

HOW TO.

Setup 2N D7A SIP Phone w/Axis & 2N Intercoms

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Introduction

Quick Setup Guide of the 2N D7A SIP Phone.

From initial login, config, optional setup of Dsskeys in a Peer-to-Peer scenario with an Axis or 2N Intercom.

Settings may vary. Tested with the following firmware revisions:

2N D7A SIP Phone FW 150.86.57.8

Intercom:

AXIS Intercom FW 11.11.79

and

2N Intercom FW 2.44.1.57.4

Please note that Axis doesn't take any responsibility for how this configuration may affect your system. If the modification fails or if you get other unexpected results, you may have to restore the settings to default.

Section 1 – Getting Connected for the first time

Cable Connections

1. Connect the handset cable to the handset & the **Handset port** on the back of the phone.
2. Connect the Network cable to your network and to the **Internet port** on the back of the phone (this supports POE). Not required if using WiFi.
3. If not using POE or if using WiFi also connect a power supply to the back of the phone and the power outlet.



Wi-Fi (optional)

1. On the phone's touch screen drag down from the top to show the menu
2. Press the **Settings icon**
3. Scroll until you see the section **Basic Settings** click on **Wi-Fi**
4. Enable **Wi-Fi**
5. Select your Wireless Network (SSID) and enter your password
6. Press **Connect**

Find the IP Address

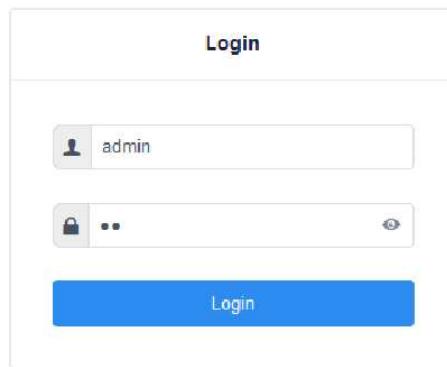
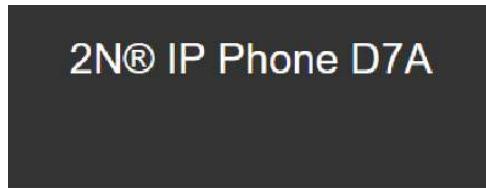
The phone is set to DHCP by default and should pull an IP Address if your network supports this.

1. On the phone's touch screen drag down from the top to show the menu.
2. Press on the **Settings icon**
3. In the section **Status** click on **Network** then **IPv4 Status**.
4. This will reveal the **WAN IP**. Make note of this for the next step.

Connect to the web GUI of the phone

The next step is done through the web browser on your computer

1. Type the IP Address (WAN IP noted from previous step) of the phone into your web browser.
2. The first time you login, use the following credentials
 - o User: admin
 - o Password: 2n



3. You will then be prompted to change the password
 - o The password must be at least 8 characters long and contain at least 1 uppercase letter, 1 lowercase letter, and 1 digit.
4. Set a **New Password** and click **Confirm**.

A screenshot of a password change dialog box. It contains four input fields: "User Type" (set to "Admin"), "Old Password" (containing three dots (...)), "New Password" (containing nine dots (.....)), and "Confirm Password" (containing nine dots (.....)). Each field has a question mark icon to its right. At the bottom are "Confirm" and "Cancel" buttons. The background of the dialog is white, and the overall design is clean and modern.

Set the Date & Time

The following steps are completed through the phone's web GUI via your computer's browser

1. Go under **Settings → Time&Date**
2. Adjust the **Time Zone** drop down from +1 to the appropriate zone
 - o For example if in New York, change it to:
 - -5 Bogota, Lima, Quito, Peru, Indiana, Bahamas, Canada, Cuba, US-Eastern Time
3. Verify / update the **Daylight Saving Time & Location**
4. Adjust the **Time Format** to your preference
 - o For example change the default Hour 24 to Hour 12
5. Adjust the **Date Format** to your preference
 - o For example change the default DD/MM/YYYY to MM/DD/YY
6. Click **Confirm**

Settings

Preference

Time&Date

Call Display

Upgrade

Auto Provision

Configuration

Dial Plan

Voice

Ring

Tones

Softkey Layout

TR069

Update Interval (15~86400s)

1000

Time Zone

-5 Bogota,Lima, Quito, Peru...

Daylight Saving Time

Disabled

Enabled

Automatic

Location

United States-Eastern Time

Fixed Type

DST by Date

DST by Week

Start Date

March

Second ...

Sunday

2

End Date

November

First Week

Sunday

2

Offset (minutes)

