IG601 Intelligent Gateway Quick Guide

www.Inhandnetworks.com
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1. Product Information

This document instructs users on how to rapidly deploy the IG601 in the field. Before beginning, check that you have:

- The package accessories, such as the external antenna
- SIM card with a data plan and text messaging
- Small flat-head screwdriver
- Normal Philips-head screwdriver

Carefully check the contents of the package and look for any missing or damaged parts. If there are any problems, please contact InHand sales staff. InHand also offers optional accessories to customers depending on the site characteristics and customer requirements please see the list of optional accessories below:

1.1 Standard Accessories

<table>
<thead>
<tr>
<th>Accessories</th>
<th>Quantity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IG601</td>
<td>1</td>
<td>IG601 Intelligent Gateway</td>
</tr>
<tr>
<td>CD-ROM</td>
<td>1</td>
<td>Product information</td>
</tr>
<tr>
<td>DIN-Rail</td>
<td>1</td>
<td>Install router</td>
</tr>
<tr>
<td>3-pin power terminal</td>
<td>1</td>
<td>A green elbow shaped power plug</td>
</tr>
<tr>
<td>5-pin serial terminal</td>
<td>1</td>
<td>A green elbow shaped serial plug</td>
</tr>
<tr>
<td>Cable</td>
<td>1</td>
<td>1.5m Network Cable</td>
</tr>
<tr>
<td>Antenna</td>
<td>1</td>
<td>Cellular antenna</td>
</tr>
<tr>
<td>Product guarantee card</td>
<td>1</td>
<td>Warranty period: 1 year</td>
</tr>
<tr>
<td>Certification</td>
<td>1</td>
<td>Certificate of quality</td>
</tr>
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</table>

1.2 Optional Accessories

<table>
<thead>
<tr>
<th>Accessories</th>
<th>Quantity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC power cord</td>
<td>1</td>
<td>US AC power cord</td>
</tr>
<tr>
<td>DC power adapter</td>
<td>1</td>
<td>Power adapter</td>
</tr>
<tr>
<td>Wall-mounting kit</td>
<td>1</td>
<td>Attach the InGateway to a wall.</td>
</tr>
</tbody>
</table>
2. Physical Layout

2.1 Layout Diagram

![Layout Diagram](image)

2.2 DIN-Rail Plan

![DIN-Rail Plan](image)

2.3 Wall-mount Plan

![Wall-mount Plan](image)
3. Install the Cellular Router

3.1 DIN rail mounting

3.1.1 Mount the IG601 onto a DIN-rail
- Fixed to the back of the IG601 is a DIN rail mounting bracket. To mount the router follow these steps:
- Hook the top seat of the mounting bracket onto the DIN rail.
- Push the bottom of the IG601 towards the DIN rail, causing the bottom lip to snap onto the bottom of the rail. This may require some force.

3.1.2 Uninstall the IG601 from a DIN Rail
Removing the IG601 is opposite of mounting it.
1. Pull the bottom part of the router out until the bottom lip of the bracket unclips from the rail. This may take some force.
2. Lift the IG601 so that the rail seat clears the top part of the DIN rail.
Now, you are finished.
3.2 Wall mounting

3.2.1 Mount the IG601 onto a wall

Specific steps are as follows:

1. Select the installation location of the device, making sure there is enough space.
2. Use a screwdriver to attach the wall mounting plate to the back of the device as shown in Figure 3-3.

Figure 3-3 Schematic wall mounting plate
3. Screw the wall mounting plate to the wall. Make sure it is steady and well anchored.

Figure 3-2, Wall mounting

3.2.2 Uninstall from the wall
To uninstall the device, hold it with one hand, while unscrewing it from the wall.
3.3 Install a SIM Card

Before changing SIM cards, power off the device!

1. To open the SIM card slot press the small yellow button beside the SIM slot.
2. A small plastic SIM holder will pop out.
3. Put a SIM card or into the holder. You may need an adapter for micro or nano SIM cards.
4. Insert the SIM holder.

