

# How Does Zero-Touch Configuration Work?

IoT (Internet of Things) administrators and network managers are challenged today in managing deployments because of the rapid development in the IoT industry and large device deployments. Since IT staff is focused on operational duties of IoT networks, they need a hands-off approach to security fixes and routine updates.

## One Solution to This Is “Zero-Touch” Device Configuration and Remote Management

When we say zero-touch configuration, it means exactly that — being able to configure IoT devices and perform updates on devices remotely without manual intervention. Through this method, IT staff can configure IoT devices even if they’re halfway around the globe. It’s a great alternative to doing any security patches or maintenance typically performed on-site while the devices are being installed. Compared to a hands on configuration, being able to configure the IoT devices remotely has many benefits. It’s both cheaper and faster, there is better consistency, and regularly leads to greater stability and functionality. It’s especially beneficial for those running on a tight schedule; in addition to improving deployment speed, there’s less monitoring required, with fewer human errors.



## Digi Remote Manager

**Digi Remote Manager®** (Digi RM) is an essential part of deploying Digi IoT devices. It’s where zero-touch configuration begins. Digi RM is a cloud-based solution that automates every part of the configuration process starting from the installation, to routine maintenance, to updating the configuration settings of each individual device.

To use Digi Remote Manager for zero-touch configuration, you need three things:

- A Digi RM account (note that there are trial accounts you can use to test the zero-touch configuration and remote management capabilities)
- A successful connection between your Digi device and Digi RM
- A working configuration in the Configuration Manager tool within Digi RM

Once a compatible device starts up and connects to the Internet, it automatically reaches out to Digi RM. Then, Digi RM identifies the device by sending a query to the router about the device type and determines if there’s any working configuration inside the Configuration Manager.

Unless there’s already a configuration for the device’s type and group, the configuration process will not start. A device group is an important function, as it will sort the devices in your Digi RM account. Even if you have hundreds of devices, you can easily find and manage all of them through naming, tagging, and search features.

You can add a device to Digi RM even before you boot it up and add it to a group. However, the configuration process begins when the device connects with the Configuration Manager for the first time and launches routine maintenance and updates. The Configuration Manager then examines and updates everything in the device’s system including the firmware, configuration settings, and files. Configuration settings take a few minutes. Firmware updates could take as much as 15 minutes, especially if the device’s connection is unstable.

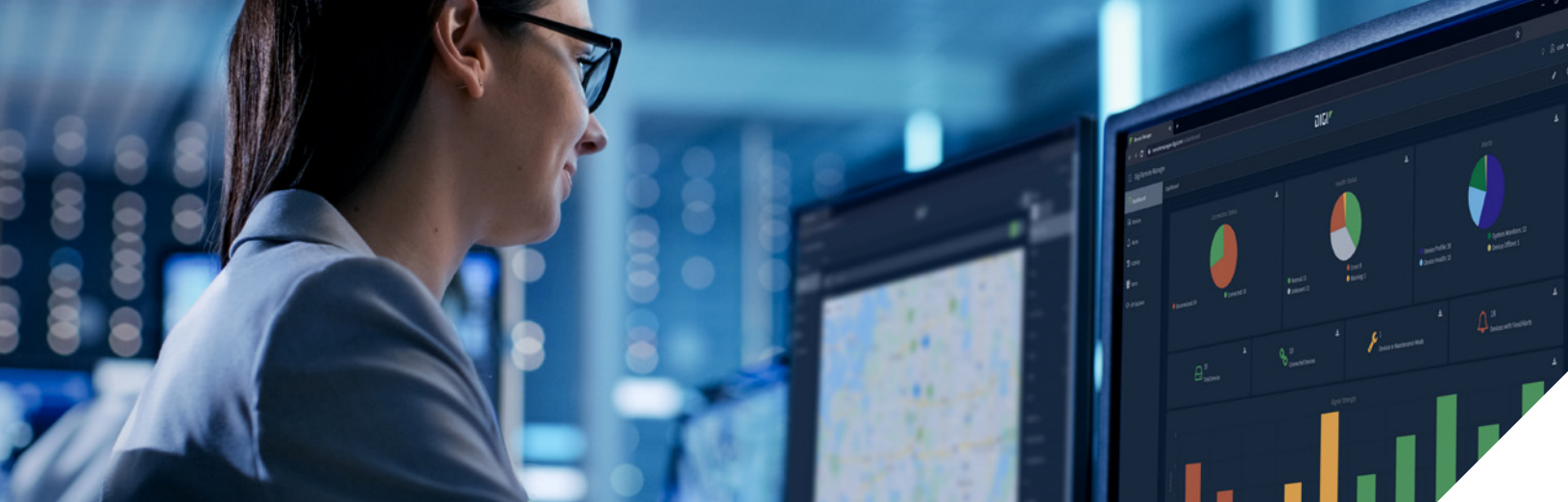
For more information, visit:

