LexiLocal

Application Note

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Getting Started with LexiLocal

Applies to Products: LexiLocal, iCap Local

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Introduction

LexiLocal, EEG's newest closed captioning product, delivers live, automatic captions on-premises and off the cloud. LexiLocal provides elevated security and greater control over data while achieving the same level of performance, precision, and quality as cloud-hosted companion product Lexi.

What's in the Box?

The LexiLocal product is a 1-RU server that can run up to 10 simultaneous channels of captioning service.

Video closed captioning encoders and display devices are sold separately. Compatible products include all EEG SDI Closed Caption iCap encoders models HD4XX/1490 and up, the EN537 Live Broadcast Caption Encoder, the AV610 Live Display caption decoder, and the Alta IP software caption encoder for MPEG-TS and SMPTE 2110.

Each device must be added to the LexiLocal server as described in this guide before they will be recognized by server. Once connected, LexiLocal will receive encrypted audio data from the devices and use this to provide AI-powered closed captioning.

It is also possible to use LexiLocal as a connection hub for human real-time captioners. A captioner must have an installed copy of the iCap PC Client software (available as a free download at https://eegent.com), and will need to configure the connection to the LexiLocal server instead of the default public cloud iCap server hub.

Cabling and Networking Setup

The LexiLocal server will require an Ethernet connection to your local network in order to interface with caption encoding devices, and to allow access to the web controller for initial configuration and monitoring.

After connecting the Ethernet cable to the open connector on the rear panel of the server and powering on the device, use the LCD front panel to configure a valid IP address on your network.

It is recommended to set a static IP address for your LexiLocal server since this IP address will also need to be entered into the caption encoding devices to establish connectivity. If you must use DHCP, note that whenever the DHCP address changes, settings in the caption encoder(s) must also be updated manually.

Using Front Panel Network Settings

On the front panel LCD control press the green CHECK button, also known as the “OK” button, to enter the menu system, then navigate to “System Setup”, then “Network” and press OK to access the network settings.

Setting a Static IP (recommended)

First, scroll down the menu and make sure the “Set Config” option is set to “Static”. Then set the following fields manually:

IP Address: a valid IPv4 address on your local network that is not in use by another device

Subnet Mask: defines the local scope of your network subnet, for example “255.255.255.0” for a network where the first three digits in the dotted quad are always the same.

Gateway: (optional) defines an address within the subnet owned by a device such as a router that allows traffic out of the subnet. If all communication is intended to occur within a single subnet then a gateway setting is not required.

DHCP

To use DHCP, go to “Set Config” in the Network menu and set “DHCP”. The LexiLocal server will reach out through DHCP to obtain an address automatically from your router, and if successful will show the address received.

Note that IP addresses obtained from DHCP are subject to change over time, and if the IP assignment of your LexiLocal server changes, you will need to manually re-configure the server field in your caption encoding devices and any iCap software used for human captioning or system monitoring. For this reason, DHCP operation is not recommended unless your router is configured to consistently provide the same IP assignment to the LexiLocal server. Many

routers can do this based on the hardware MAC address of the server, which you can obtain by scrolling to “MAC Address” in the Network settings menu.

HTTP Management / Web Controller

Once the LexiLocal server has a valid IP address, you can log in from another computer on the network to perform HTTP Management through the LexiLocal embedded Web Controller site.

Begin by pointing a browser to the IP address of your LexiLocal server which will then display the login screen. The default username and password are admin/admin. You should change this password immediately on logging in to a password meeting your organization’s security policies and document appropriately.

Changing the HTTP Management Password

Go to the “Users” page from the left menu. Click on the “Edit” icon for the user “admin” and change the password. Make sure to document this password properly!

You can add additional HTTP management username and password pairs from this page as needed.

Adding Caption Encoder Devices

Your LexiLocal server can be utilized with one or more iCap compatible EEG or certified third-party closed caption encoders. The ***Remote Server*** setting on each encoder iCap configuration web page must be configured to point the IP address of the LexiLocal server as opposed to the default location of the Public iCap cloud system: ***eegicap.com***.

Note: username and password credentials are not shared between a LexiLocal system and the public cloud iCap system. Therefore, if your caption encoder has been used on public cloud iCap it will need to be registered in the LexiLocal User database and reconfigured with any new credentials created in Lexi Local.

To register a new encoder with the LexiLocal server, go to the “Devices” page from the left menu. Click “Add New” and provide a unique device username and password. Record these carefully, you will need to copy the same strings into the iCap configuration page on the local caption encoder.