![Figure 3-3. SIM Holder.](image)

- To connect to a GSM/HSPA+ network like AT&T or T-mobile, you will need a SIM card.
- To connect to a CDMA network like Verizon, you will need the Verizon edition of the IG601, which has no SIM card slot.
- Look for the SIM card slots on the top of the case. If the device has SIM card slots, it is a GSM device. But, if the router has no SIM slot it is CDMA.
3.4 Attach the SMA Antenna

1. To attach the antenna, first screw the antenna into its base.
2. Attach the antenna by screwing it onto the SMA connector.
3. Check the letters on the base of the antenna:
   a. 2G GSM networks require a ‘G’ type antenna.
   b. 3G EVDO or 2G CDMA networks require a ‘C-E’ type antenna.
   c. 3G WCDMA/HSPA+ networks require a ‘W’ type antenna.

The ‘W’ antenna in Figure 3-6 matches a HSPA+ SIM card:

Figure 3-4. The Removable Antenna.
3.5 Power up the IG601

1. Before proceeding, insert the power terminal into the DC power plug.
2. Loosen the lockdown screws.
3. Note which side of the terminal is positive and which side is negative.
4. Find the leads from the DC power source and insert the lead wires.
5. Finally, tighten the lock-down screws by turning them clockwise.

![Lock-screw diagram]

Figure 3–5, The DC power terminal

⚠️ If users insert the leads into the wrong hole, the router will not start and the user must switch the wires.

3.6 Install Ground Protection

To ground the device, follow these steps:

1. Loosen the grounding screw.
2. Connect a grounding wire to the grounding screw.
3. Tighten the ground screw.

![Grounding screw image]

Figure 3–6. The grounding screw.

⚠️ In order to improve radiation protection and ESD resistance, equipment must be grounded. The grounding method will vary from site to site.
3.7 Ethernet Cable

- Plug one end of an Ethernet CAT5e cable into the LAN port.
- Plug the other end into a PC.

Figure 3-7, The LAN Interface.

3.8 Connect the Serial Port

1. To begin connecting the serial port, first obtain:
   a. A green elbow terminator
   b. A small flat-head screwdriver
   c. Light duty copper wire
2. For RS232, connect these wires:
   a. Rx
   b. Tx
   c. GND
3. For RS485, attach:
   a. A (Non-inverting)
   b. B (Inverting)
   c. GND (optional)
4. Tighten the lockdown screws once you are done.

Figure 3-8, Serial Pinout
4. Access the Web Interface

4.1 Set the PC’s IP address

1. Before starting, disconnect from any VPNs or proxies and temporarily disable the computers wireless interface.
2. Open the Control Panel and click View network status.

3. Click the Ethernet or Local area network button.

4. Click the Properties button to enter the window “Local Connection Properties.”

6. Set the IP address to 192.168.2.21 (or any IP from the range of – 192.168.2.254)
7. Set the subnet mask to 255.255.255.0
8. Set the gateway to 192.168.2.1
9. Press **OK** and exit all windows to save.
10. Ping 192.168.2.1 to make sure the PC is connected.
   a. If you are not connected, be sure to:
   b. Disconnect from any proxy servers or VPNs.
   c. Check the Ethernet link lights and cables.
   d. Check for power on all the devices
   e. Check the IPv4 settings on your PC

4.2 Log into the Web interface.
   1. To begin configuring the IG601, open your preferred browser.
   2. Type 192.168.2.1 into the address bar and press enter.
      a. Username: adm
      b. Password: 123456
   3. The web interface controls all the IG601s features.
4.3 Set the Language to English

Some customers may purchase an IG601 with a default languages other than English. To change the interface language follow these steps:

1. Click on the far top-left button: **System**.
2. Click on the first drop-down menu item. **Basic Setup**.
3. Click on the drop-down menu and select English, Ingles, or 英语.
4. Click the bottom-left button, **Apply**.
5. Basic Configuration

5.1 Cellular Settings

5.1.1 Find the Cellular Settings

- Search for the SIM card’s settings in your favorite search engine.
- Save these settings so you can enter them into your IG601.
- Many GSM cards will require an APN like ‘epc.t-mobile,’ with a blank username and password.