[www.digi.com](http://www.digi.com)

877-912-3444 | 952-912-3444

© 2022 Digi International Inc. All rights reserved.





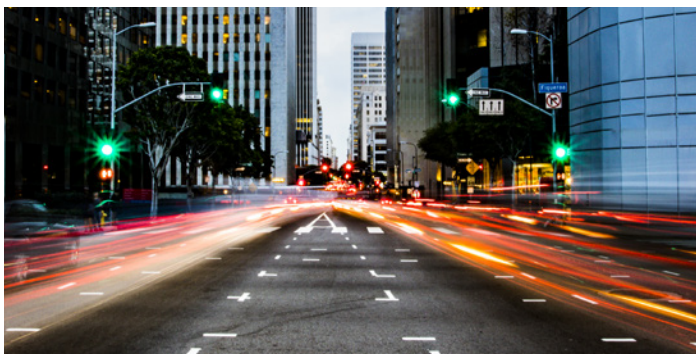
## Examples of Zero-Touch Configuration Applications

More and more companies are using IoT devices. In fact, the [Eclipse Foundation](#) puts that number at around 60% of all organizations, with only 9% that have not yet deployed an IoT application.

With growth in IoT deployments occurring across verticals, it's critical for those developing and installing these solutions to ensure the tools and resources are in place to support seamless deployment and the ability to remotely manage and update firmware, functionality and security.

With zero-touch configuration, Digi Remote Manager supports the full range of cellular applications for organizations large or small, those with specific needs and requirements, and even those with particular deployment problems that can be solved with remote configuration.

Here are a few application examples.



### Group Configuration and Customized Settings: Traffic Signals in a Large City

A key benefit of zero-touch configuration is that even if there are universal and default configuration settings, you can also set up specific settings unique to a location. Digi RM simplifies this process, as you can use the Configuration Manager tool to manage and update the settings of devices that fall within a certain device group and type.

One example of location-based configuration settings is traffic signal lights in a city. The rules behind traffic signals can get complicated quickly, due to traffic flow variables at each intersection. This varied characteristic has to be addressed on each traffic signal router.

To solve this, you can upload an Excel file (or CSV) containing the unique settings of each router. Then, all the information can be entered into Digi RM's system via the Configuration Manager.

Setting up unique settings, like the case of traffic signals, does not conflict with Digi RM's capability to update firmware en masse. Devices can still be managed and configured as a group when they have individual settings, a key feature of the Configuration Manager.

Notifications about specific conditions and events can also be set up. There are visual representations available in the form of bar graphs, pie charts, and others that you could access from the dashboard to map the network. Additionally, you can review past processes with the use of a history log.

For more information, visit:

[www.digi.com](http://www.digi.com)

877-912-3444 | 952-912-3444

© 2022 Digi International Inc. All rights reserved.



## Applications of Quick Deployment and Firmware Updates

Companies and organizations deploying a large number of Digi devices in the field certainly experience the greatest advantage with zero-touch configuration, since the time and cost savings are amplified by the number of devices. Additionally, your staff can focus on more important tasks.

