Honeywell Wireless

Getting Started with Honeywell Wireless

Guide

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Notices and Trademarks

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About This Document

This document briefly describes Honeywell's Wireless system and all its associated components and provides basic steps for setting up and configuring your Honeywell Wireless components. It also serves as a quick reference for performing key tasks and for finding additional information in other Wireless documents

Release Information

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Contacts

World Wide Web

The following Honeywell web sites may be of interest to Process Solutions customers.

Honeywell Organization	WWW Address (URL)
Corporate	*http://www.honeywell.com*
Process Solutions	*http://www.acs.honeywell.com*
International	*http://content.honeywell.com/global/*

Telephone

Contact us by telephone at the numbers listed below.

	Organization	Phone Number	
United States and Canada	Honeywell International Inc. Industry Solutions	1-800-343-0228 1-800-525-7439 1-800-822-7673	Sales Service Technical Support
Asia Pacific	Honeywell Asia Pacific Inc. Hong Kong	(852) 23 31 9133	
Europe	Honeywell PACE Brussels, Belgium	[32-2] 728-2711	
Latin America	Honeywell International Inc. Sunrise, Florida U.S.A.	(954) 845-2600	

Symbol Definitions

The following table lists those symbols used in this document to denote certain conditions.

Symbol	Definition
⚠	**CAUTION**: Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices. **CAUTION** symbol on the equipment refers the user to the product manual for additional information. The symbol appears next to required information in the manual.

Contents

1. About this guide

1.1 Purpose

Scope

This guide briefly describes Honeywell's wireless solution and its components. It also provides high-level procedures for installing Honeywell's Wireless software and configuring wireless devices. For more detailed information on Honeywell's wireless system components, see the documents listed in Section 1.

Intended audience

This guide is intended for people who are responsible for initially configuring the Honeywell wireless components or those that need to add a new device to an existing system. For a list of topics covered in other wireless documents, see Section 1.

How to use this guide

The following table describes the purpose of each of the three sections in this guide.

If you	Go to
Want to know what you should be aware of before you begin or where to go for more information	Section 1, "About this guide"
Want a high-level overview of a Wireless System and a brief description of its components and a list of tasks for installing them.	Section 2, "Getting started"
Want step-by-step procedures for a particular task, go to the relevant section.	Section 3, "Installing and configuring wireless software" Section 4, "Configuring wireless devices in Wireless Builder" Section 5, "Installing and authenticating the WSG" Section 6, "Installing and authenticating iNodes" Section 7, "Installing and authenticating wireless field devices"

1.2 Before you begin

Prerequisites

Before deploying your Honeywell wireless system, a radio frequency (RF) site survey must be completed. Honeywell services can perform a comprehensive site survey for you.

FCC requirements

After initial set up and configuration of wireless components, you will be ready to install them. We assume you have available qualified personnel to install wireless devices.

⚠ **Important**

FCC Regulations require that industrial wireless devices be professionally installed by an installer certified by the National Association of Radio and Telecommunications Engineers or equivalent institution.

Assumptions

Honeywell assumes the following about the installation and maintenances of your wireless network.

- You are familiar with good security networking practices, and are prepared to implement them for all wireless devices.
- You understand the critical nature of the Key Server and the Authentication Device and will take additional precautions for protecting their integrity.
- You are prepared to carry out ongoing monitoring and diagnostics for optimal network management.

