

Introduction

The purpose of this document is to provide answers to frequently asked questions related to the data handling and security of QAWeb Enterprise.

QAWeb Enterprise is used by healthcare organizations to manage quality and compliance of diagnostic displays used by radiologists and other medical specialists to view medical images throughout the medical imaging workflow. In this document, we'll refer to 'organization' as such a healthcare entity.

QAWeb Enterprise is a solution composed of two main components:

- **QAWeb Enterprise Agent** - referred to in the remainder of this document as the *agent*. The agent is the software that is installed on each workstation of the organization. Running primarily as a background process, it is mainly responsible for communicating with the Barco display hardware, verifying settings, and scheduling periodic QA tasks. It corresponds to the online service using the https protocol and its authentication system.
- **QAWeb Enterprise Online Service** - referred to in the remainder of these documents as the *online service*. The central cloud-hosted platform maintained by Barco fulfills two main functions. Firstly, the agents connect to the online service to query their assigned settings and send results to the online service, which provides central data storage functionality. Secondly, it allows end-users to log in using a web browser (the 'web client'), allowing them to view results and configure the organization and settings.



Users and privacy

Does QAWeb Enterprise store patient information?

No. The solution is completely agnostic about patient data or other information (e.g. admission numbers, study ID) present in the PACS or RIS software installed on the workstation.

Does QAWeb Enterprise store personal information?

The amount of personal information recorded is kept to the strict minimum:

- For users that have an account (to log in to the web client), the email address is stored because it is the account identifier. The name and first name are stored to give meaning to other users.
- For manually executed QA tests, the person running the test is asked to type in an identifier or callsign, because this is needed as a reference in the report of that QA task execution.

No other types of personal information are processed.

For further details, please consult the product privacy statement available at <https://www.barco.com/about-barco/legal/privacy-policy/product-privacy-statement>.

Does each radiologist or workstation user require a QAWeb Enterprise account?

No. Only members of the organization that need to view information or need to manage the application need to have a user account. Typically, this includes the QA technicians, PACS/IT administrators, and medical physicists of your organization.

Networking

Why is there no intermediate relay or gateway server acting as a communications checkpoint between the agent and the online service?

MediCAL QAWeb - the predecessor to QAWeb Enterprise - as well as competitor QA software solutions require the installation of a local relay / gateway server within the network of the organization, which centralizes traffic between the agent and the online service.

The relay/gateway server was removed from the architecture for two primary reasons:

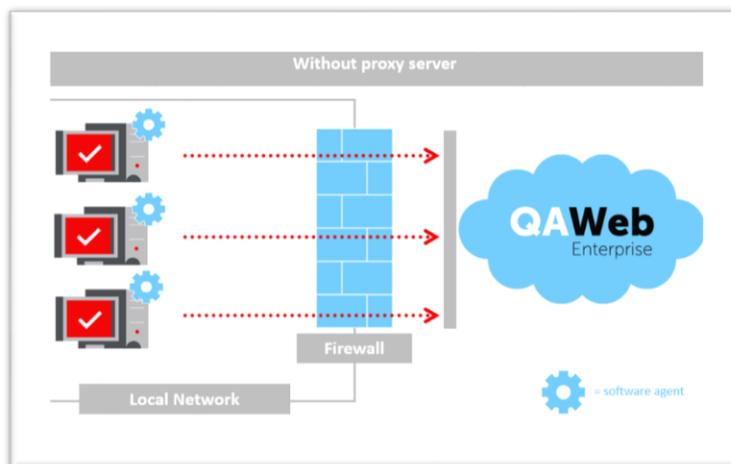
- Ease of deployment: By eliminating the need for any local server component, the effort to deploy the solution, and the total cost of ownership are reduced significantly. This benefits small radiological practices (who might not have a large

- dedicated IT team) as well as very large entities (where multiple networks would require multiple relay/gateway servers).
- Reduced need due to technological advances: The rise of the 'Internet of Things' has led to the availability of solutions that allow you to securely connect large amounts of devices in a scalable manner, rendering the role of the relay/gateway server obsolete.

Without a relay/gateway, do I have to open full internet access on all workstations with QAWeb Enterprise?

