



Monitoring
A lerting
Management
A utomation

₩ DWARF TECHNOLOGIES

Product paper Describing v.1.0.4

# Inside About a

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#### About a device

The basis of every RMM tool is what it can do with a device. Find out what the product offers in this regard.

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## Organizing devices

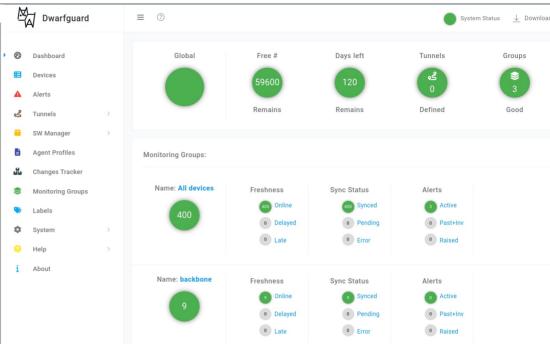
Managing one device is fun. Managing more is a work. When there are multiple heterogeneous device groups and setups it gets trickier. How to handle this?

Page 3

#### A lot of devices

And sometimes there are a LOT of devices. How many can be processed in onpremise version and on which hardware?

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The Dashboard, showing system status and monitoring groups

# Dwarfguard is:

- Remote Monitoring and Management software
- High-performing on-premise and SaaS solution
- RMM System supporting following device types:
  - Advantech Industrial cellular routers (ICR OS)
  - Teltonika industrial cellular routers (RUTOS)
  - Linux servers and desktops
  - OpenWRT devices
- Addressing many common use-cases like:
  - Inspection of device data and changes
  - Problem detection and identification
  - Alert definition and notification
  - Effective organization of devices
  - Devices firmware management
  - Device Web interface remote access
  - Configuration cloning
- Tested to handle tens of thousands devices
- Being actively developed and supported
- Admin friendly videos, bundled documentation



Product pages: www.dwarfguard.com

Manufacturer pages: www.dwarftech.cz

Request Demo: www.dwarftech.cz/request-demo



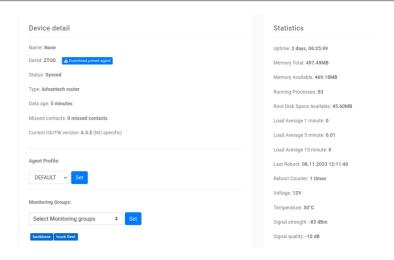
## About a device

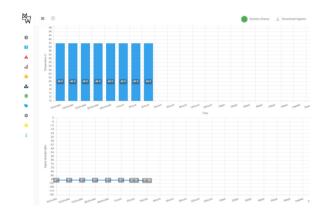
### **Device details**

Each device provides its metrics.
Actual values are shown on Device Details

It contains among others:

- MEM, CPU load, # of running processes
- voltage, temperature, signal strength
- uptime, data age class, FW version
- · network interface list
- access to FW flashing, labels, hostname





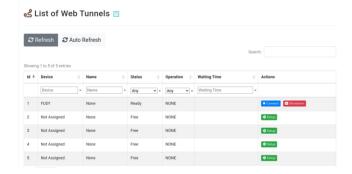
## **History data**

Shows aggregated statistics for:

- Availability, temperature
- In/Out traffic
- Signal strength, reboot counter

#### Webtunnel

Setting up webtunnel allows accessing device web interface via Dwarfguard



https://serverurl/webtunnel/ux9bzpebge8d58wb/



## **Agent Profiles**

To control how often does a device report back to the server.

Profiles can be mass-assigned and profile definition is customizable.



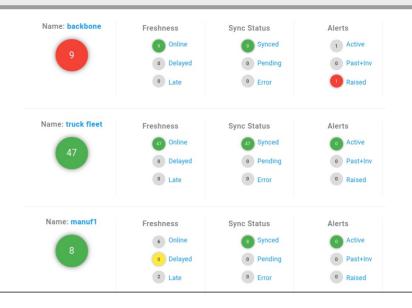




## Organizing devices

## **Monitoring groups**

- Device may be assigned to multiple Monitoring Groups
  - Custom alerts per group supported
- All groups present on Dashboard, showing status, delays shortcuts
- "All devices" system group for alerts over all devices



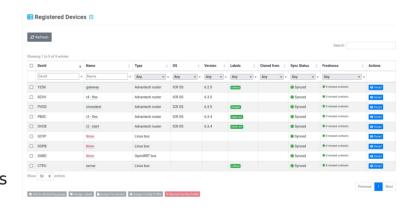


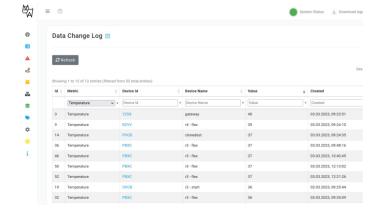
### **Root-cause identification**

- Group alerts defined like:
- Alert when at least X devices in group Y match condition...
  - Easy and fast ID of problem from Dashboard
    - affected group changes color
    - direct link to devices triggering alert
  - · Past alerts to never miss raised alert

# Other organizational techniques Naming, Labels, Filtering and Search

- name your devices + text search
- define labels and filter using them
- sort OR filter by metric value
- custom text notes fields available
- customize Devices table adding metrics



