EVN-Monitor manual

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Based on Alexander Neidhardt's (alexander.neidhardt@tum.de) reference manual for the IVS Seamless Auxiliary Data Archive.

1   Introduction

The EVN-Monitor is a real-time monitoring system for all EVN stations. The EVN-Monitor is able to track all items from the NASA Field System System Status Monitor, this include parameters such as weather information, clock offsets, TSYS measurements, etc. A full list of items which can be tracked is listed in Appendix A.

The EVN-Monitor system was originally developed by Alexander Neidhardt as part of the JUMPING JIVE project, the service is hosted by JIVE. The system is based on the Zabbix monitoring software.

An example plot from the EVN-Monitor is shown in Fig.1, here we show the clock offsets for station Medicina over a two week period. Similar plots for any of the items tracked by the EVN-Monitor can be created in a very user friendly fashion using the web interface.
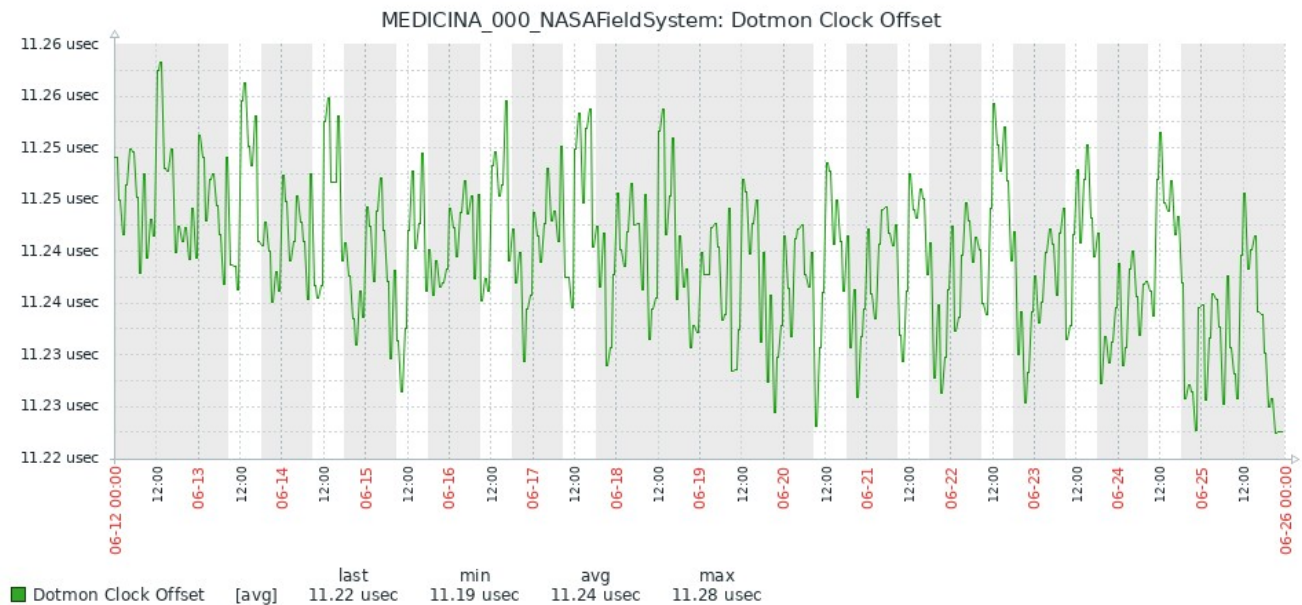

Figure 1: Clock offset from GPS for station Medicina over a 14 day period

Contributing to the EVN-Monitor doesn't require any new software to be installed locally at the stations. Instead new data points are pushed by the station over ssh by the procedure explained in Sec 2.

The EVN monitor can be accessed at https://evn-monitor.jive.eu

- Username: **EVN Guest**

- Password: **EVN Guest**

Note the space between EVN and Guest.

2   Start contributing

To contribute to the EVN Monitor please send your **public** ssh key to *keimpema@jive.eu*. We will also need the IP (range) from which you will be accessing the EVN Monitor so we can whitelist you in our firewall.

An account will then be created and you will receive your username via email.

3   Uploading data

Uploading data to the EVN Monitor is done by calling a program called **datasend** over ssh. For example to upload a windspeed of 10 km/h is done by calling

```
ssh username@evn-monitor.jive.eu datasend ERC.WINDSPEED 10.0
```

Where in the above example username should be replaced with the username you received after your account was created.