60

Time Format

Hour 12

Date Format

MM/DD/YY

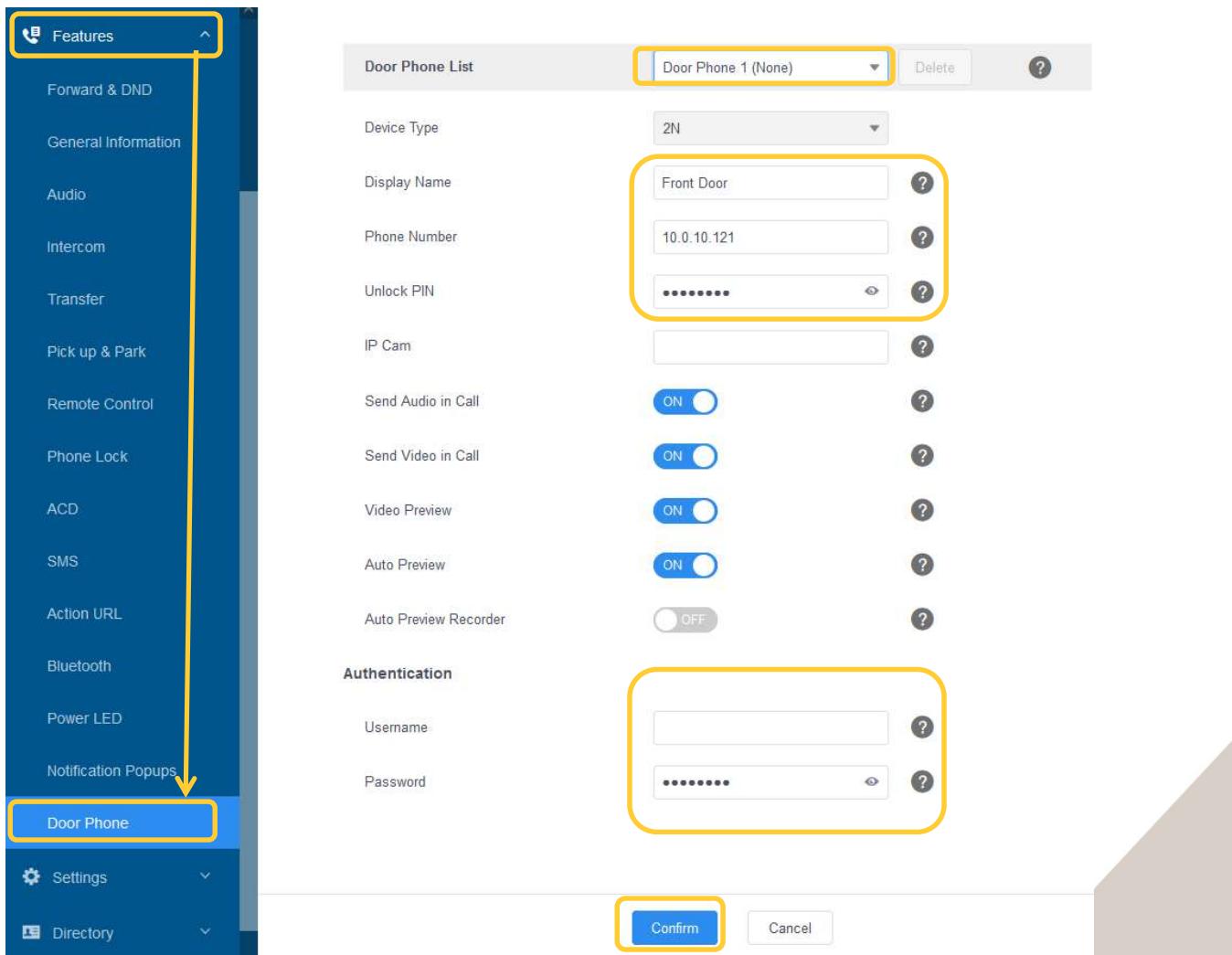
Confirm

Cancel

Section 2 – 2N D7A - Update Door Phone (Axis or 2N Intercom) Settings

The following steps are completed through the D7A phone's web GUI via your computer's browser

1. Go under **Features → Door Phone**
2. Verify **Door Phone List** has **Door Phone 1** selected
3. Update **Display Name** with the name or location of your Axis or 2N Intercom
 - o For example: Front Door
4. Update **Phone Number** with the IP Address of the Axis or 2N Intercom



5. Update **Unlock Pin** with the DTMF sequence the intercom uses to unlock the door (see subsequent sections if this needs to be configured on the intercom)

6. When on a call with the Intercom, an Open Door Icon will appear on the bottom left of the touch screen on the 2N D7A phone. This will pass the programmed unlock pin to the intercom to unlock the door during the call.
7. Optional: Update **Authentication** with the credentials of the Intercom the D7A Phone will use to send commands. Example: A Dsskey (pg 21) to directly send an unlock command to the intercom without initiating a call.
 - o **Axis Intercom:** this can be created in the Axis Intercom web GUI under System → Users. There you can add a user w/Operator Role the D7A phone will use.
 - o **2N Intercom:** this can be created in the 2N Intercom web GUI under Services → HTTP API then Account 1 (or unused account). Enable it, create the credentials & assign user privileges (ex. Switches) the D7A phone will use.
8. Click **Confirm**
9. Repeat the above steps for any additional Axis or 2N Intercoms, by selecting the next drop down in the **Door Phone list** at the top of the page.

Section 3 – Axis Intercom – Basic Call & Unlock Configuration

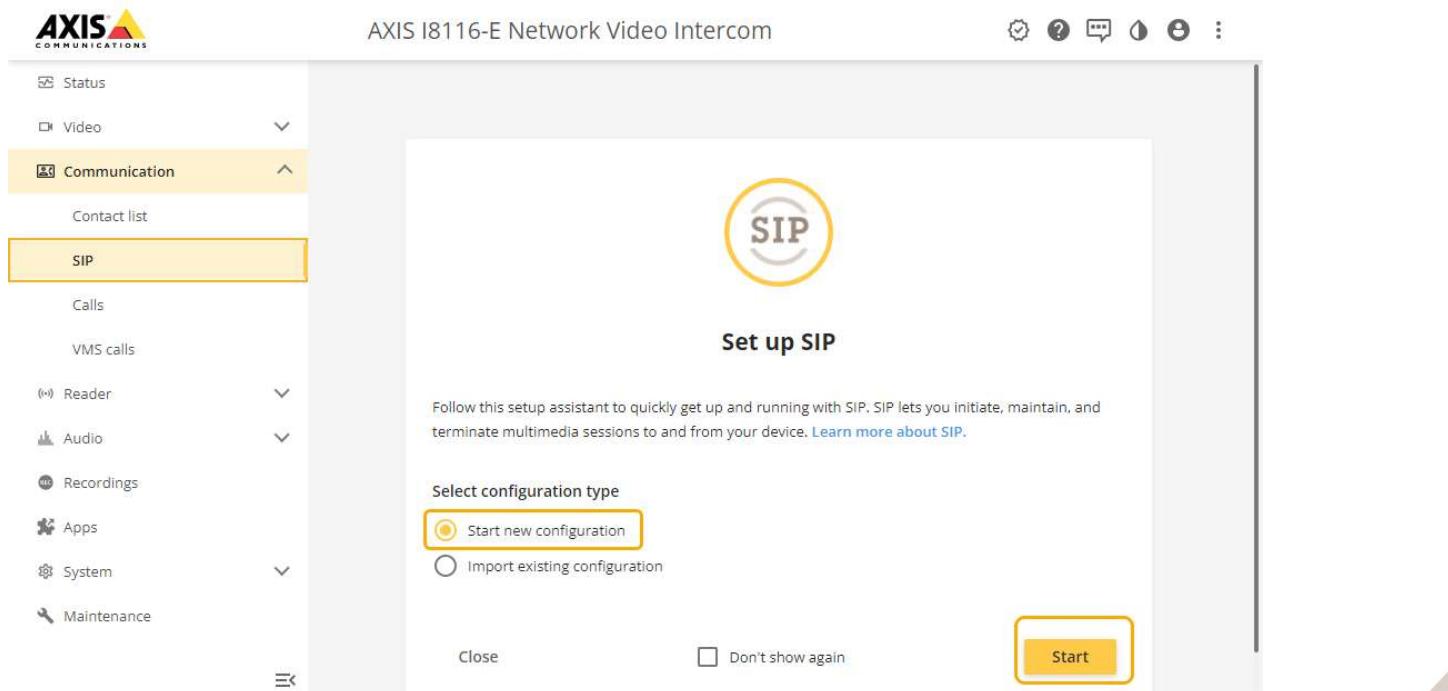
The following steps are completed through the **Axis Intercom's** web GUI

The following setup requires initial configuration of the intercom and network to have already been completed (discovery, network settings, internet access, etc.)

