Port Scout user manual

Port Scout finds the smart appliances on your home or office network (fridges, washers and dryers, ovens, dishwashers, thermostats, robot vacuums, smart plugs, water heaters and more) and shows you what each one exposes to the network. You don't need to know anything about networks to use it: every button and box has a tooltip, so **hover the mouse over anything** for an explanation.

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1. What Port Scout does

Every appliance with Wi-Fi is a small computer. Like any computer on a network, it **listens** on numbered "doors" called **ports**, waiting for other devices to talk to it. Port Scout does two things:

1. **Finds your appliances.** It lists every device on your network and guesses which ones are appliances, putting the likely ones at the top.
2. **Port-scans an appliance.** It checks every door on the appliance you pick, asks each open one what it is, looks for hidden web pages, and lists the commands (API calls) the appliance says it accepts.

People use it to find an appliance whose address they don't know, to check an appliance isn't leaving something risky open (like a remote login), or to discover what an older appliance can still do after its maker stopped supporting it.

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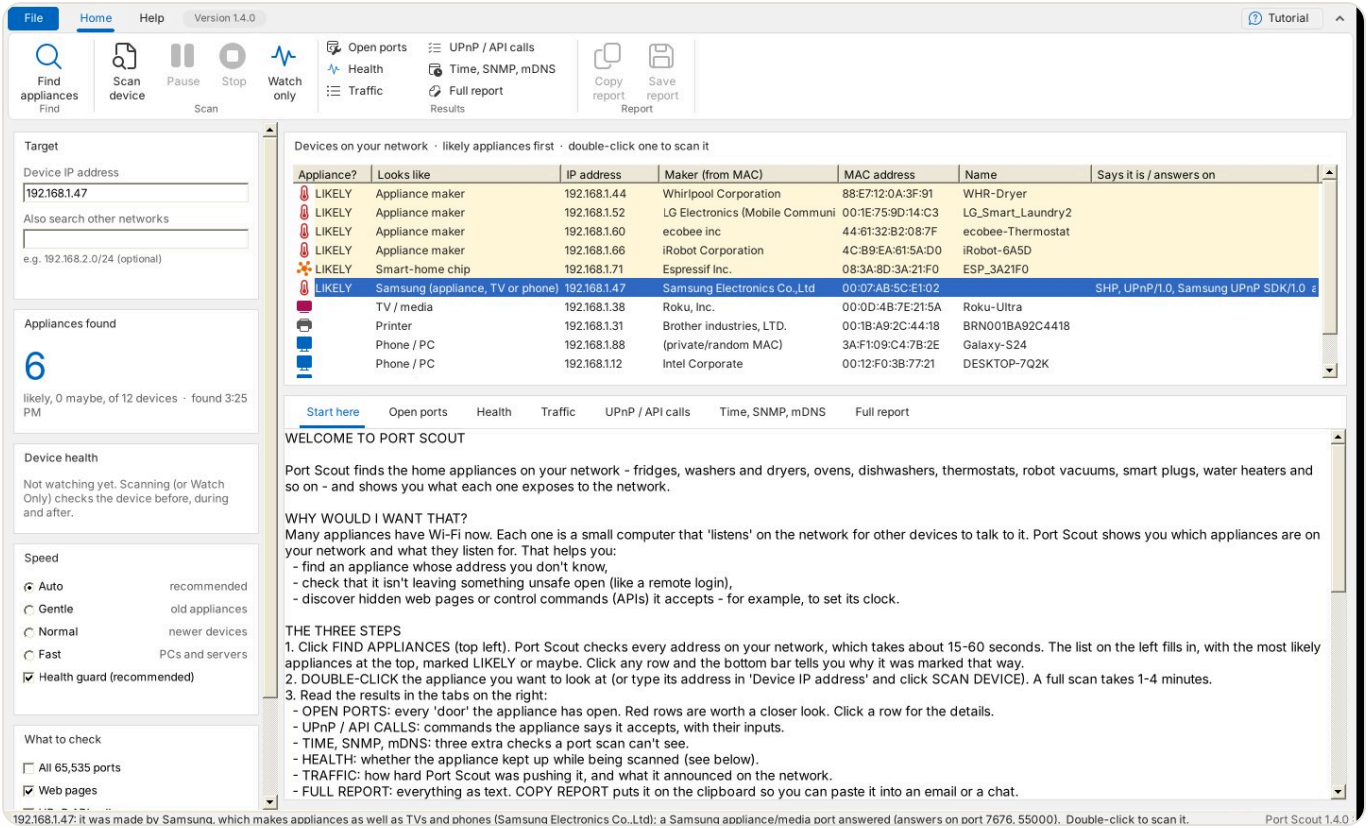
2. Getting started

1. Download `PortScout.exe` from dialsoft.com/port-scout. If your browser asks, choose **Keep**.
2. Put it somewhere you can find it, such as your **Desktop**, **Documents** or `C:\Tools`. Avoid *Program Files*, so Port Scout can update itself.
3. Double-click it. There's nothing to install. If Windows shows **"Windows protected your PC"**, click **More info**, then **Run anyway**. This happens with new programs that haven't been downloaded by many people yet.
4. If **Windows Firewall** asks whether Port Scout may use the network, allow it on **Private networks**. Port Scout needs this to hear devices that announce themselves.
5. Read the **Start here** tab, then click **Find appliances** on the Home tab.

