BARIX

Quick Install Guide

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The scope of this document is to give a general introduction on the IP Former TPA400 helping the user to run a basic setup and have an audio stream playing out from the device.

1 Package Content

- IP Former TPA400 device
- Speaker Connector

The Barix IP Former TPA400 is an audio over IP decoder which includes an amplifier to drive a loudspeaker. All configurations for this device are done locally on an integrated web interface. The operational status of the device is indicated by two multicolour LEDs (red/green).

2 Installation

2.1 STEP 1 Connecting to Audio Equipment

The IP Former needs connection to the Speaker Equipment through the screw connector provided on the front panel of the device. The speaker output supports speaker impedance of 4 and 8 ohms (2 ohms is also possible but the output power of the amplifier is optimized and configurable to match 4 and 8 ohms speakers).

2.2 STEP 2 Connecting to a PoE switch

Connect your IP Former to the Network using a standard Ethernet cable (CAT5e or better). The network will need to provide standard PoE power supply IEEE 802.3af (15W per port) or higher. The class negotiated is Class 0, which will allow the switch to deliver up to the maximum capability per port (power available at PD for 802.3af <= 12.95W).

- The IP Former is configured to be a DHCP Client by default.
- System Status LED green solid: Device has started up and is running.
- Application Status LED green solid: Application has started and is running.



Tips for a proper startup

- 1. Verify that your speaker is connected to the IP Former
- 2. Verify that your network cable is connected to a PoE Switch and a DHCP server is available within the network
- 3. During startup, the IP Former will acquire an IP address and announces it on the speaker output
- 4. By default the device will announce itself to a Syn-Apps server (and to an Informacast server if licensed), System Status LED and Application Status LED turn solid

The IP address of the IP Former is useful in order to do further configuration (e.g. configuring other sources etc) using its local web user interface via web browser.

3 Managing Sources and use of the IP Former

3.1 STEP 1 Login

- 1. Use your web browser to log into the IP Former Web Interface by typing the IP Address into your browser.
- Use the user "admin" and the appropriate password provided on the sticker on the backside of the device (PW label)

3.2 STEP 2 Configure your Sources

For the configuration of your sources, the following source types are available:

- Syn-Apps → annouces the IP Former as an audio device in a Syn-Apps system
- Informacast (if licensed) → annouces the IP Former as an audio device in an Informacast system
- Barix Radio → plays Barix Radio as http stream without any further configuration
- RTP \rightarrow configures the IP Former to receive an RTP stream
- HTTP(S) \rightarrow configures the IP Former to receive an HTTP or HTTPS stream
- SIP \rightarrow configures the IP Former to be a SIP client (peer to peer or Server mode)
- Local File $\,\rightarrow\,$ allows to play audio files which are locally stored on the IP Former

Please refer to the help description in the user interface in order to properly configure your sources.

Individual Volume can be set for every of the sources.