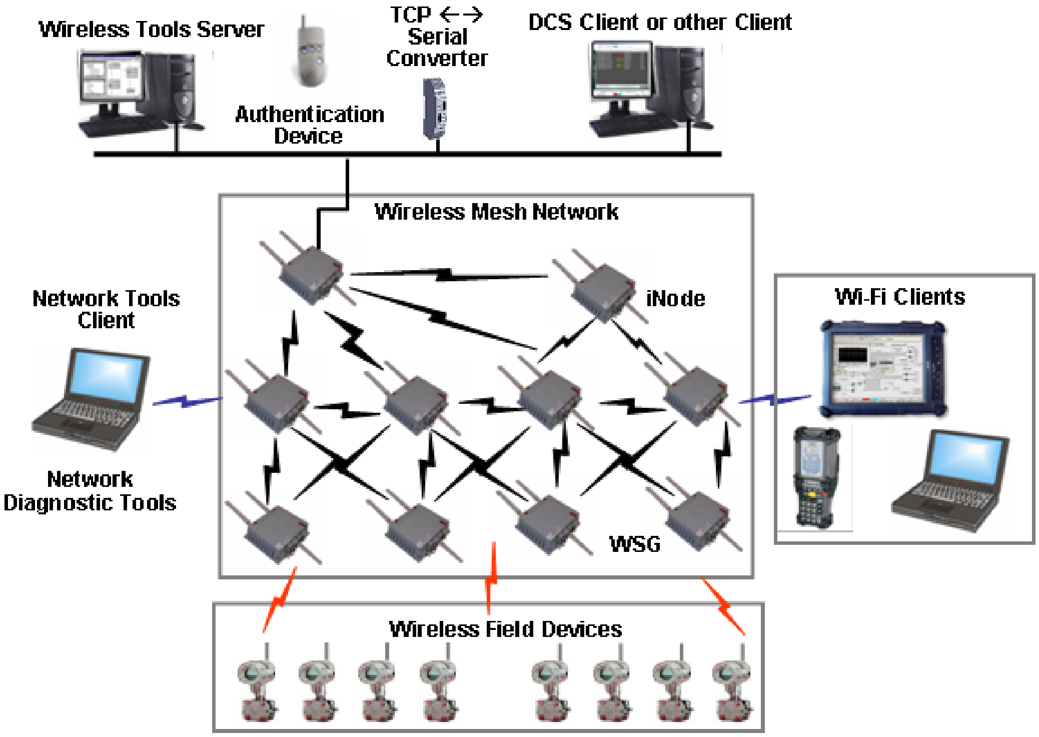
2. Getting started

This section provides a brief overview of a Honeywell Wireless system and summarizes the tasks for installing wireless software and configuring wireless devices.

2.1 About the Honeywell Wireless System

Wireless network

Honeywell's wireless network solution provides a multi-functional wireless mesh network that supports sensors, actuators, and wireless-enabled applications within a single network to optimize plant productivity and reliability, improve safety and security, and ensure regulatory compliance.



Wireless software and devices

Following is a brief description of the wireless software and devices of the Honeywell Wireless System.

Component	Description
Wireless Key Server	Acts as the center of trust for the network by generating, issuing and managing security keys. All devices on the wireless network must be authenticated to join the secured network. Used for initial configuration of wireless devices and to store wireless network system data for configuring wireless devices. **Associated software**: Key Server Manager, Wireless Builder, Directory Server, Security Server, Network Tools Server, OPC Server.
Wireless system gateway node (WSG)	A mesh network node that serves as a gateway between the wireless network and the wired network. **Associated software**: 3eTi configuration software.
Infrastructure node (iNode)	A mesh network node that facilitates communications between the wireless devices and the wireless subsystem gateway. It may also be used to facilitate communication among the different nodes on the Wireless network. The network of iNodes and WSGs form the mesh network. **Associated software**: 3eTi configuration software.
Wireless field devices	The wireless field devices such as the wireless temperature transmitter, pressure transmitter and temperature transmitter devices.
DCS Client or other Client Node	Client node used for communication with server nodes. Associated software: OPC DA/AE, Modbus Serial, Modbus TCP
Network Tools Client Node	Client node used to communicate with the Wireless Server & Configuration Node for network maintenance and troubleshooting.
Wireless Authentication Device	A personal digital assistant (PDA) handheld with IR capability and Honeywell authentication software. It receives security keys from the Key Server and then transmits a security key to each wireless device. Without a valid security key the wireless device cannot be authenticated and will not be allowed to join the network.

2.2 About Wireless Server Tools software

Software tools sources

Setting up and configuring wireless devices requires you to install and configure software from the following sources:

- Honeywell Wireless Server Tools media
- Software pre-loaded on the WSG/iNode

Wireless software components

Following is a brief description of each of the software components used in the Honeywell Wireless System.

Software component	Description
Key Server Manager	Provides user interface for generating and managing wireless security keys. Use to manage network security. Contains database to store information about the secured devices.
Wireless Builder	Use to configure and troubleshoot wireless devices and gateways.
Directory Server	Automatically assigns Honeywell Wireless network address for the iNodes and field devices, and maintains the fixed address range 0xFXXX for the Wireless System Gateway (WSG).
OPC Server	Provides open access to all device data.
Network Management and Diagnostics Tool	Network diagnostic tool for network troubleshooting and network maintenance.
iNode Tools and utilities	Pre-loaded on the iNode: Web Server/HTTPS; SNMP Agent; Ping utility; Trace route utility; Firmware upgrade via wireless; Reboot device; Factory default; Signal strength reporting
Data Collection Tool	TBD

2.3 Configuration information you will need

Before you begin, you will need the following information:

✓	Information needed
	IP address – a list of IP addresses available on the organization's LAN that you can assign to the WSG/iNode.
	Subnet Mask for the LAN
	Default IP address of the WSG/iNode
	Doman Name Server (DNS) IP address
	SSID – an ID number/letter string that you want to use in the configuration process to identify all members of the wireless LAN
	MAC addresses of all the wireless cards that will be used to access the wireless network of, if MAC address filtering is to be enabled.

2.4 Wireless system installation overview

Overview of process

Recommended strategy

Honeywell recommends the following general strategy when installing and authenticating wireless field devices:

- You power up and authenticate each wireless device in a staging area before deploying it to the field.
- You verify each device is completely functional on the wireless network before you authenticate the next device.

2.5 Installation scenqarios

Installation tasks for installing a Wireless System

The following table lists the tasks for installing wireless software and the wireless devices. Go to the page number listed for step-by-step instructions.

