Data Collection System

Information and communication technologies have never been more important in the world of meteorology and environmental monitoring. Meteorological, radioactivity and environmental data can be useful only after they reach the end-users.

IMS UDCS is a data collection and switching system built on the field proven IMS platform for meteorological, radiation and environmental data acquisition and remote system maintenance.

Scalability, Fault Tolerance and High Availability

The IMS UDCS runs on standard PC, or fault tolerant server with redundant components or even a high availability cluster of two servers running in a hot failover mode, providing more and more safety for your data.

WMO Message Collection and Switching Capabilities

The IMS UDCS supports wide choice of protocols defined by the WMO Manual on the GTS:

- SOH/ETX protocol for serial lines as defined by the WMO
- IPP protocol for serial lines as defined by the Slovak Hydrometeorological Institute
- FTP file transfer (different formats)
- TCP/IP sockets as defined by the Attachment II/15 of the WMO Manual on the GTS
- AFTN gateway

The full-duplex mode of operation allows not only collection of the data from stations, but also distribution and switching of messages between/to the stations. The system fully supports standard WMO codes SYNOP, METAR/SPECI, CLIMAT, GRIB, BUFR, and is open for the support of proprietary/national codes.

Non-WMO Data Processing

In addition to WMO standards the UDCS supports numerous proprietary protocols and formats for communication with automatic weather and environmental stations and data loggers, as well as for data distribution and exchange:

- Text log-files (user configurable formats),
- National and/or international formats (EURDEP),
- NWP model output,
- Dispersion model output,
- Radar, Satellite images,
- JPEG images, MPEG videos.

Supported Interfaces:

- LAN/WAN, Ethernet
- TCP/IP, FTP, PPP
- Asynchronous leased lines
- dial-up lines with dial-in, dial-out options (both periodical and manual)

Built-in Web Server

The IMS UDCS provides users with easy-to-use and efficient web interface. An authorized user has access to all data, statistics and full functionality from any computer on the network.

UDCS as Center of Large-Scale Meteorological Network

The UDCS provides all functionality necessary to operate and maintain large meteorological networks of automatic as well as manned stations. The number of stations which can be interfaced by a single UDCS is limited only by the used communication infrastructure

Data Collection

The data from the stations can be collected in several modes using different communication protocols:

- PSTN/GSM (dial-in, automatic and on-demand dial-out
- TCP/IP sockets and/or FTP through LAN, WAN, GPRS

The time intervals of data collection are user-configurable for each station from minutes (or even seconds) to days.

In case of communication line failure the robust data collection mechanism allows automatic retrieval of missing data as soon as the connection to particular station is reestablished.

Data Validation and Export

The UDCS data validation and export options include:

- Data processing of WMO and various proprietary text and binary formats
- Quality control of collected data (limits, internal consistency)
- Data export in various text and binary formats,
- Data export to relational database (Climatological Database of MicroStep-MIS or 3rd party one)
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Monitoring and Confirmation

The status of the network is visualized by status screens displaying the status of stations and /or communication channels and data flow.

All communication events are archived in the UDCS logs. The user-friendly interface allows easy configuration of the network and station parameters.

Remote Maintenance

- Standard Intel based PC
- SuSE Linux and Windows