Observation Network Manager NM10

Efficiently manage your weather observations

Benefits

- Operational cost savings with more efficient operation and maintenance
- Fast remote problem solving
- Automatic continuous data availability and validity analysis and reporting
- Secure 24/7 monitoring of observation sites
- Web interface for sharing real-time surface weather and other information

Vaisala Observation Network Manager NM10 enables remote monitoring, management and control of your weather observation networks on one central, secure, and automated platform. Easy access to all essential event, alert, observation, device status, metadata and maintenance information helps to identify and solve problems quickly ensuring continuous high-quality observations and shorter site visits with correct actions. From implementation to long-term maintenance, a network management solution optimized for your needs improves operational efficiency and reduces the lifetime cost of managing and maintaining all your observation sites.

Cost-effective, configurable off-the-shelf platform

Implementing a scalable, flexible management solution with autonomous systems and intelligent field devices of different brands and types which provide interfaces for efficient integration with other products and systems will allow you to optimize your network operations, improve safety and facilitate operation in remote locations.

Vaisala Observation Network Manager NM10 enables remote monitoring and control of your weather observation networks on one central, secure and automated platform. An off-the-shelf solution with extensive support and proven performance and functionality significantly reduces the implementation time and total lifetime costs, helping you stretch your budget further.

Real-time monitoring with alerts and remote diagnostics

NM10 provides the ability to monitor individual site status via secure web technologies and collect data 24/7 from one central network in real time. It allows your team to remotely access and control individual sites to fix the problems faster and optimize your network operation. With centralized event, alert, notification, device metadata and maintenance information quicker reaction to network and sensor failures, and faster problem identification and solution deployment can be achieved for improved network uptime and data availability. In addition, configure the layout and displayed data to clearly visualize and understand precisely real-time weather conditions throughout your country or region affecting your operations and observation site performance.

High data security, availability and validity

Perform automatic real-time data quality control and analytics services to feel confident that you will get the high-quality observation data you need. Advanced data security and user management capabilities are utilized to avoid network vulnerability and to mitigate the risks of intrusion and cyber threats.

Surface Weather Display Views

Precisely understand current and past surface weather and environmental conditions affecting your operations on a single or a group of sites.

Default desktop view
customizable by system administrator
to include new pages and layouts for different users.

Surface weather alarm information
optionally also visualized on GIS map and list views.

Text view to list observations in numeric and string format.

Chart view to inform about current and past surface weather and environmental conditions.

Wind rose view with optional
road or runway direction indication
to inform about current wind conditions.

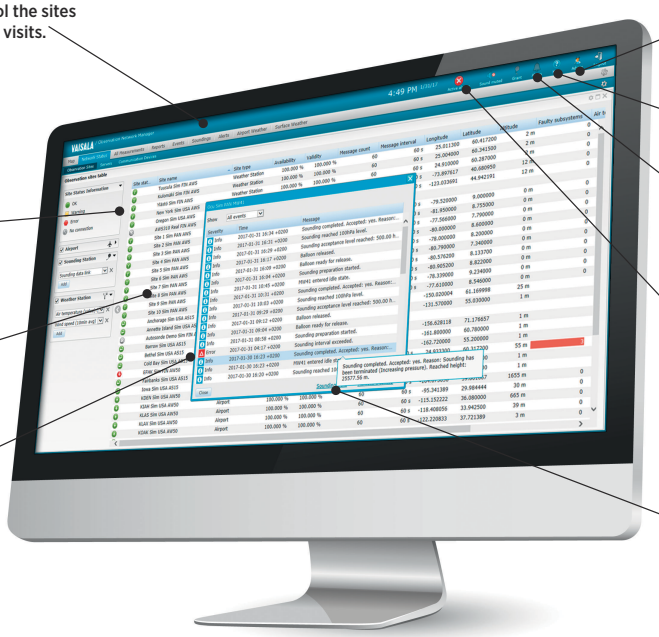
Observation Network Management Views

Remotely monitor, access and control the sites connected to avoid unnecessary site visits.

Monitoring overall status of the observation network using GIS map, list and detailed site views.

Manage device metadata and maintenance activities.

Verify the quality of observation data.



Access to administrator view
for user management and system settings.

Context sensitive help to use the application.

Remotely control observation sites directly from the application desktop.

Receive notifications when problems occur.

Remotely access observation sites
to further diagnose issues.

