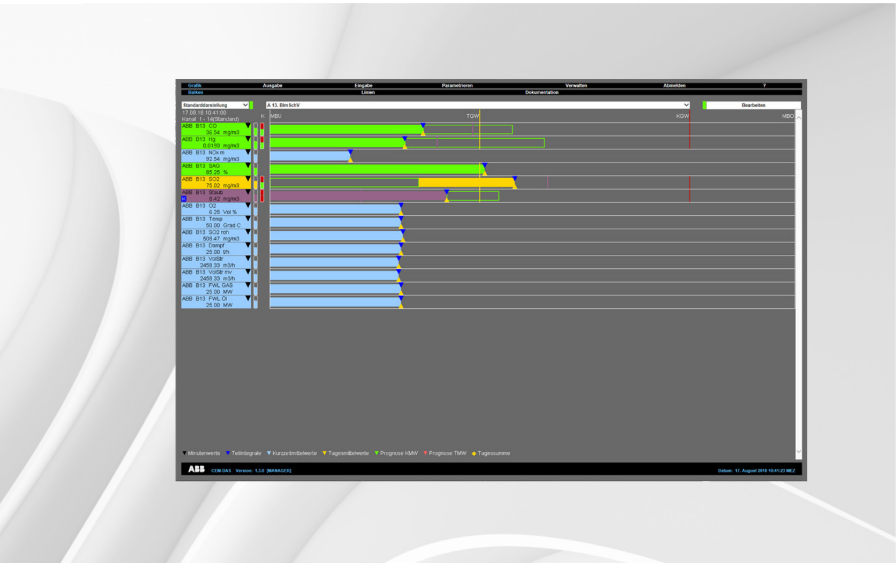
ABB MEASUREMENT & ANALYTICS | SYSTEM MANUAL

CEM-DAS Connect

Secure access to CEM-DAS systems over a public network



17.08.18 10:41:00
Kanal 1 - 14(Standard)

ABB B13 CO 36.54 mg/m3
ABB B13 Hg 0.0193 mg/m3
ABB B13 NOx m 92.54 mg/m3
ABB B13 SAG 85.25 %
ABB B13 SO2 75.02 mg/m3
ABB B13 Staub 8.42 mg/m3
ABB B13 O2 6.25 Vol %
ABB B13 Temp 50.00 Grad C
ABB B13 SO2 roh 508.47 mg/m3
ABB B13 Dampf 25.00 t/h
ABB B13 VolStr 2458.33 m3/h
ABB B13 VolStr mv 2458.33 m3/h
ABB B13 FWL GAS 25.00 MW
ABB B13 FWL Öl 25.00 MW

Datum: 17. August 2018 10:41:23 MEZ

Measurement made easy

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CEM-DAS Connect

Introduction

CEM-DAS Connect software version 1.0 provides users with a secure access to CEM-DAS systems via the Internet.

CEM-DAS is a complete, networkable IT system for the data acquisition and handling of emission data, suitable for all industries.

CEM-DAS Connect allows, for example, the access of authority-relevant data such as value lists or protocols.

Additional information

Additional documentation on CEM-DAS is available for download free of charge at www.abb.com/analytical.
Alternatively simply scan this code:

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1 Introduction

Introduction

The CEM-DAS Connect product allows specific users from authorities and other defined par-ties, such as the operators themselves, on demand access to current and historic CEM-DAS acquired emissions monitoring data via the CEM-DAS Connect website (see **Additional documents** on page 7).

With CEM-DAS Connect, authorized users can quickly and securely view and export opera-tor specific CEM-DAS emissions data with a standard web browser from any client system with internet access.

Locally, a small CEM-DAS Connect background service is used to securely connect and communicate with a central CEM-DAS Connect server to retrieve and process relevant re-quests.

As such, the CEM-DAS Connect system provides a convenient centralized point of access to emissions data for authorities while at the same protecting and isolating the source emissions monitoring systems from direct access and exposure.

Access to operator specific emissions data is managed (assigned and monitored) centrally, allowing fast authorizations changes to be implemented without accessing local installations. In addition, operators have the ability to manage the CEM-DAS Connect functionality locally thought the regular CEM-DAS administrative interface.

Internet Address

The central CEM-DAS Connect website is accessible through the following URL:

https://www.cemdas.eu

2 System architecture

Overview

The following **Figure 1** illustrates the contextualized architecture of the CEM-DAS Connect system components.

