



Unity Server Configuration Manual

OVERVIEW

The Unity Intercom system is a six-channel, Wi-Fi based full-duplex intercom system that can support up to 58 simultaneous devices. Unity can use external audio interfaces to send and receive audio from other intercom systems and can also display Tally signals from most video mixers directly on iOS displays.

INTRODUCTION TO UNITY SERVER

Unity Server is a Mac OSX-based application that runs on OSX versions 10.8 and above. Unity Server communicates with remote devices using UDP communication, which provides low-latency operation.

*Note:
When using Unity Tally it is strongly
recommended that you hard-wire
your Unity Server.*

Due to the UDP based nature of the Unity system, it is recommended (but not required) that the computer running Unity Server be hard-wired into the network using standard network wiring. Unity Server uses Bonjour for device discovery but optionally, remote devices can be configured to direct-connect to the Unity Server using the server's IP address and network port number. Examples of this include multiple-subnet networks, and networks that consist of more than one VLAN. (Bonjour usually will not cross VLAN boundaries).

BASIC UNITY CONFIGURATION

To begin using Unity, you must first configure a few basic settings. Since Unity is a network-based communication system, you must first connect your Mac to either a hard-wired network or a Wi-Fi network that all of the iOS devices in the system can see. Next, you must specify an *Input Device*. This will typically be the Built-In Line Input of your Mac. Next, create a user on the *Users* tab. Click the "+" button at the bottom left and fill in the required information to create a user. You must create a *Username*, *Password* and *Enable* that user for them to be able to use Unity. After completing these steps, a user should be able to open Unity on their iOS device, log in, and begin using Unity to talk and listen to other users on the system.

UNITY SETTINGS - GENERAL

You install Unity by dragging the application to your Applications folder. When you launch Unity, you'll see its icon appear in the menu bar of your computer. Selecting *Settings* from the Unity menu will show you the following window:

Note:
Some sections of the window will appear greyed-out until you have purchased optional features.

	Label	Input Number	Output Number	Output Program Feed Level
Channel 1	Camera Operators	2	1	<input type="range"/>
Channel 2	Security	N/A	2	<input type="range"/>
Channel 3	Maintenance	N/A	N/A	<input type="range"/>
Channel 4	Administrators	N/A	N/A	<input type="range"/>
Channel 5	Child Care	N/A	N/A	<input type="range"/>
Channel 6	Remote	N/A	N/A	<input type="range"/>

Each section of the Unity Preferences window is explained below.

Start Unity Automatically at Login – If this box is checked, the Unity Server will start automatically each time a user logs into the Mac. If not checked, Unity Server will have to be manually started. A user must be logged in for Unity Server to operate.

UNITY SETTINGS - GENERAL

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Note:

There is an audio buffer setting in the Unity iOS app that should only be used if a single user is hearing stuttering.

Note:

If you are using a Blackmagic ATEM video mixer, Unity Server does NOT require a Blackmagic GPI/Tally interface.

Note:

During the trial period of Unity Server, an audio watermark will play once per minute during the second week and continually after the second week.

Note:

If you choose not to use a Program Feed, select "N/A" as your Program Feed source.

Network Port Number – The Unity Server communicates using UDP sockets, and this setting specifies which UDP port number the server will use for incoming connections. The default port number is 20101 and should work fine for most installations.

Server Audio Buffer – If everyone experiences audio “stutters” from a user (or multiple users), increasing this buffer size will help alleviate this. This is a global setting that will affect all Unity users and should normally work at its default setting of 60ms.

Network Interface – This pulldown allows you to specify what network interface Unity Server uses if your computer has more than one. This can normally be left at “Any”.

Tally Interface Type – **Note: this field will only be enabled if you have purchased the Tally Interface upgrade.** Set this to the type of device that the Unity Server will communicate with to obtain external tally information. Currently there are five choices: “Unity Universal”, “Unity Universal 2-Stage”, “Blackmagic ATEM”, “Newtek TriCaster”, and “vMix.”

Tally IP Address – **Note: this field will only be enabled if you have purchased the Tally Interface upgrade.** This field should be set to the IP address of either the Unity Universal Tally Interface, or the IP address of a Blackmagic ATEM, Newtek TriCaster, or vMix video mixer. This will allow the Unity Tally feature to communicate with your video mixer to display either a red Program tally or a green Preview tally (if your mixer is equipped) on the iOS Unity interface.

Input Device – You must select an audio input capable of 44.1kHz audio as a timing source for the Unity Server. In addition, any program audio feed (like your Front Of House audio mix) will also be input through this device. This will usually be the line input of your Mac.

Program Feed – A *Program Feed* allows you to have background audio playing over the Unity Intercom system. This will usually be an audio feed from your Front Of House (FOH) audio system so that users wearing double-sided headphones can still hear the event audio. This is a mono audio channel. Each Unity device connected to the system will allow the operator to individually control their volume of Program Feed or to mute it completely.

Unity Settings - General

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Output Device – **Note: this field will only be enabled if you have purchased the Unity I/O upgrade.** Select one of the available audio output devices to send audio streams out from the Unity system. Each of the six Unity channels can be routed to individual outputs using the *Output Number* pull-downs.