LexiLocal receives program audio from the caption encoder and sends the caption transcription to the encoder through Access Codes assigned to an encoder or a group of encoders. When adding a new encoder, you have the option to allow LexiLocal to create an Access Code with the same name as the device. Should you wish to create more meaningful access code names, simply uncheck the default ***Create an Access Code with this as the primary Device*** check box.

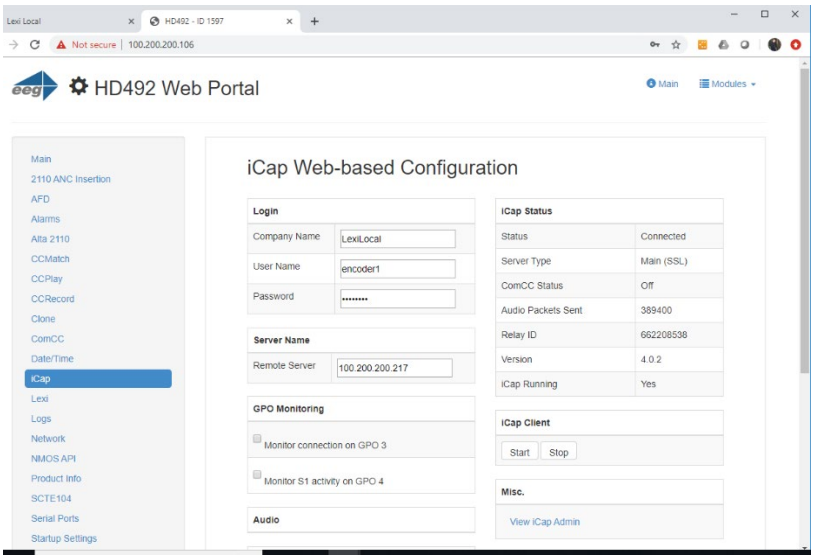
Configuring a Caption Encoder to Use LexiLocal

There are some differences in the menus between different EEG and third-party iCap caption encoding products. These instructions assume an EEG HD492 encoder, but similar steps will apply for different devices. Please consult your device manual for details or contact EEG Support with questions.

The caption encoder will need to be able to reach the LexiLocal server on the network before they can communicate. Usually, if the encoder and the server are on the same local subnet, this will work without any special considerations. If the encoder and the server are not on the same local subnet, or if you have any problems with connectivity between the encoder and server, please consider the following factors:

1. The encoder must have a “Gateway” setting that points to a router that allows it to communicate to the subnet the LexiLocal server lives on
2. The encoder will communicate with the server using several TCP ports that could be blocked by some routers - make sure it is able to initiate outbound connections to the server on TCP ports 9736, 9738, 14000, and 14002.
3. If you have a successful initial connection but then do not get audio data from the encoder over iCap, also make sure the encoder can stream on UDP port 14010

When the networking setup is complete, navigate to the iCap settings of your caption encoder. On the HD492, this is done by pointing a browser to the encoder’s web page, logging in if the security settings require it, and then navigating to “iCap” in the left menu. The page you should see is shown in the image below.



Follow these steps on the page:

1. Press “Stop” to turn off iCap if it is running and has been previously configured to connect to the Public iCap cloud system.
2. Set “Company Name”: “LexiLocal”.
3. Set “Username” and “Password” to the username and password credentials already created for this device on the LexiLocal server in section 7.
4. Set “Server Name / Remote Server” to the IP address of the LexiLocal server.
5. Press “Apply”.
6. Press “Start”.

If the configuration is successful the Status will report “Connected”, the “Server Type” will report “Local”, and the “iCap Running” field will report “Yes”.

These settings should not need to change again on the encoder unless you change the device credentials or the LexiLocal server IP address.

If the Status field reports:

- “Unauthorized”: Check the Company Name, Username, Password, and Server Name settings again. This can mean that the credentials were copied wrong, or that you are reaching the wrong iCap server.
- “Could not connect”: The encoder may not be able to reach the LexiLocal server at the IP address given on the required TCP ports. Please consult the network tips in the previous section.

- "iCap Running: No": Try pressing the "Start" button again.

Confirming a Caption Encoder is Connected to LexiLocal

If your caption encoder is saying it is connected, you can confirm this on the LexiLocal web controller. From the left menu, choose "Devices", and find the caption encoder username you just configured in the list. Under "Status" in the table, it should say "Online" if the device is successfully connected.