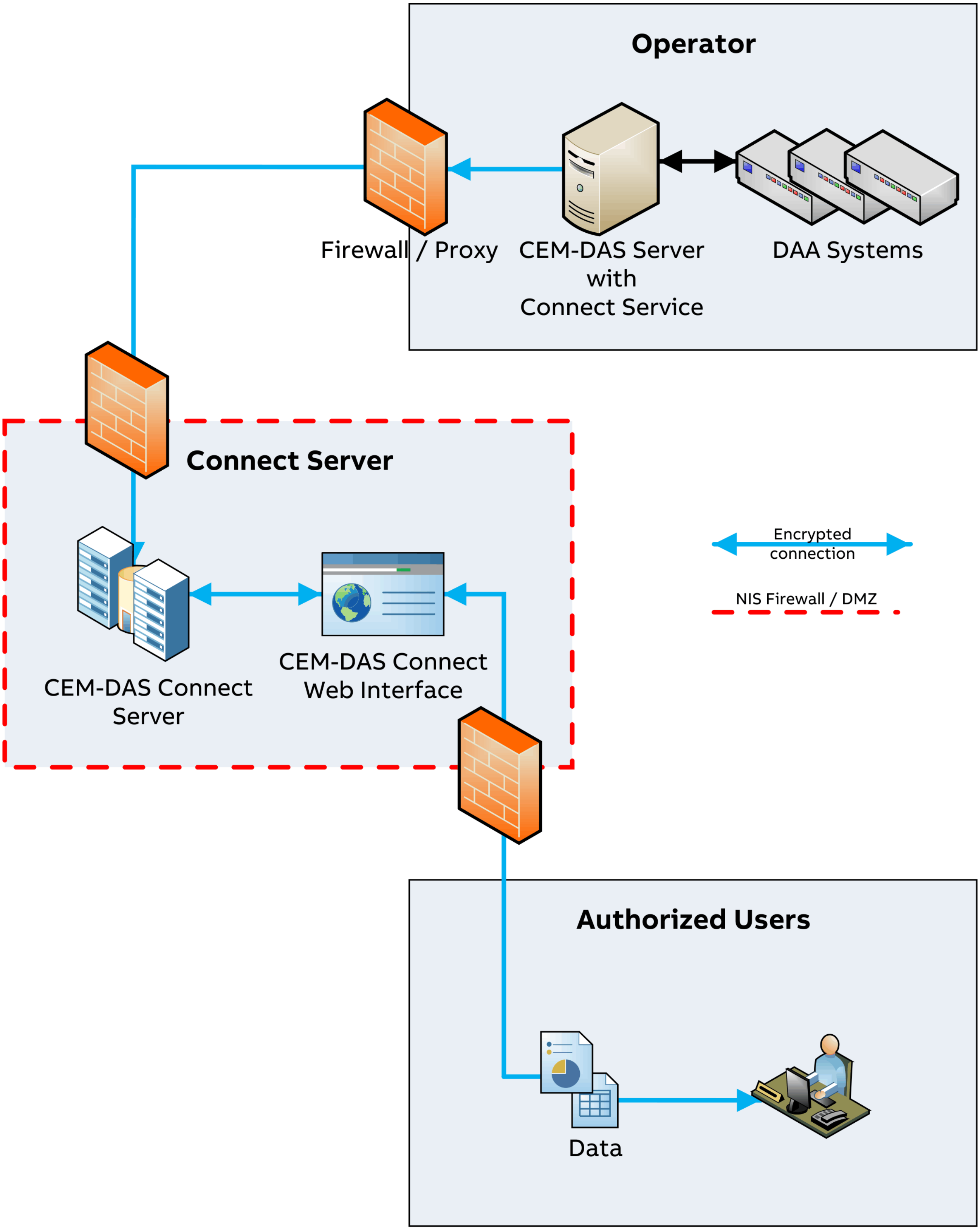

Figure 1: System overview

Operator

A small additional Connect Service will be installed on the CEM-DAS server of the operator. This service initiates an outgoing connection to a specific central CEM-DAS Connect server and then retrieves, processes and responds to requests pulled from that central CEM-DAS Connect server.

Connect Server

The central CEM-DAS Connect server (hosted in Germany) provides requests from authorized user to the local Connect Services for processing. After a Connect Service has processed and responded to a request, the central CEM-DAS server then makes available the processed response to the authorized user.

The central CEM-DAS Connect server processes login requests and maps specific access rights to successfully authorized users.

Authorized Users

Users login to the CEM-DAS Connect web interface and once successfully authenticated are given access to assigned operator data.

3 Login

An authorized user is provided with a CEM-DAS Connect user name and password for authentication purposes.

A user can login to the CEM-DAS Connect website at the following address https://www.cemdas.eu.