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|---|--|
| Settings Sources Audio Files Speaker Status System Status Logs Defaults Update Reboot Remote Config | IP Speaker MAC 00:08:E1:08:54:47 FW 2.6.0 |
| IP Speaker TPA400 | BARIX |
| Sources Input Sources Priority Table Import Exont | Help Input Sources Priority Table Definition of the sources that will be played according to the priority assigned. |
| ON Priority IV Type [InformaCast V] Name [InformaCast URL [leave it empty for auto or http]s]:///servers[<port>][/epath>] Volume 90%</port> | Changing any parameter will only take effect after submit. Import Import definitions of sources exported by another device. After import, you have to submit the changes to take effect. Export Export definitions of sources. Only available as long as there are no changes. |
| ov Priority 2 v Type Syn-Apps Name Synapps Server Leave it empty for auto Volume 90% | Enabled Enable of disable source Priority Sets the source priority. If two sources have the same priority, no specific behaviour is guaranteed. Type |
| Priority 3 v Type [sip v] Name SIP Emergency call SIP mode Server and Peer-to-Peer v Server Domain sip100.bark.com User Name 5246 Password memere Transport & Security Tis.server v | Type of source to use: • Bark Radio - Bark Radio. • Local file - Play a local file triggered by UPD. • InformaCast - InformaCast audio. • RTP - RTP error Parteman. • SynApps - SynApps audio. • SJP - Receive By Photone Call. • HTTP - HTTP or HTTPS Audio Stream. Name |
| Volume | User friendly name for source. Sources Config |
| or Priority 4 v) Type Local file v Name Local files Trigger Trigger UDP port [888 Volume 90% Volume 90% Volume 100% Volume <td< td=""><td>sets une comparation parameters for source in format "key": "follow" separated by commas. Selecting a source type will show the required config structing for that source type. Baric Radio: Ho parameters needed. InformaCatt UR: The URL of InformaCast service. Can be empty to use auto discovery. Auto discovery requires your DHCP server to support and have enabled OPT150 if this notion is not supported aster</td></td<> | sets une comparation parameters for source in format "key": "follow" separated by commas. Selecting a source type will show the required config structing for that source type. Baric Radio: Ho parameters needed. InformaCatt UR: The URL of InformaCast service. Can be empty to use auto discovery. Auto discovery requires your DHCP server to support and have enabled OPT150 if this notion is not supported aster |
| ov Priority S∨ Type Barix Radio ∨ Name Barix Radio Volume Volume 90% | the manual path to the server IP Jaddress. When entering the address manual the format is: "http://clast_server_IP-3081/informaCast/admin". * IDE Loudio address:Once the "InformaCast/admin". * IDE Loudio address:Once the "InformaCast Life". If specified, you can specify the RTP stream for the IDE Laudio. IDE Audio is i.e. a background music stream playing via RTP from a local source while there are no notifications triggered. If left empty, there will be no IDLE audio. Unicast or Multicast are supported. Example: ttp://stream_IP>[port] Important: only RTP protocol is supported as IDLE audio. |

3.3 STEP 3 Prioritize your Sources

Multiple sources can be configured at the same time and are played according to their given priority.

- Priority 1: Highest priority
- Priority 5: Lowest priority

Management of priority means that a present stream will be played over another configured stream.

Example

Example of a Priority System

- Priority 3: HTTP Radio Stream playing Background music.
- Priority 2: RTP Streams playing ads over the background music. Background music will stop as soon as the RTP stream is present
- Priority 1: SIP call playing emergency calls. Background music or advertisements will be stopped as soon as SIP call is
 present.

3.4

STEP 4 Manage Local Files

Use the menu item "Audio Files" in order to manage your local files for the source type "Local Files".



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|---|--|
| Settings Sources Audio Files Speaker Status System Status Logs Defaults Update Reboot Remote Config | IP Speaker MAC 00:08:E1:08:54:47 FW 2.6.0 |
| IP Speaker TPA400 | BARIX |
| Audio files | Help |
| Audio files available to play with "Local file" source type. | Audio Files |
| Upload audio file | Upload audio files to be available to be played as a "Local File". |
| Upload audio files to use with local file source type. Maximum upload size is 16384 KB. | Supported file names: "myFileName.ext" or "myFile Name.ext" - special characters are not allowed and maximum one space character, two or more spaces are not allowed. |
| Upload | Supported audio formats: mp3,aac,flac,ac3,dts,wav,ogg |
| Files on devises | It's possible to upload a zip archive to upload multiple tracks at once |
| Files on device. | After upload the audio file, it can be played sending a UDP packet to the configured port, with content: |
| Internal | FILEPLAY=myFileName.ext\n |
| select all select none delete selected | |
| ► 469.4K 1KHz30s.mp3 ■ 5.6K Conditionary | FILEPLAT=myFile Name.ext(n |
| ► 5.3M Covid3.wav | There's a "play" button near each audio filename that allows to play it immediately. It will play that file until the |
| ► 6.6M Covid4.wav | end. |
| Law coverings Law coverings | |
| ▶ 478.5K HappyBDay.mp3 | |
| | |
| | |
| | |
| The device supports MP2 AAC ELAC AC2 DTS OCC WAV/files | |

(i) The device supports MP3, AAC, FLAC, AC3, DTS, OGG, WAV files.