Consult your intercom's respective user manual. Manuals can be found here:
<https://help.axis.com/en-us> (click Network Intercoms on left side)

SIP Wizard Setup

1. In the web interface of the Axis Intercom navigate to **Communication → SIP**
2. Follow the SIP Wizard
3. Setup SIP
 - a. Select **Start new configuration**
 - b. Click **Start**



4. Enable SIP and allow incoming SIP calls

- Select **Enable SIP**
- Select **Allow incoming calls** if you choose to allow the D7A to call the intercom
- Click **Next**

AXIS I8116-E Network Video Intercom

Enable SIP and allow incoming SIP calls?

Session Initiation Protocol (SIP) is used for interactive communication sessions between users. The sessions can include audio and video.

Enable SIP
 Allow incoming SIP calls

Close Back **Next**

5. Account Type

- Select **Peer-to-peer**
- Click **Next**

AXIS I8116-E Network Video Intercom

Account type

Select account type

Peer-to-peer: This is the most basic type of SIP communication. It takes place directly between two or more SIP user agents.

Registered: This is a more complex setup that involves a Private Branch Exchange (PBX), which acts as a central hub between SIP user agents. It allows you to make calls across networks, and provides features such as call transfers, voicemail, and redirections.

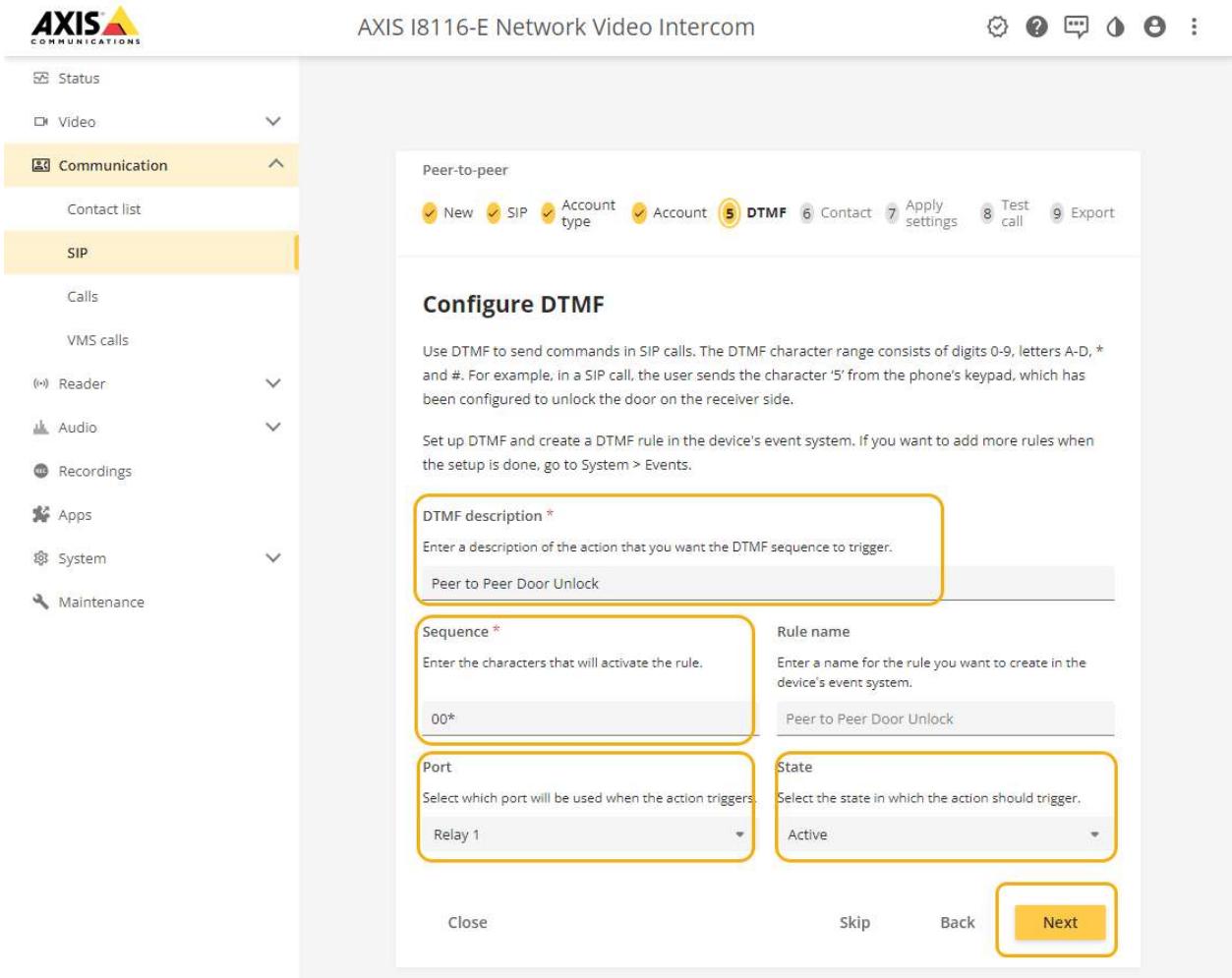
Close Back **Next**

6. Create a peer-to-peer account
 - a. Give a descriptive **Name** such as Peer to Peer
 - b. Give a unique **User ID**
 - c. Click **Next**

The screenshot shows the configuration interface for a Peer-to-peer account. The left sidebar has a 'Communication' section with 'SIP' selected. The main panel title is 'Create a peer-to-peer account'. It contains two input fields: 'Name *' with 'Peer to Peer' entered and 'User ID *' with '112' entered. The 'Next' button is highlighted with a yellow box.

