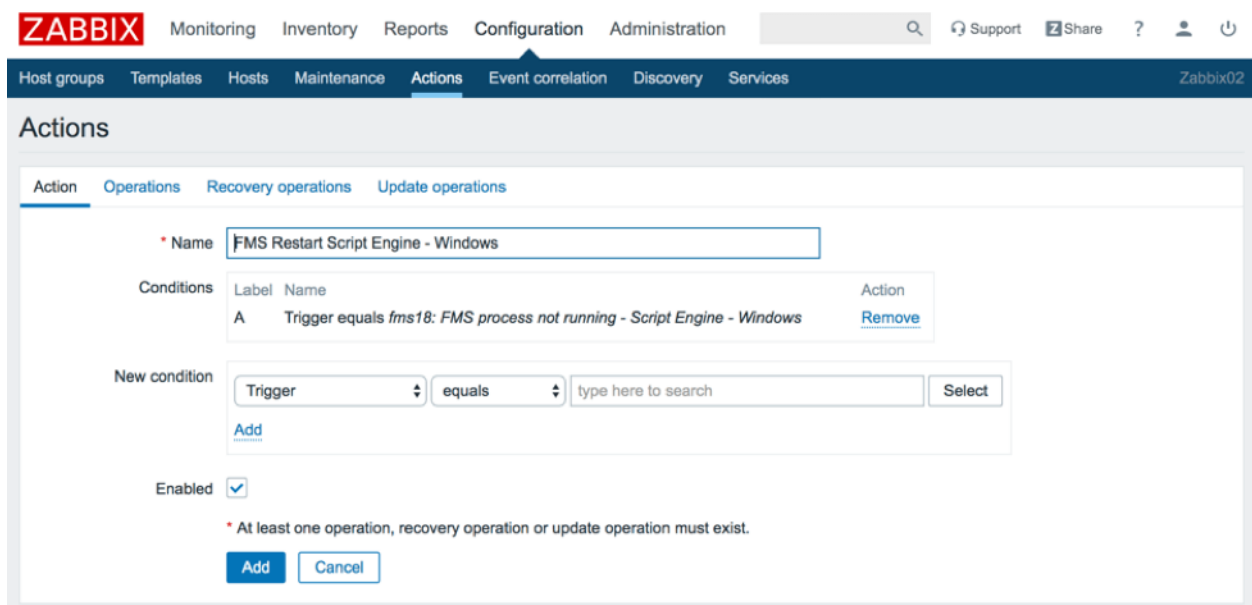Click **Add** to add the media and then click **Add** again to add the new user.

Figure 36. New user is added to the Users list

Now add a new action the same way as before, but this time use the Text notifications (no access to the frontend) user group instead of Zabbix administrators.

Remote Commands

As an example, we will set up an action that will start the FileMaker script engine if we notice that it is not running.

Navigate to **Configuration** > **Actions** and click **Create** action. Give the action a name. Select **Trigger** in the first **New condition** dropdown. Click **Select**, and select the **FMS process not running - Script Engine - Windows**, and click Select. Click the blue **Add** link to add the new condition.

Figure 37. Create new action to start the FileMaker script engine if it's not running

Switch to the Operations tab and change the default duration to 60 seconds and optionally modify the message.

In a moment, we will add two operations to this action. The first will issue the remote command, and the second will send an email notification. Those two commands must happen in sequence with the first one finishing before the second one can happen. For this reason, we change the duration from 1 hour to 1 minute, so that we don't have to wait an hour before the email notification is sent.
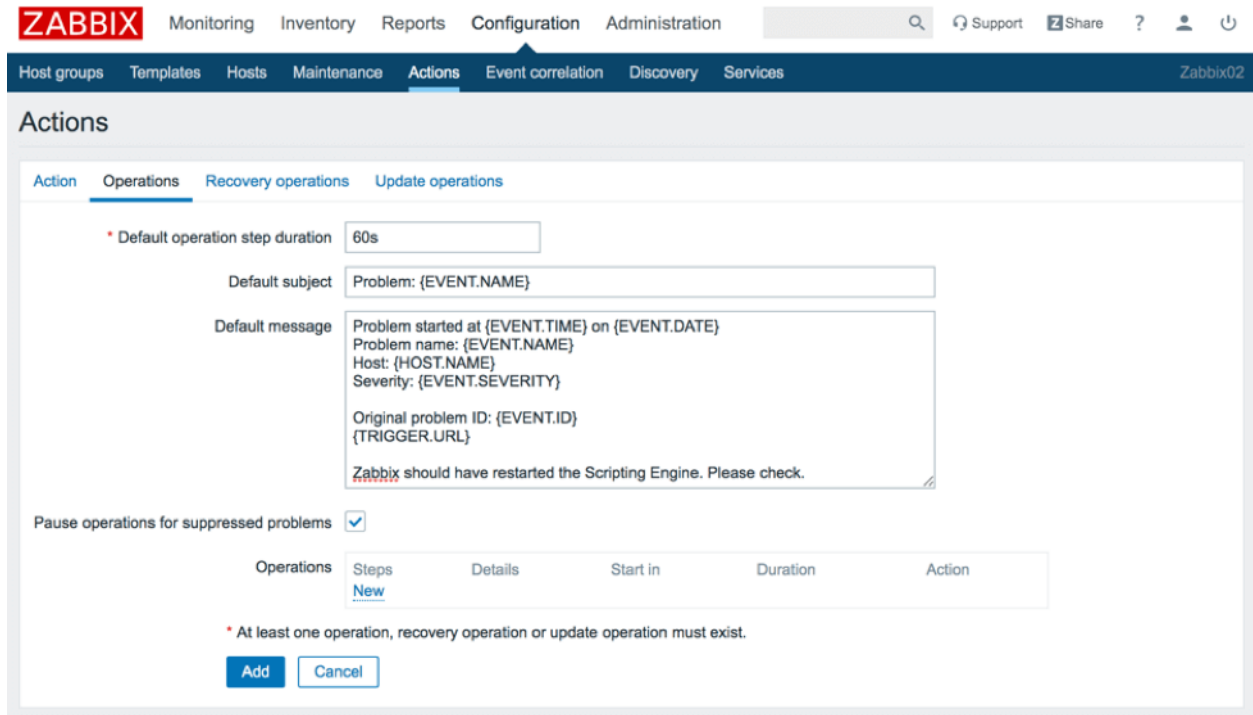
Figure 38. Default duration changed to 60 seconds and optionally modify the message

