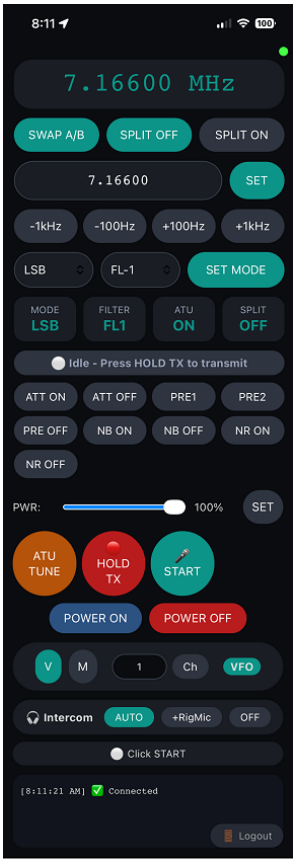
📡 IC-7300 Remote Server Setup Guide

This guide explains how to set up a **local IC-7300 remote server** and then expose it securely over the internet using **Cloudflare Tunnel**.

🌐 Web application

Desktop	Mobile
	

🧩 Part 1 — Local Setup (PC ↔ IC-7300)

1. Connect and Identify COM Port

- Plug your **Icom IC-7300** into your PC via USB.
- Open **Device Manager**.
- Plug/unplug the radio and identify the COM port (e.g. `COM4`).

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2. Configure Radio Settings

On the IC-7300:

`[MENU] → [SET] → [Function] → [Time-Out Timer (CI-V)]`

- Set to **3 or 5 minutes**

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3. Load Preset Configuration (Recommended)

For best and fastest results:

1. Copy preset file:

   `IC-7300-Settings-XX0YYY.dat`

   to:

   `SD Card → /Setting`

2. On the radio:

   `[MENU] → [SET] → [SD Card] → [Load Setting]`

   - Select file
   - Confirm:
     - Choose **[ALL]** (or specific settings)
     - Select **[YES]**

3. Update callsign:

   `[MENU] → [SET] → [Display] → [My Call]`

   - Replace `XX0YYY` with your callsign

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4. Prepare Server Folder

On your PC:

`C:\myserver`

- Copy all files from:

  `\bin-out`

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5. Detect Audio Devices

Run:

`sound_devices.exe`

Note device IDs:

- **Input device** (radio → PC)
  Example:

  `Microphone (USB Audio CODEC) → ID 2`

- **Output device** (PC → radio)
  Example:

  `Speakers (USB Audio CODEC) → ID 5`

---

6. Configure `config.json`

Edit:

```
{
    "serial_port": "COM4",
    "baud_rate": 115200,
    "http_port": 8080,
    "ws_port": 8081,
    "sample_rate": 8000,
    "frame": 1024,
    "min_buffer_frames": 3,
    "jitter_buffer_max": 4,
    "buffer_timeout": 2.0,
    "rx_gain": 1.0,
    "tx_gain": 1.0,
    "tx_timeout_seconds": 180,
    "tx_hang_time_ms": 550,
    "radio_audio_input_device": 2,
    "radio_audio_output_device": 5,
```

```
    "monitor_level": 64,
    "password": "radio2",
    "cookie_name": "radio_auth",
    "cookie_max_age": 2592000,
    "secret": "dolkiuytsgty7643hy5",
    "domain": "radio.yourdomain.com",
    "page_title": "IC-7300 Remote",
    "polling_interval_ms": 30000,
    "subpath": "",
    "default_memory_channel": 2,
    "license_key": "2dc57363851b329aa46150eb76f00d0c"
}
```

Notes

- Change:
  - `serial_port`
  - `radio_audio_*`
  - `password` ⚠️ **important**
  - `secret` (random string)
  - `license_key` ⚠️ **important** To get your key, look at the **logs/ic7300.log** for lines:

```
...
LICENSE ERROR: Invalid or missing license key!
TX period is limited to 5 seconds at once!
Email this ID to the software vendor to get your license key
============================================================
Your ID: ###############
============================================================
```

Send an e-mail with your ID#.
Replace the "license_key" to remove the 5 seconds TX limit.
⚠️ Your ID# / key is for one computer and user name, if you are running as service, the username would be different!