![T-mobile SIM settings](image)

3. Touch Mobile Networks.
4. Touch Access Point Names or APNs.
5. If there is a T-Mobile APN, touch it. If not, press the Menu key, and touch New APN.
6. Enter the following settings for the Data APN:
   - Name: T-Mobile
   - APN: epc.t-mobile.com or fast-t-mobile.com (for LTE devices)
   - Proxy: <Not set>
   - Port: <Not set>
   - Username: <Not set>
   - Password: <Not set>
   - Server: <Not set>
   - MMSC: http://mms.msg.eng.t-mobile.com/mms/wapenc
   - MM$ proxy: <Not set>
   - MM$ port: <Not set>
   - MM$ protocol: WAP 2.0
   - MCC: 310
   - MNC: 260
   - Authentication type: <Not set>
   - APN type: <Not Set> OR Internet-MMS (depending on software version)
7. Press the Menu key.
8. Touch Save.
9. In the list of APNs, delete all others that may appear. If there is a FOTA APN, you may leave that one.
   To do this:
   1. Touch the APN you want to delete.
   2. Press the Menu key.
5.1.2 Configure the Cellular Settings

- Open the web interface by typing 192.168.1.2 into the browser’s address bar, as shown in chapter 4.
- Navigate to Network >> Dialup on the top menubar.
- Enter the SIM card settings.
- Press Apply

- Navigate to Status >> Modem.
- Check that the ‘Status’ reads ‘modem is ready.’
- Make sure the device has adequate signal and is registered.
5.1.3 Test the Connection

- Navigate to Tools >> Ping
- Ping 8.8.8.8 to test the connection.
- If the cellular interface is disconnected:
  - Attach the correct antenna.
  - Check your SIM card.
  - Check the APN name.
  - Make sure your cellular data plan is not over the data limit and in good standing.

<table>
<thead>
<tr>
<th>Host</th>
<th>8.8.8.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ping Count</td>
<td>4</td>
</tr>
<tr>
<td>Packet Size</td>
<td>32 Bytes</td>
</tr>
</tbody>
</table>

PING 8.8.8.8 (8.8.8.8): 32 data bytes
40 bytes from 8.8.8.8: icmp_seq=0 ttl=38 time=222.0 ms
40 bytes from 8.8.8.8: icmp_seq=1 ttl=38 time=223.3 ms
40 bytes from 8.8.8.8: icmp_seq=2 ttl=38 time=256.0 ms
40 bytes from 8.8.8.8: icmp_seq=3 ttl=38 time=217.3 ms

--- 8.8.8.8 ping statistics ---
4 packets transmitted, 4 packets received, 0% packet loss
round-trip min/avg/max = 217.3/223.6/256.0 ms

5.2 Change the LAN Interface’s IP Address

- To change your Ethernet interface address, navigate to Network >> LAN.
- Under “IP Address” enter the desired IP for the LAN port.
- Under “Netmask” enter the subnet mask.
- Be sure to click Apply.

- The Ethernet port IP defaults to 192.168.2.1/24 with secondary
address of 192.168.1.1/24.

- **Use caution when changing the LAN port’s IP address.**

  - In order to apply the configuration, the web interface will reload in approximately twenty seconds.
  - You must change the IP of your PC’s Ethernet interface so that it is on the same subnet.
  - Finally, type the new IP of the IG601’s LAV port into the browser’s address bar.
• In **Tools >> Ping**, ping 8.8.8.8 to test WAN connectivity.