Licensing for Lexi Automatic Captioning

Depending on your order and ship configuration, the Automatic Captioning component on Lexi may or may not have an activated license. To check your license status, go in the left menu to "Settings" and then "License". If you have a currently activated license that is ready to use, it will provide the number of "Days Remaining". Typically demo licenses last for 30 days, and production licenses are annual.

Activating a Demo

If your demo needs activation, in the "License" page, you should have a unique number in the License# field identifying your product, but the "Status" reports "Not Licensed". You may also see a Notification in the lower left of the screen saying, "Demo license needs activation or license purge."

In the License page, find the section that says, "GET ACTIVATION CERTIFICATE" and click the ACTIVATE LICENSE button. A menu will appear requesting that you leave the LexiLocal box running continuously during the activation process. If you can do this, click OK.

The process of generating your activation certificate may take about 4 minutes. When it completes, a file called "activation_certificate_xxxxxxx.json" should download in your browser to your default Downloads location. Locate this file and email it to support@eegent.com for license activation service. EEG Support will service requests as quickly as possible, but please allow a turnaround time of up to 48 hours.

When your license certificate from EEG Support is returned via email, copy the file to a drive that will be accessible to the PC that you use to access the LexiLocal web controller. Browse to the "License" page and in "APPLY LICENSE CERTIFICATE" click the "CHOOSE FILE" button to select the license file provided to you by EEG. Next, press the green "UPLOAD" button. You should see a success message, and now your product is ready to use.

Upgrading or Renewing a License

To upgrade your demo to a production license, or to renew an expiring production license, contact EEG Sales for a quote and payment instructions. The technical process for entering your license will follow the Activating a Demo process described above.

Beginning an Automatic Captioning Session

Once a caption encoder is connected to LexiLocal and the Automatic Captioning component is licensed, you will be able to begin an automatic captioning job.

A captioning job will target a specific "Access Code." An access code is a group of one or more caption encoders that will receive matching caption data whenever their code is used. Most commonly an access code will contain only one encoder (the "Primary Device"). However, there are many use cases for adding "Secondary Devices", such as backup or archival video feeds, or feeds with the same audio programming but different graphics or video resolution.

If you opted to create a default access code when adding your device, please skip to the ***Creating a Lexi Instance*** section.

Creating a New Access Code

In the LexiLocal web controller, choose "Access Codes" from the left menu and click the "Add New" button. Then:

1. Create a unique name
2. For single language captioning, leave "CC Service" set to S1. If you plan to encode multiple languages of captioning on the same video, you can create additional access codes that target the same encoder using S2 through S6. (These codes refer to the CTA-708 standard codes for languages, however different encoder devices may use formats other than 708 to represent the different track.)
3. For "Primary Device", select the encoder that will provide the audio track for transcription and will receive the captions.
4. If desired, add one or more "Secondary Devices" so that additional encoders receive the same captions. The Secondary Devices will also act as a fallback to provide audio if the Primary Device disconnects from LexiLocal.
5. Click SUBMIT.

Creating a Lexi Instance

A Lexi "Instance" is a preset that defines the parameters for an automatic captioning job to be performed by the LexiLocal server. The instance can be turned on and off as needed through the web controller or HTTP API. You can create any number of instances you wish for different use cases, but your Lexi Automatic Captioning license will determine how many different Lexi jobs you can run simultaneously on the server.

To create a new Lexi instance, go to "Lexi" in the LexiLocal web controller main menu. Click Add New. Then:

1. Provide a name for the Lexi instance you will remember.
2. Choose an access code that include the caption encoders you wish to send data to. You can select the access code from the list previously created on this LexiLocal server as described in the previous section.
3. Select a "Topic Model" to use a previously created list of custom vocabulary when performing automatic captioning. See the next section for information about working with Topic Models.
4. Click the "Advanced Options" checkbox to configure the caption language service as well as the caption display parameters such as base row, number of rows, column indent, and "All Caps". You may set an inactivity timeout so that the Lexi job will stop after dialog is not detected in your audio stream for the selected amount of time. The default value is 10 minutes. Lexi instances that are stopped in this way will need to be manually restarted later.
5. Click SUBMIT.

Once a Lexi instance is created, you can use the On/Off toggle switch in the table under "State" to begin captioning. If your encoder is in communication with LexiLocal and sending an audio stream successfully, you should now begin to see captioning on its output!

Topic Models

Topic Models can be used to enter lists of custom vocabulary to aid the speech recognition system in learning new words and phrases that are unique to your programming, organization, or topic domain.

You may create as many Topic Models as you and choose the one that is most appropriate for a specific channel or event when configuring the Lexi instance (see previous section).