- Optional tuning:
  - `min_buffer_frames = 4..5` → smoother audio, more delay

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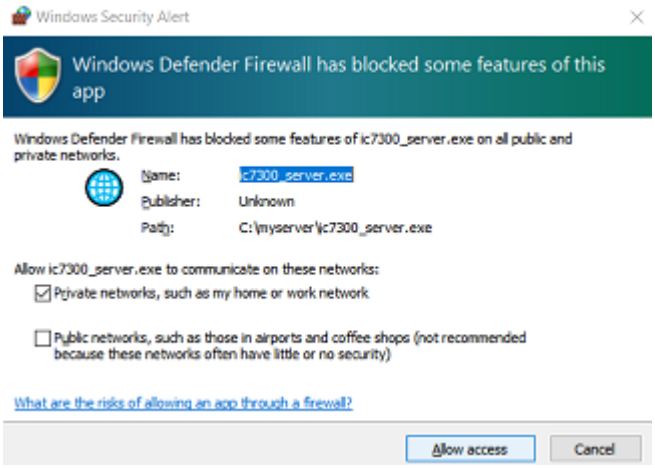
7. Start Server

Run:

```
ic7300_server.exe
```

- Allow access in **Windows Defender Firewall**



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8. Test Locally

Open browser:

```
http://localhost:8080
```

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9. Optional: Batch Start

Use:

```
test_server.bat
```

🌐 Part 2 — Remote Access via Cloudflare Tunnel

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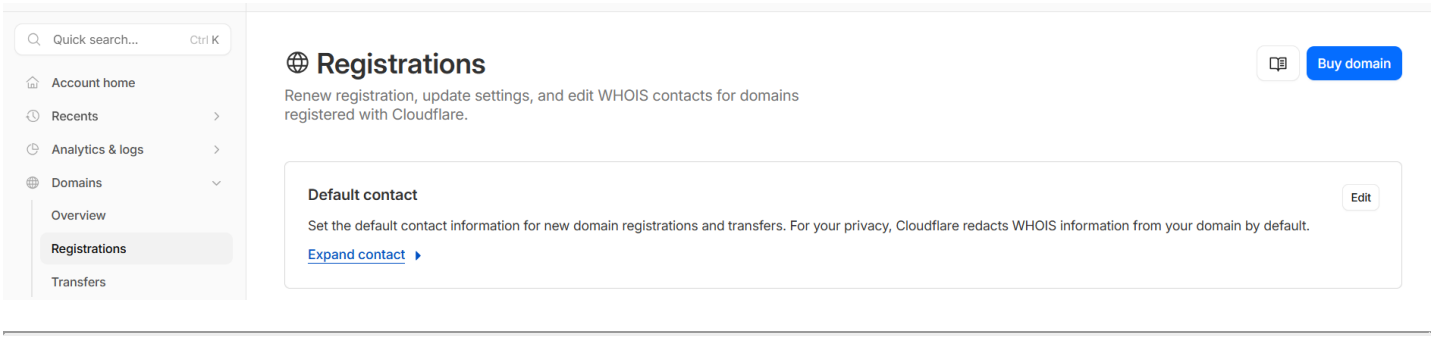
1. Create Cloudflare Account

- Go to:
  https://dash.cloudflare.com/sign-up
- Purchase a domain (~$US15 / ~10€ per year):

```
Domains → Registrations → Buy Domain
```



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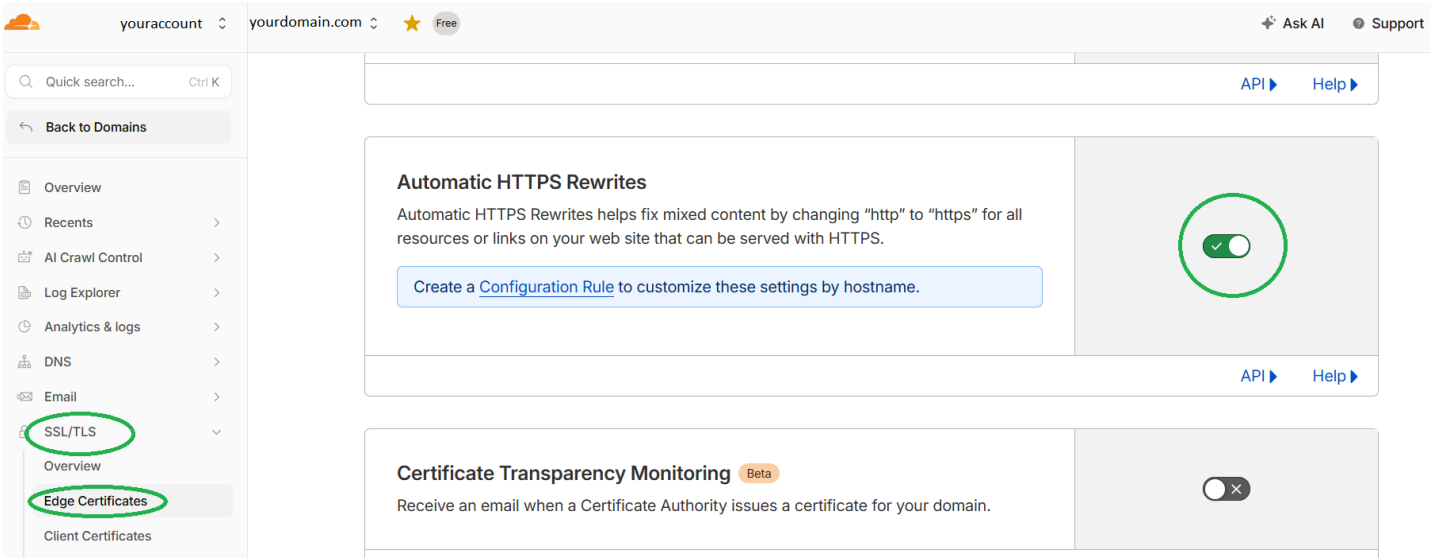
2. Force HTTPS

