



Enhancing Zabbix frontend with own widget modules

ZABBIX SUMMIT 2022

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About initMAX s.r.o.



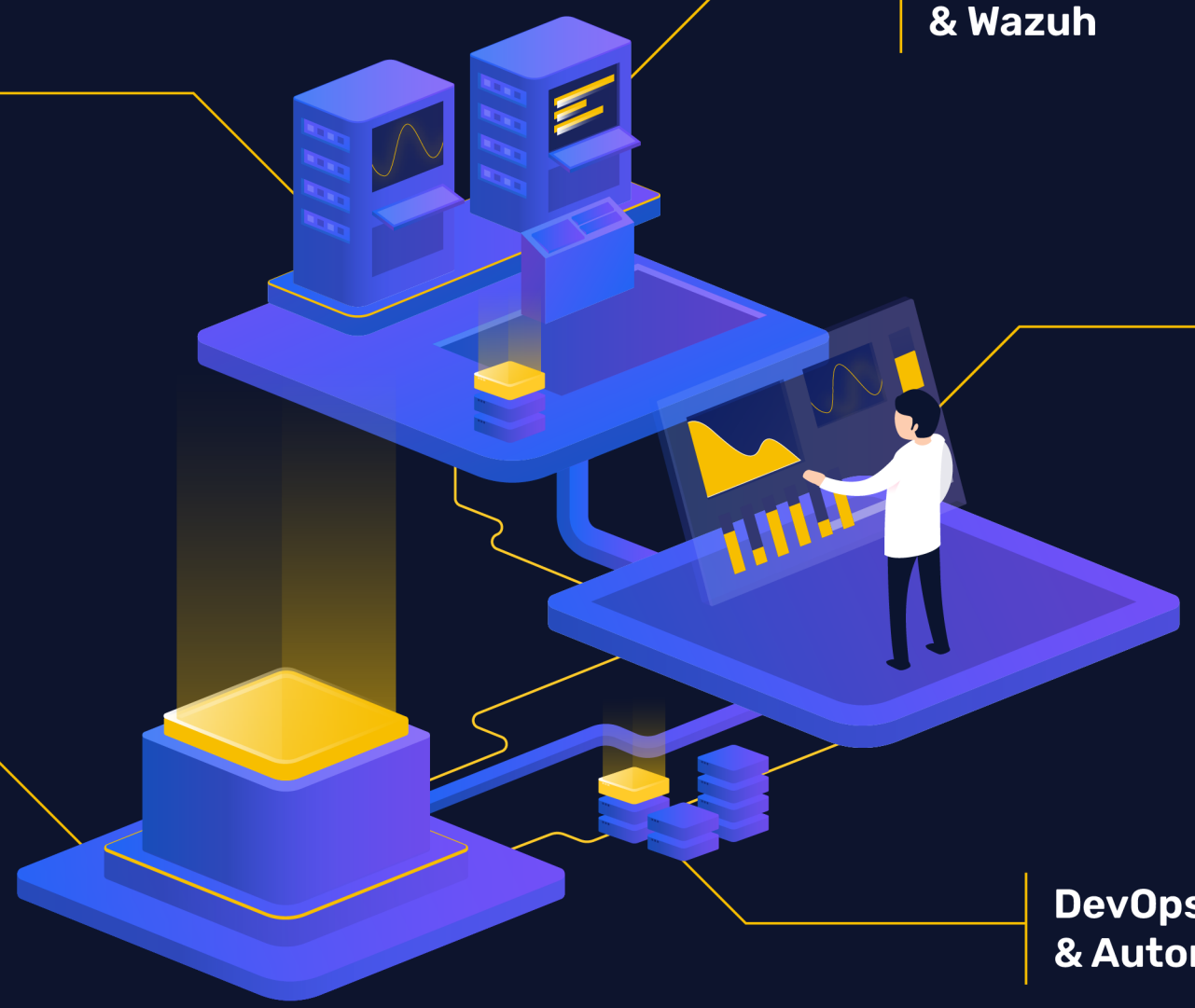
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Monitoring**

**LOG Management
& Wazuh**

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Our Zabbix certifications



Our Zabbix customers



- › One of the largest online consumer electronics retailers in Central Europe



- › Provider of complete spectrum of telco services



- › Company which mainly operates number games and bets

Our Zabbix customers



- › Providing courier, package delivery and express mail service



- › Providing IT and product engineering services



- › It is among the largest suppliers of information technologies

About us



Tomáš
CEO

Our Team



Tomáš
DEVELOPER



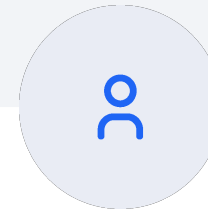
Alois
TECHNICAL
CONSULTANT



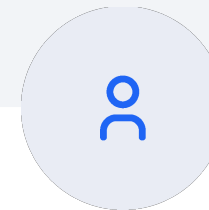
Miroslav
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Jakub
TECHNICAL
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Petr
DEVELOPER