The following are some scenarios illustrating the benefit of automation and zero-touch configuration.

### 1 When You Need to Configure Hundreds (or Even Thousands) of Devices

What if your organization has 10,000 devices to configure and each process takes, on average, around 20 minutes? Even if you include registering the device to verify the configuration settings within that time span, it would still take you around four and a half months to set up every device without using Digi RM.

The process of manually configuring each device also introduces the potential of human error, and the requirement to double-check everything. For a massive IoT deployment, it's simply not possible to complete deployment quickly and economically.

### 2 When You Need to Update Firmware on Thousands of Devices

Ongoing maintenance is of equal concern for a large deployment. An IoT device network is a bit like a living organism. Deployed devices need to be tended to. You may need to update firmware due to an industry-wide security alert, or the need to modify your devices' edge compute functionality.

Assuming the best-case scenario that your devices have a strong Internet connection, each firmware update will take only two or three minutes. With 10,000 devices, that's only about two to three weeks.

If you use the Configuration Manager tool, updating all those devices would just take two to three hours. The reason for that is, once the configuration file is available and ready for deployment, Digi RM can push them to any number of devices that belong in the same group — all with a few clicks.

### 3 When You Need to Hire a Lot of Workers to Push the Updates Manually

A great example of this scenario is digital signage companies. Every time they need to update their signage screens, they hire hundreds of contract workers to update every single device, manually, using a USB stick.

The Configuration Manager tool can do the same in an hour or two with only one person manning the system. This is a more productive and economical effort. As you know, staffing a lot of workers translates to a lot of expense.

### 4 When You Need to Swap in a New Device With the Same Configuration Settings as the Old One

The time will come when you swap out a device with a new one. However, you want the new device to have the same configuration settings as the one it will replace.

Using Digi RM, you can easily swap in a new device and have the same configuration settings pushed to it automatically based on the device's name. This is one of the biggest advantages of zero-touch configuration.

Within the Digi RM system, there's a Name property in the Configuration Manager's unique setting files that will allow you to update and manage the settings of every device that has that unique name. For the name, you can use any identifiers — whether that's the site location, the operation code, or even the street name.

Digi cellular devices make this process easier and smoother. For example, the [Digi IX20 cellular router](#) would enable your device to directly link to Digi RM automatically in the public cloud environment. New LTE routers like the [Digi TX54](#), the [Digi EX15](#), and others that use the Digi Accelerated Linux (DAL) operating system, automatically connect to Digi Remote Manager, for a seamless startup experience.

For more information, visit:

[www.digi.com](http://www.digi.com)

877-912-3444 | 952-912-3444

© 2022 Digi International Inc. All rights reserved.





## Should You Build Your Own Remote Management Tool?

Many organizations opt to build their own instead of using other available tools. Unfortunately, this is a costly decision, especially when such tools are already made available by Digi at a significantly lower price and come with regular updates, security patches, and ongoing enhancements.

In all likelihood, the requirements and the scope of the homegrown tool are things Digi Remote Manager already covers. Opting to use Digi's solution instead of building your own could save you hundreds of thousands of dollars in "non-recurring engineering" (NRE) costs and maintenance.

## What Digi Professional Services Are Available

The Digi Professional Services team helps organizations of different sizes with any IoT deployment and management needs, including building custom applications, device automation scripts, and providing hands-on help to meet your unique requirements.

They also help with the deployment itself, particularly in setting up zero-touch configuration and making sure it works exactly as you need it. The team's tools, capabilities and expertise will enable you to deploy faster, regardless of the size of your deployment. Naturally, they won't leave you hanging if it's your first time using Digi equipment.

To get you started, Digi Professional Services will provide you with the [Digi Remote Manager User Guide](#). It contains everything you need to know in regards to setting up groups and subgroups for your devices as well as how to create different configurations.

