



Enhancing Zabbix frontend with own widget modules

ZABBIX SUMMIT 2022

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About initMAX s.r.o.



**Zabbix
Monitoring**

**LOG Management
& Wazuh**

**OpenSource
IDM**

**PostgreSQL DBA
& Consulting**

**DevOps
& Automation**



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Our Zabbix certifications



4x



3x



2x



1x

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



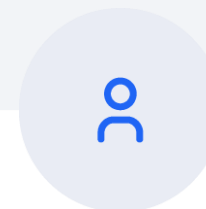
Alois
TECHNICAL
CONSULTANT



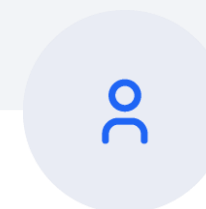
Miroslav
TECHNICAL
CONSULTANT



Jakub
TECHNICAL
CONSULTANT



Vojta
TECHNICAL
CONSULTANT



Petr
DEVELOPER

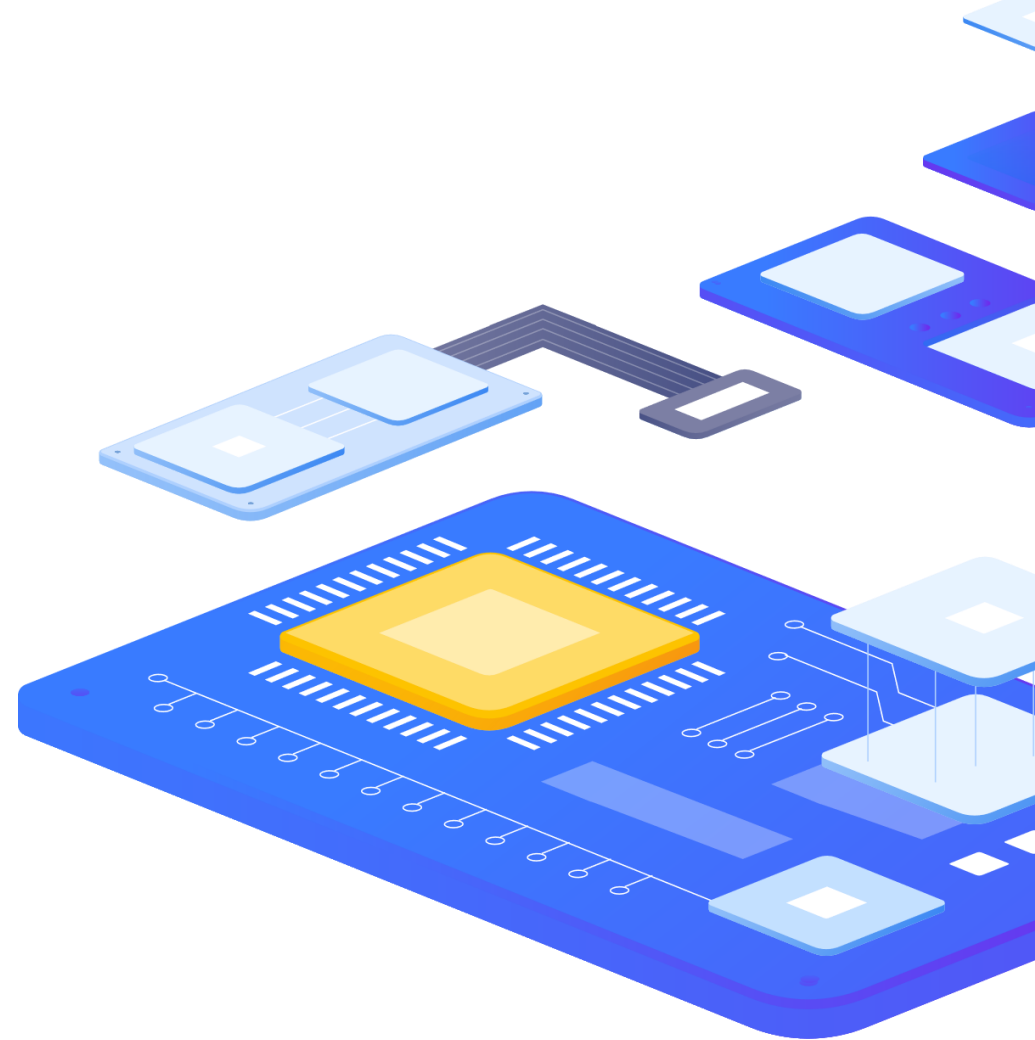
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History of UI Modules