7. Configure DTMF

- a. Give a **DTMF description**, this will be used as the Rule Name.
 - i. Ex. Peer to Peer Door Unlock
- b. Assign a **DTMF sequence**
 - i. Ex. 00*
- c. Verify **Port** is set to the relay name you have the door lock wired to
 - i. Ex. Relay 1 or Door
- d. Verify **State** is set to Active
- e. Click **Next**



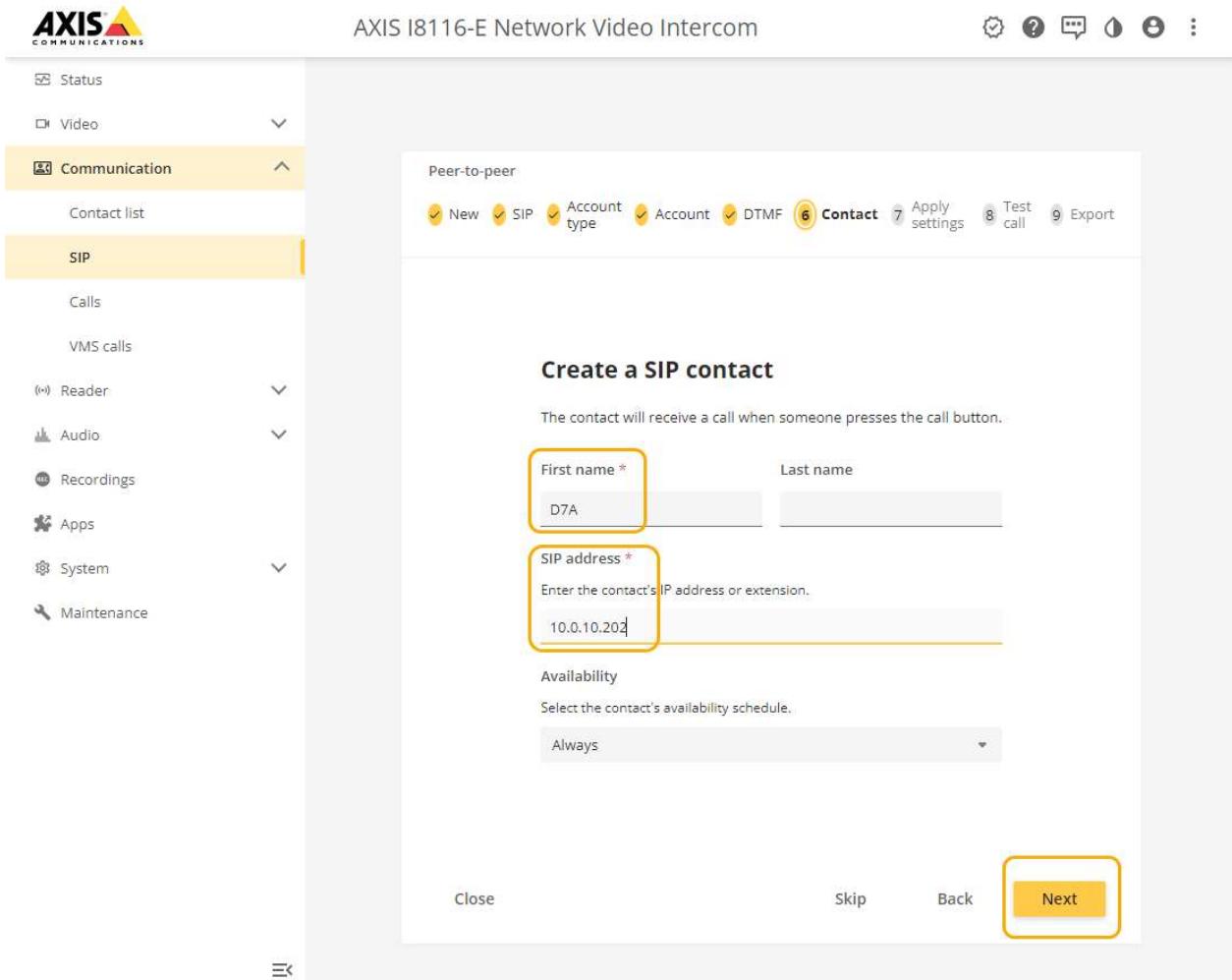
The screenshot shows the configuration interface for the AXIS I8116-E Network Video Intercom. The left sidebar shows navigation options: Status, Video, Communication (selected), Contact list, SIP (selected), Calls, VMS calls, Reader, Audio, Recordings, Apps, System, and Maintenance. The main content area is titled 'Configure DTMF' and includes the following fields:

- DTMF description ***: A text input field containing "Peer to Peer Door Unlock".
- Sequence ***: A text input field containing "00*".
- Port**: A dropdown menu set to "Relay 1".
- Rule name**: A text input field containing "Peer to Peer Door Unlock".
- State**: A dropdown menu set to "Active".

At the bottom are buttons for Close, Skip, Back, and Next (highlighted with a yellow box). The top navigation bar includes icons for Status, Video, Communication, Contact list, SIP, Calls, VMS calls, Reader, Audio, Recordings, Apps, System, Maintenance, and a gear icon.