You need: Windows 10 or 11, and a PC connected to the same network as your appliances (by Wi-Fi or cable). Port Scout uses the .NET Framework 4.8 that is already built into Windows.

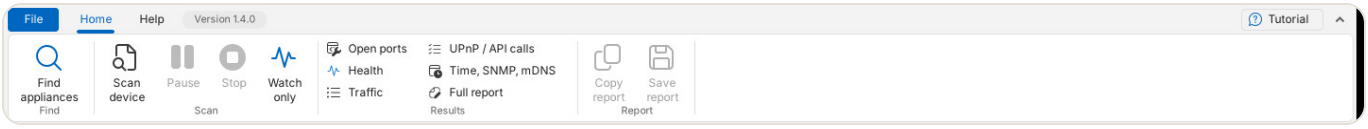
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3. The window



Port Scout after Find appliances, with an example network. Likely appliances are at the top in bold.

Port Scout looks and works like MAC Scout and Dialsoft's other tools. Across the top is the **ribbon**:

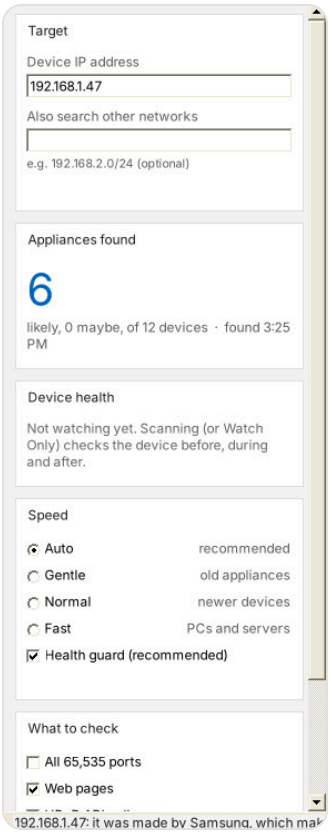


The ribbon: the blue File button, the Home and Help tabs, and the version.

Where	What's there
File (blue button)	Copy report, Save report, Check for updates, Share Port Scout, Exit.
Home › Find	**Find appliances**.
Home › Scan	**Scan device**, **Pause** (stays highlighted while paused; click again to resume), **Stop**, and **Watch only**. Buttons are greyed out when they can't be used.
Home › Results	Jump straight to a results tab: Open ports, Health, Traffic, UPnP / API calls, Time/SNMP/mDNS, Full report.
Home › Report	**Copy report** and **Save report**.
Help tab	Start here, User manual (this page), What's new, Check for updates, Share Port Scout, About.
Version / **Tutorial**	Click the version to see About. **Tutorial** (top right) opens the Start here guide.

Down the **left side** are cards:

- **Target**: the **Device IP address** to scan (clicking a device fills it in), and **Also search other networks** (see Appliances on another network).
- **Appliances found**: how many likely appliances Find appliances found, and how many devices in all.
- **Device health**: how the device you're scanning or watching is doing right now.
- **Speed**: Auto, Gentle, Normal or Fast, and the **Health guard** (see Keeping your appliance safe).
- **What to check**: which checks a scan runs, how long to wait for each port, and the most ports at once (see Scan options).



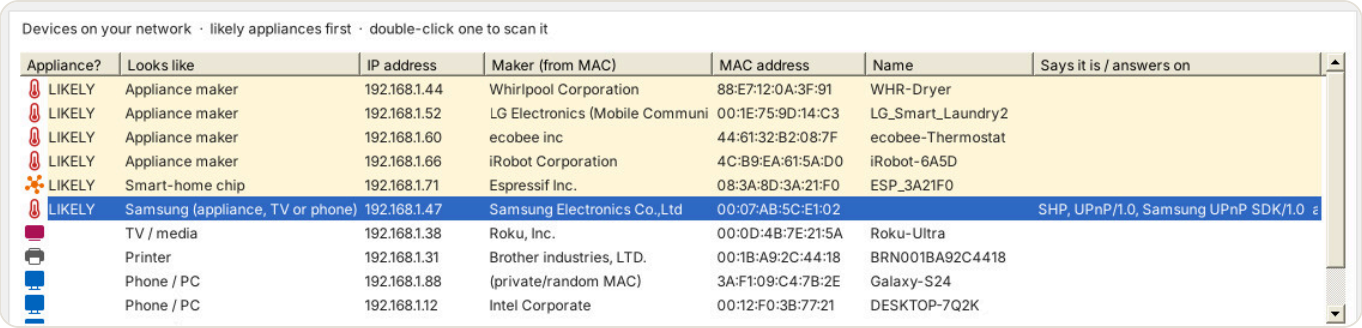
The cards on the left.

On the **right**, the list of devices on your network sits above the results tabs (Start here, Open ports, Health, Traffic, UPnP / API calls, Time/SNMP/mDNS, Full report). The **status bar** at the bottom shows progress, explains the device you clicked, shows a green **Update available** link when there's a new version, and the version number.

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4. Finding appliances

1. Click **Find appliances** (Home tab). Port Scout checks every address on your network. This takes about 15 to 60 seconds; the bottom bar counts as it goes.
2. The list fills in, **most likely appliances first**. The first column says **LIKELY** (bold, yellow) or **maybe** (light yellow). Blank means probably not an appliance.
3. **Click a row** to put its address in the Scan box. The bottom bar explains why Port Scout thinks it is, or isn't, an appliance.
4. **Double-click a row** to scan it straight away.



