## MSA Safety OEM Development Program Results in a Comprehensive Communication Solution

MSA Safety sells preprogrammed/tested protocol gateways which support all of an OEM's Building and Industrial Automation needs. Our approach ensures that when an OEM sends a MSA gateway solution to the field with their product, it will work out of the box every time because all configurations have all been pre-tested/validated for all of their products. Additionally, installation takes minutes and not hours or days.

The MSA FieldServer product line has advanced functionality that makes it easy for manufacturers to configure, install and support their products in the field. MSA makes it easy to add interoperability to all the OEM's product lines to meet the demands of their customers. One part number can provide a solution that will support one or multiple of the same or different controllers to different field protocols. This advanced functionality means that the OEM does not need to build or load any configuration files to meet the need of their different product lines installed in the field.

## MSA Safety's OEM Testing Process

1. The OEM provides the register list for all of the controllers that they want to have BMS protocol support.

2. MSA Safety programs the OEM's different controllers for the requested protocols.

3. MSA Safetycreates a specific part number for the OEM which corresponds to all the configurations developed for the OEM.

4. The OEM receives the first test sample – loaded with all the configurations/profiles that MSA Safety developed for each of their different product lines.

5. MSA Safety schedules a 60 minute phone meeting to walk the OEM through the one-time startup/validation of the FieldServer device (ProtoCessor, ProtoCarrier, ProtoNode or ProtoAir). The configurations must be validated before the FieldServer can be sent out to the field.

6. MSA Safety can provide a BACnet Explorer testing tool that allows the OEM to validate that their products are working properly. This tool allows the OEM to test their product on BACnet with a PC in their facility.

7. MSA Safety creates a customized installation manual that the OEM can provide to their customers, explaining how to install their products on the supported protocols. The OEM can use the manual as is or incorporate it into their own style.

8. Once the validation is complete, MSA Safety then takes the validated configurations/profiles for each of the OEM's controllers, finalizes and freezes the programming for the gateway production configuration.

9. Before the first production shipment, MSA Safety provides a customized support training webinar for the OEM's support team. The webinar training focuses on how to install the OEM products for various protocols, quickly diagnose problems and how to escalate a problem to MSA Safety.

MSA Safety offers three approaches to configuring OEM gateway using the FieldServer's configuration parameter page. The best approach will depend on the OEM's requirements (multiple families of controllers and multiple protocols).

## Auto-Selector

STATIC

- Pre-defined installations
- Selectable device Profiles
- Multiple protocols
- Multiple products



## Auto-Discovery

DYNAMIC

- Plug-n-Play installations
- Discovers devices
- Multiple protocols
- Multiple products
- Mix of serial products



## Web-Configurator

DYNAMIC

- Fully flexible installations
- Selectable devices
- Multiple protocols
- Multiple products
- Any mix of products



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## Auto-Selector: (Auto-Selector Application Note)

The Auto-Selector approach means that all pretested configurations are already loaded onto the gateway and are selectable on the FieldServer's configuration parameter page. Different combinations of configurations are developed and loaded onto the MSA FieldServer. Set up possibilities include:

1. A common device protocol interfacing to multiple protocols – for instance a single device with Modbus RTU communication can have access to various protocols such as BACnet MS/TP, BACnet/IP, Metasys N2 for JCI, Modbus TCP/IP or LonWorks.

2. Multiple devices interface to a common protocol – the manufacturer has multiple products that need to communicate to BACnet/IP, thus the Gateway has preloaded multiple configurations from Devices A, B, C or D to BACnet/IP.

3. Multiple of the same types of devices interface to multiple protocols – a situation where the manufacturer has multiple of the same devices and they need to interface to a variety of protocols.
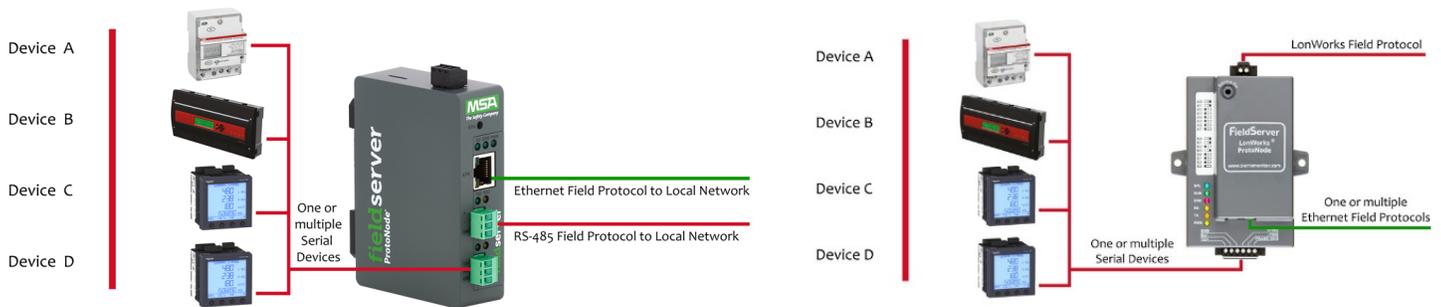


## Advanced Auto-Discovery: (Advanced Auto-Discovery Application Note)

The Advanced Auto-Discovery approach is for applications that require 1 or multiple of the same or different devices connected to one FieldServer, which needs to support multiple field protocols without having to build any special configurations. The configuration files are built automatically in the field.

The Advance Auto-Discovery function will search and discover any recognizable profiles that are stored inside the FieldServer. MSA FieldServers can store up to 1,000 device profiles. Each profile needs to have a unique register to identify the device or Modbus 17 (Slave ID request) can be used to discover any known profiles if the device supports Modbus function 17.