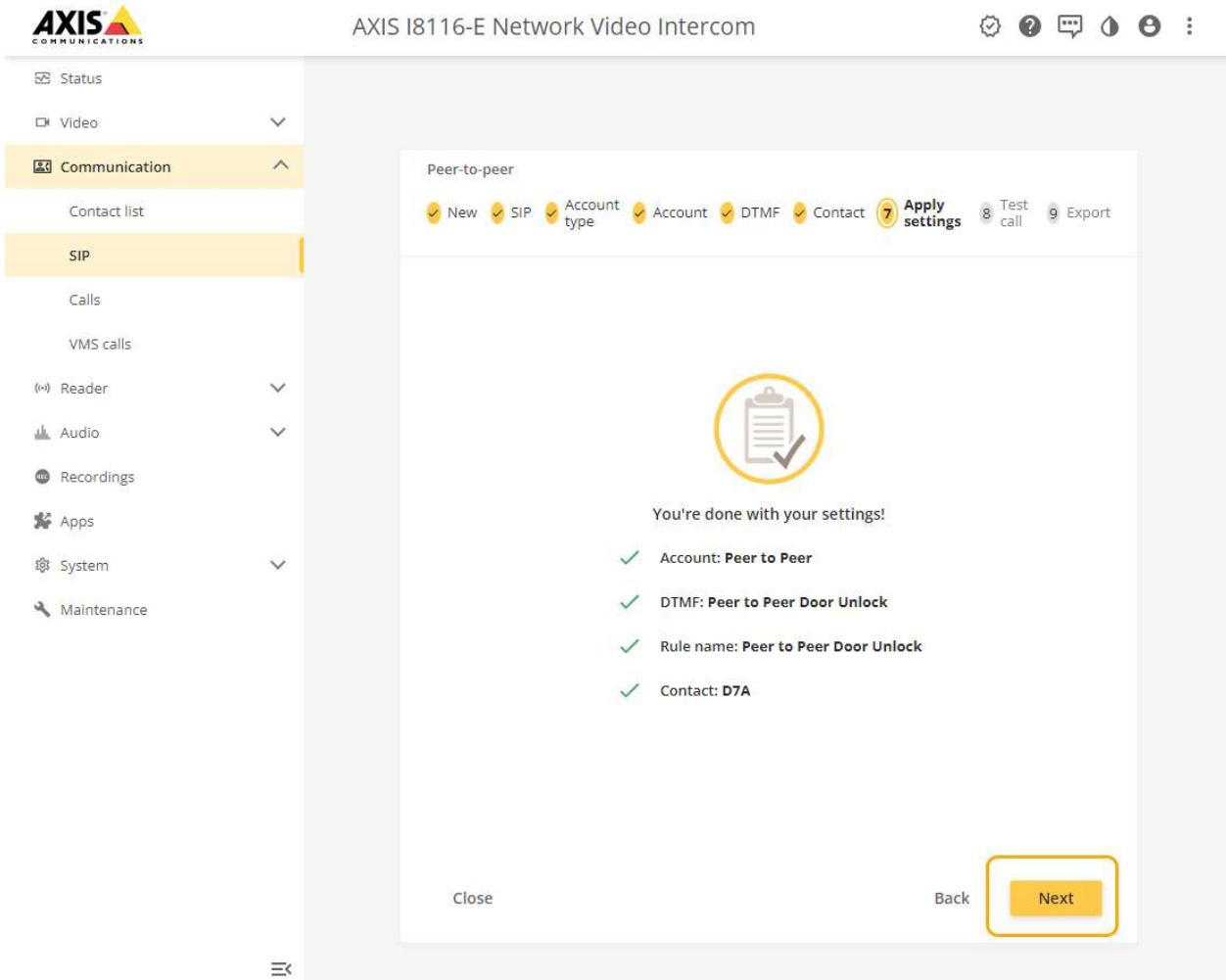
8. Create a SIP Contact

- a. Configure **First name** such as D7A
- b. Configure **SIP address** as the IP address of the D7A
- c. Click **Next**



9. Apply Settings

a. Click **Next**



10. Test your setup

- Click the **phone icon** to perform a test call
- Click **Next**

AXIS I8116-E Network Video Intercom

Peer-to-peer

New SIP Account Account type Account DTMF Contact Apply settings **8 Test call** 9 Export

Test your setup

Make a call to test the functionality and performance of your SIP setup.

SIP account SIP address * Call duration

Peer to 10.0.10.202 60

Peer (Does not register - 0)

SIP SIP

idle 10.0.10.202

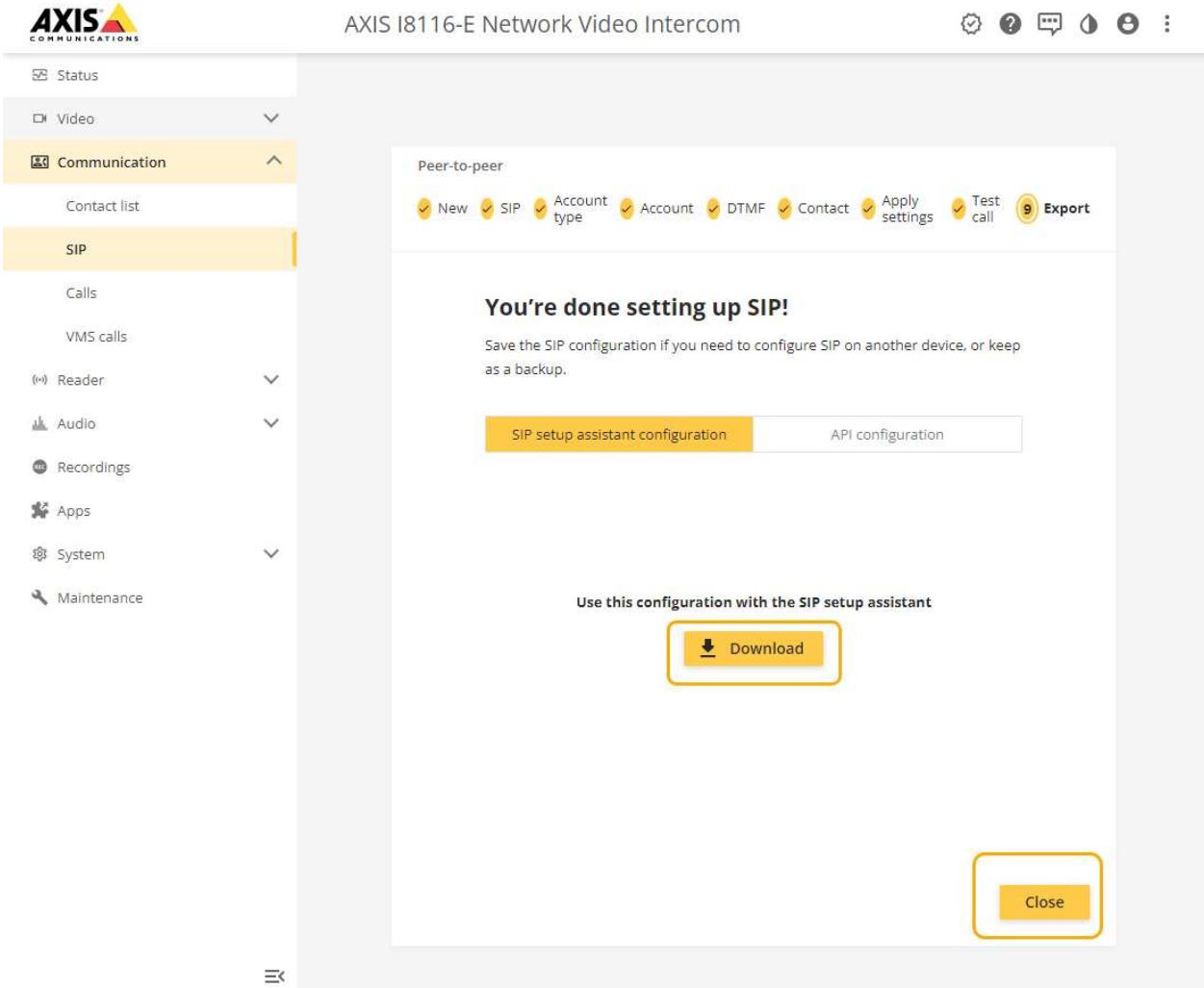
Call status Local SDP (sent) Remote SDP (received)