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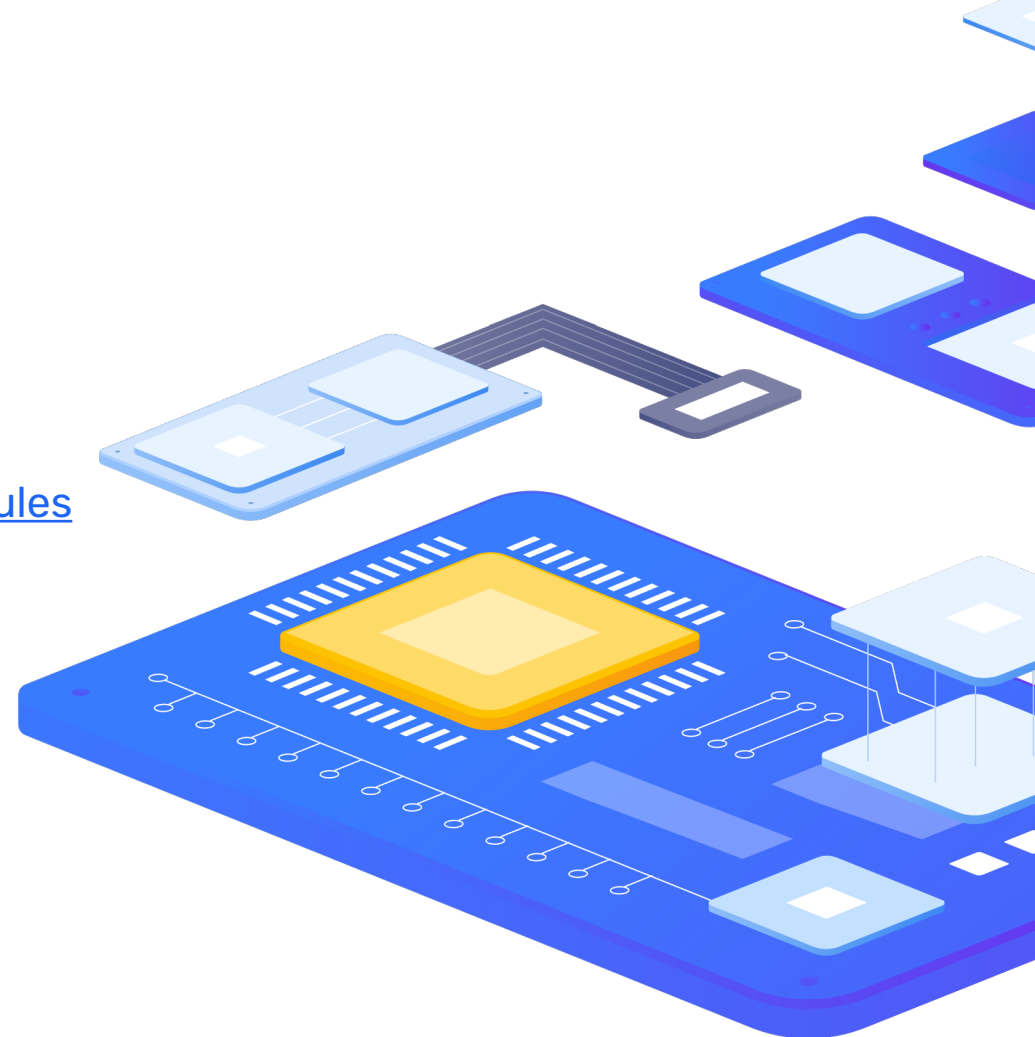
History of UI Modules



ZABBIX SUMMIT 2022

History of UI Modules

- › First introduced in Zabbix 5.0
- › Simple installation
- › No changes required in Zabbix frontend source code
- › Written in PHP and JavaScript
- › More informations in Zabbix documentation:
<https://www.zabbix.com/documentation/current/en/manual/modules>



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Installation and
configuration



Installation and configuration

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Copy your module files in to `/usr/share/zabbix/modules` (the default file path of your Zabbix fronted)

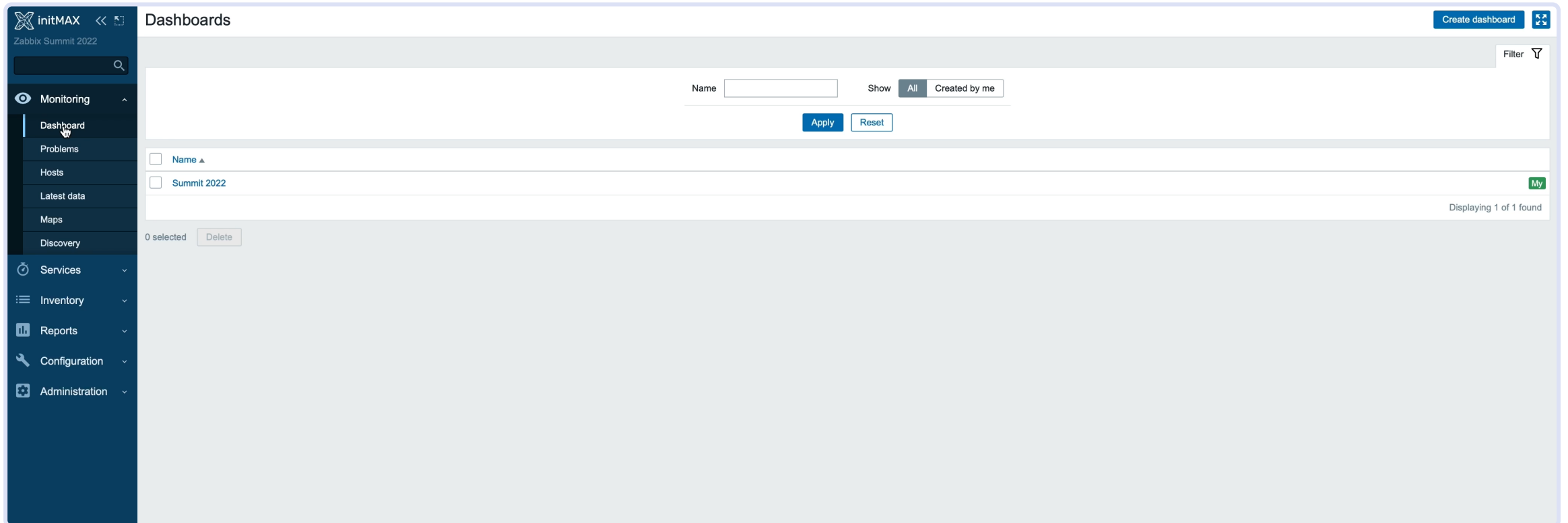
```
$ cd /usr/share/zabbix/modules/  
$ git clone https://git.initmax.cz/initMAX-Public/Zabbix-UI-Modules-My-Module.git
```