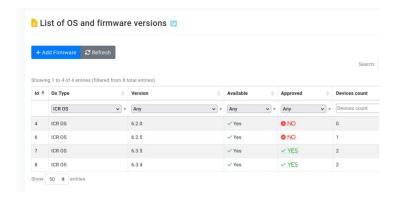


## **Changes Tracker**

- allows searching for peaks/depths
  - e.g. highest reported temperature
- allow comparison on additional metrics
  - e.g. device with highest reboot counter
- helps finding date of value change
- e.g. show changes for Firmware version
- offers limiting time span of the inspection



## A lot of devices

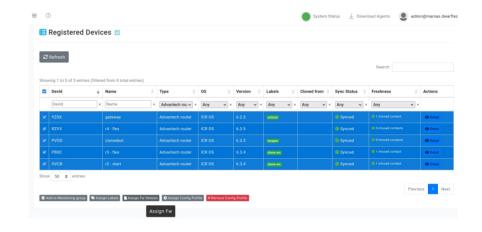


## **Firmware Management**

- Automatic/manual FW download
- Approve versions you want to distribute
- Assign individually or use mass action
- Keeps device on desired version

### **Mass Actions**

- Assign Labels and System Label
- Set desired FW version
- Add to Monitoring Group
- Switch Agent Profile





## **Grafana integration**

- SQL data exposed to Grafana
- Traffic counter dashboard as an example
  - User can create custom dashboards

## **Custom Scripts**

- User-defined shell scripts
- Periodic execution on devices
- Can provide custom data to agent, data are sent to Dwarfguard server
- Custom data are storef in DB and can be shown in Devices table (search, filter, ...)
  - Scripts can be device-type specific
  - Scripts are assigned using Agent Profiles

## **SMS** command sender

- Send SMS via a system router
- Allows sending SMS commands
- Allows regular SMS send

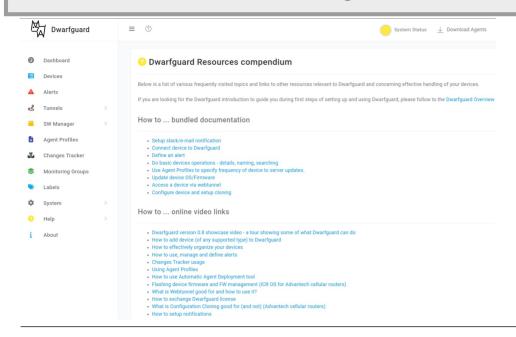
## Mass agent deploy

- Automated + parallel device agent installation
  - Suppors all device types
- Can be downloaded and executed outside the server





## **Dwarfguard Resources**



## In-App Help

- Covers all main topics
- Howtos on common use-cases
- Accessible without Internet
- With Internet further pointers

## **Further Pointers**

- Video Guides
- Documentation
- Administrator's Notes (for On-Prem, Cloud)
- Troubleshooting

## **Competetive advantages**

- Made by experts with domain knowledge
- · Quality, stability, performace
- Customizations possible
- Flexibility (SaaS, on-prem)
- Growing product

			Stability tests					
ID / Environment →				Stab-8-2 C3	Stab-16-2 C4			
Test specs		Devices	1000	3000	10000		30000	300
		Emulator threads	2	4	8			
		Set: Time / minutes	120				120	288
		Set loop time / sec	200	200	200	200	200	20
HW specs		CPU cores	1	. 2	4	8	8	
		RAM / MiB	512					1638
Resources	Pre-test	Available MiB OS	296.00		1800.00			14000.0
		Used MiB OS	215				608	79
		dwarfgd RSS (MiB)	44				49	4
	Post-test	Available MiB OS	265		1400		29000	1400
		Used MiB OS	246				1800	88
		mamasd RSS (MiB)	57					8
		avg load 15	0.07					0.2
		avg load 15 / cpu core	0.07					
Results	Test numbers	Processesd loops	34				31	76
		Total time	7302				7427	17301
		Real Loop time/sec (1)	215		227	237	240	22
		Estimated data-pusher	36000	108000	360000	1080000	1080000	259200
		Performed Pushes	34000	99000	320000	930000	930000	230700
		Estim, Avg regs/sec	5.00	15.00	50.00	150.00	150.00	15.0
		Rough avg regs/sec (3)	4.66	13.55	44.08	126.48	125.22	13.3
	Errors	Data ERR/retries	C			0	31	
		Crashes	C				0	
		Reboots	C		0	0	0	
		Log entries	2	. 0	1	1	0	
		Log analysis	CFG profile		Mid-air profile collision		1 Invalid ID	Mid-air profil collisio
	Calculations	RSS increase MiB	13	31	142	371	346	3
		RSS increase %	29.55	70.45	322.73	843.18	706.12	79.5
		MiB per device	0.013	0.010	0.014	0.012	0.012	0.01
		RAM utilization %	48.05		11.04		1.86	
		Max safe # of devs	2081	9143	90619	566267	1616842	6221
	Summary	RAM utilization note	reasonable	ok	perfect (low)	perfect (low)	perfect (low)	perfect (low
		CPU utilization note	perfect (low)	perfect (low)	perfect (low)	perfect (low)		
		Verdict	PASSED	PASSED	PASSED	PASSED	PASSED	PASSE

#### **Performance tests**

- Every Major version
  - Stability + perf test
  - Test protocol available
- v1.0.0 up to 50k devices
  - test results for 30k devices:
  - Intel Core-i5 4core 1.7GHz 32G RAM
    - CPU 1core load: 63% (16% 4core)
    - RAM used: 1.5 %

## **On- premise requirements**

- Server / VM / Linux container
- 512 MiB RAM
- 1 GiB disk space
- Can run without Internet connectivity





