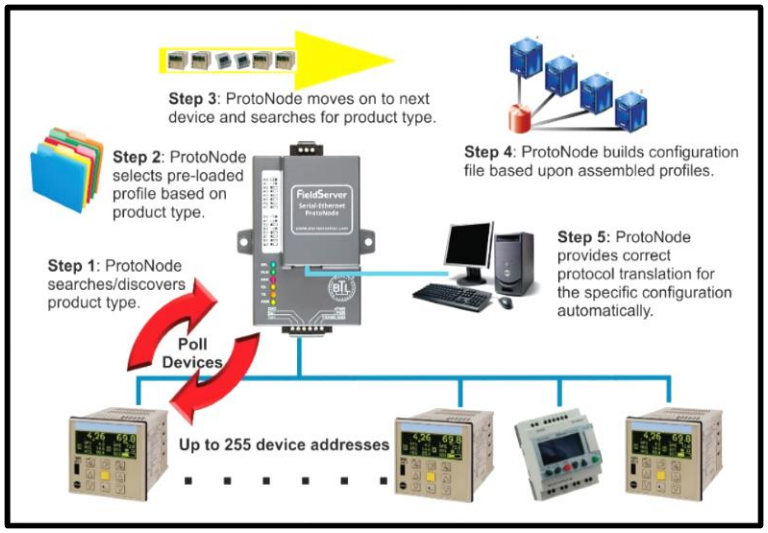
Advanced Auto-Discovery

Automatically Discover Modbus RTU Devices and Configure the Gateway

Whether your application has one or multiple of the same device or several different devices, the FieldServer Advanced Auto-Discovery feature can discover Modbus RTU devices on the network and then automatically configure the FieldServer to provide the desired protocol translation. The Advanced Auto-Discovery feature is available on all FieldServer products. This feature eliminates the need to download a stored configuration or manually build custom configuration files when there are a mix of different devices connected to a gateway. The time it takes to configure a mix of OEM devices connected to any single protocol will be less than 20 minutes from start to finish. A single FieldServer product can store up to 1,000 device profiles with multiple protocols. This means that one FieldServer can handle an OEM's entire line of products by automatically detecting and then configuring (to the desired protocol) all Modbus RTU devices connected to the gateway.

How It Works

1. Each device must have a unique product type identifier. For example, Modbus Function Code 17 which FieldServer supports.
2. Define a DIP switch configuration for each field protocol to use (BACnet/IP, BACnet MS/TP, Modbus TCP/IP, Modbus RTU, Metasys N2 by Johnson Controls or LonWorks, if using a LonWorks FieldServer).
3. The FieldServer will be preloaded with the profiles (point lists and mapping) of all the OEM's devices. FieldServer can support up to 1,000 different products (profiles of Model A, Model B, Model C, etc.).
4. When the S3 DIP switch is flipped to the 'on' position, Auto-Discover will run each time the unit is powered up. Auto-Discovery can also be turned on via the FieldServer's Web Configurator (the FieldServer's easy to use configuration page). The FieldServer will poll the device addresses 1 through 255 (the range is selectable). When the FieldServer discovers a device on the network, it will read a register identifier to see if it recognizes the profile.



5. If the FieldServer identifies a device that matches one of the profiles in its memory, it will load that profile and move on to the next device address. If the FieldServer does not recognize the device, the FieldServer will proceed to the next device address.
6. The FieldServer will continue the search on the network until the point limitation has been reached or if all device addresses have been polled. There are 3 levels of Modbus points that can be supported on a single FieldServer: 1,500, 5,000 or 10,000. The sum of the Modbus registers for all the discovered devices cannot exceed the total number of points supported.
7. Once the FieldServer completes the entire polling cycle, it will build the configuration file for all the profiles/devices discovered and automatically load the file. Setting the S3 DIP switch to the 'off' position saves the configuration that was built.

Advanced Auto-Discovery Can Work Around Network Challenges

- **Multiple identical devices on the same network:** A user might have three (or any number from 1 to 32) identical controllers using Modbus RTU that need to communicate to BACnet/IP or BACnet MS/TP. A FieldServer with Advanced Auto-Discovery embedded will automatically poll the Modbus RTU network, load all of the discovered device profiles and dynamically build the configuration file for all the discovered devices attached the FieldServer. The user simply flips the DIP switch to turn on Advanced Auto-Discovery (starting the process) and then turns the DIP switch off to save the completed configuration.

- **Multiple different devices on the same network:** As an example, a manufacturer has 15 devices consisting of 4 different types, utilizing Modbus RTU protocol at a customer's facility. Each device has its profile loaded on the FieldServer and each has its identity noted in a Modbus address. The OEM supplies a FieldServer to their customer with all the preprogrammed profiles for the OEM's entire product line. On start-up (the S3 DIP switch is flipped to the 'on' position) the Advanced Auto-Discovery begins and the FieldServer searches the network for any of the OEM's devices that are connected to the FieldServer. When a device is identified it automatically loads the appropriate profile. When the discovery process is completed it automatically builds the correct configuration file. The operator then sets the S3 DIP Switch to the 'off' position and the configuration is saved. The advantage is that no custom configurations need to be built or downloaded, the process is fully automated.
- **Single device installation:** A manufacturer might produce six different controllers, each with their own specific profile. Using a FieldServer with Advanced Auto-Discovery means that the installer can supply the same FieldServer with each controller. Once powered on the FieldServer will search for the controller, identify it, load the correct profile and automatically develop the proper configuration.

Advanced Auto-Discovery Benefits

- Advanced Auto-discover saves the OEM and their representatives thousands of dollars in installation, configurations and support for devices in the field. Installation takes minutes and not hours or days.
- Easily supports one or multiple of the same or different devices without having to build any specific configuration files.
- Automatically builds the configuration file of known devices and downloads the file.
- One part number will support all of the OEM's product lines out to various field Protocols (BACnet/IP, BACnet MS/TP, Modbus TCP/IP, Modbus RTU or Metasys N2 for Johnson Controls). A separate part number is necessary for LonWorks.
- Access to a large number of data points (up to 10,000 for Modbus).
- Setup of the FieldServer is simple, just add the identity to a selected address and preload the FieldServer device with the appropriate protocol profiles.
- In addition, the FieldServer can Auto-Discover known devices on BACnet MS/TP, Modbus RTU or Metasys N2 and convert them to the desired field protocols.