Task	Go to:	Done?
Installing wireless software tools	Page 17	
Installing authentication device software	Page 18	
Generating security keys	Page 18	
Loading security keys	Page 19	
Configuring OPC for wireless	Page 19	
Defining the WSG	Page 20	
Configuring Modbus	Page 20	
Creating wireless field device type	Page 21	
Connecting to and starting the WSG	Page 23	
Updating firmware on WSG, if necessary	Page 24	
Configuring operating mode and security for the WSG	Page 25	
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Authenticating iNodes	Page 29	
Verifying iNodes are available on the wireless network	Page 30	
Starting wireless field devices	Page 31	
Authenticating wireless field devices	Page 31	
Verifying wireless field devices are available on wireless network	Page 31	
Commissioning wireless field devices	Page 31	

Installation tasks for adding a new wireless field device

The following table lists the tasks for adding a new device to an existing system. Go to the page number listed for step-by-step instructions.

Task	Go to:	Done?
Generating security keys	Page 18	
Loading security keys	Page 19	
Starting wireless field devices	Page 31	
Authenticating wireless field devices	Page 31	
Verifying wireless field devices are available on wireless network	Page 31	
Commissioning wireless field devices	Page 31	

2.6 Wireless system configuration quick reference

To install and configure a wireless system, you use a number of wireless software tools. The following table provides a quick reference for using these tools to perform wireless system installation and configuration tasks.

Task	Tool	Options that must be configured
Generating security keys		
Loading security keys		
Configuring OPC for wireless		
Defining Wireless System Gateway		
Creating wireless field device type		
Configuring Modbus		
Connecting to the WSG/iNode		
Updating firmware on WSG/iNode, if necessare		
Configuring operating mode and security for WSG/iNode		
Starting field devices		
Updating firmware on wireless field devices		
Authenticating wireless devices		
Commissioning wireless devices		

3. Installing and configuring wireless software

3.1 Installing wireless software tools

Use this procedure to install the wireless software from the Honeywell Wireless Software Tools media.

Prerequisites:

Hardware requirements

- Pentium 4, single processor 2.4 GHz processor; 1 GB memory; 40 GB hard drive is recommended with at least 10 GB free for the wireless software tools
- Ethernet capable with wired network access to the wireless gateway

Software requirements

- Windows XP Operating System with Service Pack 2, or Windows 2003 Operating System with Service Pack 1
- Microsoft .Net Framework 1.1

Additional prerequisites for Experion systems:

- Experion R300.1 Process Server
- R300.1 Engineering Tools Patch

To install the wireless software tools:

Step	Action
1	Login to the system using an account with Administrator privileges.
2	Close all applications.
3	Insert the Honeywell Wireless Software Tools media in the drive.
4	Launch the Wireless Software tools installation: • On the media, navigate to the Installation folder. • Double-click Setup.exe • Click **Continue** from the Welcome dialog box.
5	If your system has SQL Server/Developer/Desktop Edition 2000 installed, go to Step 6. Otherwise, SQL Server MSDE 2000 will be installed automatically. • Follow the screen prompts to complete the installation. • After restarting, make sure to login using an account with Administrator privileges.
6	If your system has SQL Server/Developer/Desktop Edition 2000 SP4 installed, go to Step 7. Otherwise, SP4 for SQL Server MSDE 2000 will be installed automatically. • Follow the screen prompts to complete the installation. • After restarting, make sure to login using an account with Administrator privileges.
7	Wireless software tools will be installed automatically. • Follow the screen prompts to complete the installation. • Restart the system when complete. • After restarting, make sure to login using an account with Administrator privileges.

3.2 Installing authentication device software

Use this procedure to install the Honeywell authentication device software on your handheld personal digital assistant (PDA) so you may load it with security keys.

Prerequisites

- You must be familiar with operating your handheld device.
- You must have set a secure password on the handheld authentication device.

To install authentication device software:

Step	Action
➡	**TIP** For additional details about the authentication device software, see the help in the tutorial available from the **Advanced Options** menu.
1	Locate the Authentication Device software: *Drive:\Program Files\Honeywell\Raptor\Engineering Tools\System\firmware\AuthDev*
2	Copy the authentication device software to your PDA.
3	

3.3 Generating security keys

Prerequisites

TBD

To generate security keys

Use this procedure to generate the security keys on the Key Server.

Step	Action
1	Select **Start > Programs > Honeywell Raptor > KeyServer Manager**
2	From the left pane of the Key Server Manager window, expand the Operation tree
3	Click **Authentication Device**
4	Click the **Configure AD** tab
5	Enter the **Network Parameters** information: • Default WFN_ID • Freq Hopping ID • Freq Hopping Mode
6	Enter the Key Information:
7	Select the DS IP Address

Step	Action
8	Enter the **Authentication Device** information:
9	Click **Listen**.
10	If you entered all the correct information an **IR Comm** dialog appears:

3.4 Loading security keys

To load security keys:

Use this procedure to load security keys on the handheld authentication device.