Click **New** to begin adding a new operation. Change the end step to 5 to indicate that you would like to try starting the script engine process up to five times. If the start command succeeds on the first try, the remaining four iterations of this step will be canceled. Change **Operation type** to **Remote command**. Click **New** next to **Target list**. Keep **Current host** selected as the **Target** and click the blue **Add** link to add the target. Enter the following command in the **Commands** field:

fmsadmin start fmse

On macOS, you have to include the full path to fmsadmin since the Zabbix agent uses a different shell than macOS does. macOS uses bash as the default, and the Zabbix agent uses sh. The fmsadmin command is not registered in the shell, so it will not be accessible from any location like it is in bash.

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Figure 39. Change the end step to 5 for the new operation

Click the blue **Add** link to add the operation. Then click **New** to add another operation to send an email notification to accompany the first operation. Fill out the details similar to what is shown in Figure 40.

Figure 40. Add another operation with details as shown above

Once you click the blue **Add** link to add the second operation, the two operations should display as shown here:

Figure 41. Two operations should be shown in the 'Operations' field

Click the blue **Add** button to add the action.

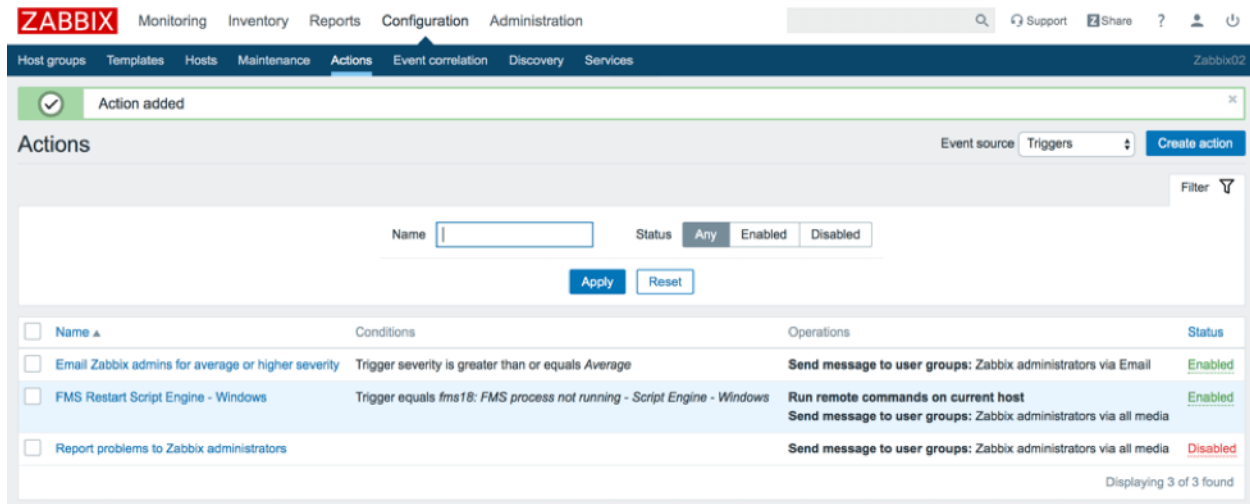
Figure 42. New action is added to the Actions list

Other Considerations

Change the number of entries shown in a list

The Soliant Consulting template has many items which get broken up into multiple pages when viewed in a list. To have them displayed on a single page, go to your user profile and change the **Rows per page** to a higher number; e.g., 200.

Securing Zabbix

If you haven't already done so, change the default password used by the default Admin account. You can do so quickly by clicking on the person silhouette icon in the upper right and then clicking the **Change password** button.

Review the Zabbix documentation to see what other security measures make sense for your situation.

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