To create a new Topic Model, select “Topic Models” in the left menu of the LexiLocal web controller, and click “Add New”. Enter a unique Topic name, then click “Submit”. From the “Actions” icons select “View” to begin adding words to the Topic Model.

Click “Add New” on the View page and enter the word or phrase spelled as you would like it to appear in the captioned output. Optionally, if the word or phrase is not pronounced in a typically intuitive way to a native English speaker, add a “Sounds Like” helper phrase. A good “Sounds Like” phrase consists of common English words or letter combinations that are unambiguous in their pronunciation and when put together will form a homophone (sound alike) with the phrase you want to be recognized. For example, Slovenian-born NBA player Luka Doncic sounds like “loo ka don chitch”. With practice, it is easy to generate these sound alike phrases so the speech recognition will understand them best. When you have finished the additions to the Topic Model click “Upload Words” to finalize the model.

Using LexiLocal with iCap PC Client Software

LexiLocal is compatible with thousands of professional real-time captioners who are trained in using the EEG-distributed iCap PC Client software. LexiLocal servers can be used as secure and private hubs for connecting real-time captioners in a managed network to caption encoding devices, without any data transfer to public networks or the cloud-based EEG iCap system and without the need for a LexiLocal license.

If a captioner has experience using iCap on the public cloud to provide transcriptions, they only need to change a few settings to connect to LexiLocal. Captioner must be able to reach your LexiLocal server over a network so keep in mind this may require advanced IT setup if the captioner is not going to be on site which will prevent them from connecting to the same subnet as the LexiLocal server. The networking requirements for any VPN or other connectivity are similar to those listed for encoding devices in a previous section. The captioner’s workstation must have routing to the IP address of the LexiLocal server, and they must be able to communicate to the server using TCP destination ports 9736, 9738, 14000, and 14002, and UDP destination port 14010.

Also, the iCap Windows software is a free download available to LexiLocal customers who are not real-time captioners. The iCap software can be a valuable tool for monitoring and troubleshooting since it allows customers to listen to their program audio via access codes and allows them to monitor the captions being encoded on the selected access code.

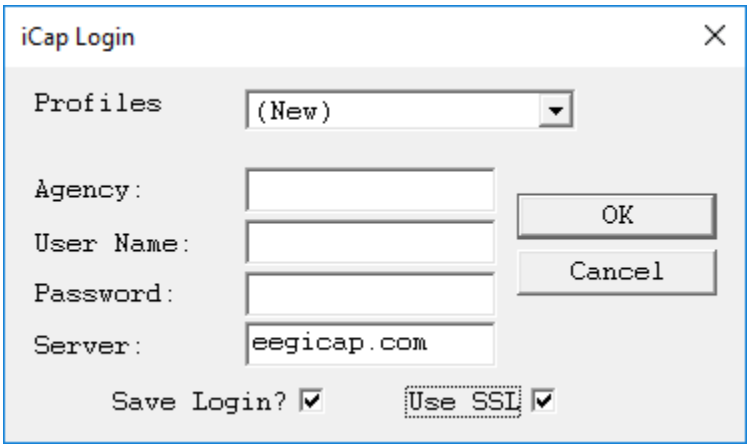
Registering New Captioner Users in LexiLocal

Each iCap Windows captioner user must be registered with the LexiLocal server before first use. To do this, log into the LexiLocal web controller, and select “Captioners” on the left menu, and then click “Add New”. Create a unique username for the captioner and a password. The new user will appear in the list of Captioners. Once the captioner logs into LexiLocal, status and logs will be visible from the “Actions” icon on the “Captioners” page.