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

1/4 

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

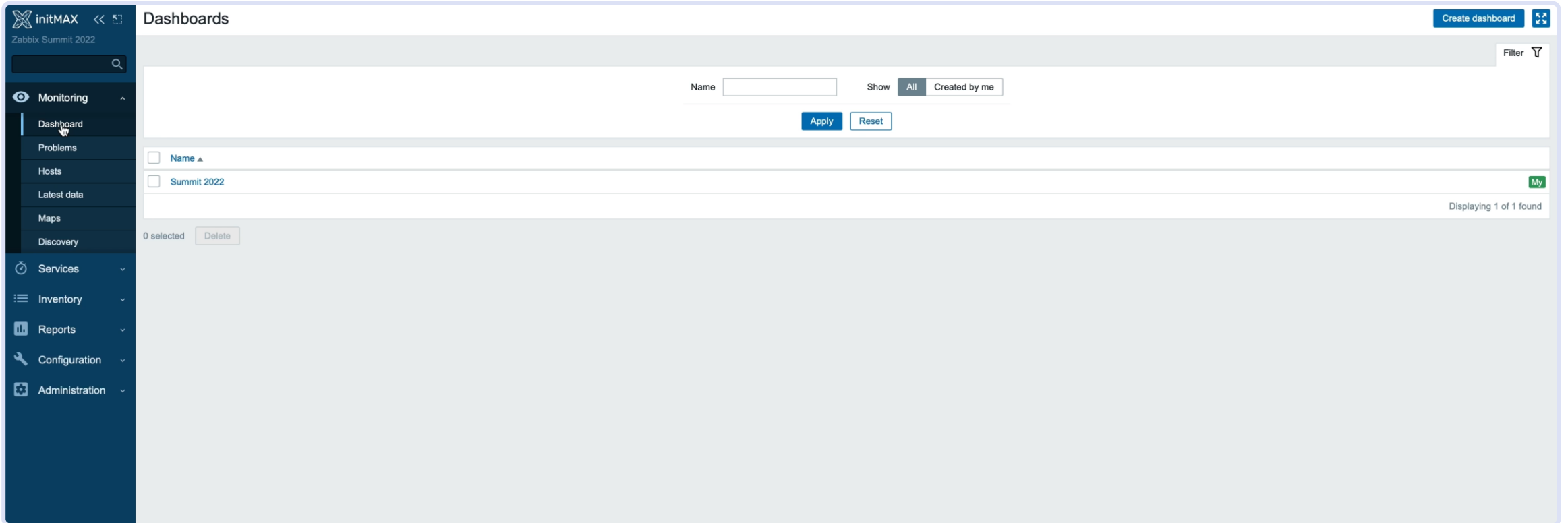
```
$ cd /usr/share/zabbix/modules/  
$ git clone https://git.initmax.cz/initMAX-Public/Zabbix-UI-Modules-My-Module.git
```