The filenames should NOT contain special characters and must have maximum one space character in the name.

The limit of individual files to be uploaded is 16MB.

It is possible to upload .zip archives to upload multiple files at once.

Read the help side bar to know how to trigger the playback of the files on IP Former.

3.5 STEP 5 Control the IP Former

Once the sources are configured, the IP Former will start playing them accordingly. Master Volume of the IP Former can be controlled on the "Settings" page of the web interface.

| Settings Sources Audio Files Speaker Status System Status Logs Defaults Update Reboot Remote Config | IP Speaker MAC 00:08:E1:08:54:47 FW 2.6.0 |
|--|---|
| IP Speaker TPA400 | BARIX |
| Device Alias TPA400 Master Volume B0% + Network Settings + Time Settings + Security Settings + Output Amplifier Level & Speaker Settings Cancel Submit | Help Device Alias Define a alias for the device. Useful for distinguishing multiple devices on the same network and browser favorites. Need to relead page to view changes. Master Volume Use the master volume slider to adjust in real-time the general output volume of the device. Default: '50%' Network Settings Avahi announce If set to 'yes', the Avahi announce daemon is activated. This daemon implements zero-configuration networking, including a system for multicast DNS/DNS-SD service discovery Default: "set" |



3.6 **STEP 6 Monitor the IP Former**

The "Speaker Status" page on the web interface will show you the actual status of the sources of the IP Former. Every source status also includes a counter indicating how many times the actual source has been played.

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|---|---|---------------|--|
| Settings Sources Audio Files Spea | ker Status System Status Logs Defaults Update Reboot | Remote Config | IP Speaker MAC 00:08:E1:08:54:47 FW 2.6.0 |
| IP Speaker TPA400 | | | BARIX |
| Speaker Status | | | Help |
| | | | Speaker Status |
| | Informacast InformaCast Registered n/a | | Shows the current status of the enabled sources. Sorted by priority, showing what is being heard, what is receiving data and what is not receiving data. |
| | Playing nothing + Advanced info Play count 0 | | Note: Some of the less priority enabled sources may not be displayed, as they are not relevant. |
| | Synapps Syn-Apps | | |
| | Registered No Plaving nothing | | |
| | Play count 0 | | |
| | SIP Emergency call SIP | | |
| | Play count 0 | | |
| | Local Files Trigger Local file Play count 0 | | |
| | Barix Radio Barix Radio Play count 1 | | |
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4 Remote Configuration Tool

Any IP Former device present in the network has a tab called "Remote Config" exposed in the web UI. The configuration tool lists all the devices automatically discovered in the network and allow bulk or individual configuration of them to make a system-wise configuration and maintenance fast.