The device list. Columns: Appliance?, Looks like, IP address, Maker (from MAC), MAC address, Name, and what the device says it is.

Column	Meaning
Appliance?	LIKELY, maybe, or blank.
Looks like	Port Scout's best guess: *Appliance maker*, *Smart-home chip*, *Samsung (appliance, TV or phone)*, *Appliance (by name)*, *TV / media*, *Phone / PC*, *Printer*, *Network gear*, *Other* or *Unknown*.
IP address	The device's address on your network, like 192.168.1.47. This is what you scan.
Maker (from MAC)	The company that made the device's network chip.
MAC address	The network chip's serial number.
Name	The name the device gave your network, if any (like *ecobee-Thermostat*).
Says it is / answers on	What the device announces about itself (UPnP), and any appliance ports that answered.

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5. How Port Scout recognizes appliances

Appliances rarely say “I'm a fridge”. Port Scout adds up clues:

- **Who made the network chip.** The first half of every MAC address identifies the company that made the chip. Port Scout contains the official worldwide list (from the IEEE). A chip from Whirlpool, LG, Bosch, iRobot, ecobee and other appliance makers counts strongly. A chip from Espressif, Marvell, Murata or similar Wi-Fi module makers counts too, because those chips are mostly built into appliances and gadgets. Apple, Intel and router makers count against.
- **The device's name.** Names containing words like *fridge, washer, dryer, oven, thermostat, roomba, plug, ESP_* count for; names like *iPhone, DESKTOP-, printer* count against.
- **What it answers on.** If a port that appliances use (such as Samsung's 7676 or 55000) answers, that counts for.
- **Private MAC addresses.** Phones and laptops often use a random “private” address; appliances almost never do.

> It's a guess, not a certainty. Samsung, for example, makes fridges *and* phones and TVs, so a Samsung device is marked **maybe** unless there are more clues.

6. Scanning an appliance

1. Double-click the appliance in the list, or type its address in **Device IP address** (Target card) and click **Scan device**.
2. Port Scout first spends **5 seconds checking the appliance**: does it answer, and how fast? (Health tab.)
3. Then it tests every port, asks each open port what it is, looks for web pages, asks for UPnP services and runs the time/SNMP/mDNS checks, watching the appliance's health all the while. With *All 65,535 ports* on and Speed *Auto* this takes about 3 to 5 minutes. The bottom bar shows each step.
4. Finally it checks the appliance again for 10 seconds, so you know it came through fine.
5. Results appear in the tabs on the right as they're found. Click **Pause** to give the appliance a break (click it again to carry on), or **Stop** any time; what was found so far is kept.

7. Keeping your appliance safe while scanning

Appliances have small, slow computers. Testing thousands of ports quickly can overwhelm one: music it's playing may stutter, or it may restart. Port Scout protects them in three ways.

Speed

Speed	What it does	Use it for
Auto (default)	Starts at 8 ports at once and doubles every few seconds, up to 64, *only while* the appliance keeps answering quickly.	Almost everything.
Gentle	8 at once, at most 40 new connections a second. All 65,535 ports takes about 30 minutes, so turn off *All 65,535 ports* for a quick gentle scan (under a minute).	Old or delicate appliances, or one that's crashed before.
Normal	64 at once, up to 400 a second.	Newer devices.
Fast	256 at once, no limit.	PCs, servers and network equipment. **Not appliances.**

Choose the speed in the **Speed** card on the left. You can change it at any time, even in the middle of a scan, and it takes effect immediately. **Max at once** (in the What to check card) shows the

ceiling for the speed you picked; you can lower it by hand.

Health guard

With **Health guard** ticked in the Speed card (the default), Port Scout checks the appliance once a second during the scan:

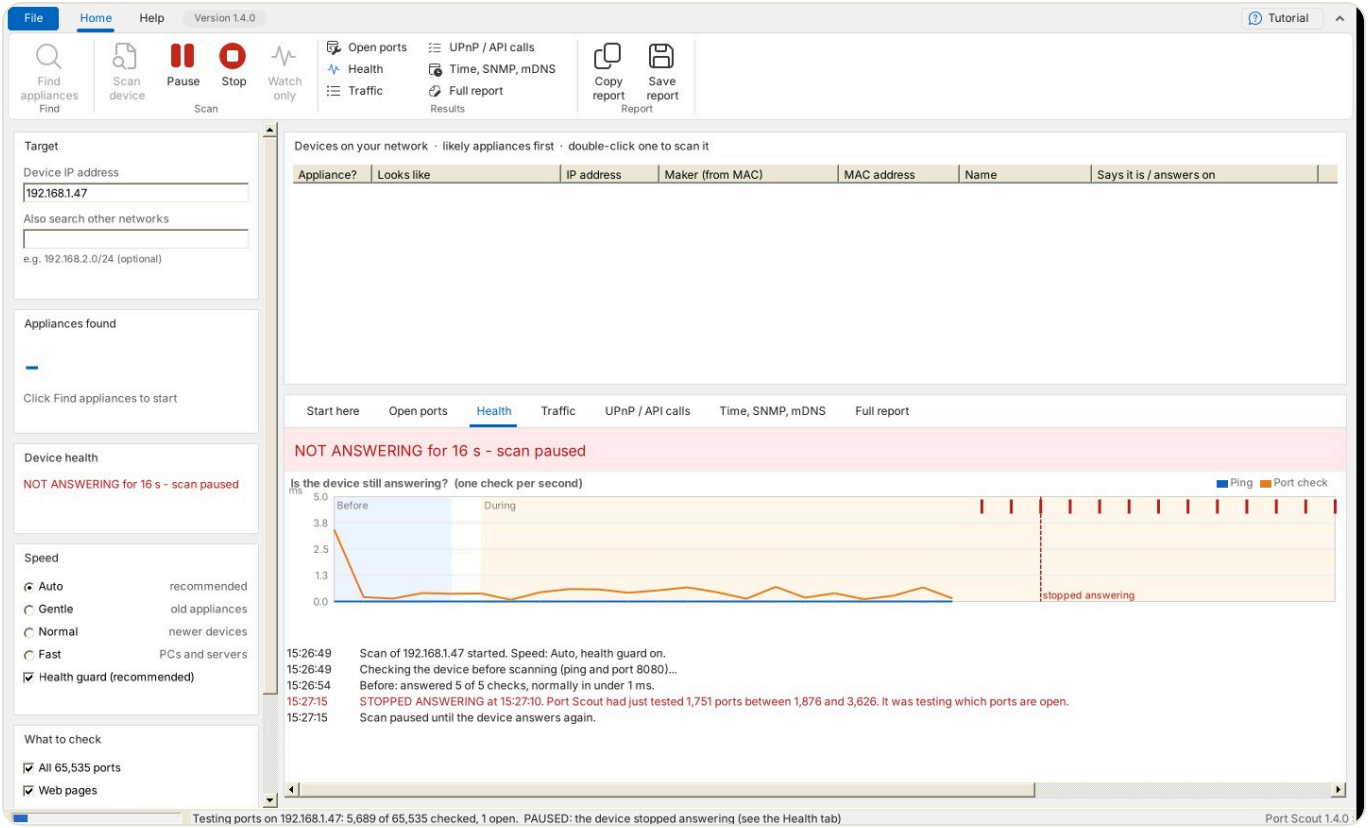
- If its answers become **much slower than normal** (four times slower, or 150 ms slower), the scan slows down: half as many ports at once. Auto speeds back up when it recovers.
- If it **stops answering** for 3 seconds, the scan **pauses**. When the appliance answers again, Port Scout waits 10 more seconds, then carries on at the slowest speed (1 port at a time).

Before and after checks

Every scan begins and ends with a health check, so the report always says whether the appliance came through fine.

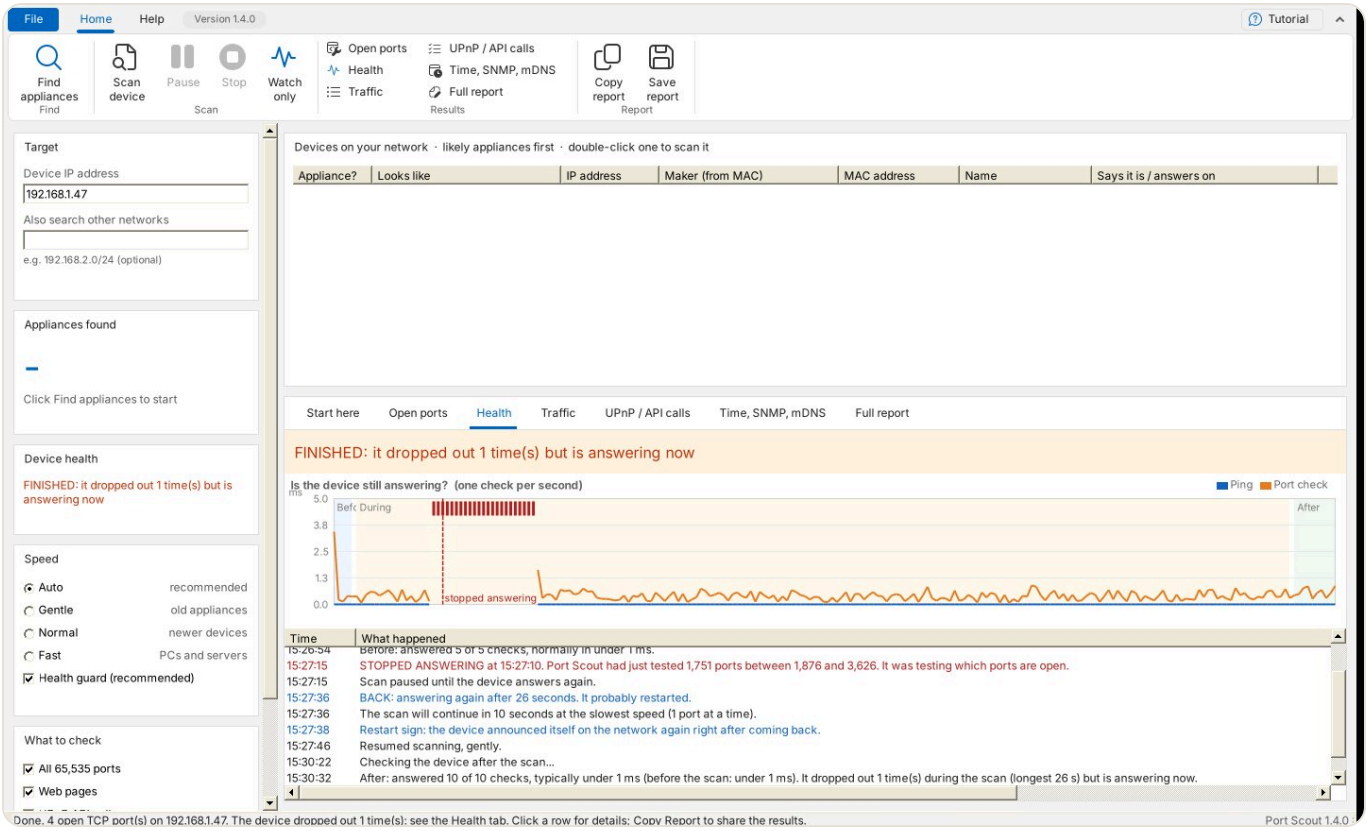
> **Did a scan crash your appliance?** Look at the **Health** tab's timeline: it shows the exact moment it stopped answering, **which ports Port Scout had just tested**, how long it was gone, and whether it announced a restart. Scan it again with Speed **Gentle**, and if it still struggles, untick *All 65,535 ports*.