█

Installation and configuration

2/4 

Go into Administration > General > Modules to scan for modules

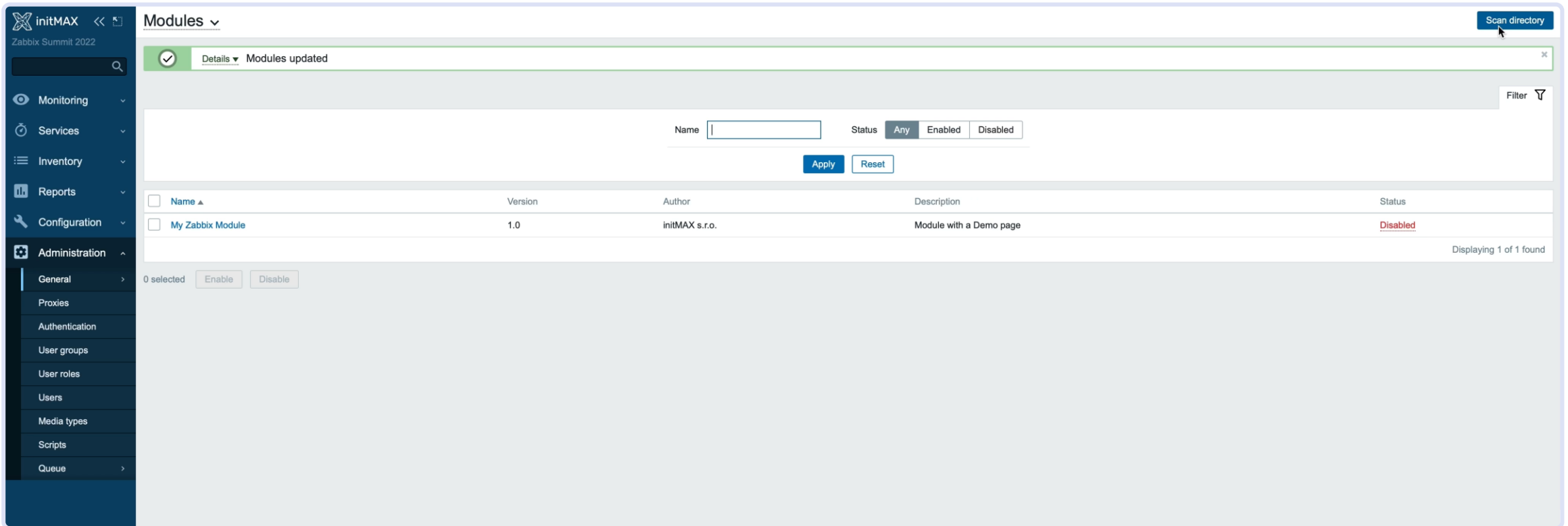


The screenshot shows the Zabbix web interface. On the left is a dark blue sidebar with the 'initMAX' logo and 'Zabbix Summit 2022' text. Below this is a search bar and a menu with categories: Monitoring (expanded), Services, Inventory, Reports, Configuration, and Administration. Under 'Monitoring', the items are Dashboard (selected), Problems, Hosts, Latest data, Maps, and Discovery. The main content area is titled 'Dashboards' and includes a 'Create dashboard' button. It features a search bar, a 'Filter' icon, and a table with one row: 'Summit 2022'. The table has a checkbox, a 'Name' column header, and a 'My' status indicator. At the bottom, it says '0 selected' and 'Delete'.