| ttings Sources | Audio Files Spe | aker Status Syste | em Status Logs | Defaults Up | date Reboot | Remote Config | | | | IP Speak | er MAC 00:08:E1:08:54:47 FW 2 |
|-------------------|-----------------|-------------------|----------------|-------------|-------------|---------------|---------------|-------------|-------------------|-------------------|-------------------------------|
| P Speaker T | PA400 | | · | | | | | | | | BARI) |
| Total devices dis | scovered: 60 | | | | | | | | | | |
| Filter | Restaurant | | | | | | | | fy Re | ad All 🕞 Save All | Cancel changes |
| ↑ Name | Pub | ↑ Settings > | Prio 1 > | Prio 2 > | Prio 3 > | Prio 4 > | Prio 5 > | Audio Files | < System ↑ | Control | Copy / Push |
| Spkr 1 | Lobby | 192.168.8.112 | SIP | Synapps | Local Files | Web Radio | Barix Radio | 0 Files | 62:42:4d:d2:b2:99 | | Copy Push |
| Spkr 2 | Lobby | 192.168.8.152 | SIP | Synapps | Local Files | Web Radio | Barix Radio | 0 Files | 06:fe:43:bb:c8:1f | | Copy Push |
| Spkr 3 | Lobby | 192.168.8.150 | SIP | Synapps | Local Files | Web Radio | Barix Radio | 0 Files | 6e:17:68:85:8a:e6 | | Copy Push |
| Spkr 4 | Lobby | 192.168.8.163 | SIP | Synapps | Local Files | Web Radio | Barix Radio | 0 Files | 22:ad:0f:e9:71:e4 | | Copy Push |
| Spkr 5 | Pool | 192.168.8.133 | Informacast | Synapps | SIP | RTP Multicast | Barix Radio | 0 Files | aa:c4:7b:5b:d9:15 | | Copy Push |
| Spkr 6 | Pool | 192.168.8.153 | Informacast | Synapps | SIP | RTP Multicast | Barix Radio | 0 Files | 0a:b2:b2:e2:ed:04 | | Copy Push |
| Spkr 7 | Pool | 192.168.8.210 | Informacast | Synapps | SIP | RTP Multicast | Barix Radio | 0 Files | 00:08:e1:08:54:47 | | Copy Push |
| Spkr 8 | Pool | 192.168.8.211 | Informacast | Synapps | SIP | RTP Multicast | Barix Radio | 0 Files | 00:08:e1:07:6c:1a | | Copy Push |
| Spkr 9 | Restaurant 👻 | 192.168.8.142 | Informacast | RTP | Barix Radio | SIP | RTP Multicast | 0 Files | 6e:20:c3:c8:e2:c3 | | Copy Push |
| Spkr 10 | Restaurant 👻 | 192.168.8.117 | Informacast | RTP | Barix Radio | SIP | RTP Multicast | 0 Files | de:92:60:e9:36:ca | | Copy Push |
| Spkr 11 | Restaurant * | 192.168.8.114 | Informacast | RTP | Barix Radio | SIP | RTP Multicast | 0 Files | 92:d1:4f:74:67:31 | | Copy Push |
| Spkr 12 | Restaurant 👻 | 192.168.8.136 | Informacast | RTP | Barix Radio | SIP | RTP Multicast | 0 Files | 3a:b9:0f:30:55:91 | | Copy Push |
| Spkr 13 | Restaurant | 192.168.8.111 | Informacast | RTP | Barix Radio | SIP | RTP Multicast | 0 Files | 3e:88:52:bc:4e:a1 | | Copy Push |

The Remote Configuration tool allows to:

- copy the configuration of one device to others
- save changes on device's configuration individually or in bulk
- group devices per zone and copy the configurations from one device to all in the same zone or to all zones
- sort and filter devices easily by their: names, zone, IP, MAC, source configuration.
- edit the device name
- change the device settings
- change the sources configuration and the playback priority
- reload all device's configurations or cancel the changes done
- open the webUI of another device
- perform a sound-test of a device
- Immediately view how many devices are in the network
- See which source the device is playing (green cells)

For more details on how to use the tool read the help side bar accessible clicking on the

? in the right upper side of the page.

5 Security Settings

These settings are among the most important in the Settings page of the IP Former. In this section it is possible to Enable/Disable key functionalities:

- 1. Reboot: enable or disable the soft reboot from web user interface (button grayed out)
- 2. Reset Factory Default: enable or disable the possibility to reset the device to factory defaults from web user interface (button grayed out)
- 3. Update Function: enable or disable the possibility to update the device from web user interface (button grayed out)



6 Network Settings

In the IP Former Settings page there are parameters used to configure your device with the desired network settings. To set the network settings:

- 1. Wire your IP Former to a network where a DHCP server is available and switch it on, hear the IP announced over the audio output (SonicIP[®] function) and connect to its web browser
- 2. Locate the Network Settings in the "Settings" menu
- 3. Once settings are configured as desired click on Submit at the bottom of the page, the device will restart and if the IP is changed you must input the new address in the top bar