Vaisala Observation Network Manager

Data Acquisition, Processing, Time, and Notification Services

- Data collection/ post collection
- Data quality control
- File service with housekeeping
- Notification service
- Time synchronization
- SFTP data export

Web User Interface

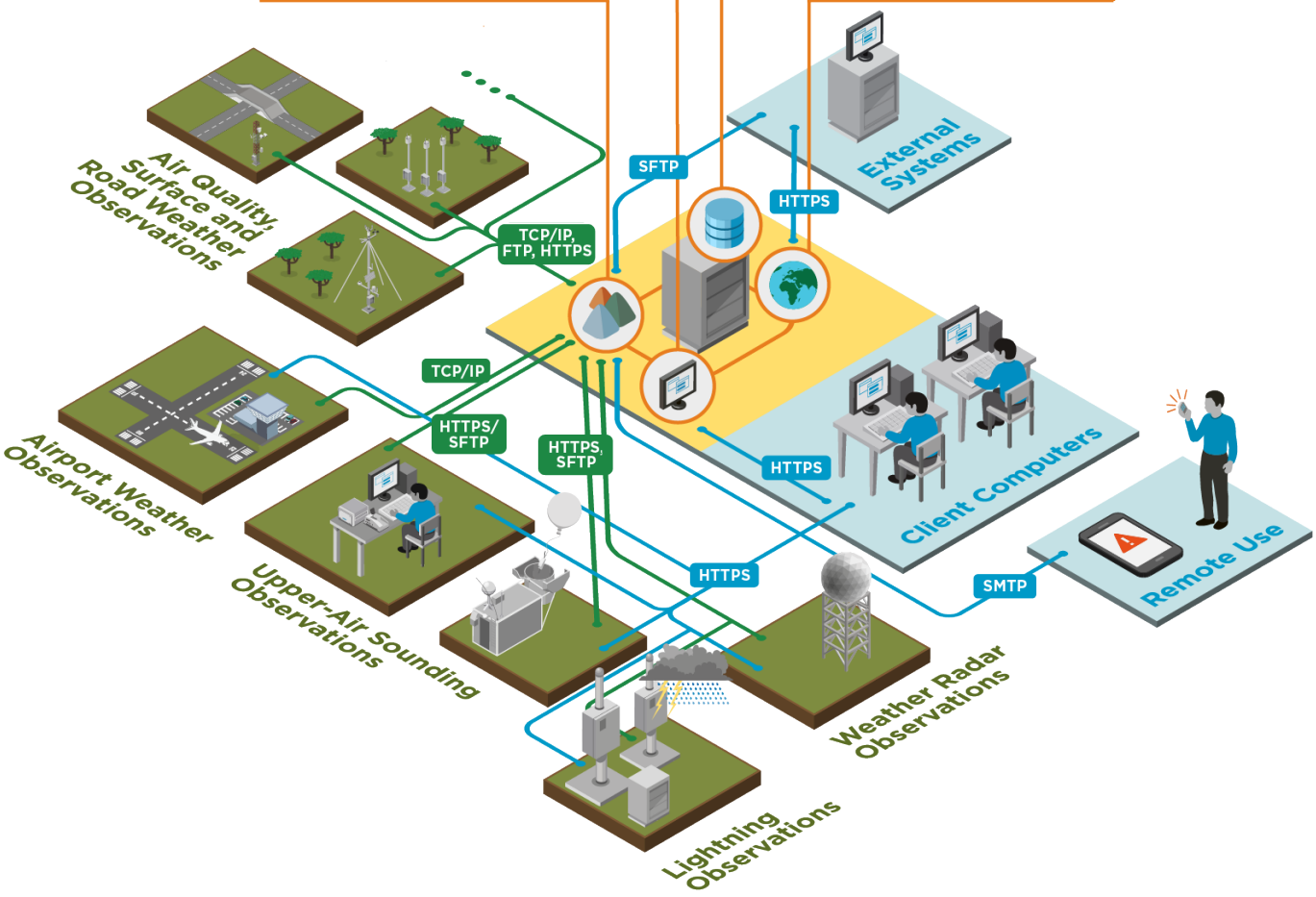
- User authentication
- User configurable desktop
- System settings
- Alerts, event monitoring
- Data availability, validity, and observation reports
- Remote access tools

Database Management System

- Events, observations, and message reports storage
- Automatic database housekeeping

GIS Map Service

- Observations and network status on Vaisala or 3rd party map via WMS
- Data export via Web Feature Service (WFS) to external systems databases



NM10 is a stand-alone system installed in customer premises on Windows or Linux operating systems. The system is configured individually for each customer use. The figure shows the available main components and interfaces of the system.