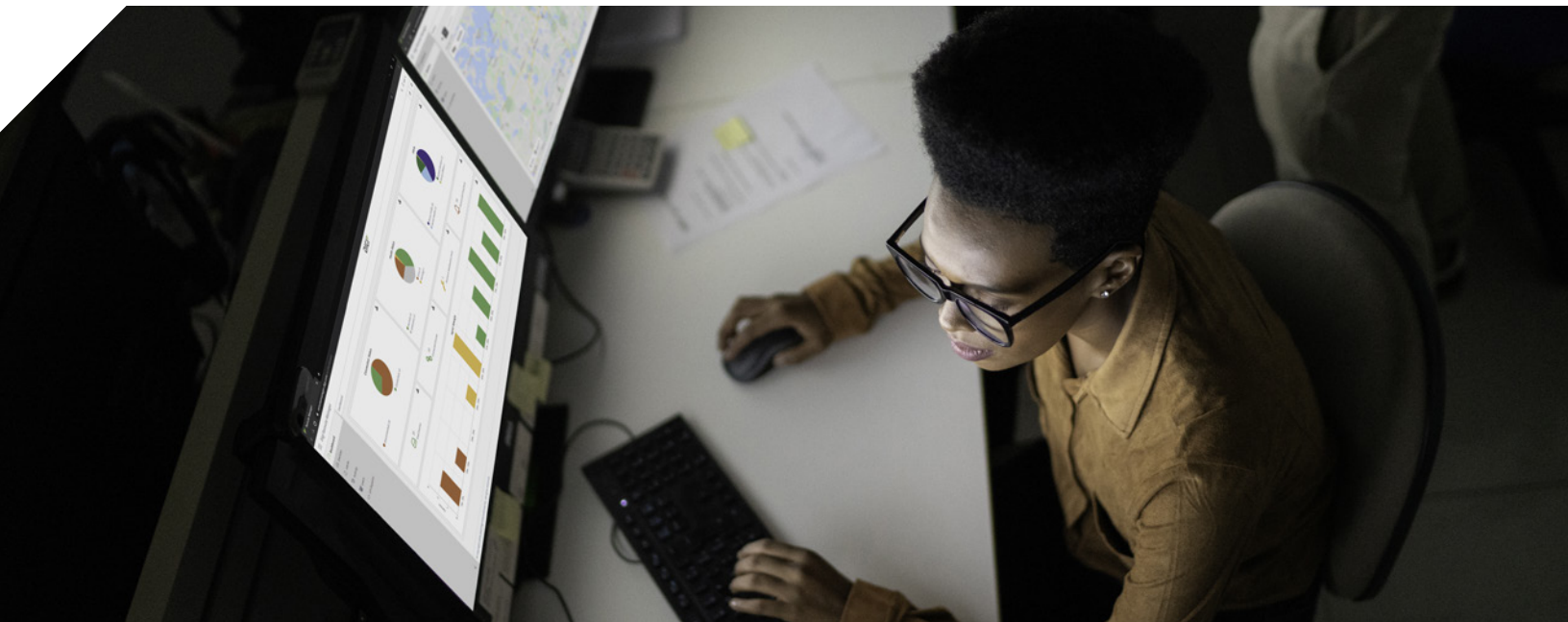
Turn to Digi Professional Services when you need unique and custom features like Bash, Python, and integrating Digi Remote Manager with cloud services such as Amazon Web Services and Microsoft Azure.

## To Wrap It Up...

Managing a lot of IoT devices is consistently a challenge. Those who want to make use of the full potential of IoT devices should find a way to manage and configure their devices at any scale without much manual intervention.

Consequently, the zero-touch configuration is the best solution for that — with Digi RM as the best tool to smoothly manage your deployment and provide ongoing insights and management for your Digi device network.

Work with your Digi representative or distributor to learn more about [Digi Remote Manager](#). You can also access information about Digi Remote Manager and the Professional Services team on the [Digi International site](#).



For more information, visit:

[www.digi.com](http://www.digi.com)

877-912-3444 | 952-912-3444

© 2022 Digi International Inc. All rights reserved. 91004441 A4/222

