

Grandstream HT701 & 3CX (Remote STUN)



By Eddie Vincent: Grandstream firmware 1.0.9.4 and 3CX v15.5 SP5

The Grandstream HT-701 is a single Port FXS ATA device to support end-points such as legacy analogue handsets and FAX machines.

With the increased popularity of hosted systems in this guide you will be shown how to set up the device to a hosted 3CX System “In the cloud”. We will use the Direct STUN method to achieve this.

The benefit of using Direct STUN is that you do not need to setup any other equipment to get a connection (such as an SBC or VPN connection) but there are downsides in security and extra network configuration for port forwarding and firewall rules.

STUN is also useful for setting up singular remote phones (such as a home worker or single analogue ringer) however can be troublesome when setting up multiple remote handsets on the same site.



Pre-configuration on 3CX:

Firstly for the device you need to configure an extension on 3CX for the Grandstream to register to and thus send and receive calls (although not being covered in this guide it is our assumption that you will already have a Trunk and outbound rule configured on 3CX to make and receive calls to the PSTN).

On creation of the extension you will need to take note of the extension number, and authentication credentials. You will also need to amend the below settings:

Turn off “disallow use of extensions outside the LAN” this means the extension will accept a direct SIP registration in from the outside world.

Disallow use of extension outside the LAN

PBX Delivers audio will need to be enabled so that audio traffic can pass back to the PBX, to and from the remote extension(s). Both of these settings can be found in the extension under “Options”.

PBX Delivers Audio

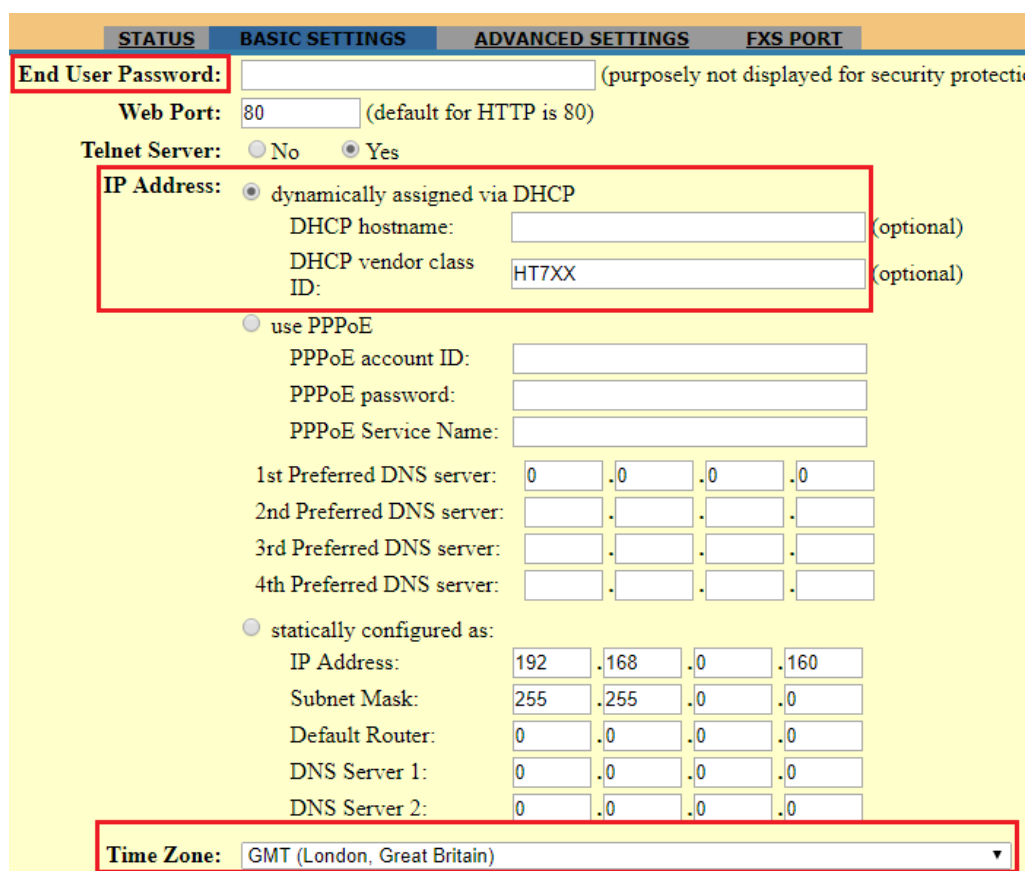
Grandstream HT-701 Settings:

Login to the Grandstream device, this is normally set to accept a DHCP address as standard so check your DHCP server and the login is "admin". You have 4 pages within the device Status/Basic & Advanced settings and FXS Port.

From here you need to set the following:

Basic Settings:

This page is more for house-keeping, there is not any settings here that would make any difference to registration of the device but it is still advised to set these parameters:



The screenshot shows the 'BASIC SETTINGS' page of the Grandstream HT-701 web interface. The page has a yellow background and a navigation bar at the top with tabs for 'STATUS', 'BASIC SETTINGS', 'ADVANCED SETTINGS', and 'FXS PORT'. The 'BASIC SETTINGS' tab is selected. The settings are as follows:

- End User Password:** A text input field, highlighted with a red box. A note next to it says "(purposely not displayed for security protection)".
- Web Port:** A text input field containing '80', with a note "(default for HTTP is 80)".
- Telnet Server:** Radio buttons for 'No' and 'Yes', with 'Yes' selected.
- IP Address:** A section highlighted with a red box containing:
 - dynamically assigned via DHCP
 - DHCP hostname: [text input] (optional)
 - DHCP vendor class ID: [text input containing 'HT7XX'] (optional)
 - use PPPoE
 - PPPoE account ID: [text input]
 - PPPoE password: [text input]
 - PPPoE Service Name: [text input]
 - 1st Preferred DNS server: [0] [.] [0] [.] [0] [.] [0]
 - 2nd Preferred DNS server: [] [.] [] [.] [] [.] []
 - 3rd Preferred DNS server: [] [.] [] [.] [] [.] []
 - 4th Preferred DNS server: [] [.] [] [.] [] [.] []
 - statically configured as:
 - IP Address: [192] [.] [168] [.] [0] [.] [160]
 - Subnet Mask: [255] [.] [255] [.] [0] [.] [0]
 - Default Router: [0] [.] [0] [.] [0] [.] [0]
 - DNS Server 1: [0] [.] [0] [.] [0] [.] [0]
 - DNS Server 2: [0] [.] [0] [.] [0] [.] [0]
- Time Zone:** A dropdown menu highlighted with a red box, currently set to 'GMT (London, Great Britain)'.

Set the IP address settings from DHCP to static (to avoid the DHCP allocation changing). Also set the time zone and password for the unit to something strong.

Advanced Settings:

Next go to the advanced settings page. This page will contain settings crucial to getting the connection working for STUN.