█

Installation and configuration

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Go into Administration > General > Modules to scan for modules

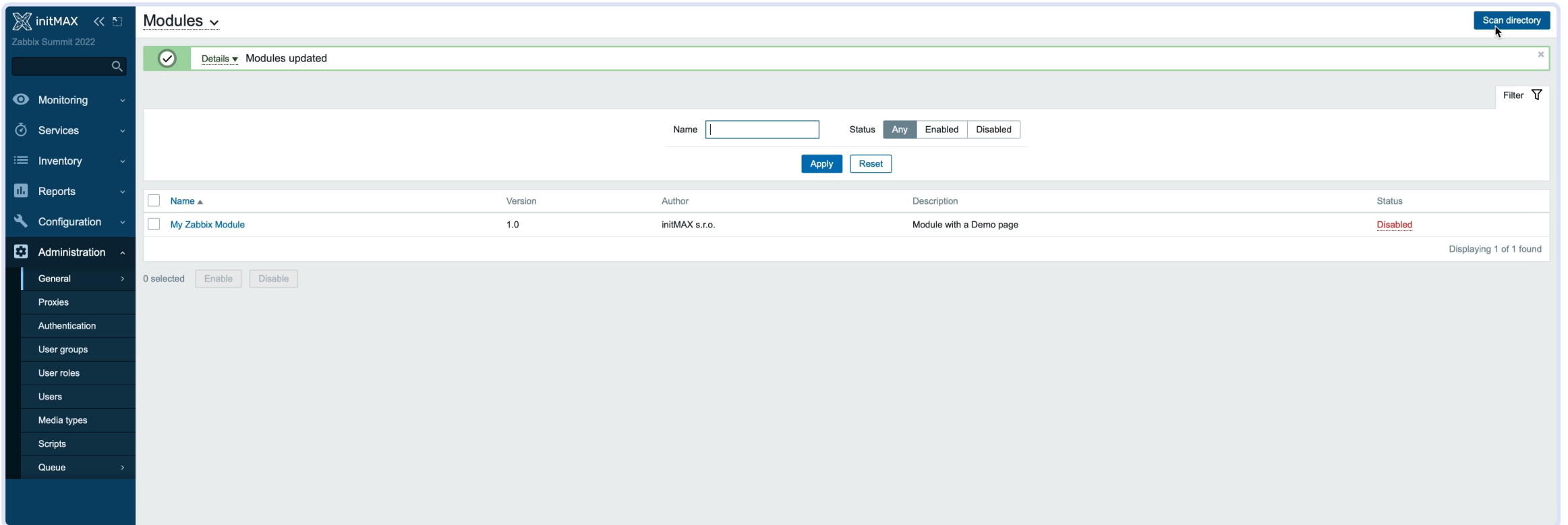


The screenshot shows the Zabbix web interface. The top left corner displays the 'initMAX' logo and the text 'Zabbix Summit 2022'. The main header area is titled 'Dashboards' and includes a 'Create dashboard' button. Below the header, there is a search bar and a filter section with a 'Name' input field, a 'Show' dropdown menu set to 'All', and a 'Created by me' button. Below the filter section, there is a table with one row containing the dashboard name 'Summit 2022'. The table has a checkbox on the left and a 'My' icon on the right. At the bottom right of the table, it says 'Displaying 1 of 1 found'. On the left side, there is a sidebar menu with the following items: Monitoring, Dashboard (highlighted), Problems, Hosts, Latest data, Maps, Discovery, Services, Inventory, Reports, Configuration, and Administration. At the bottom left of the main content area, it says '0 selected' and 'Delete'.

Installation and configuration

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Select and enable module, wait for confirmation message - Module enabled



The screenshot displays the Zabbix web interface's 'Modules' page. A notification banner at the top indicates 'Modules updated'. The main area shows a table with one module, 'My Zabbix Module', which is currently disabled. The interface includes a sidebar with navigation options like Monitoring, Services, Inventory, Reports, Configuration, and Administration.

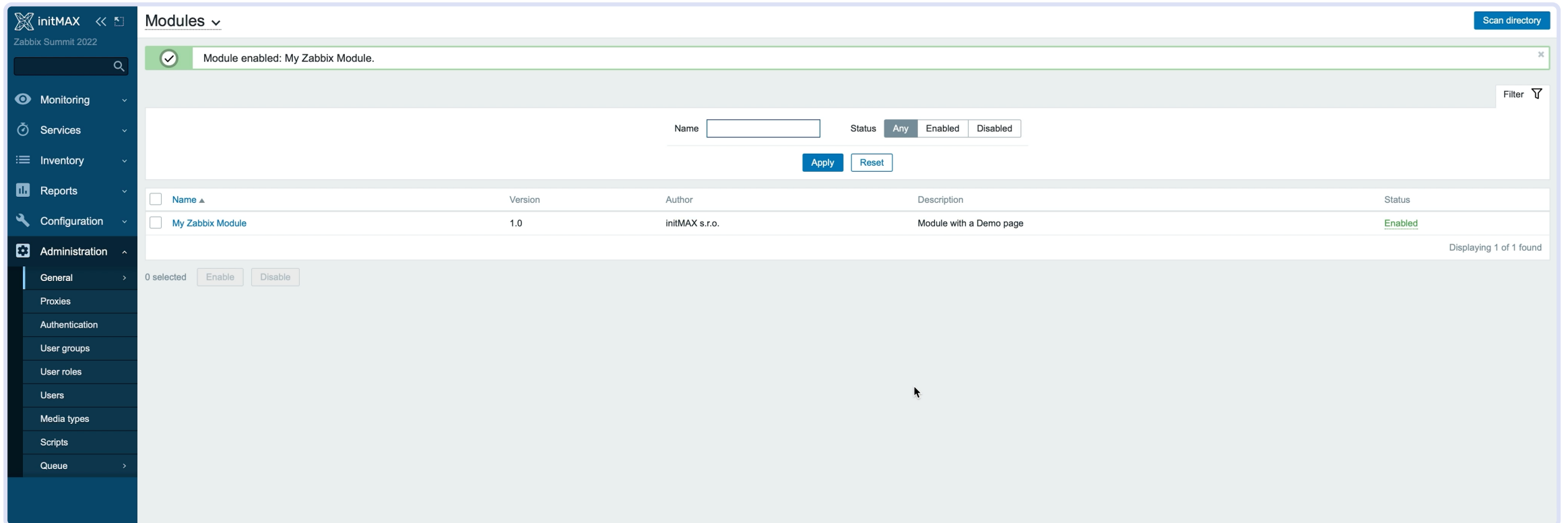
<input type="checkbox"/>	Name ▲	Version	Author	Description	Status
<input type="checkbox"/>	My Zabbix Module	1.0	initMAX s.r.o.	Module with a Demo page	Disabled