Installation and configuration

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



initMAX Zabbix Summit 2022

Modules

Scan directory

Details Modules updated

Filter

Name Status **Any** Enabled Disabled

Apply Reset

<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

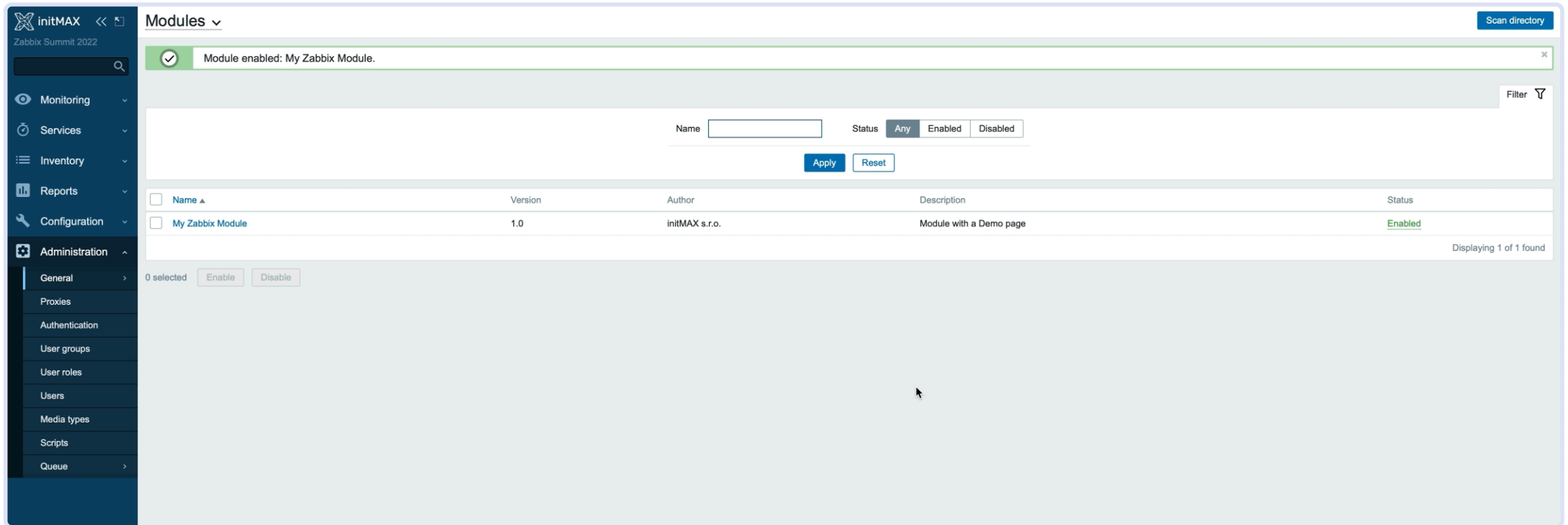
Displaying 1 of 1 found

0 selected Enable Disable


Installation and configuration

4/4 

Start using newly activated module




initMAX Zabbix Summit 2022

Modules 


Scan directory

Module enabled: My Zabbix Module.

Filter 


Name Status Any Enabled Disabled

Apply Reset

<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

Displaying 1 of 1 found

0 selected Enable Disable

General 

Proxies

Authentication


User groups

User roles

Users

Media types

Scripts

Queue 

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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

TypeHeader

Show header

Namedefault

Refresh intervalDefault (No refresh)

