Data Collection System

Meteorological, hydrological, radiological and other environmental data can be useful only after they reach the end-users. Information and communication technologies have never been more important in the world of hydrological monitoring. IMS4 UDCS is a data collection and switching system built on the field proven IMS4 platform for meteorological, hydrological, radiation and environmental data acquisition and remote system maintenance.

WMO Message Collection and Switching Capabilities

The IMS4 UDCS supports wide choice of protocols defined by the WMO No. 386 Manual on the GTS or other industry standards:

- FTP file transfer (FTP, SFTP, SCP, SMB, different formats)
- TCP/IP sockets as defined by the Attachment II/15 of the WMO Manual on the GTS
- E-mail
- SADIS FTP, ISCS
- AFTN/AMHS gateway
- Radar, satellite receivers
- Web service interface (SWIM)
- Legacy support: PSTN, asynchronous

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 creating and processing of the standard WMO codes SYNOP, METAR/ SPECI, CLIMAT, TAF GRIB, BUFR, CREX, etc., compilation and decomipilation of message bulletins,conversion among TAC, TDCF, IWXXM and it is open for the support of proprietary/national codes.

OGC Formats, Image and Non-WMO Data Processing

The UDCS supports numerous proprietary protocols and formats for communication with automatic weather, hydrological and environmental stations and data loggers, as well as for data distribution and exchange:

- OGC WaterML, NetCDF, OpenMI
- Text log-files (user configurable formats)
- National and/or international formats (EURDEP, ANSI N42.42)
- NWP model outputs
- Dispersion model outputs
- Radar, Satellite images
- JPEG/PNG/other image formats, MPEG videos

Supported Interfaces

- Web services
- LAN/WAN/VPN, Ethernet, GPRS/GSM

Features

- Scalability
- Fault tolerance
- High availability
- Supports wide choice of protocol

Data Collection System

- File based data transfer (file, FTP, sFTP, scp)
- MODBUS
- Proprietary (MicroStep-MIS, PAKBUS)
- Asynchronous leased lines
- and dial-up lines with dial-in, dial-out options (both periodical and manual)

UDCS as a Center of the Large-Scale Network of Automatic Stations

The UDCS provides all functionality necessary to operate and maintain large 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)

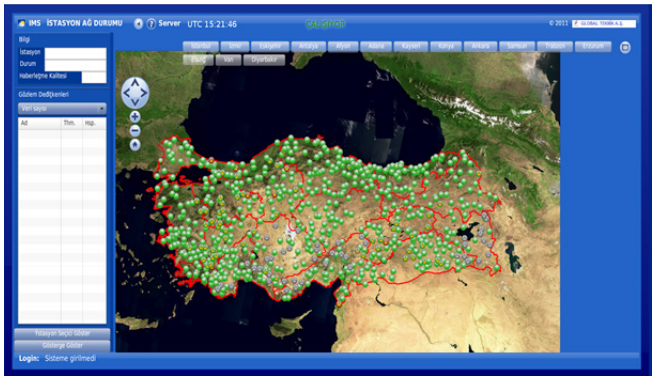
Monitoring and Confirmation

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.

Scalability, Fault Tolerance and High Availability

The IMS4 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.

Public map view



Network management status screen

Metadata management (stations, instruments)