0 selected

Installation and configuration

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Start using newly activated module



The screenshot displays the Zabbix web interface. On the left, a dark blue sidebar contains a navigation menu with categories: Monitoring, Services, Inventory, Reports, Configuration, and Administration. The Administration section is expanded, showing sub-items like General, Proxies, Authentication, User groups, User roles, Users, Media types, Scripts, and Queue. The main content area is titled 'Modules' and features a search bar, a 'Scan directory' button, and a notification banner stating 'Module enabled: My Zabbix Module.' Below the notification, there are search filters for Name and Status (Any, Enabled, Disabled), along with 'Apply' and 'Reset' buttons. A table lists the installed modules:

<input type="checkbox"/>	Name ▲	Version	Author	Description	Status
<input type="checkbox"/>	My Zabbix Module	1.0	initMAX s.r.o.	Module with a Demo page	Enabled

At the bottom of the table, it indicates '0 selected' and provides 'Enable' and 'Disable' buttons. The footer of the table area shows 'Displaying 1 of 1 found'.

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What can be
done by module?



What can be done by module?

- › Modify or extend existing built-in widgets
- › Can be used variety of field types in configuration popups
- › Make custom context menu with rich functionalities
- › Easily selecting multiple rows by using mouse dragging and make mass operations
- › Can be add more filtering options in events etc...
- › Own popup windows with custom content (forms, tables, images, external sources...)
- › Unlimited options of data presentations (tables, graphs, diagrams, maps, formatted text)
- › Creating new items in Zabbix menu and link to new or existing pages
- › Variety style possibilities with displaying content
- › Interconnect with other application via API

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Examples



Example – Widget Header

- ▶ Very simple module
- ▶ Can be placed on a dashboard and used as header for other widgets or as page separator

Add widget ✕

Type Show header

Name

Refresh interval

* Font color

Background color

* Content

* Font size

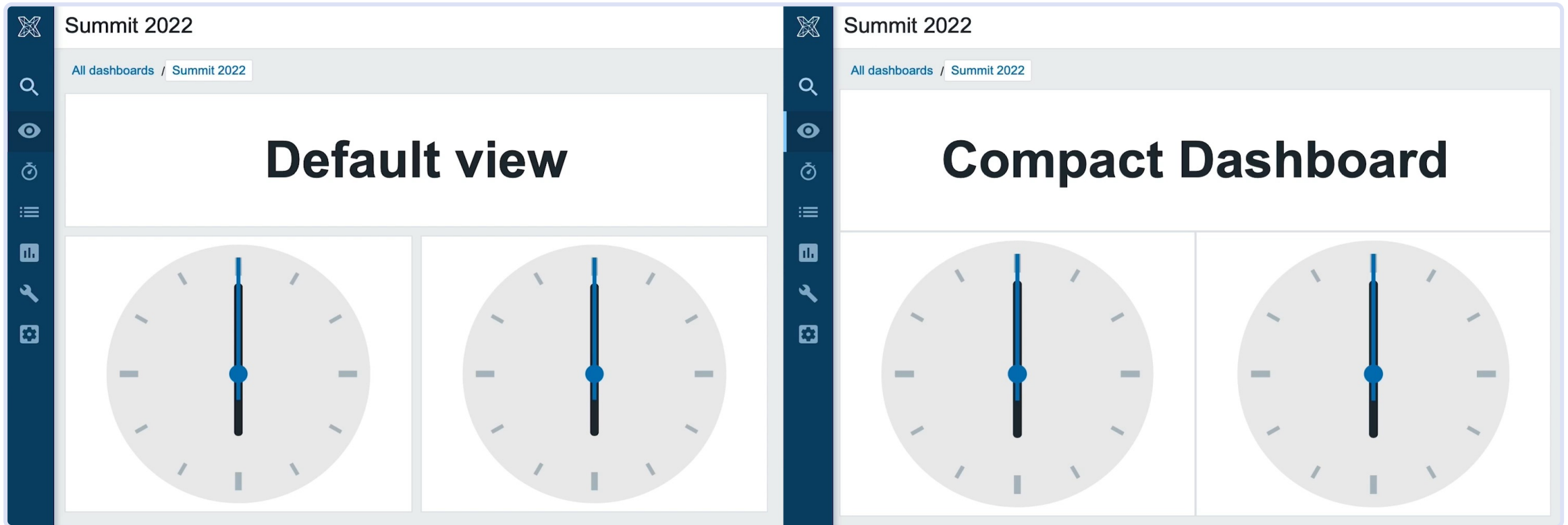
Font

Font style Bold
 Italic
 Underline

Show text as HTML

Example – Zabbix Compact Dashboard

- › Change spacing between widgets
- › Save every pixel of screen space



Example – Enhanced Problems

- Based on built-in Problem widget
- New feature counter events by severities and total events with variations of Ack and Nonack options