* Font colorD

Background colorD

* Content

* Font size40

FontArial

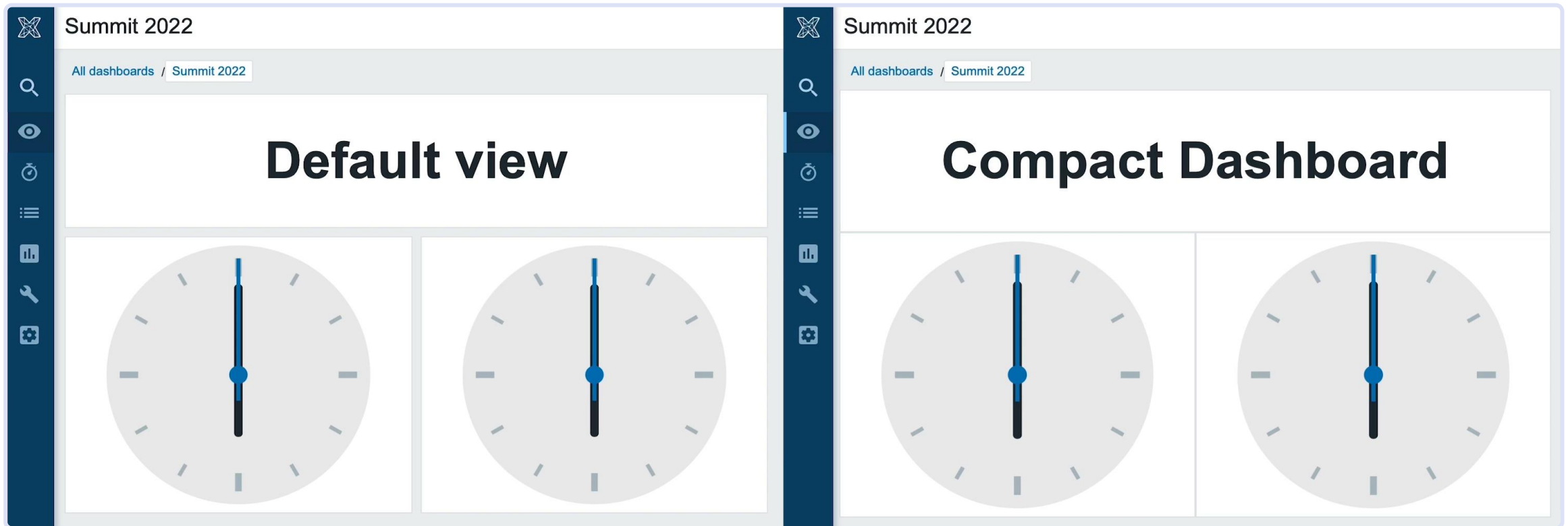
Font style

Show text as HTML

AddCancel

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: Default (1 minute)
Maximum displayed alarm count: 1000
Acknowledge problem style: Monochromatic Color
Font: Arial
Font size: 10

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

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

Percentage total: 0 %

Summit 2022

All dashboards / Summit 2022

Enhanced Problems

1 2 3 4

Total count: 10

Time	Host	Problem	Actions
2022-09-29 14:15:51	Summit-host-02	Event is - Warning	6
2022-10-05 11:00:42	Summit-host-04	Event is - Warning	1
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: Default (1 minute)