8. Health tab



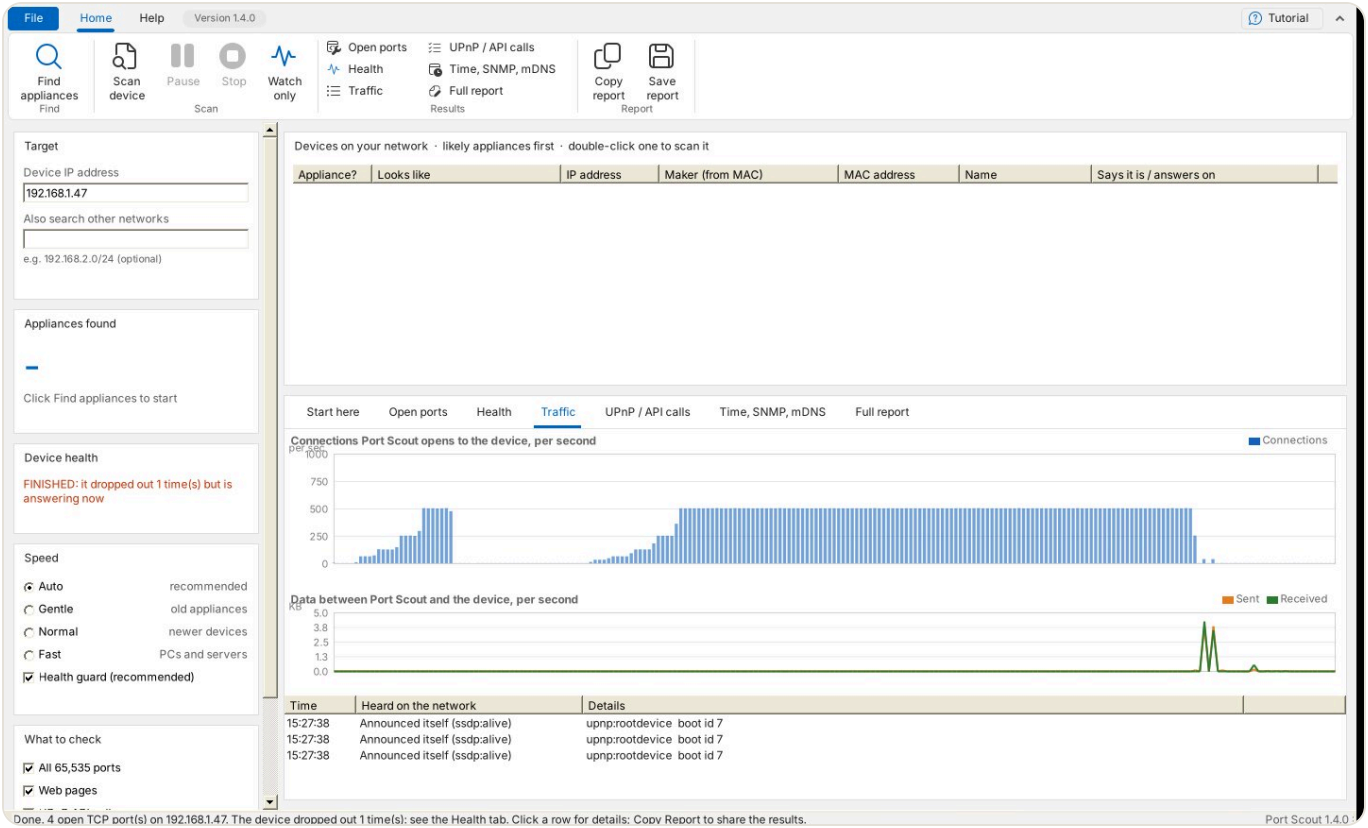
An example appliance that stopped answering mid-scan. The banner turns red, red ticks show each missed check, and the scan pauses.

- **The banner** (also shown in the Device health card on the left) says how the appliance is right now: **HEALTHY**, **STRUGGLING** (answering slowly), **NOT ANSWERING**, or **BACK** after a drop-out.
- **The graph** shows one check per second. **Blue** is the ping time, **orange** the time to connect to one of the appliance's open ports (some appliances ignore ping). Lower is better. **Red ticks** along the top are checks that got no answer at all. The background is shaded *Before*, *During* and *After* the scan; dashed lines mark where the scan was slowed or where the appliance stopped answering.
- **The timeline** lists everything that happened in plain English. It's also in the Full Report.



After the scan: it dropped out once (and announced it had restarted), the scan carried on gently, and the appliance was fine afterwards.