Add widget

Display options

Refresh interval:

* Maximum displayed alarm count: We override default limit from Zabbix

Acknowledge problem style:

Font:

* Font size:

Show summary row

Description:

Display severities count:

Display total events count:

Columns and order

Name	Width	Custom Label
<input checked="" type="checkbox"/> Time	<input type="text" value="0"/> %	<input type="text" value="Time"/>
<input checked="" type="checkbox"/> Host	<input type="text" value="0"/> %	<input type="text" value="Host"/>
<input checked="" type="checkbox"/> Problem and severity	<input type="text" value="0"/> %	<input type="text" value="Problem"/>
<input type="checkbox"/> Actions icons	<input type="text" value="0"/> %	<input type="text" value="Event icons"/>
<input type="checkbox"/> Tags	<input type="text" value="0"/> %	<input type="text" value="Tags"/>

Percentage total: 0 %

Edit dashboard

Summit 2022

All dashboards / Summit 2022

Enhanced Problems

Total count: 10

Time	Host	Problem	Actions
2022-09-29 14:15:51	Summit-host-02	Event is - Warning	6 <input type="button" value="↔"/>
2022-10-05 11:00:42	Summit-host-04	Event is - Warning	1 <input type="button" value="↔"/>
2022-10-05 11:00:46	Summit-host-06	Event is - Not classified	
2022-10-05 11:00:49	Summit-host-07	Event is - High	
2022-10-05 11:00:50	Summit-host-01	Event is - Not classified	
2022-10-05 11:00:51	Summit-host-03	Event is - Disaster	
2022-10-05 11:00:52	Summit-host-05	Event is - Warning	
2022-10-05 11:00:53	Summit-host-09	Event is - Not classified	
2022-10-05 11:00:54	Summit-host-04	Event is - Warning	
2022-10-05 11:00:55	Summit-host-01	Event is - Not classified	
2022-10-05 11:00:56	Summit-host-08	Event is - High	

Example – Enhanced Problems

- ▶ Based on built-in Problem widget
- ▶ New feature choose desired columns you need with custom order, column width and label

Edit widget

Display options

Refresh interval:

* Maximum displayed alarm count: We override default limit from Zabbix

Acknowledge problem style:

Font:

* Font size:

Show summary row

Description:

Display severities count:

Display total events count:

Columns and order

Name	Width	Custom Label
<input checked="" type="checkbox"/> Time	<input type="text" value="10"/>	<input type="text" value="Time"/>
<input checked="" type="checkbox"/> Host	<input type="text" value="10"/>	<input type="text" value="Host"/>
<input checked="" type="checkbox"/> Problem	<input type="text" value="20"/>	<input type="text" value="Problem"/>
<input type="checkbox"/> Actions icons	<input type="text" value="10"/>	<input type="text" value="Event icons"/>
<input type="checkbox"/> Tags	<input type="text" value="50"/>	<input type="text" value="Tags"/>