A full list supported items that can be tracked by the EVN monitor is listed in Appendix A, this list can also be obtained from **datasend** by calling

```
ssh username@evn-monitor.jive.eu datasend -l

Valid keywords =  ['ERC.ANTENNA', 'ERC.AZIMUTH', 'ERC.CABLE',
'ERC.CATALOGYEAR', 'ERC.CHECKS', 'ERC.DEC', 'ERC.DOTMON', 'ERC.DOTMON2',
'ERC.ELEVATION', 'ERC.FBFREE', 'ERC.HALT', 'ERC.HUMIDITY', 'ERC.IF1',
'ERC.IF2', 'ERC.IF3', 'ERC.IF4', 'ERC.LOG', 'ERC.MODE', 'ERC.NEXTTIME',
'ERC.PRESSURE', 'ERC.RA', 'ERC.RATE', 'ERC.SCHEDULE', 'ERC.SOURCE',
'ERC.TEMPERATURE', 'ERC.TIME', 'ERC.TRACKINGSTATE', 'ERC.WINDDIRECTION',
'ERC.WINDSPEED', 'ERC.WINDLIMIT']
```

Furthermore, general help can be gotten by calling

```
ssh username@evn-monitor.jive.eu datasend -h

usage: datasend [-h] [-t TIME] [-l] KEYWORD value

Upload items into the EVN-Monitor
```

```
positional arguments:
  KEYWORD               Name of item, e.g. ERC.WINDSPEED; Use --list for a
full list of keywords
  value                 The value of the item to be logged

optional arguments:
  -h, --help            show this help message and exit
  -t TIME, --time TIME  Time of data point as number of seconds since 1970
aka unix time. Default: the current time when this script is called.
  -l, --list            Show list of accepted keywords
```

In the above example no explicit timestamp was provided, in this case the system will automatically assign a timestamp equal to the current time on the server. This is appropriate for the most common use case where the most recent measurement is immediately being uploaded. When uploading older values a timestamp should be provided

ssh username@evn-monitor.jive.eu datasend -t TIMESTAMP ERC.WINDSPEED 10.0

where TIMESTAMP is the time when the data was created in unix time, which is the number of seconds since 1970.

4 Recommended items

A wide range of items can be tracked by the EVN monitor, below is a list of items which are recommended for all stations to track. However, this is merely a suggestion if it isn't possible to upload some of these items that is not a problem.

The recommended items:

Item	Description	Unit
ERC.TEMPERATURE	Temperature	degree C
ERC.HUMIDITY	Humidity	%
ERC.PRESSURE	Pressure	hPa
ERC.WINDSPEED	Wind speed	km/h
ERC.WINDLIMIT	Maximum wind speed before antenna is stowed	km/h
ERC.WINDDIRECTION	Wind direction	degree
ERC.DOTMON	Clock Offsets (GPS-FMOUT)	usec

NB: Zabbix can only store data up to 4 places after the decimal point, so e.g. an ERC.DOTMON offset of 3.1415926μs will be stored as 3.1416. Moreover, an offset of 0.0000314μs will be stored as exactly 0.

5   Update frequency

The recommended update frequency is 1 minute. The minimum time between updates accepted by the system is 1 second.

6   Viewing data

Website: https://evn-monitor.jive.eu/
User: EVN Guest
Pwd: EVN Guest

Note the space between EVN and Guest.

