Remote Access

What is it?

Remote Access allows users to access the AXM-WEB2 https webserver easily through a URL without any network port forwarding. Users simply register for remote access on the webserver and a remote access URL is provided where they can configure settings and view meter data.
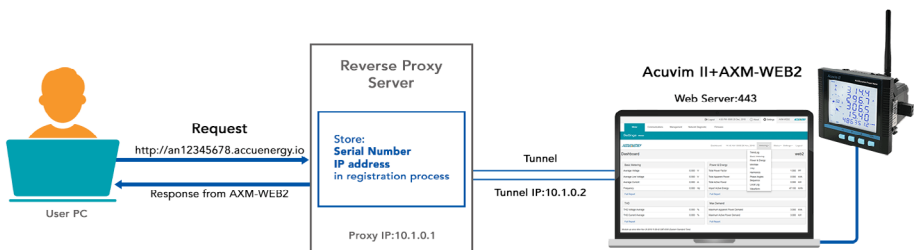
This is useful as many meters are installed on remote sites where the user may be miles away from the actual meter. Normally for remote access users would need to port forward the meters HTTPS port and access the meter through an external static IP address and port number. The general issue with this is that many companies do not prefer to have any ports open publicly on their network for security reasons. It can also be tedious for users to forward ports on your local router if they are not familiar with the process.

How does it work?

The remote access feature on the AXM-WEB2 meter uses a reverse proxy server, where a reverse proxy is a server that would act as a 'middle man' between client (user) and server (WEB2 server). In a reverse proxy, the client would send a request to the proxy server, and the proxy would then send the requests to the origin server. From there the origin server would then send its response to the proxy and from then the proxy sends that response to the client. The reverse proxy basically ensures that there is no direct communication between client and origin server, and is used to intercept requests between the two.

Another important aspect used in the Remote Access feature on the AXM-WEB2 is network tunneling. Tunneling allows for communication between two different networks. This is done by using a process called encapsulation which allows data packets to appear public but in reality, they are encrypted private data packets which allow them to be passed unnoticed across the internet. The decryption and de-capsulation of the packets occur when they reach the desired destination.

The following block diagram will help better understand how Remote Access is achieved using the Reverse Proxy Server and tunneling protocol.

When the user wants to use the Remote Access function on the AXM-WEB2, they user would need to enable the Remote access and register from the meters web server. The user is the client which sends the request to the 'middle man' which is the Reverse Proxy server.

During the remote access registration process a network tunnel is created where tunneling allows communication/data exchange between two different networks. A tunnel is created between the Reverse Proxy Server and the AXM-WEB2 (Eth1/Eth2) where during this time they are free to exchange data/messages between each other.

A tunnel IP for the virtual WEB2 interface is created and sent to the proxy server from the WEB2. The proxy server will store the modules serial number and tunnel IP address from the AXM-WEB2. The proxy server then maps the tunnel IP to the url generated during the registration process, which is in the following format:

http://an12345678.accuenergy.io

The prefix 'anxxxxxxxx' is the unique serial number of the AXM-WEB2 module. The proxy would then send the WEB2 responses to the user PC allowing them to access the WEB2 interface remotely.