Step	Action
1	Log into authentication device, if necessary.
2	Place the handheld authentication device within 6 to 12 inches away from the Key Server Manager with its IR port aimed at the computer.
3	From the main menu of the authentication device, select **Security and Device Deployment**.
4	Select **Receive Security Keys**.
5	From the **IR Comm** dialog box on the Key Server Manager, click **OK**. **Note**: When the Key Server Manager detects the authentication device, the **OK** button will no longer be grayed out.
6	Verify you receive a message on the handheld authentication device indicating the handheld device received the security keys successfully.

3.5 Configuring OPC for wireless

Use this procedure to TBD.

Prerequisites

TBD

Step	Action
1	Login to the system using an account with Administrator privileges.
2	
3	

4. Configuring wireless devices in Wireless Builder

This section contains procedures for performing the minimal initial configuration of wireless devices in Wireless Builder before the devices are available online. See the *Wireless Builder Guide* for more information.

4.1 Defining the WSG

You have the option of defining the Wireless System Gateway (WSG) in Wireless Builder before you install the device.

To define the WSG:

Step	Action	
1	Select **Start > Programs > Honeywell Raptor > Wireless Builder**.	
2	Enter the login information for your system:	
	Login Info	**Description**
	User Name	
	Password	
	Server Name	
	Domain Name	
3	Click **File->New->Interface Modules->WSG – Wireless System Gateway**.	
4	Enter WSG tag name	
5	Enter WSG Ethernet IP Address	
6		
7		
8		

4.2 Configuring Modbus

To configure Modbus for the WSG

Step	Action
1	
2	

4.3 Creating wireless field device type

Use this procedure to create a device block type for each of the wireless field devices. Skip this procedure if a block for the wireless field type already exists in the Wireless Builder library database. You can create a device block type without being connected to a device.

Prerequisites

You must have the Device Description (DD) files for the wireless field device. These are available on a disk supplied by the manufacturer or from the vendor's web site.

To create wireless device template:

Step	Action
1	Copy the data definition folder for each device to the following location: Drive:\Program Files\Honeywell\Raptor\System\ER\WirelessDevices **Note**: Data definition folders must contain these files: *.FFO - DD binary *.SYM - device symbol file *.CFF - device capability file.
2	Select **Start > Programs > Honeywell Raptor > Wireless Builder**.
3	Click **File->New->Type->Wireless Device**.
4	Click **OK** on any message dialogs that may appear to acknowledge the error messages.
5	In the **Select Device Type** dialog, click **Browse** and navigate to the location of the data definition folder.
6	In **Device List:** box, click the device you want to add to the Wireless Builder Library.
7	Click **OK** to initiate the block type creation.
8	Click **OK** to acknowledge the **Wireless Builder** dialog message about device help information in Knowledge Builder.
9	In the **Library** tab, look for the new device block type under the Vendor's name.

5. Installing and authenticating the WSG

This section contains procedures for performing the minimal initial configuration of the Wireless System Gateway (WSG) and authenticating each WSG so it may join the wireless network. See the *WSG/iNode Users Guide* for more information.

5.1 Connecting to and starting the WSG

Cable connections

The following figure shows the WSG/iNode cable connections.

PICTURE OF WSG/iNode TBD

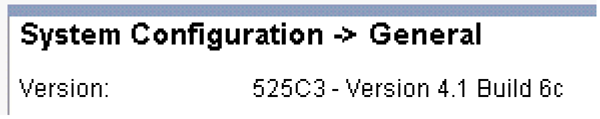
- Light grey – Ethernet connection
- Blue – Ethernet connection
- Dark grey – power

Prerequisites

- You must know the most recent qualified version of the WSG/iNode firmware as listed in the Wireless SCN.
- For initial configuration of the WSG/iNode you must have at least one computer that has Windows 2000 or Windows XP with Microsoft Internet Explorer 5.5 or later and an Ethernet card.

To prepare the WSG

Step	Action
1	Connect computer to one of the Ethernet cables from the LAN/WAN port. **Note**: To avoid transmitting before the device is secure, do not attach the antennae to the device at this time.
2	Open Internet Explorer and access the WSG/iNode management software. by typing the default URL for the WSG/iNode in the address line: https:// 192.168.254.254
3	From the sign-in screen, type the default username and password and click Sign In: **Username:** CryptoOfficer **Password:** CryptoGIPS **Note**: Honeywell strongly recommends you change these defaults on each WSG/iNode after you initially configure it. If this username and password does not work, review the SCN for any changes.
4	From the left pane of the WSG/iNode management software, click **System Configuration > General.**
5	Enter values for the following options: **Description:** Consider describing the physical location of the unit. This is useful when deploying units to remote locations. **Host Name:** Consider naming according to the operating mode (WSG or iNode) followed by a number. Example: WSG1 **Domain Name:** Enter the domain where the unit will be deployed.