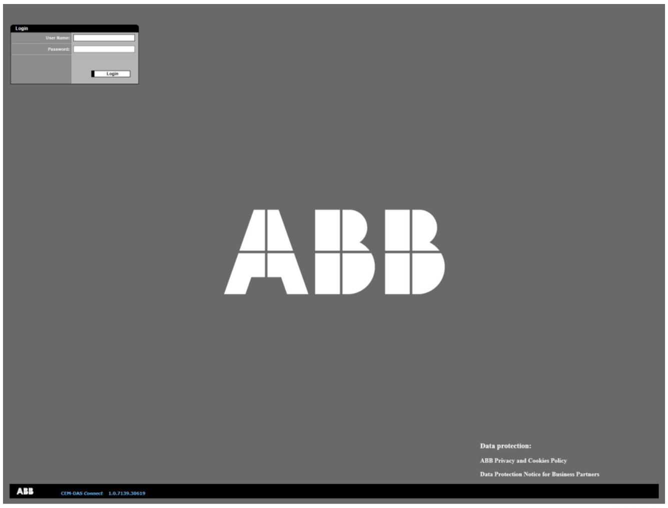
Login
User Name:
Password:
Login
Data protection:
ABB Privacy and Cookies Policy
Data Protection Notice for Business Partners
CEM-DAS Connect 1.0.7139.30619

Figure 2: Login

After successful authentication an authorized user is provided with a CEM-DAS web inter-face to access assigned operator data.
For information about how to access data, see the CEM-DAS Operating manual ‘OI/CEM-DAS’.

4 Safety

Concept

CEM-DAS Connect was designed from the ground up utilizing current recommended security principals for both the system architecture and the component implementation.

The system is designed to ensure first and foremost the integrity and availability of the local operators CEM-DAS installation. The CEM-DAS Connect system is designed to provide the best combination of security and functionality without compromising the aforementioned integrity and availability of the operator CEM-DAS installation.

As an example of the security focused design, the Connect Service does not listen to any in-coming connection requests.

The Connect Service is only designed to initiate outgoing connections to the central CEM-DAS Connect server. This design choice means that the CEM-DAS installation of the operator is not exposed to unsolicited or malicious internet traffic and remains isolated from the Internet.

Even in a worst case scenario of a compromised central CEM-DAS connect server, the one way nature of the Connect Service connections means that the local CEM-DAS installation of an operator will remain isolated and unaffected as there is no way to initiate a connection from the central CEM-DAS Connect server to the local CEM-DAS server.

Implementation

The following security aspects and concepts have been implemented:

- TLS 1.2 standards based encryption on all connections.
- Limiting of the attack surface by purposefully limiting available functionality to the minimum required.
- The local operator CEM-DAS system must not be exposed to the internet in any way. The Connect Service may not listen for any connections, even locally.
- The Connect Service does not contain or store any login credentials.
- The central CEM-DAS Connect server does not contain or store login credentials for local operator CEM-DAS systems (only for CEM-DAS Connect users).
- The central CEM-DAS Connect server only accepts incoming connections and cannot initiate outgoing connections.
- Local operator CEM-DAS installations are isolated from any internet based attacks including DDoS and vulnerability scans.
- The central CEM-DAS Connect server run on a hardened minimal Linux server installation that is routinely updated to the latest security patches.
- The central CEM-DAS Connect server OS runs as a virtualized guest inside a VMware ESXi Cluster within a firewall secured and isolated network.
- The central CEM-DAS Connect server is additionally secured using software firewall rules (ferm, configuration for iptable rules).
- The Connect Service does not need direct access to the internet in order to connect to the central CEM-DAS Connect server. It can use one or multiple proxy servers (HTTP, SOCKS and proprietary) in order to indirectly access central server.
- The local operator standard CEM-DAS server configuration does not need to be modified in order to allow the Connect Client to operate (for example, no incoming connection needs to be allowed in the firewall).
- The CEM-DAS Connect server was implemented using .Net Core 2.2. The design of .Net IL code execution both adds additional privilege verifications levels and prevents common attack vectors including arbitrary code execution through buffer overruns.
- The CEM-DAS Connect system includes extensive logging and monitoring facilities in order to ensure fast and thorough threat analysis and response.
- Login information is stored in individually salted SH512 hashes.

5 Additional documents

No.	Doc-ID	Title
1	TD/CEM-DAS-EN	CEM-DAS System Manual
2	OI/CEM-DAS-EN	CEM-DAS Operating Manual

Note

All documentation, declarations of conformity, and certificates are available in ABB's download area.
www.abb.com/analytical

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