* Maximum displayed alarm count: 1000 We override default limit from Zabbix

Acknowledge problem style: Monochromatic Color

Font: Arial

* Font size: 10

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

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

Apply Cancel

Summit 2022

All dashboards / Summit 2022

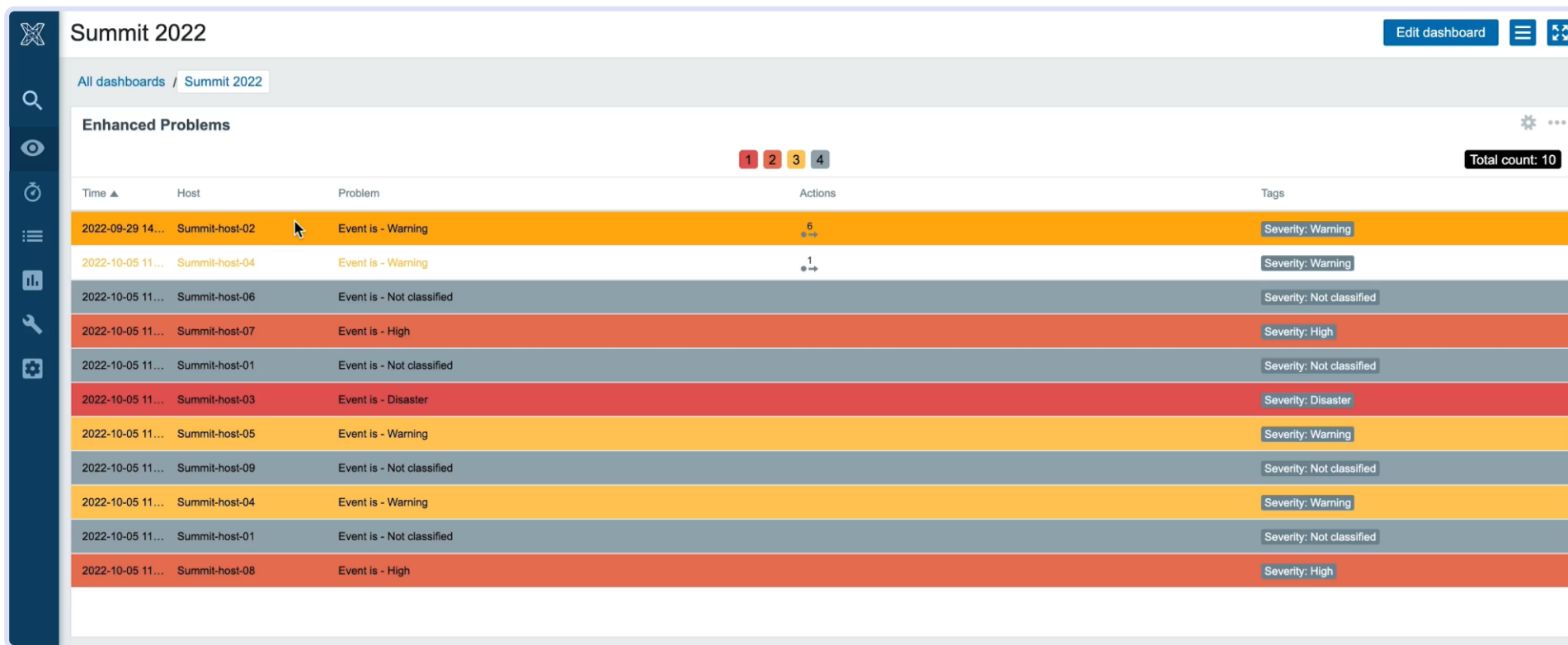
Enhanced Problems

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 displays the Zabbix Summit 2022 dashboard. The top navigation bar includes the Zabbix logo, the title "Summit 2022", and buttons for "Edit dashboard", a hamburger menu, and a full-screen icon. Below the navigation bar, a breadcrumb trail shows "All dashboards / Summit 2022". The main content area is titled "Enhanced Problems" and features a 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. A sidebar on the left contains various icons for navigation and settings.