![Ping 8.8.8.8](image)

- Sometimes you may forget the IP or there may be a problem with the interface configuration.
- If you enter the new IP and change your PC's IP, and still cannot connect to the web interface, you must either hard reset the device or configure it via console cable.
- The end of this document instructs users on how to reset the device with the physical **RESET** button.
6. Diagnose the IG601

6.1 View the Log files

- To view system logs, go to Status >> Log.
- The logs are vital to diagnosing and fixing problems.

![Log file screenshot]

6.2 Download the log files.

- To download the log files, navigate to Status >> Log.
- Scroll to the bottom of the page.
- Click Download Log File.

![Download log file screenshot]
6.4 Open the log files

- Your browser will download the log files to /<user>/Downloads
- Open the log files with Notepad++ or a comparable document editor.
- Windows Notepad will not open the log files properly.

6.5 Diagnose the log files

- To view system logs, go to Status>> Log.
- In this example, the cellular interface is trying to establish a connection over and over. The modem is constantly redialing.
- I must check the cell interface in Status >> Modem.
• The **Status >> Dialup** shows the cellular interface is attempting to ‘register,’ or connect to the cellular provider.
• However, the interface is ‘disconnected, and reads ‘SIM/UIM’ card failure.
• On further inspection, I notice the router has no SIM card in the slot.

<table>
<thead>
<tr>
<th>Dialup</th>
<th>Modem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modern Type</td>
<td>PHS8</td>
</tr>
<tr>
<td>Status</td>
<td>SIM/UIM card failure</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Siemens</td>
</tr>
<tr>
<td>Product</td>
<td>PHS8</td>
</tr>
<tr>
<td>Signal Level</td>
<td>- (0)</td>
</tr>
<tr>
<td>Register Status</td>
<td>no registered</td>
</tr>
</tbody>
</table>

• If the router continues searching for a cell connection, eventually the auto-recovery feature will cause a reboot.
• To prevent the router from constantly rebooting, either insert a SIM card or disable the interface.

To disable the interface:
• Navigate to **Network >> Dialup**
• Untick the ‘Enable’ checkbox.

![Network Configuration](image-url)

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6.6 The LED Array

When the router boots up and connects to a cellular network it will display codes on the LED array.

- **ON**
- **OFF**
- **BLINK**

**Power On**

- PWR: Red
- STATUS: Green
- WARN: Yellow
- ERR: Off

**Successful Boot**

- PWR: Red
- STATUS: Green
- WARN: Yellow
- ERR: Off

**Cell Dialing**

- PWR: Red
- STATUS: Green
- WARN: Yellow
- ERR: Off

**Successful Dialup**

- PWR: Red
- STATUS: Green
- WARN: Yellow
- ERR: Off

**Upgrading**

- PWR: Red
- STATUS: Green
- WARN: Yellow
- ERR: Off

**Successful Reboot**

- PWR: Red
- STATUS: Green
- WARN: Yellow
- ERR: Off

- **Indicates a weak cell signal. Make sure the antenna is correct and the SMA connector is not loose.**

- **Normal operating cell signal.**

- **Excellent reception.**
7. Restore the Factory Configuration

7.1 The web interface

To restore the configuration to the factory default:

1. Navigate to System >> Config Management on the menu bar.
2. Click the Restore default configuration button.
3. Click Reboot.

4. Wait for up to 120 seconds.
5. Type 192.168.2.1 into the browser’s address bar and press Enter to reload the webpage.

The IG601 should now be reset to the factory default configs.
7.2 The Pinhole RESET Button

Follow these steps to restore the IG601 to factory default settings by using the physical ‘RESET’ button.

1. Power OFF the router.
2. Press and hold the RESET button.
3. Turn ON the router.
4. When the ERROR LED flashes, release the button.
5. Finally, press and hold the RESET button until the ERROR LED blinks eight times.

The router will now be back to factory default settings.

8. Support

The IG601 enables admins to quickly deploy a secure, rugged network for their devices. Hopefully, this guide has helped you put the IG601 into service.

For manuals and support documents, please visit: www.inhandnetworks.com

For technical support contact: support@inhandnetworks.com

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