After login a world map is displayed as shown in Fig.2. If this isn't the case, please select Monitoring => Maps => Worldmap.
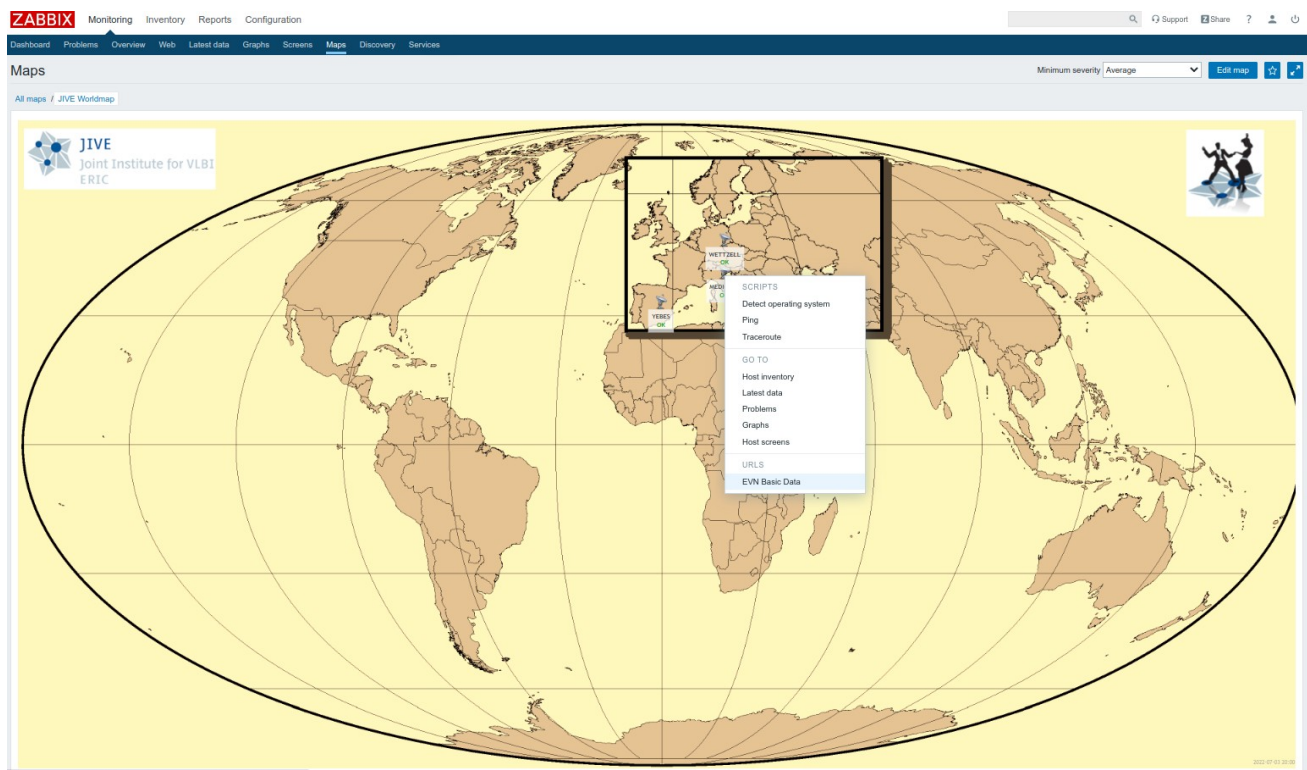