| Settings Sources Audio Files Speaker Status System Status Logs Defaults Update Reboot Remote Config | IP Speaker MAC 00:08:E1:08:54:47 FW 2.6.0 | | |
|---|---|--|--|
| IP Speaker TPA400 BARIX | | | |
| Device Alias TPA400 Master Volume 14% | Help Device Alias Define a alias for the device. Useful for distinguishing multiple devices on the same network and browser favorites. Need to reload page to view changes. | | |
| Avahi announce O to ® tes SoniciP ® to O'tes | Master Volume $\label{eq:start}$ Use the master volume slider to adjust in real-time the general output volume of the device. Default: "50 % " | | |
| SoniciP Volume 80% Web Protocol HITPS V DHCP No V | Network Settings Avahi announce If set to "yes", the Avahi announce daemon is activated. | | |
| IP Address 192.168.123.123 Netmask 255.255.0 Gateway IP Address 192.168.123.1 | This daemon implements zero-configuration networking, including a system for multicast DNS/DNS-SD service discovery Default: "yes" IMPORTANTIf avahi announce is disabled, the device will not be recognized by the Remote Discovery Tool. | | |
| Primary DNS 8.8.8.8 Alternative DNS 8.8.4.4 + Time Settings | SonicIP [*] If set to "se", the device will announce its IP address over the audio output. The sonic IP is announced when the device boots. Default: "yes" | | |
| + Security Settings | $SoniclP^{\bullet}Volume$ Sets the volume at which the $SoniclP^{\circ}$ will be announced at boot. | | |
| + Output Amplifier Level & Speaker Settings Cancel Submit | Detault: "50 %" Web Protocol Changing the web protocol from HTTP to HTTPS secures the web connection with the device web interface (web server) encrypting the communication. This parameter it is not affecting the HTTP audio stream functionality. Detault: "HTTP" | | |

7 Update the Firmware of IP Former

It is always good practice to run the latest firmware on the IP Former. Latest Firmwares includes improvements and bug fixes. The firmware on the IP Former can be updated using the local web interface.

To update the firmware from the web user interface you need first to download the TAR package from the Barix website: <u>www.barix.com/downloads</u> (Firmware is under Products \rightarrow Decoder \rightarrow IP Former) or simply type: IP Former in the search bar in the same page. In this page are available only the latest firmware from Barix.

| Settings Sources Audio Files Speaker Status System Status Logs Defaults Update Reboot Remote Config | IP Speaker MAC 00:08:E1:08:54:47 FW 2.6.0 |
|--|---|
| IP Speaker TPA400 | BARIX |
| Update | Help |
| Please read the instructions before applying the update. Please click here to start the update | Update Click on "Please click here to start the update" link. On the next page click "Browse" to select the tar file to be uploaded, then click "Upload" button to start the process. An update progress page will appear. The update can take a few minutes to complete. After a successful upload the following text appears: |
| Currently Loaded Version Firmware 2.6.0 | "application successfully loaded" |
| Noot Hie System built 2021010/151344 System WED 1.13 Kernel Details Linux version 5.5.9 yocto-standard (on-user@on-host) (gcc version 9.2.0 (GCC)) #1 SMP PREEMPT Tue Dec 22 16:18:01 UTC 2020 Paratased on Carbon Linux version 5.6.9 yocto-standard (on-user@on-host) (gcc version 9.2.0 (GCC)) #1 SMP PREEMPT Tue Dec 22 16:18:01 UTC 2020 Paratased on Carbon Linux version 5.6.9 yocto-standard (on-user@on-host) (gcc version 9.2.0 (GCC)) #1 SMP PREEMPT Tue Dec 22 16:18:01 UTC 2020 | Click on Update to go back to the update page and finish the process. NOTE: Please clar the cache or restart your browser to ensure the web interface of your device is displayed correctly after the update. |
| poonognet heralis n-poor 5011/02 (uon 12 5012 - 175112) Latrol Virialiniet Lerinio(088) | Currently Loaded Version In this section you can read what are the Firmware and Kernel versions that you have currently installed on your device. |

Once the package is downloaded:



- 1. Connect to the IP Former's web user interface
- 2. Navigate to UPDATE from the top bar
- 3. Click on "Please click here to start the update"
- 4. In the following page click on "Browse", locate the TAR package you just downloaded on your PC and open it
- 5. Click on "Upload" Wait few minutes while the process moves forward. Do not switch off the device while the process is
- ongoing 6. When finished the message "Update completed" appears
- 7. The device automatically reboots, wait for the boot to complete and then click on the home button and refresh the page (empty the cache of your browser to display correctly the new application)
- (i) IMPORTANT: After an update is good practice to empty and reload the page of your browser to clear eventual cached settings and values. Check how to do that in your web browser settings.