Summit 2022
Edit dashboard

All dashboards / Summit 2022

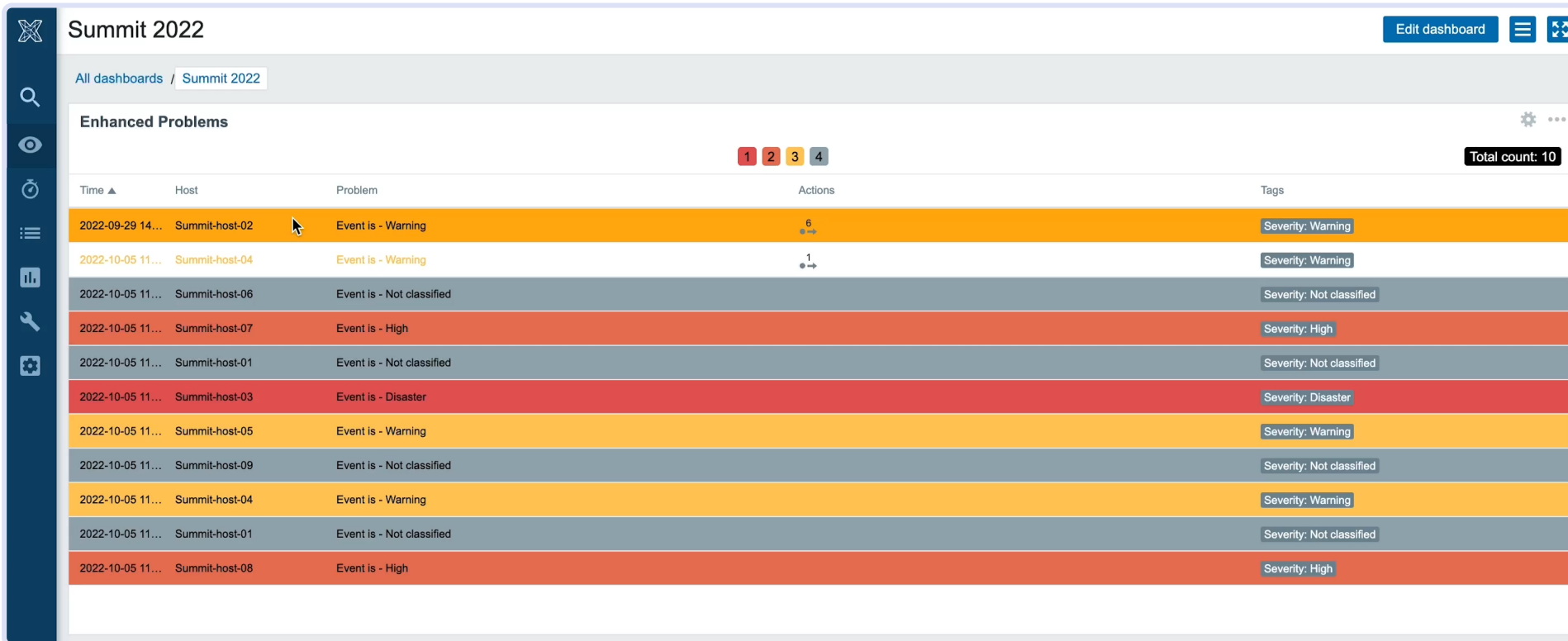
Enhanced Problems

1
2
4
4
Total count: 11

Time	Host	Problem
2022-09-29 14:15:51	Summit-host-02	Event is - Warning
2022-10-05 11:00:42	Summit-host-04	Event is - Warning
2022-10-05 11:00:46	Summit-host-06	Event is - Not classified
2022-10-05 11:00:49	Summit-host-07	Event is - High
2022-10-05 11:00:50	Summit-host-01	Event is - Not classified
2022-10-05 11:00:51	Summit-host-03	Event is - Disaster
2022-10-05 11:00:52	Summit-host-05	Event is - Warning
2022-10-05 11:00:53	Summit-host-09	Event is - Not classified
2022-10-05 11:00:54	Summit-host-04	Event is - Warning
2022-10-05 11:00:55	Summit-host-01	Event is - Not classified
2022-10-05 11:00:56	Summit-host-08	Event is - High

Example – Enhanced Problems

- ▶ Provides modern user comfort - operator can select multiple events by combination of mouse dragging and mouse clicking within pressed CTRL or SHIFT keys
- ▶ Context menu is available on right-click by mouse and operator can easily make bulk operations



The screenshot shows the Zabbix 'Enhanced Problems' dashboard for 'Summit 2022'. The dashboard includes a search bar, a sidebar with navigation icons, and a main table of events. The table has columns for Time, Host, Problem, Actions, and Tags. The events are color-coded by severity: Warning (yellow), Not classified (grey), High (red), and Disaster (dark red). A 'Total count: 10' badge is visible in the top right corner of the table area.

Time ▲	Host	Problem	Actions	Tags
2022-09-29 14...	Summit-host-02	Event is - Warning	6	Severity: Warning
2022-10-05 11...	Summit-host-04	Event is - Warning	1	Severity: Warning
2022-10-05 11...	Summit-host-06	Event is - Not classified		Severity: Not classified
2022-10-05 11...	Summit-host-07	Event is - High		Severity: High
2022-10-05 11...	Summit-host-01	Event is - Not classified		Severity: Not classified
2022-10-05 11...	Summit-host-03	Event is - Disaster		Severity: Disaster
2022-10-05 11...	Summit-host-05	Event is - Warning		Severity: Warning
2022-10-05 11...	Summit-host-09	Event is - Not classified		Severity: Not classified
2022-10-05 11...	Summit-host-04	Event is - Warning		Severity: Warning
2022-10-05 11...	Summit-host-01	Event is - Not classified		Severity: Not classified
2022-10-05 11...	Summit-host-08	Event is - High		Severity: High

Example – Enhanced Problems

- ▶ Multi-level sorting of events for every columns
- ▶ Ability to change ascending or descending direction for each level of sorting

Edit widget

Tag name: Full Shortened None

Tag display priority:

Next sections are developed by initMAX s.r.o.

Sorting

1st level sorting: ASC DESC

2nd level sorting:

Display options

Refresh interval:

* Maximum displayed alarm count: We override default limit from Zabbix

Acknowledge problem style: Monochromatic Color

Font:

* Font size:

Show summary row:

Description:

Display severities count: None Nonack only Ack only Nonack + Ack

Display total events count: None Nonack only Ack only Nonack + Ack

Columns and order:

Apply Cancel

Edit dashboard ☰ ⌵

Summit 2022

[All dashboards](#) / [Summit 2022](#)