Step	Action
6	Enter values for the remaining options based on your site requirements and click **Apply** when you are through.
7	Determine the firmware version listed after the Version option.  **System Configuration -> General** Version: 525C3 - Version 4.1 Build 6c
8	If the version listed is the same as the qualified version listed in the Wireless SCN, go to "Configuring operating mode and security for the WSG" on page 25. If the version is not the same, go to "Updating firmware on WSG" on page 24.

5.2 Updating firmware on WSG

Use this procedure to obtain the latest the firmware version and update WSG/iNode.

Prerequisites

- You must have access to the Solution Support Online (SSOL) website. If you are a new user, you can register for access to the Solution Support Online site at www.honeywell.com\ps.

To check the Solution Support Online site:

Step	Action
1	Open Internet Explorer and connect to the SSOL website: www.honeywell.com\ps
2	Click **Login to My Account**, type your user name and password, and then click **Login**.
3	From the **Quick Links Section, c**hoose **SSOL** and then select **Solution Support Online.**
4	In the **Your Entitled Products** section, choose **TBD**.
5	Download the firmware version for both the mesh software and the FHSS radio software.
6	Sign-in to the WSG/iNode management software.
8	From the left pane, click **System Administration > System Upgrade.**
9	Update the mesh software: • Click the top **Browse** button and navigate to the location of the software you downloaded in step 5. • Click the top **Upload firmware** button.
10	Update the FHSS radio software: • Click the bottom **Browse** button and navigate to the location of the software you downloaded in step 5. • Click the bottom **Upload firmware** button.
11	Go to "Configuring operating mode and security for the WSG" on page 25.

5.3 Configuring operating mode and security for the WSG

Use this procedure to establish the operating mode, IP address and the minimum security for the WSG/iNode. If you want to configure additional options and require more information, see the *WSG/iNode Users Guide*.

Prerequisites

You need to know if the unit will be deployed as an iNode or as a Level 1/Level 2 gateway or a Level 3/Level 4 gateway.

To configure operating mode:

Step	Action
1	From the left pane of the WSG/iNode management software, click **System Administration > Operating Mode.**
2	Select one of the following options and click **Apply**: **iNode:** **L1/L2 Gateway:** **L3/L4:**
3	From the left pane, click **System Administration > WAN.**
4	From **Link Speed and Duplex,** select a WAN Link speed that is compatible with your network switches.
5	From IP Address, enter values for the remaining options based on your site requirements and click **Apply** when you are through.
6	Configure additional security options based on your site requirements.

5.4 Authenticating the WSG

Authenticating a wireless device is the action taken to inject a wireless device with a security key so that when it requests access to the system, it will be recognized and be allowed to join the secure wireless network and start publishing packets. Use this procedure to authenticate wireless mesh nodes and field devices.

To transmit security key to wireless device:

Step	Action
1	If you have not already done so, power on the wireless device.
2	Align the IR port of the authentication device with the IR port of the WSG in 6 to 12 inches away from the wireless device with its IR port aimed at the wireless device.
3	From the main menu of the authentication device, select **Manage Security Keys**.
4	Select **Transmit Keys**.
5	Verify you receive a message on the handheld authentication device indicating the wireless device received the security key successfully.

5.5 Verifying WSG is available on wireless network

After the WSG has been injected with a authtentication key and authenticated by the Key Server, you can view its status from the Data Collection Tool, Wireless Builder and from the event log in the Key Server.

To view the status of the WSG:

Step	Action
1	To view the status from the Data Collection Tool: Select **Start > Programs > Honeywell Raptor > Data Collection Tool**
2	

5.6 About deploying the WSG to the field

After the WSG is authenticated, you are ready to physically install the device. Refer to the Honeywell Wireless WSG/iNode User Guide for more information, including:

- Installing the antenna
- Mounting the device
- Operating specifications

6. Installing and authenticating iNodes

This section contains procedures for performing the minimal initial configuration of the Honeywell Infrastructure Node (iNode) and authenticating each iNode so it may join the wireless network. See the *WSG/iNode Users Guide* for more information.

6.1 Connecting to and starting iNodes

Cable connections

The following figure shows the WSG/iNode cable connections.

PICTURE OF WSG/iNode TBD

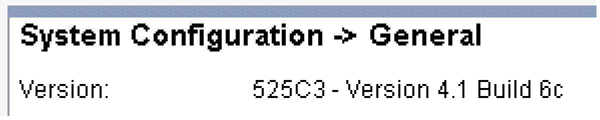
- Light grey – Ethernet connection
- Blue – Ethernet connection
- Dark grey – power
-

Prerequisites

- You must know the most recent qualified version of the WSG/iNode firmware as listed in the Wireless SCN.
- For initial configuration of the WSG/iNode you must have at least one computer that has Windows 2000 or Windows XP with Microsoft Internet Explorer 5.5 or later and an Ethernet card.