CallId: Out-0-1728524228.456592-5-Vs0gpFaoYotUYTzPwp3T77lula...
Reason: Terminated
CallDirection: Outgoing
DeviceURI: sip:10.0.10.112:5060
RemoteURI: sip:10.0.10.202
AccountId: sip_account_1
CallType: SIP

Close **Next**

11. You're done setting up SIP!

- a. Click the **Download** button to download a backup of this sip configuration that can be imported on this or other Axis intercoms on the network
- b. Click the **Close** button



Section 4 – 2N Intercom – Basic Call & Unlock Configuration

The following steps are performed in the web GUI of the 2N Intercom

The following setup requires initial configuration of the intercom and network to have already been completed (discovery, network settings, internet access, etc.)

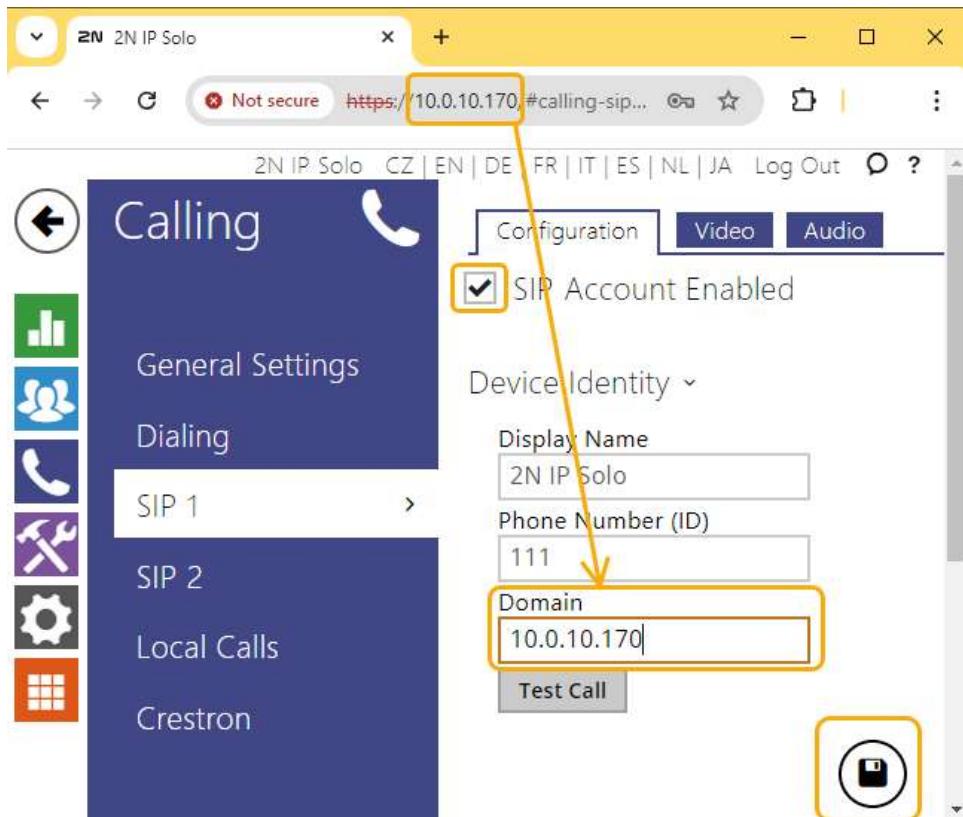
https://manual.2n.com/en-GB/wiki/42715/2_44/brief-guidelines

SIP Account Setup

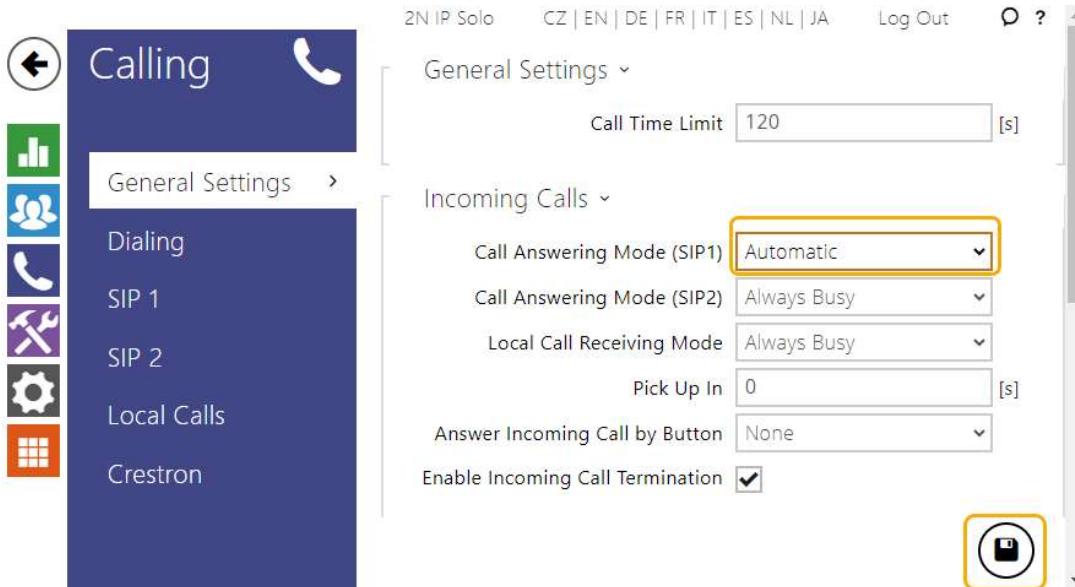
A peer to peer sip account needs to be enabled in the 2N intercom to allow it to call the D7A's IP address directly.