Enhanced Problems

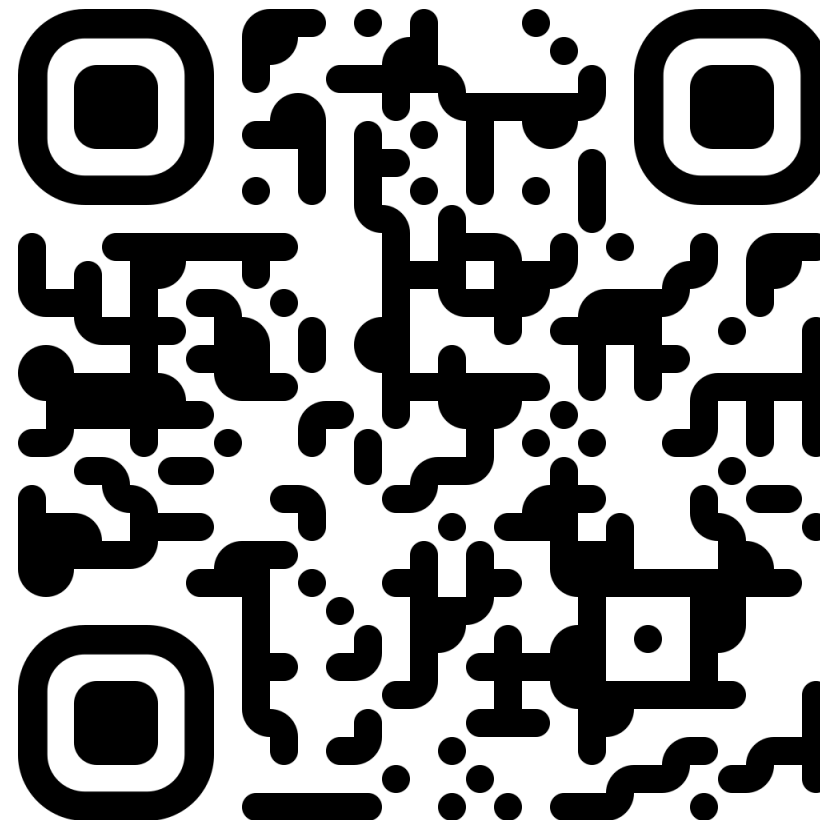
1 2 3 4 Total count: 10

Time	Host	Problem	Actions	Tags
2022-09-29 14:15:51	Summit-host-02	Event is - Warning	6	Severity: Warning
2022-10-05 11:00:42	Summit-host-04	Event is - Warning	1	Severity: Warning
2022-10-05 11:00:46	Summit-host-06	Event is - Not classified		Severity: Not classified
2022-10-05 11:00:49	Summit-host-07	Event is - High		Severity: High
2022-10-05 11:00:50	Summit-host-01	Event is - Not classified		Severity: Not classified
2022-10-05 11:00:51	Summit-host-03	Event is - Disaster		Severity: Disaster
2022-10-05 11:00:52	Summit-host-05	Event is - Warning		Severity: Warning
2022-10-05 11:00:53	Summit-host-09	Event is - Not classified		Severity: Not classified
2022-10-05 11:00:54	Summit-host-04	Event is - Warning		Severity: Warning
2022-10-05 11:00:55	Summit-host-01	Event is - Not classified		Severity: Not classified
2022-10-05 11:00:56	Summit-host-08	Event is - High		Severity: High

Example

- ▶ Every our example is freely available in our GIT repository
- ▶ <https://git.initmax.com/initMAX-Public>
- ▶ Source code is commented and provides examples

- ▶ Widget Header
<https://git.initmax.com/initMAX-Public/Zabbix-UI-Modules-Header-Widget>
- ▶ Zabbix Compact Dashboard
<https://git.initmax.com/initMAX-Public/Zabbix-UI-Modules-Compact-Dashboard>
- ▶ Enhanced Problems
<https://git.initmax.com/initMAX-Public/Zabbix-UI-Modules-Enhanced-Problems-Widget>



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How to develop
Your own modules



Structure of Widget module

- ▶ Widget base files – defines basic information about module
 - ▶ manifest.json
 - ▶ Module.php
 - ▶ CWidgetConfig.php

- ▶ Widget configuration files – defines content of „Edit widget“ button
 - ▶ actions/widgets/MyWidgetForm.php
 - ▶ views/widgets/mywidget.form.view.php
 - ▶ views/widgets/mywidget.form.view.js.php

- ▶ Widget frontend files – defines look of widget on dashboard
 - ▶ actions/widgets/MyWidgetView.php
 - ▶ views/widgets/mywidget.view.php
 - ▶ public/js/class.widget.mywidget.js

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Problems with modules



Problems with modules

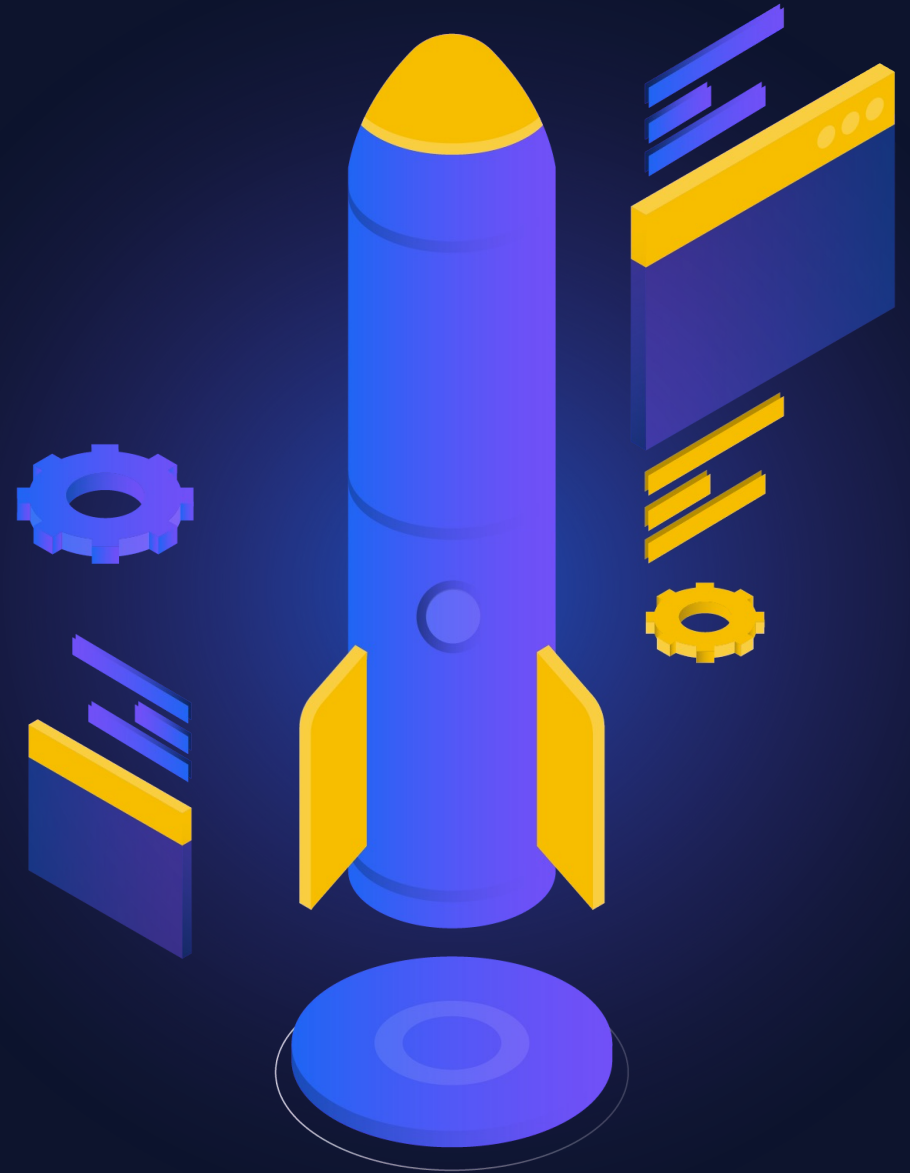
There are currently following limitations