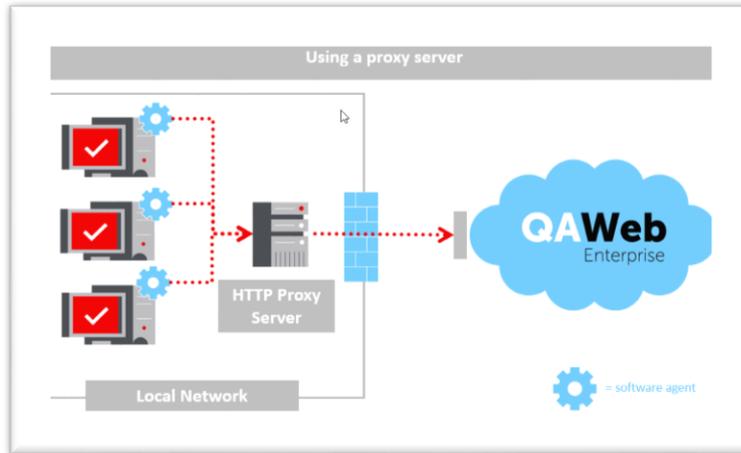
No, it is sufficient to allow access to only a specific set of URLs (described in detail further in this document) - also known as URL whitelisting. Note that URL whitelisting has to be name-based; IP-address based rules should be avoided because the IP addresses are not static over time.

- Whitelist only the URLs needed for QAWeb Enterprise and restrict them to https on port 443 in the firewall configuration.



- If your organization uses an HTTP Proxy server, you can optionally configure the agent to connect through this proxy; where the whitelisting can be applied. Proxy

user/password authentication is supported.



The agent initiates all connections. The agent does *not* establish extra listening TCP/IP ports, and the firewall should not open up ports for incoming TCP/IP traffic.

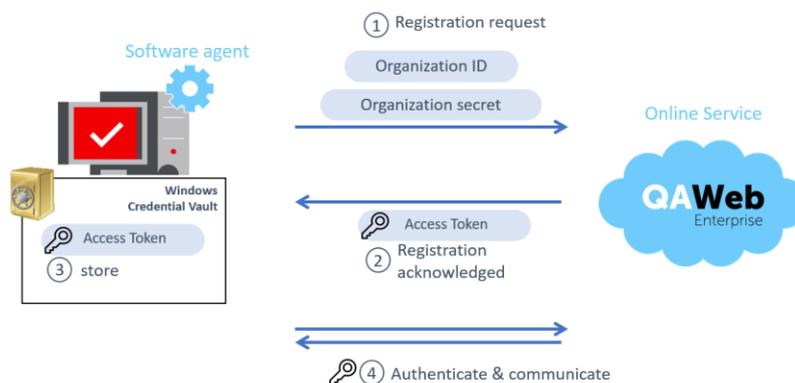
How is the communication between the agent and online service secured?

All network communication exclusively occurs with the https protocol. There is no usage of unencrypted http anywhere in the solution.

Strong https encryption is achieved by using a 2048-bit length RSA. Only SSLv3 is used (earlier, non-secure SSL implementations are not allowed).

The AWS IoT message broker (MQTT over websocket-secure) uses TLS version 1.2 to encrypt all communications.

Each agent authenticates to the online service using an id and key pair specific to the organization. The returned access tokens are stored in the credential vault of the operating system.



Does the absence of a relay/gateway server make the solution less secure?

No. As described above, only strongly encrypted network communication is used. If your organization wishes to obtain an extra level of control by directing traffic through a single point of access, you can use a standard HTTP proxy server for that purpose.

On the contrary: it can be argued that the absence of a relay/gateway server makes the total solution more secure because the attack surface is reduced, and the risk of running a server without the latest security patches is eliminated.

Which URLs are used, and for what purpose?

QAWeb Enterprise uses the following URLs:



In more detail, the URLs are used for the following purpose:

URL	Purpose / provided functionality
qaweb.healthcare.barco.com	Web application front-end
qawebapi.healthcare.barco.com	Web application back-end
auth.healthcare.barco.com	Authentication layer, used by both web application and agent connections
documentation-qaweb.healthcare.barco.com	Online manual / documentation
qawebdata.healthcare.barco.com	Back-end used by agent connections
a3n9am1eodurj6-ats.iot.eu-west-1.amazonaws.com	IoT / MQTT message broker (explained further)

One of the URLs is a specific URL for IoT on amazonaws.com. What is that used for? Why is this not a barco.com domain URL?

IoT stands for the 'Internet Of Things'. This specific URL is used to deploy a message queuing system (MQTT over Websocket-secure) that provides a low-latency communication path from the online service back to the agent at a low network load. This URL is uniquely assigned to the Barco QAWeb Enterprise product. Unfortunately, at this moment, it is technically not possible to host this functionality at a more human-readable URL on the barco.com domain.

QAWeb Enterprise leverages this messaging service to provide real-time viewing of the agent's online/offline status and instantaneous feedback within the web client when remotely triggering QA tasks - features that are highly valued by our users.

This messaging system may be relatively new to some readers. It is best compared to many contemporary mobile app notification systems: they provide instant notifications when new content is available, however, they do so in a very secure manner and without continuous polling for new content that would consume too much mobile data.

General questions

Where can I find system requirements and further information?

Please refer to the online documentation for more detailed requirements at <https://documentation-qaweb.healthcare.barco.com/en/>.

Additionally, more resources can be found at <https://www.barco.com/qaweb>.