To prepare the iNode

Step	Action
1	Connect computer to one of the Ethernet cables from the LAN/WAN port. **Note**: Do not attach the antennae to the device at this time.
2	Open Internet Explorer and access the WSG/iNode management software. by typing the default URL for the WSG/iNode in the address line: https:// Default IP Address 192.168.254.254. It may also be 192.168.15.1
3	From the sign-in screen, type the default username and password and click Sign In: **Username:** CryptoOfficer **Password:** CryptoGIPS **Note**: Honeywell strongly recommends you change these defaults on each WSG/iNode after you initially configure it.
4	From the left pane of the WSG/iNode management software, click **System Configuration > General.**

Step	Action
5	Enter values for the following options: **Description:** Consider describing the physical location of the unit. This is useful when deploying units to remote locations. **Host Name:** Consider naming according to the operating mode (WSG or iNode) followed by a number. Example: iNode8 **Domain Name:** Enter the domain where the unit will be deployed.
6	Enter values for the remaining options based on your site requirements and click **Apply** when you are through.
7	Determine the firmware version listed after the Version option.  **System Configuration -> General** Version: 525C3 - Version 4.1 Build 6c
8	If the version listed is the same as the qualified version listed in the Wireless SCN, go to “Configuring operating mode and security for the WSG” on page 25. If the version is not the same, go to “Updating firmware on WSG” on page 24.

6.2 Updating firmware on iNodes

Use this procedure to obtain the latest the firmware version and update WSG/iNode.

Prerequisites

- You must have access to the Solution Support Online (SSOL) website. If you are a new user, you can register for access to the Solution Support Online site at www.honeywell.com\ps.

To check the Solution Support Online site:

Step	Action
1	Open Internet Explorer and connect to the SSOL website: www.honeywell.com\ps
2	Click **Login to My Account**, type your user name and password, and then click **Login**.
3	From the **Quick Links Section, c**hoose **SSOL** and then select **Solution Support Online.**
4	In the **Your Entitled Products** section, choose **TBD**.
5	Download the firmware version for both the mesh software and the FHSS radio software.
6	Sign-in to the WSG/iNode management software.
8	From the left pane, click **System Administration > System Upgrade.**
9	Update the mesh software: • Click the top **Browse** button and navigate to the location of the software you downloaded in step 5. • Click the top **Upload firmware** button.

Step	Action
10	Update the FHSS radio software: • Click the bottom **Browse** button and navigate to the location of the software you downloaded in step 5. • Click the bottom **Upload firmware** button.
11	Go to “Configuring operating mode and security for the WSG” on page 25.

6.3 Configuring operating mode and security for iNodes

Use this procedure to establish the operating mode, IP address and the minimum security for the WSG/iNode. If you want to configure additional options and require more information, see the *WSG/iNode Users Guide.*

Prerequisites

You need to know if the unit will be deployed as an iNode or as a Level 1/Level 2 gateway or a Level 3/Level 4 gateway.

To configure operating mode:

Step	Action
1	From the left pane of the WSG/iNode management software, click **System Administration > Operating Mode.**
2	Select one of the following options and click **Apply**: **iNode:** **L1/L2 Gateway:** **L3/L4:**
3	From the left pane, click **System Administration > WAN.**
4	From **Link Speed and Duplex,** select a WAN Link speed that is compatible with your network switches.
5	From IP Address, enter values for the remaining options based on your site requirements and click **Apply** when you are through.
6	Configure additional security options based on your site requirements.

6.4 Authenticating iNodes

Authenticating a wireless device is the action taken to inject a wireless device with a security key so that when it requests access to the system, it will be recognized and be allowed to join the secure wireless network and start publishing packets. Use this procedure to authenticate wireless mesh nodes and field devices.

Prerequisites

See also the quick start guide for each wireless field device.

To transmit security key to wireless device:

Step	Action

Step	Action
1	If you have not already done so, power on the wireless device.
2	Place the handheld authentication device within 6 to 12 inches away from the wireless device with its IR port aimed at the wireless device.
3	From the main menu of the authentication device, select **Manage Security Keys**.
4	Select **Transmit Keys**.
5	Verify you receive a message on the handheld authentication device indicating the wireless device received the security key successfully.

6.5 Verifying iNodes are available on the wireless network

After the iNode has been injected with a authtentication key and authenticated by the Key Server, you can view its status from the Network Diagnostics Tool.

To view the status of the iNode:

Step	Action
1	Select **Start > Programs > Honeywell Raptor > Network Diagnostics Tool**
2	

6.6 About deploying iNodes to the field

After the iNode is authenticated, you are ready to physically install the device. Refer to the Honeywell Wireless WSG/iNode User Guide for more information, including:

- Installing the antenna
- Mounting the device
- Operating specifications

7. Installing and authenticating wireless field devices

7.1 Starting wireless field devices

To

TBD

Step	Action
1	
2	
3	

7.2 Authenticating wireless field devices

Authenticating a wireless device is the action taken to inject a wireless device with a security key so that when it requests access to the system, it will be recognized and be allowed to join the secure wireless network and start publishing packets. Use this procedure to authenticate wireless mesh nodes and field devices.