For Chrome: Press F12 (this will open developer tools) \rightarrow Right click on the RELOAD button \rightarrow Select "Empty Cache and Hard Reload"

8 Restore factory defaults

Sometimes it's useful to restore factory defaults. In example if a device acts weirdly or it's not reachable anymore from the network because of wrong settings. There 2 reset methods available on the IP Former:

- 1. Soft reset from web user interface
- 2. Hard reset from the front Reset button on the device

Soft Reset from web user interface

| Settings Sources Audio Files Speaker Status System Status Logs Defaults Update Reboot Remote Config | IP Speaker MAC 00:08:£1:08:54:47 FW 2.6.0 | | |
|---|---|--|--|
| IP Speaker TPA400 | BARIX | | |
| Factory Defaults | Help | | |
| | Factory Defaults | | |
| Reverts all settings to factory defaults. | Click on "Reset Factory Defaults" to revert all settings except "Network settings" to the factory defaults. | | |
| Reset Factory Defaults | A local user can completely reset the device to factory defaults (Hardware Reset) including Network settings pressing the RESET button in the front plate of the device during approximately 10 seconds. | | |
| | NOTE: The button will be grayed if the "Reset Factory Defaults" function is disabled from the Security Settings page. | | |
| | | | |

- Connect to the web user interface of the IP Former and navigate to the DEFAULTS tab
 Click on Reset Factory Defaults to perform a reset of the device
- (i) A soft reset restore all parameters except network settings. To reset completely the device including network settings perform a Hard Reset

Hard Reset

A hard reset restore **all** values and settings on the IP Former. To perform a hard reset:

- 1. Switch on the IP Former
- 2. Press the reset button located in the front panel of the device and keep it pressed for approximately 10 seconds. Help yourself with a pointy tool.
- 3. The green LED blinks fast for 3 times meaning it started the reset operation
- 4. Wait until the process is completed, the device reboots, you can see it from the front LED becoming red and then green again
- 5. Network settings have been restored, the IP address might be changed, listen to the SonicIP® announced over the audio output



9 Hardware functionality

Front view



MIC / SPKR

| Pin | Description |
|-----|-------------|
| 1 | MIC IN |
| 2 | AGND |
| 3 | SPKR - |
| 4 | SPKR + |

Please note that the MIC Input is for further use and does not have any functionality with the current Firmware.

Rear view



RESET Button

A brief press of the button (3 seconds) will reboot the device. Holding the reset button pressed for approximately 10 seconds will reset the device and restore the factory default settings when the button is released.

LAN - Ethernet (RJ45)

| Pin | Description |
|-----------------|-----------------------------------|
| 1 | TX + (Transmit data) V+ mode A |
| 2 | TX - (Transmit data) V+ mode A |
| 3 | RX + (Receive data) V- mode A |
| 4, 5 | V+ mode B |
| 6 | RX – (Receive data) V- mode A |
| 7,8 | V- mode B |
| Left LED Yellow | Activity |
| Left LED Green | Link / Speed (Blinking) |

SYSTEM STATUS LED

Dual Color green/red System Status LED.

- 1. Red blinking fast: early startup
- 2. Red blinking slow: system booting
- 3. Yellow blinking: System in Rescue Mode
- 4. Orange / Yellow blinking: Downloading / Installing Firmware
- 5. Green solid: system ready



APPLICATION STATUS LED

Dual Color green/red Application Status LED.

- 1. Red solid: application not running
- 2. Green solid: application running

10 Compliance Information

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the device into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Safety and precaution recommendations apply. Find them in the download section at www.barix.com



Find your distributor on this list for more hardware.

For questions that are extending the documentation, feel free to contact us on:

International: <u>+41 434 33 22 22</u> USA: <u>+1 866 815 0866</u> Email: <u>support@barix.com</u>

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