Data acquisition, processing, time, and notification services component provides the capabilities to receive air quality, surface, road and airport weather observations as well as events and alerts information from airport weather, upper-air sounding, weather radar and lightning detection observation systems. Variety of different communication protocols and message formats can be used. The component is also able to synchronize time, manage the post-collection of the observations from the Vaisala automatic surface weather stations and provide central data quality control service. Email, visual and sound alarms and notifications are available.

System events, state changes, observations and message reports received from the observation sites are persisted to a scalable database management system.

A browser-based user interface via HTTPS restricted by username and password is provided for viewing the observation data and for monitoring the data quality and the status of the network and its components. Geographic information system (GIS) map, list, site details, wind rose, chart, text and report widgets are available to view real-time and history observations, site statuses and their exact locations. Depending on the site and its configuration, links are included for remote access to view and diagnose the connected devices and systems without the need to use any additional software on client PCs.

Technical data

Features

Data acquisition	• Vaisala weather transmitters • Vaisala air quality transmitters • Vaisala surface weather stations • Vaisala ceilometers • Vaisala AviMet® airport systems • Vaisala AUTOSONDE® systems • Vaisala DigiCORA® sounding systems • Vaisala RWS200 road weather stations • Vaisala weather radars • Vaisala lightning detection systems • ASCII string message parsing from third-party surface weather sensors and systems (when applicable) • OGC SensorThings RESTful HTTP service
Data post collection	Vaisala surface weather stations
Data processing	• Range, step, and persistence checks for surface and road weather transmitter and station observations • Generic statistics, wind, sun radiation and solar specific central calculations • Gain and offset correction for air quality measurements • MGRS (NATO UTM) coordinate support
Data storage	• PostgreSQL database • Observation and event log text files • Configurable database management system
Time services	• Time synchronization for Vaisala surface weather stations • NTP system time synchronization
Notification services	Configurable SMTP email alerts
Remote site access	• Terminal connection for weather transmitters and stations, RDP over HTTPS for airport, AUTOSONDE® and DigiCORA® sounding systems • Web browser connection via HTTPS to AUTOSONDE® and DigiCORA® sounding systems, RWS200, and lightning detection systems
Metadata management	Manual maintenance and device metadata management
Web user interface	• Client connection via HTTPS • User authentication and administration • User configurable desktop and widgets • Map, list, graph, wind rose, text and IFRAME widgets • System settings • Sound alerts, events monitoring • Alarm acknowledgement: grant or deny balloon release • Observation data reports • Data availability and validity reports • Maintenance and device metadata management views • Translation for local language(s) • Context sensitive help
GIS map service	• GeoServer with OpenStreetMap world map • Standard map max. zoom level: 1:433K • Enhanced map max. zoom level: 1:6759 • WMS interface for third-party map data
Data export	• FTP/SFTP, WFS via HTTPS • Automatic WMO FM 94 BUFR Ed 4 v. 29.0.0 (Fixed land station synoptic reports, ref. 3 07 080)

Minimum system requirements

Processor	2.0+ GHz, 4-core CPU or higher
RAM	• 8 GB or higher (with standard GIS map) • 16 GB or higher (with enhanced GIS map)
Hard disk space	300 GB or higher (with standard GIS map)
	1 TB or higher (with enhanced GIS map)
Operating system	• Microsoft Windows Server 2012 R2 • Microsoft Windows Server 2016 • Microsoft Windows 10 Professional (64bit) • Microsoft Windows 10 Enterprise Embedded (64bit) • Linux CentOS 7.2 • Linux CentOS 7.3 • Linux Ubuntu 16.04 LTS (64-bit)
Installation environment	On-premise computer hardware or virtual environment instance
Ethernet	10/100/1000 MB
Other peripherals	USB drive, UPS
Web browsers	Microsoft Edge latest versions
	Microsoft Internet Explorer 11
	Mozilla Firefox latest versions
	Google Chrome latest versions
Monitor resolution	1366 x 768 or higher

Exact system requirements for computer hardware are dependent on the number and type of observation sites connected, amount of data collected, data acquisition interval(s), data storage time, maximum number of concurrent web clients connected, and features selected by the customer. For further information and more detailed specifications, please contact Vaisala.

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