- ▶ It is not possible to have more than one module with widgets enabled ...
- ▶ ... but one module can contain more than one widget
- ▶ The file `CWidgetConfig.php` is same as in Zabbix UI source files and we use it to register the widget, widget file overrides the default one
- ▶ We need to modify lot of files for each new release of Zabbix
- ▶ Adding new fields to already existing widgets is difficult
- ▶ Have patience ...



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Future



Future of UI Modules

- › Big changes are coming soon in version 6.4 – dedicated framework for widgets
- › Possibility stop of limitation to have only one enabled module with widgets
- › Simplified including of custom CSS files, JS files and other asset files (images, fonts, icons)
- › Assuming of better compatibility of next Zabbix versions
- › Current modules with widgets need to be rewritten for the new framework
- › ZBXNEXT-7469 **RESOLVED**

Modularity and plugins

- Framework for development of widgets **In dev**
Easy to use framework for development of new dashboard widgets
★ Top voted!

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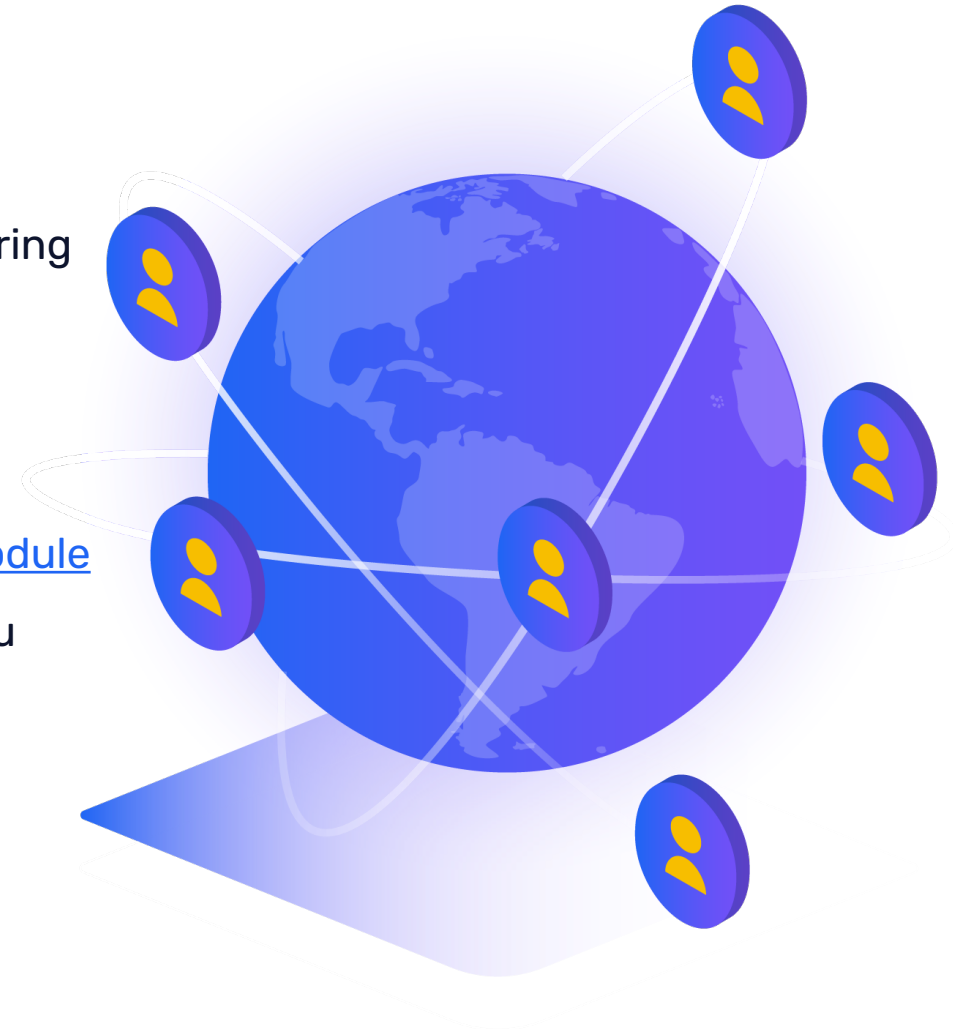
Community



Community

Great community examples

- › Zabbix module to show groups/hosts as a tree under Monitoring
<https://github.com/BGmot/zabbix-module-hosts-tree>
- › Zabbix Wallboard
<https://github.com/zbxwallboard/ZbxWallboard>
- › CSV host importer
<https://github.com/intellitrend/zabbix-csv-host-import-module>
- › These frontend Modules can extend the Zabbix sidebar menu
<https://github.com/xenadmin/zabbix-frontend-modules>
- › Host popup menu with loading data from inventory
<https://github.com/gr8b/zabbix-module-experiments>
- › Module allow to make queries to database
<https://github.com/gr8b/zabbix-module-sqlexplorer>



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Meet us on Summit



www.initmax.com



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Visit our booth or explore hands on examples at our GIT on git.initmax.com