Prerequisites

See also the quick start guide for each wireless field device.

To transmit security key to wireless device:

Step	Action
1	If you have not already done so, power on the wireless device.
2	Place the handheld authentication device within 6 to 8 inches away from the wireless device with its IR port aimed at the wireless device.
3	From the main menu of the authentication device, select **Manage Security Keys**.
4	Select **Transmit Keys**.
5	Verify you receive a message on the handheld authentication device indicating the wireless device received the security key successfully.

7.3 Verifying wireless field devices are available on wireless network

TBD

7.4 Commissioning wireless field devices

Commissioning is the action taken to match a physical field device to its corresponding database object.

TBD: Additionally, you will associate each device with a specific WSG.

To commission a device:

Step	Action

Step	Action
1	Select **Start > Programs > Honeywell Raptor > Wireless Builder**.
2	
3	
4	

7.5 About deploying wireless field devices

After the wireless field device is authenticated, you are ready to physically install the device. Refer to the Honeywell Wireless Transmitter Quick Start Guide and the user guide for the type of transmitter you are installing (pressure, temperature, corrosion). These documents contain information for:

- Installing the antenna
- Mounting the device
- Calibrating the device
- Operating specifications

8. For additional information

8.1 Honeywell Wireless documents

The following table describes other Honeywell Wireless documents and lists the type of information covered in each document.

Document and Description
Wireless Field Network Dictionary
• Defines all the terms used and components of Honeywell's wireless system.
Wireless Planning Guide
• Introduces the Honeywell wireless system and fully describes each component. • Provides guidelines and best practices for setting up a system, including requirements and wireless compliance information. • Contains recommended strategy for integrating a wireless system into an existing Distributed Control System (DCS).
Wireless System Installation and Administration Guide
• Contains additional details for the procedures covered in the Getting Started Guide. • Provides procedures for installing, configuring and maintaining the Key Server, the Authentication Device and the wireless network. • Contains a comprehensive troubleshooting section for the wireless system.
Wireless Inode/System Gateway User's Guide
• Describes the Inode and Gateway devices and their roles in a wireless system. • Provides procedures for installing, configuring and maintaining the wireless devices. • Contains technical specifications.
Wireless Builder User's Guide
• Describes the Wireless Builder interface. • Provides procedures for using the Wireless tool to build Wireless control strategies and commission wireless devices.
Wireless Builder Parameter Reference
• Provides details for wireless parameters.
Wireless Field Device Quick Start Guide
• Contains a quick reference for installing and configuring Honeywell's wireless field devices (pressure transmitters, temperature transmitters, high-level analog input transmitters, corrosion transmitters).
Wireless Field Device User Manuals
• A separate user manual for each wireless field device (pressure transmitter, temperature transmitter, high-level analog input transmitter, corrosion transmitter) that provides procedures for installing and configuring the devices in the field. • Contains compliance information and the technical specifications.

8.2 Other references

The following table describes other sources of information for implementing an industrial wireless system.

Document and Description
Honeywell Preparing for Industrial Wireless Whitepaper
• Lists the benefits of industrial wireless technology. • Discusses planning issues for implementing industrial wireless systems in the automation and control environment.
Instrumentation, Systems and Automation Society's (ISA) SP-100
• Defines a set of standards for implementing wireless systems in the automation and control environment. • Recommends best practices for wireless systems.
IEEE 802.15.4 RF Standard
• Radio standards that specifically address the requirements of wireless monitoring and control systems.
IEEE 802.11(a) (b) (g)
• Specifications for wireless local area networks.

9. Wireless Tools Quick References

9.1 Key Server quick reference

The following table describes the parameters for each of the Key Server's functional areas. Values for parameters in **bold** are supplied by the system and do not need to be entered by the user.