9. Traffic tab



Connections and data per second, and the announcements the appliance made.

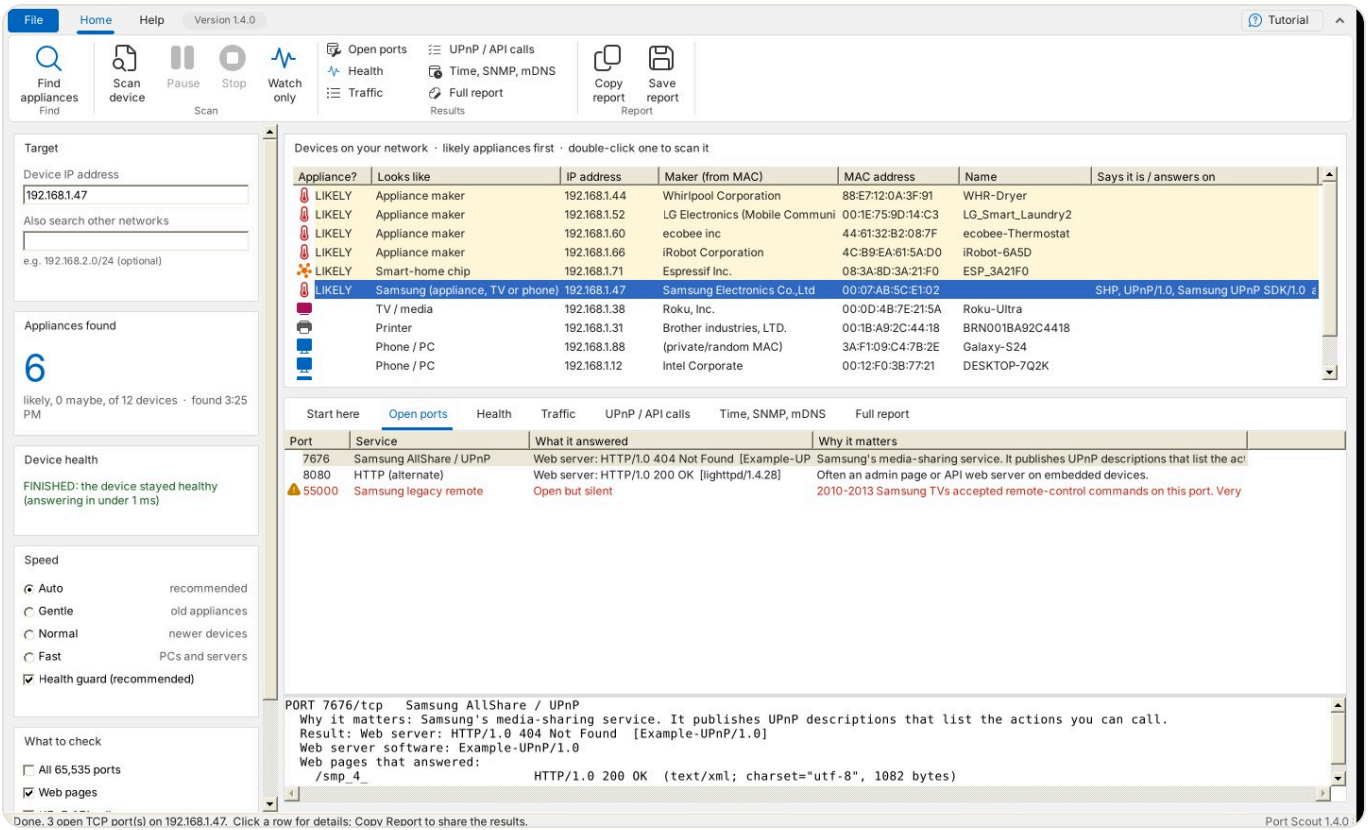
- **Connections per second**: how hard Port Scout was knocking. If the appliance dropped out, compare the time with the Health tab.
- **Data per second**: kilobytes sent to and received from the appliance.
- **Heard on the network**: announcements the appliance broadcast to everyone. A device that restarts usually announces itself again (`ssdp:alive`); one that shuts down cleanly says goodbye (`ssdp:byebye`). Port Scout uses these as evidence of a restart.

> A PC can only see traffic to and from itself, plus these broadcasts. It can't see what the appliance sends to the internet (for example, music streaming). That needs your router's view.

10. Watch Only

Watch Only checks an appliance once a second *without scanning it*, filling in the Health and Traffic tabs until you click **Stop**. Use it to learn what “normal” looks like, or to watch an appliance you think is restarting on its own.

11. Open Ports tab



Open Ports for an example appliance. The red row is a remote-control port worth looking at first. Click a row to see its details below.