Navigate:

```
Domains → (your domain) → SSL/TLS → Edge Certificates
```

Enable:

```
Automatic HTTPS Rewrites → ON
```



3. Download Cloudflare Tunnel

From:
https://github.com/cloudflare/cloudflared/releases/

Download:

```
cloudflared-windows-amd64.exe
```

Rename and place:

```
C:\myserver\cloudflared.exe
```

4. Create `config.yml`

Create file:

`C:\myserver\config.yml`

```
tunnel: my-mydomain-tunnel
credentials-file: C:\myserver\mydomain.json

ingress:
  # WebSocket (must be first)
  - hostname: radio.mydomain.com
    path: /ws
    service: http://localhost:8081
    originRequest:
      noTLSVerify: true
      websocket: true

  # HTTP
  - hostname: radio.mydomain.com
    service: http://localhost:8080
    originRequest:
      noTLSVerify: true

  - service: http_status:404

log-directory: C:\myserver\logs
loglevel: debug
```

---

5. Authenticate Tunnel

Run:

```
cloudflared tunnel login
```

- Browser opens
- `cert.pem` created in: `%USERPROFILE%\.cloudflared` or `%HOME%\.cloudflared`

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6. Create Tunnel

```
cloudflared tunnel create my-mydomain-tunnel
```

- Generates:
  - Tunnel ID
  - JSON credentials file

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7. Prepare Files

Copy into:

```
C:\myserver
```

- `cert.pem`
- tunnel JSON → rename to:

  `mydomain.json`

---

8. Create DNS Route

```
cloudflared tunnel route dns my-mydomain-tunnel radio.mydomain.com
```

- Creates CNAME → tunnel

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9. Run Tunnel

```
cloudflared tunnel --config config.yml run
```

---

10. Test Remote Access

Open:

```
https://radio.mydomain.com
```

- Autometed way, instead of steps 9. and 10. run: `test_server.bat radio.mydomain.com`

⚙️ Part 3 — Run as Windows Service

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1. Install Service

```
cloudflared service install
```

---

2. Fix Service Path

Open:

```
regedit.exe
```

Navigate:

```
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Cloudflared
```

Edit:

```
ImagePath
```

Set:

```
C:\myserver\cloudflared.exe --config=C:\myserver\config.yml tunnel run
```

⚠️ Ensure:

- No extra spaces
- Correct paths

---

3. Control Service

```
net stop cloudflared
net start cloudflared
```

---

4. Test via Batch

```
test_server.bat radio.mydomain.com
```

ℹ Troubleshoot

Cleanup Tunnel Setup (if something goes wrong)

```
cloudflared tunnel list
cloudflared tunnel delete <NAME or UUID>
cloudflared tunnel list
```

- Then you can repeat the Tunnel setup (Part 2, Step 3)

Older Windows OS

The Server is designed to work on Win 10-11
Win 7, even older OS may work, you need follwing **KB3063858** update:

[Windows Vista SP2 x86]
[Windows Vista SP2 x64]
[Windows Server 2008 SP2 x86]
[Windows Server 2008 SP2 x64]
[Windows 7 SP1 x86]
[Windows 7 SP1 x64]
[Windows Server 2008 R2 SP1 x64]

Logs

Check:

```
C:\myserver\logs
```

✅ Summary

Local Setup

- Configure radio
- Configure audio + COM
- Run server

- Test on localhost

Remote Setup

- Cloudflare account + domain
- Tunnel + config
- DNS route
- HTTPS access

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sounddevice,websockets,wheel,WMI,zipp

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