1. Go under **Calling** → **SIP 1**

- a. Enable **SIP Account 1**
 - i. This is disabled by default
 - b. It is best practice to set the **Domain** to the same IP as the intercom
 - c. Ignore the rest of the SIP settings as these are only used when registering the intercom to a phone system
 - d. Click **Save**



2. To enable incoming calls from the D7A SIP phone go under **Calling** → **General Settings**
 - a. Under **Incoming Calls**, change **Call Answering Mode (SIP1)** to **Automatic**
 - i. This is disabled by default
 - b. Click **Save**



2N IP Solo CZ | EN | DE | FR | IT | ES | NL | JA Log Out ?

Calling

General Settings >

Dialing

SIP 1

SIP 2

Local Calls

Crestron

General Settings

Call Time Limit 120 [s]

Incoming Calls

Call Answering Mode (SIP1) **Automatic**

Call Answering Mode (SIP2) Always Busy

Local Call Receiving Mode Always Busy

Pick Up In 0 [s]

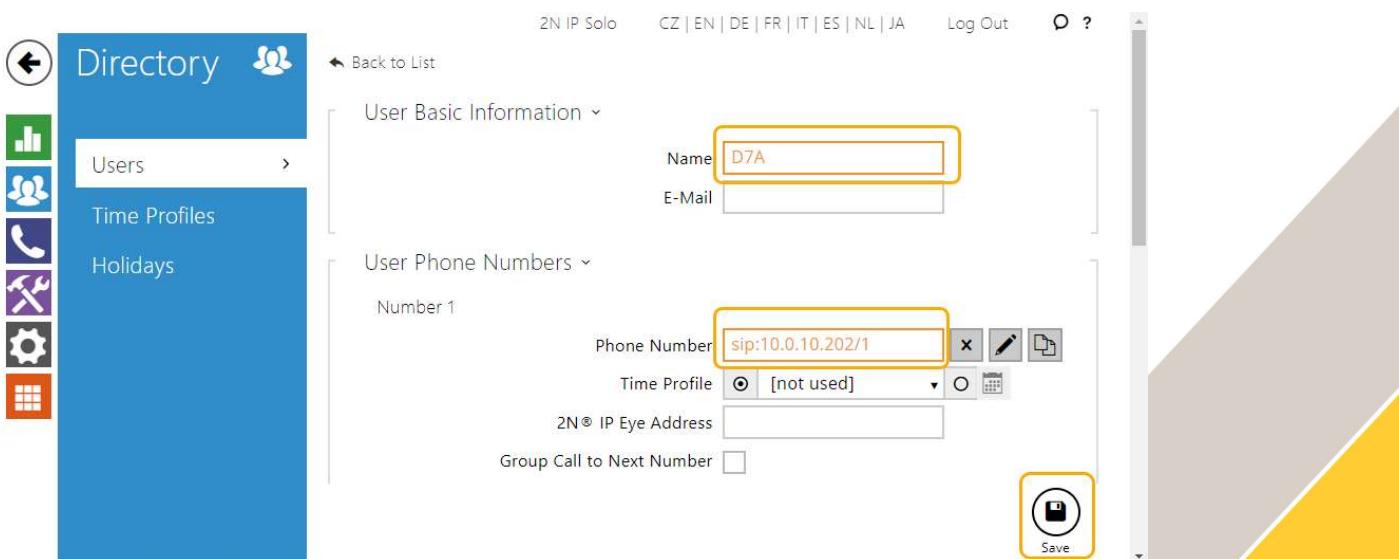
Answer Incoming Call by Button None

Enable Incoming Call Termination

Save

User Setup

1. Add the D7A information in the intercom by navigating to **Directory** → **Users** settings.
2. Click on the **Add User** button at the top
3. Populate the **Name** field with the User's Name, ex. D7A
4. Populate the **Phone Number** field with **sip:** and the IP address of the D7A
 - a. Add a **/1** to specify it will use SIP account 1 to dial out
 - b. Ex. **sip:10.0.10.202/1**
 - c. The pencil icon can also be used to assist with formatting
5. Click the **Save** button in the bottom right corner



2N IP Solo CZ | EN | DE | FR | IT | ES | NL | JA Log Out ?

Directory

Back to List

Users >

Time Profiles

Holidays

User Basic Information

Name **D7A**

E-Mail

User Phone Numbers

Number 1

Phone Number **sip:10.0.10.202/1**

Time Profile **[not used]**

2N® IP Eye Address

Group Call to Next Number

Save

Display Directory Setup

Users (like the D7A we just created) are automatically added to the Display Directory on the 2N IP Style and 2N IP Verso 2.0.

1. To modify how users appear in the directory
 - a. Settings can be adjusted under **Calling → Dialing → Display Phonebook**
 - b. Or under the user, via **Directory → Users**

Quick Dial Button Setup

For 2N Intercoms with physical buttons used for calling, the user needs to be added to the quick dial button.

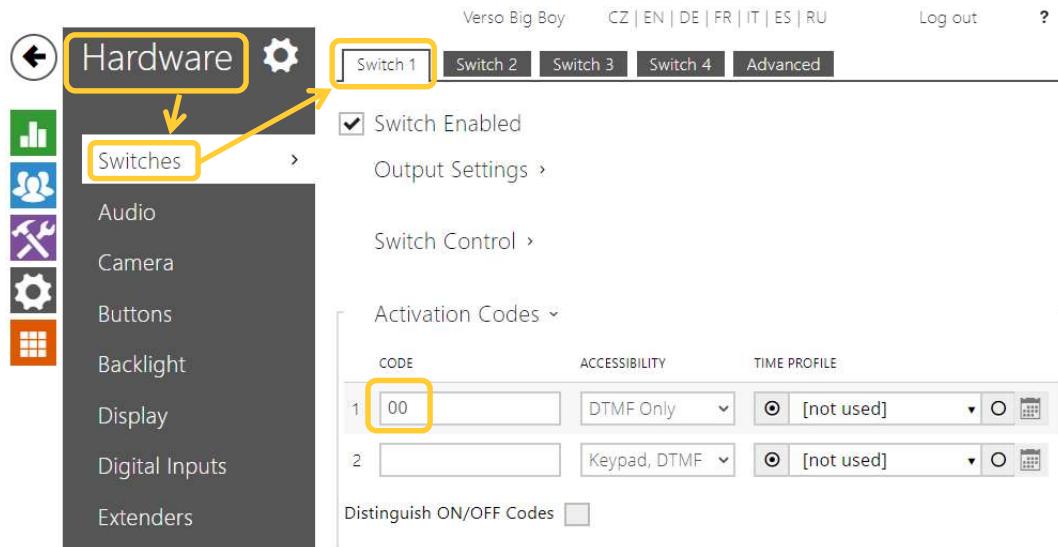
1. Navigate to **Calling → Dialing → Quick Dial Buttons**
2. Click the **plus symbol** to add the D7A user to the quick dial button on the device
3. Click **Save**



DTMF Setup

The DTMF sequence or Unlock Pin used to trigger the relay and release the door can be customized. The default sequence is 00*.