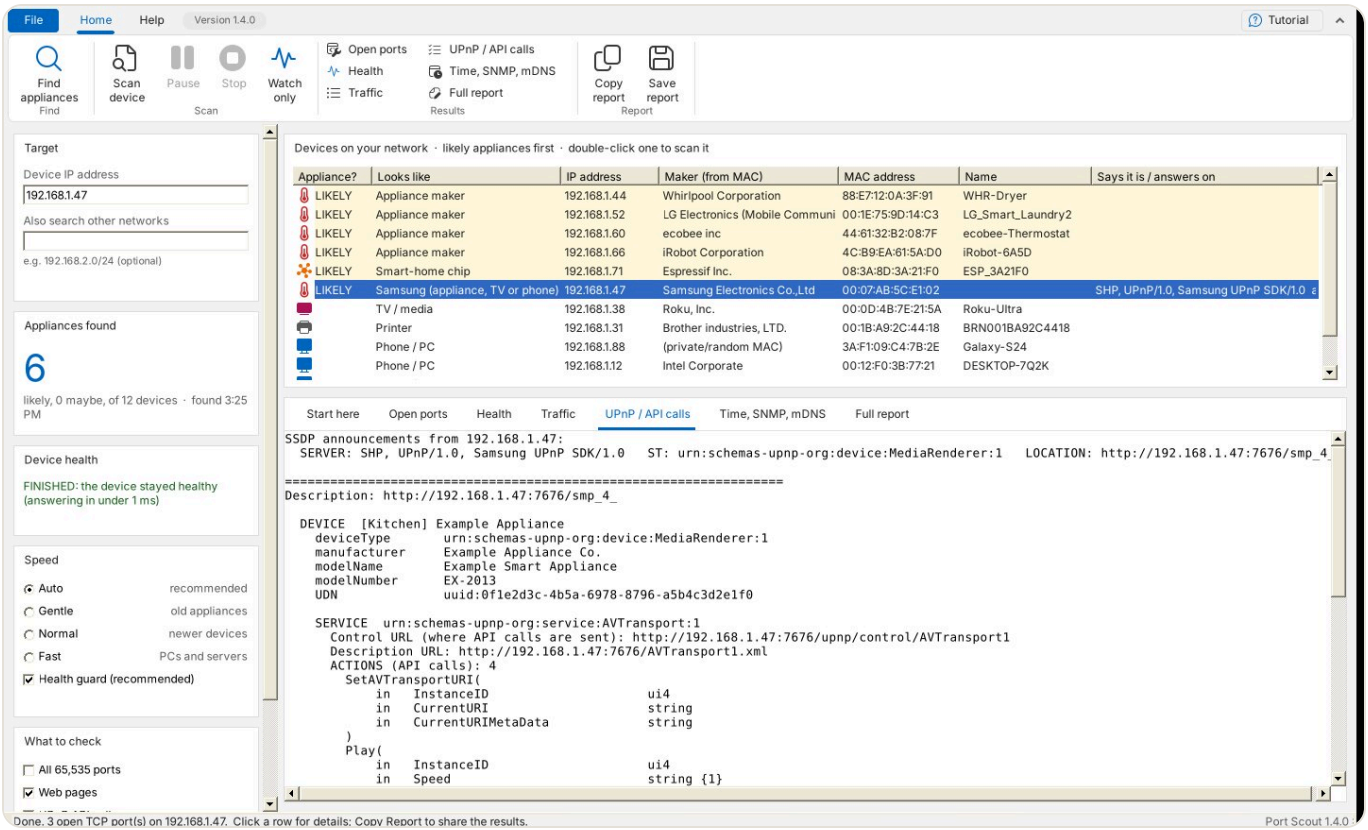
Each row is an open port (a door that answered):

- **Port**: its number.
- **Service**: what it usually is (for example *HTTP (web)*, *SSH*, *Samsung AllShare / UPnP*), or *Unknown*.
- **What it answered**: *Web server* (with the reply and the server software), *Says: …* (a greeting or "banner"), *Encrypted (TLS)*, *binary data*, or *Open but silent*.
- **Why it matters**: a plain-English explanation.

Red rows are remote-login or remote-control doors (Telnet, SSH, FTP, Android debugging, file sharing, remote-control ports). They're the most interesting, and the ones to check if you're worried about security.

Click a row to see everything about that port in the box below: what it said, the web server software, page titles, its encryption certificate, and which web pages answered (any page that didn't say "not found").

12. UPnP / API Calls tab



An example appliance's UPnP services and the actions (API calls) each one accepts, with their inputs (in) and outputs (out).

UPnP is a standard way for devices to describe themselves. A device publishes a **description** (its name, maker and model) and a list of **services**. Each service lists its **actions**: commands other programs can send it, with named inputs and outputs. In other words, these are the appliance's **API calls**.

For each service Port Scout shows the **Control URL** (where commands are sent) and every action with its arguments and their type. Allowed values are shown in braces, like `{STOPPED, PLAYING}`. Port Scout only reads these lists; it never runs an action.

If the tab says the device didn't answer UPnP discovery, the appliance simply doesn't offer UPnP.

13. Time, SNMP, mDNS tab

Three quick checks a normal port scan can't see:

- **Time (NTP, port 123)**: does the appliance hand out the time? Most don't, which is normal.
- **SNMP (port 161)**: a management service. If it answers, it usually reveals the appliance's exact system and version.

- **mDNS (port 5353)**: the services the appliance announces on your network (the same system Apple's Bonjour uses).

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14. Full Report, copy & save

The **Full Report** tab puts everything into one plain-text page. It starts with a summary of open ports, then lists anything mentioning **time, date or clock** (handy if you're trying to fix an appliance's clock), then the full details.

- **Copy Report** puts it on the clipboard: paste it into an email, a support ticket, a document or a chat.
- **Save Report** saves it as a `.txt` file, named with the device's address and the date.

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15. Scan options

These are in the **Speed** and **What to check** cards on the left.

