



frequently asked
QUESTIONS

Persistent Data Network



What is PDN?

Persistent Data Network (PDN) is an application in Belden Horizon Console, which is part of Belden Horizon™. It is designed as a simple, secure, and managed infrastructure communications network that allows remote automation devices to communicate with each other.

PDN either creates a Layer 2 network in the cloud or a Layer 3, routed network. It is compatible with ProSoft Technology gateways – the ICX35-HWC and PLX35-NB2. A Belden Horizon account and subscription is required before setting up a PDN network.

What is Belden Horizon™ Console?

Belden Horizon Console (part of the overall Belden Horizon platform) helps users make the most of the Industrial Internet of Things. It is a secure, cloud-native platform that allows you to monitor connected industrial automation devices from anywhere in the world.

What are the components of PDN?

There are several components to PDN:

1. Gateways (Wired and Wireless)
 - Verizon, AT&T, Orange, Deutsche Telecom, Telstra – none of these matter to PDN.
 - Wired and Wireless WAN links do not matter to PDN.
 - The encrypted data network is built on top of the used WAN links.
 - The tunnels to the EasyBridge™ are created by the gateways.
2. Security
 - All tunnels are encrypted using 256-bit AES encryption.
 - All PDN tunnels are created using a one-time password that is not shown to any user.
 - A unique one-time password is passed to each gateway and tunnel server over the encrypted communication channels managing the gateways and tunnel servers.

3. Belden Horizon Console
 - Belden Horizon Console manages the tunnel connections between the gateway and the EasyBridge™.
 - Belden Horizon Console creates one-time keys and sends them to the tunnel server and gateways so the gateways can create tunnels to the EasyBridge™.
4. EasyBridge™
 - This is the virtual Layer 2 switch for all gateways to create 256-bit AES-encrypted tunnels.
5. Tunnel Servers
 - There are tunnel servers in each region of the world.
 - The region can be changed from within the Project settings.
 - The tunnel servers create the EasyBridge™ when instructed to do so by Belden Horizon Console.

Does Secure Remote Access (SRA) work with PDN?

Yes, SRA works with PDN and is included

Do vLOTO and concurrent tunneling work with PDN?

Yes.

Can a gateway be transferred between an SRA project and a PDN project and vice versa?

Yes, gateways can be transferred.

Is a PDN network outage and gateway disconnect logged as part of the activity log?

Yes.

What are the potential setup issues with PDN?

1. Network loop
 - We provide a Layer 2 network. If two gateways are linked together via their LAN ports, either directly or through a switch, there will be a loop. This is common for new users trying out PDN.
2. DLR without ETAP
 - DLR sends multicast packets every 400ns. These will cause the gateway to get bogged down and drop the WAN link (cellular and/or wired).
 - Do not connect an ICX35-HWC or PLX35-NB2 to a DLR without an ETAP.
3. Cellular Data Plan limit
 - Since a PDN network may use large amounts of data, we recommend a minimum of a 4GB per month cellular data plan. Many utility customers subscribe to unlimited cellular data plans.
 - If your data plan does not have enough data, the gateway may be disconnected by the carrier, and PDN will not work.

4. IP addressing is wrong
 - PDN is a Layer 2 network. It is critical that the IP addresses are all in the same subnet and do not conflict with the ProSoft Technology gateway LAN IP addresses.
 - If PDN is setup as a Layer 3 network, IP addresses must not be of the same subnet. Traffic from one site / project is routed through a virtual router, which gets created automatically in Belden Horizon Console.

How do I know PDN is working?

Creation of the PDN network is automatic and takes place as soon as the gateway is added to the PDN project. A minimum of two gateways is required for a PDN network. A PDN icon for each of the gateways in the PDN project will turn green. Hovering over the icon reveals the status of the connection.

How do I know if the PDN is not working?

There are several indicators:

- The PDN project tile has an alert.
- The PDN icon for each gateway in the PDN project will turn gray, and hovering over its icon will reveal the status of the PDN connection.
- An entry is created in the activity feed.
- You will receive an email about the EasyBridge connection being down.

If the PDN network is down, please contact the support team within Belden Horizon Console.

What are the current plans available for Belden Horizon Console?

Please refer to the [Belden Horizon Console](#) webpage for more information.