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

- › 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

Time

ASC

DESC

2nd level sorting
 ☐

Display options

Refresh interval

No refresh

* Maximum displayed alarm count

1000

We override default limit from Zabbix

Acknowledge problem style

Monochromatic

Color

Font

Arial

* Font size

10

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

Name	Width	Custom Label

Apply

Cancel

Summit 2022

All dashboards /
 Summit 2022

Enhanced Problems

1

2

3

4

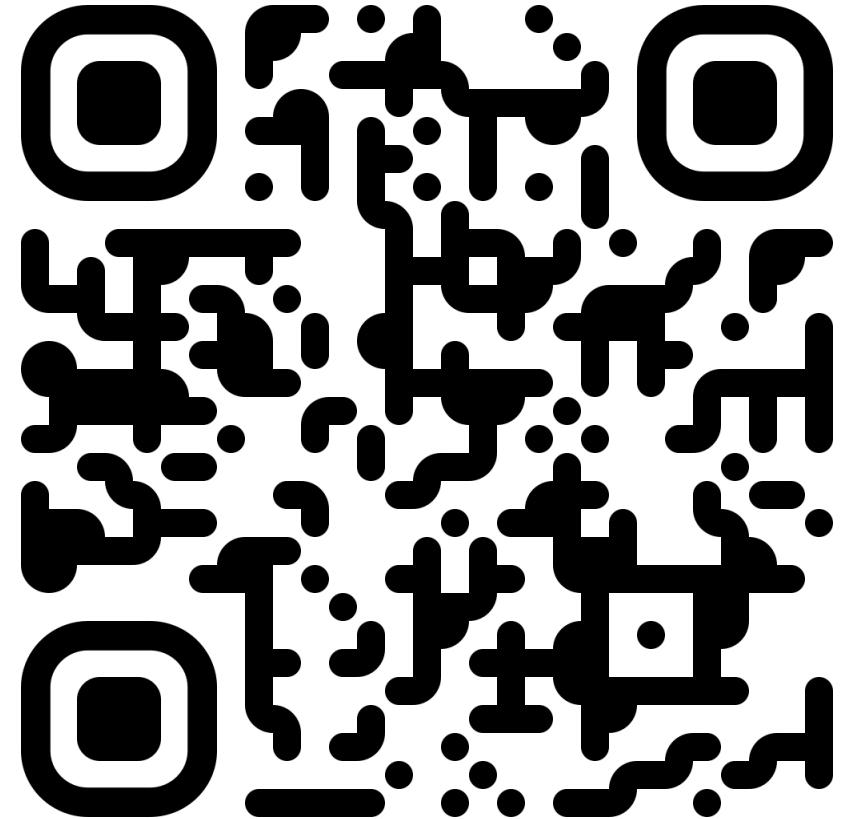
Total count: 10

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

ZABBIX SUMMIT 2022

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

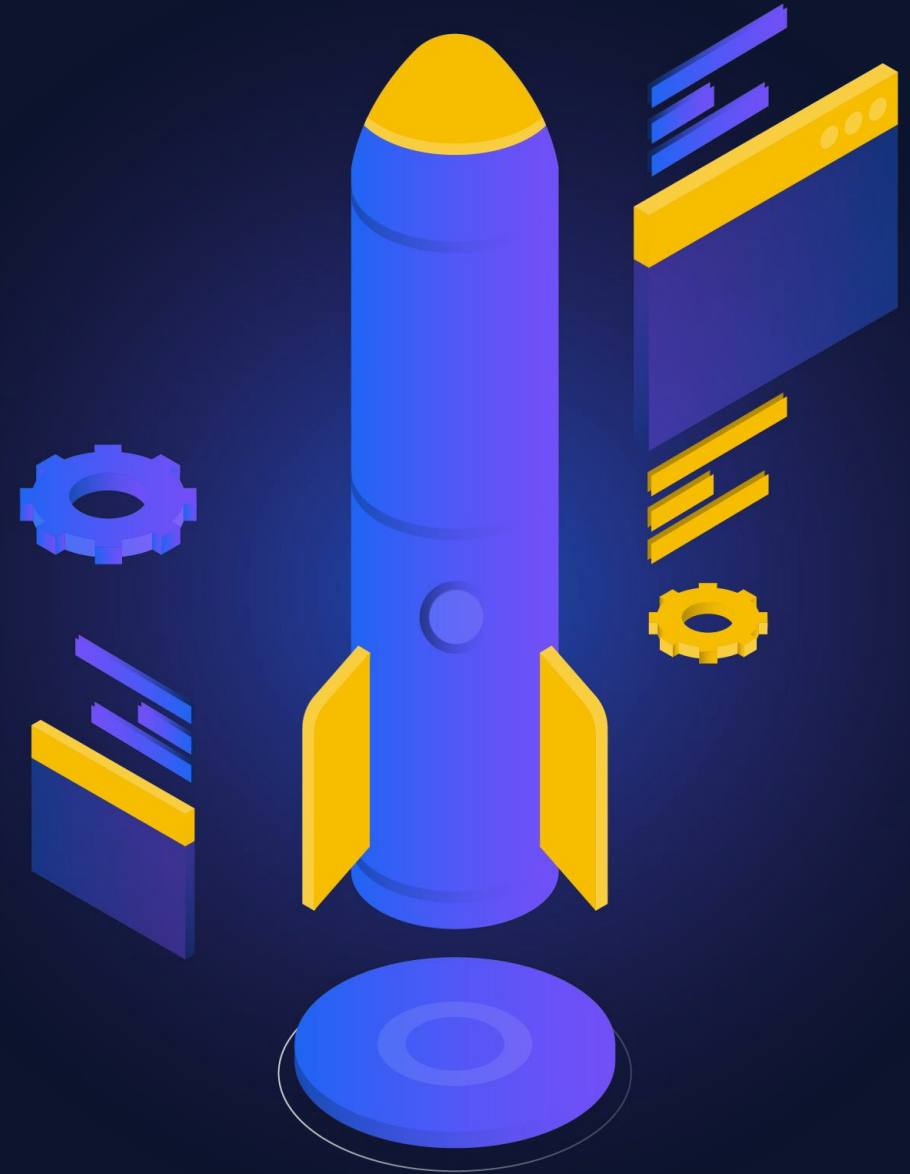
There are currently following limitations

- › 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



info@initmax.com

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