Option	What it does
All 65,535 ports	On: tests every port (thorough, 3 to 5 minutes at Auto speed). Off: tests ports 1 to 1,024 plus about 50 well-known extras, including the ones appliances use (under a minute).
Web pages	For each web server, also asks for about 35 common pages (`/`, `/api`, `/status`, `/settings`, `/description.xml`...) and lists those that answer.
UPnP API calls	Asks for UPnP descriptions and lists their actions (see UPnP / API Calls).
Time, SNMP, mDNS	Runs the three extra checks (see Time, SNMP, mDNS).
Health guard	Slows the scan when the appliance struggles and pauses it if it stops answering (see Keeping your appliance safe). Leave it on.
Speed	Auto, Gentle, Normal or Fast (see Keeping your appliance safe).
Wait (ms)	How long to wait for each port before calling it closed. 400 ms suits most homes; use 1000 or more for an appliance with weak Wi-Fi.
Max at once	The most ports tested at the same time. The Speed setting fills it in; the health guard may use fewer. Lower it for weak Wi-Fi.

Changes take effect immediately, even in the middle of a scan. There's nothing to save and no need to restart.

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16. Appliances on another network

Some homes put appliances on a separate **guest** or **IoT** Wi-Fi. If your appliance isn't in the list:

1. Find that network's addresses. Your router's app or web page shows them, or look in the appliance's own Wi-Fi settings: if it shows an address like `192.168.2.37`, the network is `192.168.2.0/24`.
2. Type it in **Also search other networks** (Target card). You can enter several, separated by commas, and ranges like `10.0.20.1-10.0.20.254`.
3. Click **Find appliances** again.

> Devices on another network can't report their MAC address, so Port Scout can't tell who made them. It finds them by ping and by knocking on a few ports appliances use. You can still scan them normally, as long as your router lets your PC reach that network.

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17. Updates

Port Scout checks for a newer version a few seconds after it opens, and every 6 hours while it's open. When there is one, a green **Update available** link appears in the status bar.

- Port Scout shows what's new and asks before installing. Click **Yes** and it downloads the new version, checks its fingerprint (SHA-256), and reopens in a few seconds.
- Click **Check for updates** (Help tab or File menu) any time to check yourself.
- If Windows doesn't allow Port Scout to replace itself (for example in Program Files), move `PortScout.exe` to your Desktop or Documents, or download the new version from the website.

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18. Help tab

- **Start here**: the beginner's guide inside the program (the **Tutorial** button at the top right opens it too).
- **User manual**: opens this page.
- **What's new**: every version and what changed, plus technical details.
- **Check for updates**.
- **Share Port Scout**: tell someone about Port Scout by e-mail, Gmail, Outlook, Messenger, WhatsApp, text message, Teams, Facebook or LinkedIn. You can edit the message first; nothing is sent until you press Send.
- **About**: version and credits (clicking the version label opens it too).

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19. Is it safe? Is it legal?

Safe: Port Scout only looks. It connects to ports and reads what they say; it never logs in, never sends commands to UPnP actions, and never changes anything on the appliance. A scan does open many connections, though, and that can overwhelm an old appliance. That's why the health guard and Auto speed are on by default. For a delicate appliance, use Speed **Gentle**.

Legal: scan only **your own** devices and networks, or networks you're responsible for and have permission to test. Scanning other people's networks can break the law or their terms of service.

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20. Troubleshooting

Problem	Try this
My appliance isn't in the list.	Make sure it's connected (check its Wi-Fi screen or app). Look up its IP address in its own settings or your router, and type it into Device IP address. If it's on a guest/IoT network, see Appliances on another network.
The list is empty or very short.	Allow Port Scout through Windows Firewall on Private networks. Make sure your PC is on the home network, not a VPN.
“No open TCP ports found.”	Many appliances only talk *out* to their maker's servers and listen for nothing. That's normal, and good for security. Try a longer Wait (1000 ms) in case it was slow to answer.
Results differ between scans.	Choose Speed **Gentle** and raise **Wait** to 800 ms; weak Wi-Fi drops some answers.
The appliance's music stuttered, or it restarted, during a scan.	Read the Health tab's timeline for the moment it happened. Scan again with Speed **Gentle** and *All 65,535 ports* off. Keep **Health guard** ticked.
“Can't monitor this device.”	It doesn't answer ping or any common port, so Port Scout can't tell if it's struggling. Use Speed **Gentle**.
“Couldn't listen for UPnP (SSDP)” on the Traffic tab.	Allow Port Scout through Windows Firewall on Private networks. Another program may be using the port; the rest of Port Scout still works.
“Windows protected your PC.”	Click **More info → Run anyway**. Only download Port Scout from dialsoft.com.
Update failed.	Move PortScout.exe out of Program Files (to Desktop or Documents), then Check for Updates again, or download it from the website.

21. Words you'll see

IP address	A device's address on your network, like 192.168.1.47.
MAC address	The serial number of a network chip, like 00:07:AB:5C:E1:02. The first half identifies the chip's maker.
Port	A numbered door (1 to 65,535) on a device. Each network program listens on its own port; web pages usually use 80.
Open port	A port that answered. Closed ports aren't listed.
Banner	What a port says as soon as you connect, often a name and version.
TLS	Encryption, the same as the padlock in your browser.
UPnP	A standard way devices describe what they are and what commands they accept.
API / API call	A command one program can send another.
SSDP	How UPnP devices announce themselves on the network.
NTP, SNMP, mDNS	Time service, management service, and service announcements (see the Time, SNMP, mDNS section).
/24	Shorthand for "all 254 addresses that start the same way", e.g. 192.168.2.0/24 = 192.168.2.1 to 192.168.2.254.

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