1. Profiles are preloaded onto the FieldServer for each OEM product to be discovered.

2. Once Discovery Mode is started, the FieldServer polls device addresses from 1 to 255. Each profile will take a turn reading its unique register to see if it can be identified. If a profile recognizes a device, the FieldServer loads that profile in memory and moves to the next device address.

3. Polling continues until the point limitation has been reached (dependent on model selected) or if all device addresses have been polled (up to 255). Once all devices are discovered, the FieldServer automatically builds and loads the configuration file.
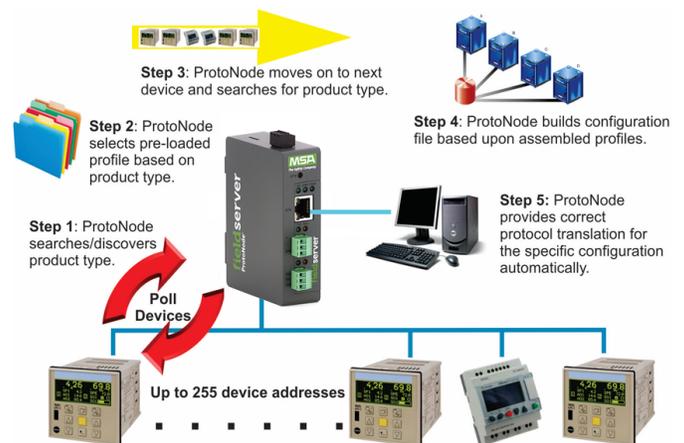


4. Once the polling cycle is complete, the FieldServer builds the configuration file for the devices discovered and loads them. The configuration that was built is automatically saved and the product is installed for the desired field protocol.

## Web Configurator – Profile Selection

For Modbus RTU devices that do not have a unique identifying register or devices that support an Ethernet protocol, the FieldServer can be set-up using the Web Configurator to select specific device profile(s) stored on the FieldServer. This solution can support one or multiple of the same or different serial/Ethernet controllers connected to theFieldServer, with support for all the required field protocols. Via the web you can also add device profiles to the "available profile" list.

1. Enter the FieldServer specific IP Address into an Internet browser to open the configuration parameters.

2. Scroll to the bottom of the page and select "Add" underneath the "Active profile" heading.

3. Choose the device profile from the list, enter in the Node ID and click Submit.

4. The configuration file is generated from the profile(s) selected and saved.

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To learn more about MSA Safety's full product line of FɪᴇʟᴅSᴇʀᴠᴇʀ embedded protocol modules that rapidly add BMS to OEM products without having to invest thousands of dollars in protocol development, visit the MSA Safety website at https://us.msasafety.com/smc.

Some of MSA Safety's products include:

**ProtoCessor** – A family of embedded protocol coprocessor hardware modules that enable OEMs to convert the protocol interface on their device to match their customer's needs.

**ProtoCarrier** – A daughter board that enables OEMs to incorporate the power of a ProtoCessor into their device without major hardware redesign.

**ProtoAir** – An external, fully enclosed device that enables protocol conversion through Wi-Fi and cellular communication.

**BACnet Router** – Easily support BACnet devices in the field for testing and routing purposes. Wi-Fi option available.
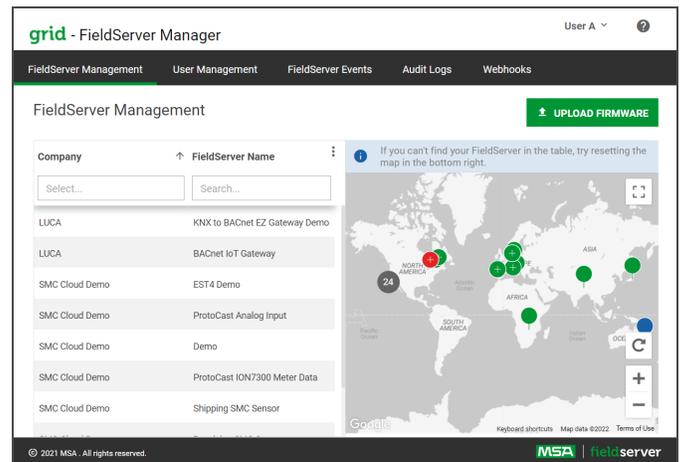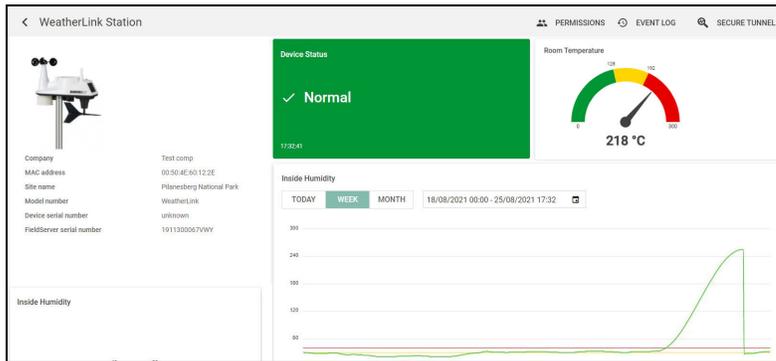
**ProtoNode** – An external, fully enclosed device to quickly provide a protocol conversion solution.

**MSA Grid- FieldServer Manager**– Connect your devices to the cloud with FieldServer Manager, enabling secure remote monitoring, control, data logging and alarming for all of your products in the field.

**MSA Grid - FieldVEU** – Provides enriched data metrics (averages and real-time values displayed in gauges or graphs) enabling collaboration and comparison across sites.

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