STATUS	BASIC SETTINGS	ADVANCED SETTINGS	FXS PORT
Admin Password: <input type="text"/> (purposely not displayed for security protection)			
802.1Q/VLAN Tag: <input type="text" value="0"/> (0-4094)			
Layer 2 QoS: SIP 802.1p: <input type="text" value="0"/> (0-7)			
RTP 802.1p: <input type="text" value="0"/> (0-7)			
STUN server is: <input type="text" value="STUN SERVER DETAILS"/> (URI or IP:port)			
Keep-alive Interval: <input type="text" value="20"/> (in seconds, default 20 seconds)			
Use STUN to detect network connectivity: <input checked="" type="radio"/> No <input checked="" type="radio"/> Yes, total STUN response misses <input type="text" value="3"/> to restart DHCP (minimum=3)			
Use DNS to detect network connectivity: <input checked="" type="radio"/> No <input type="radio"/> Yes			
Firmware Upgrade and Provisioning: Upgrade Via <input type="radio"/> TFTP <input checked="" type="radio"/> HTTP <input type="radio"/> HTTPS			
Firmware Server Path: <input type="text" value="s3-eu-west-1.amazonaws.com/gs-firmware"/>			
Config Server Path: <input type="text"/>			
XML Config File Password: <input type="text"/>			
HTTP/HTTPS User Name: <input type="text"/>			
HTTP/HTTPS Password: <input type="text"/>			
<input type="radio"/> Always send HTTP Basic Authentication Information			
<input type="radio"/> Send HTTP Basic Authentication Information only when challenged			
Firmware File Prefix: <input type="text"/> Firmware File Postfix: <input type="text"/>			
Config File Prefix: <input type="text"/> Config File Postfix: <input type="text"/>			
Allow DHCP Option 66 or 160 to override server: <input checked="" type="radio"/> No <input type="radio"/> Yes			
3CX Auto Provision: <input checked="" type="radio"/> No <input type="radio"/> Yes			

Here set your STUN server address (it can be set to any publically accessible STUN server). And select "Use STUN to detect network connectivity" and set it to "Yes".

FXS Port:

The FXS port page is where you set all your settings in regards to 3CX, so have handy all the settings taken earlier when the extension on 3CX was setup.

STATUS	BASIC SETTINGS	ADVANCED SETTINGS	FXS PORT
Account Active: <input type="radio"/> No <input checked="" type="radio"/> Yes			
Primary SIP Server: <input type="text" value="mypbx.3cx.co.uk"/> (e.g., sip.mycompany.com,			
Failover SIP Server: <input type="text"/> (Optional, used when primary response)			
Prefer Primary SIP Server: <input type="radio"/> No <input checked="" type="radio"/> Yes (yes - will register to Primary Server if Fail expires)			
Outbound Proxy: <input type="text"/> (e.g., proxy.myprovider.com any)			
Allow DHCP Option 120(override SIP server): <input checked="" type="radio"/> No <input type="radio"/> Yes			
SIP Transport: <input checked="" type="radio"/> UDP <input type="radio"/> TCP <input type="radio"/> TLS (default is UDP)			
NAT Traversal: <input checked="" type="radio"/> No <input type="radio"/> Keep-Alive <input checked="" type="radio"/> STUN <input type="radio"/> UPnP			
SIP User ID: <input type="text" value="304"/> (the user part of an SIP add			
Authenticate ID: <input type="text" value="304"/> (can be identical to or diffe			
Authenticate Password: <input type="text" value="....."/> (purposely not displayed fo			
Name: <input type="text" value="304"/> (optional, e.g., John Doe)			

The account should already be set to active but you will need to configure your 3CX related settings in the form of:

Primary SIP Server: The 3CX systems public FQDN.

NAT Traversal: Set to STUN.

SIP User ID: Taken from the extension number on 3CX.

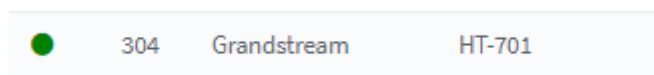
Authentication ID: Authentication ID of the extension on 3CX.

Authentication Password: Extension password on 3CX.

Name: Extension number of 3CX.

Once these have been correctly entered (and assuming that the correct NAT Port forwarding and firewall rules have been put in place for STUN) the device should register to 3CX.

This can be confirmed by looking at either the extension on 3CX:



Or looking in the Grandstream device on the status page – you should see that it is registered.

Port Status:	Port	Hook	User ID	Registration
	FXS	On Hook	304	Registered

You can now make a test call and if all the above has been configured correctly a call should be able to take place.

NOTE: This guide does not currently cover settings up the extension for FAX machines. For FAX we still would recommend using either the machine locally or if remote/hosted via a VPN tunnel.



For assistance, please contact EFL today:

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