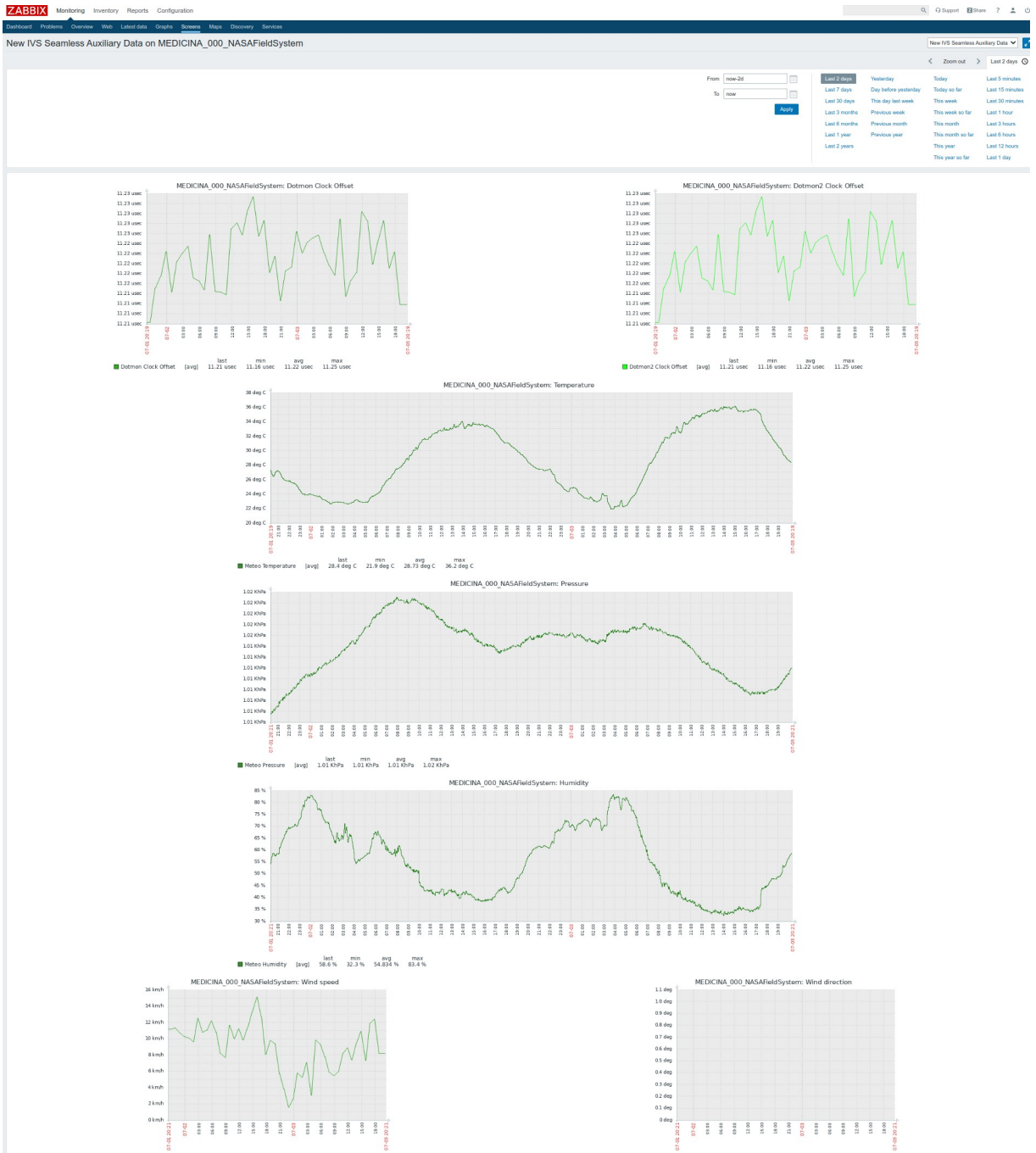*Figure 2: Map view of the EVN Monitor*

To

Figure 3: Items for station Medicina

view the tracked items for a station, right click on that station and select EVN Basic Data. In Fig.3 the tracked items for station Medicina are shown, note that the time ranges to be plotted can be configured in the user interface.

A. Appendix

Table 1: Data items supported by the EVN Monitor, default configured items are in bold text.

Keyword	Unit	Desciption
ERC.ANTENNA	Text	Antenna name
ERC.AZIMUTH	Degrees	Antenna azimuth
ERC.CABLE	ps	Cable delay
ERC.CATALOGYEAR	Year	Year of astronomical catalogue used
ERC.CHECKS	Text	Activated NASA Field System checks
ERC.DEC	Text	Declination of Source
ERC.DOTMON	**μs**	**Clock delay (GPS - FMOUT)**
ERC.DOTMON2	**μs**	**Clock delay dbbc2 (GPS - FMOUT)**
ERC.ELEVATION	Degrees	Antenna elevation
ERC.FBFREE	TB	Free diskspace on flexbuff
ERC.HALT	Text	Scheduling halt status
ERC.HUMIDITY	**%**	**Meteorological humidity**
ERC.IF1	°K	System temperature of IF channel 1
ERC.IF2	°K	System temperature of IF channel 2
ERC.IF3	°K	System temperature of IF channel 3
ERC.IF4	°K	System temperature of IF channel 4

Keyword	Unit	Desciption
ERC.LOG	Text	Current log file name
ERC.MODE	Text	Mode
ERC.NEXTTIME	Text	Time of next activity
ERC.PRESSURE	**hPa**	**Meteorological pressure**
ERC.RA	Text	Right ascension of source
ERC.RATE	Text	Rate
ERC.SCHEDULE	Text	Current schedule
ERC.SOURCE	Text	Source name
ERC.TEMPERATURE	**°C**	**Meteorological temperature**
ERC.TIME	Text	Current Field System time
ERC.TRACKINGSTATE	Text	Current tracking state
ERC.WINDDIRECTION	**Degrees**	**Wind direction**
ERC.WINDSPEED	**km/h**	**Wind speed**
ERC.WINDLIMIT	**km/h**	**Wind speed limit (max speed before antenna is stowed)**