<table>
<tr><th colspan="3"><b><i>Authentication Device – Configure AD tab</i></b></th></tr>
<tr><td colspan="3"><b><i>Network Parameters:</i></b></td></tr>
<tr><td>Default WFN_ID</td><td colspan="2">Default wireless field network identification. You may edit this parameter when you initially deploy the system. Used to support multiple wireless networks within the same physical area. The WFN_ID is only a logical entity and will not be associated with or loaded to any of the real equipment.
<b>For example</b>: Devices on WFN ID 1 will be on one wireless network, while devices on WFN ID 2 will be on a second wireless network. This is similar to an SSID for an 802.11g network.</td></tr>
<tr><td>Freq Hopping ID</td><td colspan="2">Default value is zero. This parameter is not used in this release.</td></tr>
<tr><td rowspan="2">Freq Hopping Mode</td><td colspan="2">Defines the frequency hopping pattern for the nodes in the wireless network:</td></tr>
<tr><td>US Channel #1
US Channel #6
US Channel #11
Guard bands outside US channel #1, 6 and 11</td><td>EU Channel #1
EU Channel #7
EU Channel #13
EU Guard Bands Outside 1, 7, 13
Guard banks outside EU channels 1, 7 and 13</td></tr>
<tr><td colspan="3"><b><i>Key information:</i></b></td></tr>
<tr><td>Number of Keys</td><td colspan="2">Defines the total number of security keys to generate during the session.</td></tr>
<tr><td>Use Date/Time</td><td colspan="2">Identifies the date the security keys loaded on the Authentication Device can be used.</td></tr>
<tr><td>Use Duration</td><td colspan="2">Establishes the length of time after the use date that the security keys loaded on the Authentication Device will remain valid.</td></tr>
<tr><td>DS IP Address</td><td colspan="2">Identifies the IP address for the Directory Server/Key Server so that iNodes and Gateways can communicate with it. Each IP address represents a network interface on the computer.</td></tr>
<tr><td colspan="3"><b><i>Authentication device:</i></b></td></tr>
<tr><td><b>AD ID</b></td><td colspan="2">Authentication device identification number.</td></tr>
<tr><td>InstallerID</td><td colspan="2">Identifies the person or group using the Authentication Device. Used to account for all users who generate security keys.</td></tr>
<tr><td>COM Port</td><td colspan="2">Establishes the serial port on the Key Server used to transmit security keys to the authentication device. On a typical system it would be COM1 or COM2 depending on where the IR transceiver is attached.</td></tr>
</table>

Authentication Device – Log tab	
Text area:	
Log information	List of problems related to IR communications with the Authentication Device.
Wireless Nodes – Manage tab	
Secure wireless Nodes: Lists all wireless devices that have been issued security keys and authenticated.	
Node_ID	Wireless 16 bit address of a secured device in the network.
WFN_ID	Wireless field network identification of the network where the secured device resides.
AD_ID	Authentication Device that was used to authenticate the secured device.
Event Log	
Key Server events:	
Event Log	List of events for the Key Server. Errors appear here and can be used to debug the installation.

9.2 Authentication device quick reference

The following table describes the functions of the authentication device. For additional details about the authentication device, see the help in the tutorial available from the device’s **Advanced Options** menu.

Function	Description
Security and Device Deployment	
Receive Security Keys	Use to receive keys on the device after you have generated them on the Key Server manager.
Transmit Key and Connect Device	Function available when the device receives the security keys. Use to transmit security key to wireless device.
Device Local Configuration	
Up, Down, Back, Enter buttons	Use to scroll through menus displayed on the device LCD panel and perform various tasks such as calibrate the device, read the signal strength (RSSI), etc.
Read Device Information	
Read Device Information	Use to retrieve parameter information from the wireless device.
Advanced Options	
Restart to defaults	Use to reset a device, a gateway, or an interface node to its default values. This clears the radio configuration and removes the current security key.

9.3 WSG/iNode quick reference

The following table identifies those configuration options for the WSG/iNode that you either must change or are strongly encouraged to change.

Access the WSG/iNode configuration forms by entering the device’s URL from Internet Explorer (URL is https:// plus the devices IP address).

Option	Description
System Configuration	
Wireless Access Point	

9.4 Wireless Builder quick reference

Wireless Builder is control building software used to configure wireless hardware devices. In future releases you will also be able to create continuous and sequential control strategies. For additional information about Wireless Builder, see the *Wireless Builder User’s Guide.*

Wireless Builder configuration scenarios

TBD.

Wireless Builder functions

The following table describes the functions of the Wireless Builder application.

To do this . . .	Do this . . .
TBD: add functions for wireless builder	

9.5 Data Collection Tool quick reference

TBD

9.6 Network Management and Diagnostics tool quick reference

TBD

10. Troubleshooting

10.1 Resolving software startup problems

Cannot login to Wireless Builder

Cause 1:	If all the services are not started, Wireless Builder cannot access its database.
Solution:	Start the WNSIA services • Click **Start** > **Control Panel** > Administrative Tools > Services. • Click the **Name** column to sort the services and locate the WNSIA services. • Verify all the following are started: cda server, erserver, gcl, , Raptor DirectoryServer, SysRep, WNSIA Key Server.

10.2 Resolving authentication errors

Wireless device cannot join the network

Cause 1:	Wireless device has not yet been authenticated.
Solution:	Re-inject device with new security key.
Cause 2:	Key Server can no longer recognize the device's security key or the device lost its security key.
Solution:	Reset a device, a gateway, or an interface node to its default values. This clears the radio configuration and removes the current security key. • Align the authentication device with the device's IR port. • On the authentication device, select Advanced options. • Select Restart to defaults. • Re-inject device with new security key.
Cause 3:	Wireless device is authenticated, but is not yet active in the wireless tools (Wireless Builder, Data Collection Tool).
Solution:	Allow at least 10 minutes for the device to be visible in the Wireless Tools.