1. The DTMF sequence can be found in the 2N web GUI under **Hardware → Switches** then Switch 1 (default). Scroll down to find the DTMF sequence under Activation Codes.
2. When configuring the 2N Unlock Pin in the D7A you will need to append an * after the code, the 2N intercom will wait for the * to confirm the full code has been sent via DTMF.
 - a. Ex. 00 = 00*



Section 5 – Optional: 2N D7A - Programming Dsskeys (Soft Buttons)

Create some shortcut keys on the touchscreen to directly unlock a door, call the intercom or view an intercom camera feed.

Unlock the Door

The following steps are performed in the web GUI of the 2N D7A Phone

1. Click on **Dsskey** then **Line Key**
2. Set the key type
 - Type = Open Door
3. The value is the trigger/command we will send to the (Axis or 2N) intercom
 - Axis Intercom:
Value = `https://<IP_of_Axis_Intercom>/axis-cgi/io/port.cgi?action=4%3A%2F5000%5C`
The above action triggers relay 1 (port 4) for 5000 milliseconds (5 seconds) on the I8016-LVE. If you have a different model Axis Intercom, you can verify the Relay 1 port number under System → Accessories in the Axis GUI (firmware 11.x).
 - 2N Intercom:
Value = `https://<IP_of_2N_Intercom>/api/switch/ctrl?switch=1&action=trigger`
The above action triggers Switch 1 (the default Door Lock switch). It is triggered for the duration specified in the 2N Intercom GUI under Hardware then Switches for Switch 1.
4. Create a descriptive label
 - Example: Label = Unlock Front Door
5. Set the Extension / IP address of the intercom
 - Extension = <IP_of_Intercom>
6. Click Confirm

Key	Type	Value	Label	Line	Extension
Line Key1	Open Door	<code>https://10.0.10.64/axis-cgi/io/port.cgi?action=4%3A%2F5000%5C</code>	Open Axis Door	N/A	10.0.10.64
Line Key2	Open Door	<code>https://10.0.10.241/api/switch/ctrl?switch=1&action=trigger</code>	Open 2N Door	N/A	10.0.10.241

Call an Axis or 2N Intercom

The following steps are performed in the web GUI of the 2N D7A Phone

1. Click on **Dsskey** then **Line Key**
2. Set the key type
 - o Type = Speed Dial
3. The value is IP of the (Axis or 2N) intercom
 - o Axis Intercom:
Value = <IP_of_Axis_Intercom>

Confirm incoming calls are allowed in the Axis Intercom. In the Axis Intercom GUI under Communication then SIP then the SIP Settings tab. Verify Allow Incoming Calls has a check next to it. Under the SIP Accounts tab, you can edit the peer-to-peer account to see if Answer Automatically has a check next to it.

- o 2N Intercom:
Value = <IP_of_2N_Intercom>

Confirm incoming calls are allowed in the Intercom. In the 2N Intercom GUI under Services then Phone then the Calls tab, verify the Incoming Calls, Call Answering Mode setting.

4. Create a descriptive label
 - o Example: Label = Call Intercom
5. Set the Line to be used
 - o Line = Line1
6. Click **Confirm**

Key	Type	Value	Label	Line	Extension
Line Key1	SpeedDial	10.0.10.64	Call Axis Intercom	Line1	
Line Key2	SpeedDial	10.0.10.241	Call 2N Intercom	Line1	

View an Axis or 2N Intercom Camera

The following steps are performed in the web GUI of the 2N D7A Phone

1. Click on **Dsskey** then **Line Key**
2. Set the key type
 - o Type = Video Monitoring
3. The value is the command specific for the (Axis or 2N) intercom

- o Axis Intercom:
Value = https://Username:Password@<IP_of_Axis_Intercom>/axis-cgi/mjpg/video.cgi?resolution=640x480&camera=2

The above command requests video from the Axis Intercom. Prior to the IP address, insert the Username:Password@ user credentials that the D7A will use to log into the Axis Intercom. The command requests a resolution of 640x480 from the custom view (&camera=2). To retrieve the default fisheye view, remove &camera=2 from the string.

- o 2N Intercom:
Value = https:// Username:Password@<IP_of_2N_Intercom>/api/camera/snapshot?width=640&height=480&fps=15

The above command requests video from the 2N Intercom. Prior to the IP address, insert the Username:Password@ API account credentials that the D7A will use to log into the Intercom. The command requests a resolution of 640x480 at a framerate of 15 fps.

4. Create a descriptive label
 - o Example: Label = View Intercom
5. Set the Extension / IP address of the intercom
 - o Extension = <IP_of_Intercom>
6. Click Confirm

Key	Type	Value	Label	Line	Extension
Line Key1	Video Monitoring	https://Username:Password@11	View Axis Intercom	N/A	10.0.10.64
Line Key2	Video Monitoring	'width=640&height=480&fps=15	View 2N Intercom	N/A	10.0.10.241

NOTE

If Video doesn't load when you test the key, verify your 2N D7A is on FW 150.86.57.8 (or later) and the credentials are correct.

Considerations and limitations

Settings reference a Peer-to-Peer scenario on a local network. Settings and other changes would need to be made to accommodate connectivity through a phone system and/or if devices are located on different networks or if other network security measures are in place. Please consult your network administrator.

Additional configuration documentation on the Axis Intercoms can be found here:

<https://help.axis.com/en-us> (click Network Intercoms on left side)

Additional configuration documentation on 2N Intercoms can be found here:

<https://wiki.2n.com/hip/conf/latest/en>

If you have the optional camera for the 2N D7A you can configure a bidirectional video call with the 2N IP Style Intercom. This feature is disabled by default. It is enabled in the web GUI of the 2N IP Style under Services → Phone then click the Video tab. Additional information can be found here:

<https://faq.2n.cz/pages/viewpage.action?pageId=92537494>