Configuring the iCap PC Client Software for LexiLocal

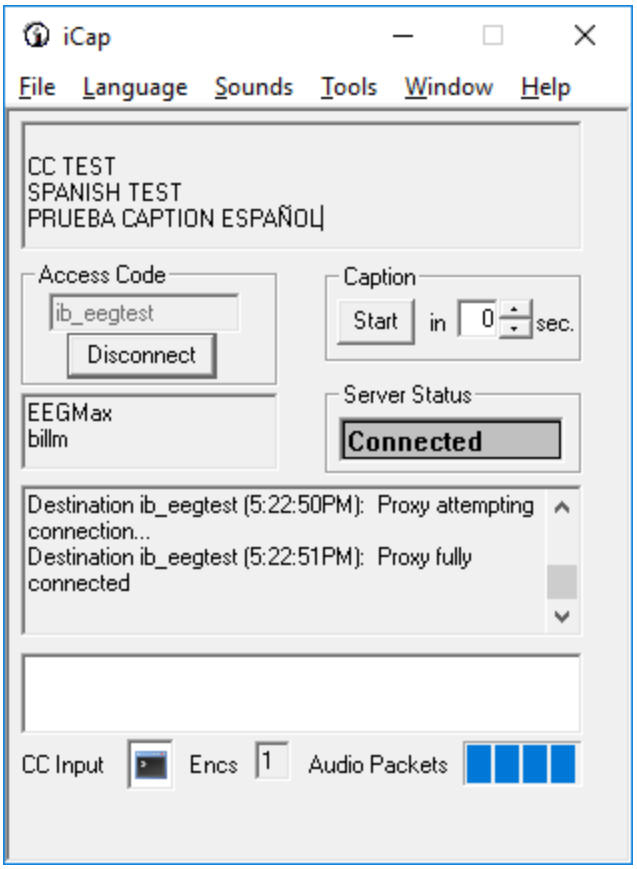
This guide begins by assuming you have downloaded the iCap Windows software from eegent.com and installed it on your Windows computer according to the documentation provided with the download. You will not need an iCap cloud account in order to download the software or to begin using it with a LexiLocal server.

When you run iCap for the first time on the Windows desktop, you should see this menu:



Set “Agency” to “LexiLocal” and set “Username” and “Password” to the credentials created in the previous step. For “Server”, give the IP address of your LexiLocal server.

If you check “Save Login”, these credentials will be stored to your iCap Profile for future recall. “Use SSL” is recommended. Click “OK” to save the settings and log into iCap. At this point the “Server Status” will display “Chat Only”. If the attempt to login fails a popup window will display the message “The username or password, you entered is incorrect”. Please check the credentials in this case. If the Server Status reports “Could not reach xxx.xxx.xxx.xxx” please check the networking path.



Once logged in successfully, enter an access code configured in the LexiLocal system and click "Connect" to monitor the access code. You can then:

- Check if the encoder(s) assigned to this access code are currently connected to LexiLocal by checking the "Encs" count on the lower center of the iCap window
- Hear the audio feed from the encoder through speakers or headphones attached to your computer. If the Audio Packets "blue bars" are present on the lower right, this indicates that UDP audio packets are being received from the encoder, even if the volume is low. If the blue bars are not displayed this indicates that the iCap software is not receiving audio packets, possibly because the audio configuration on the encoder is incorrect, the packets are being blocked through the network, or if the bars are only partially full, there may be partial packet loss along the network path.
- See live caption text through the system in the top box. You should see the same caption text in this box that is currently being embedded in the video by the caption encoder, whether those captions are sourced from Lexi Automatic Captioning, a captioner, or were previously recorded on the video signal.
- See a low frame rate live video of the encoder's input signal, with captions overlaid by selecting "Window" | "Open Video" from the iCap menu.

It is also possible to perform a simple caption test to the encoder. Press “Start” to go to On Air mode in iCap (understanding that this will stop any Lexi jobs that are currently targeting the same encoder, and they will need to be manually restarted later.) Then go to the top toolbar and select “Tools” | “Send Test Caption”. A brief test message should be seen passing through the iCap text box. This message will also appear in the output captions of any encoder connected to the access code.

For a more comprehensive testing, typing, and script-feeding tool for sending captions manually to iCap, an upgrade license is available for “iCap VC” - go to Tools | iCap VC or contact EEG Sales for pricing information.

Starting LexiLocal on the Server

To start a Lexi Instance using the Server user interface, select “Lexi” in the left side menu, then click on the “State” slider in order to change the state from “Off” to “On”. Repeat this step to disable the Lexi instance.

Starting LexiLocal on an EEG Encoder

To start a Lexi Instance on an EEG encoder, browse to the “Lexi” selection in the left had menu of the encoder web interface. Enter the LexiLocal Admin login information so that the encoder Lexi module can be authenticated on the server. Select the “Access Code” and “Instance” name from the drop-down boxes. These fields will be auto populated with the information configured on the server. Select the “Activation Mode”. Using the encoder to initiate Lexi instances, jobs can be activated in one of two ways: manually using the web interface or via GPI. Please consult your encoder manual for GPI pinout information. Lexi transcriptions can be paused when captions are present in the video input to the encoder. To enable this feature, click the “Block Lexi on Upstream Captions” dropdown and select a time value. Setting this value will ensure that Lexi will not generate captions when upstream data is present. The time in parentheses indicates how long upstream captions will have to be ***absent*** for Lexi to start up again. Please view the HD492 screenshot below for reference.