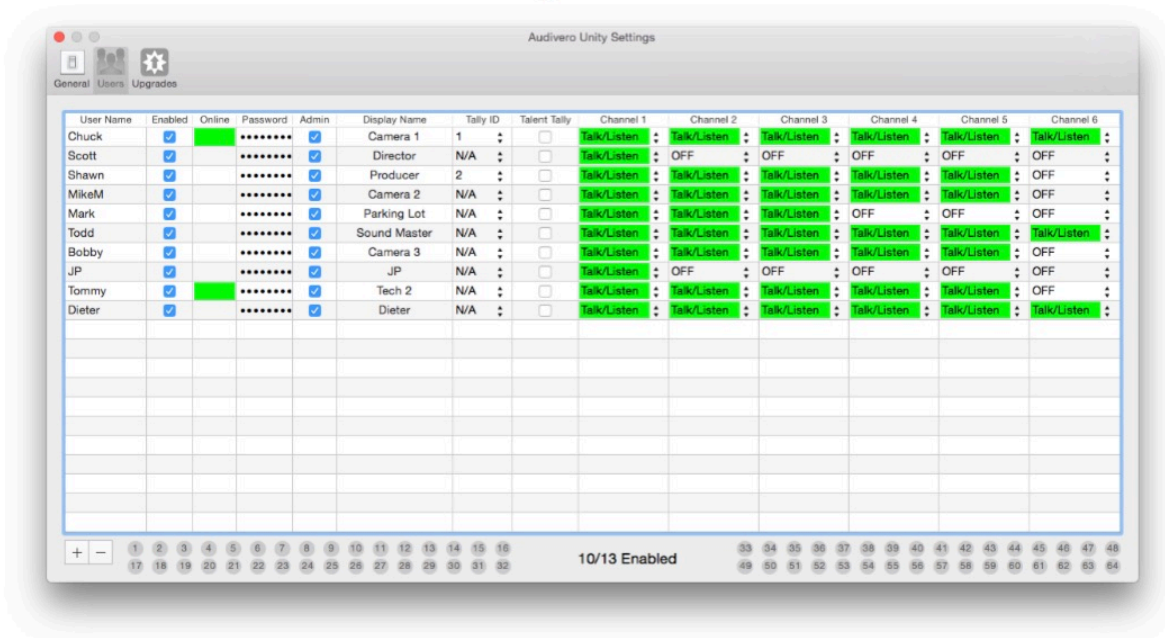
Channel Label Column – You can give a custom name to each of the Unity channels to clarify the use for each channel. As an example, you might specify channel 1 to be 'Camera Operators', and channel 2 to be 'Security'. These names are displayed on the iOS Unity app when you tap the "i" icon and are also used during *Users* configuration on the Unity Server itself.

Input Number – **Note: these six fields are only enabled if you have purchased the Unity I/O upgrade.** Each of the six Unity channels can have audio mixed in from an external source. Commonly, these are feeds from external comm systems, such as those made by Clearcom or RTS. Note that the same source channel can be sent to multiple Unity channels. For example, "Input 1" could be selected for Unity channels 1, 2 and 3. Select **N/A** for each Unity channel that does not require external audio input.

Output Number - **Note: these six fields are only enabled if you have purchased the Unity I/O upgrade.** Each of the Unity Server channels can be sent to multiple outputs attached to the previously selected *Output Device*. Program Feed audio can be sent out any of the outputs by bringing up the Program Feed volume slider next to the output selection box. You can mix-down multiple Unity channels to be sent to a single audio output. For example, you might select "Output 1" for Unity channels 1 and 2. This results in audio from Unity channels 1 and 2 being mixed together and sent to "Output 1" of the selected *Output Device*. If you don't wish to send audio to a particular audio output, select **N/A**.

Unity Settings -Users

Selecting the “Users” button on the Unity Settings toolbar will display the Unity user configuration screen. An example of this configured with four users is shown below:



At the bottom center of the window you can see the current number of enabled users out of the maximum number of users that you have purchased user licenses for. You can create as many users in the Unity Server as you want but can only enable up to the purchased number of users at any one time. If a user is disabled on the server when they attempt to login, they will see a dialog that their user is disabled and will not be able to login to the Unity system.

Tally Status — At the bottom of this screen you will find status indicators for the external tally interface (if the Unity Tally license has been purchased). These indicators will be grey if in the *Off* state, green if in *Preview* state, and red if *On-Air*. These indicators are a good way to see if the tally inputs are working properly.

+ and - Buttons — On the bottom left of the screen, you can see the *Add User* and *Remove User* buttons (“+” and “-” respectively). To add a user, simply click the “+” button and fill in the Username and Password fields. To remove a user, highlight the desired user and click the “-” button.

Note:
You cannot remove a user that is currently enabled. You must first disable the user then, delete them from the system.

Unity Settings - Users (cont'd)

User Name – This is a unique name that remote users will use to log into the Unity system. This name must be unique and must be at least 2 characters long. This field is NOT case-sensitive.

Enabled – Checking this box enables the currently selected user. If you try to enable more users than you have licenses for, an alert box will be displayed indicating that you have exceeded your number of user licenses.

Online – This is a non-configurable field that simply indicates the connection status of a remote user. If this field is blank, that user is not logged in. A green color indicates that the user has logged in and is currently active. This field can also show an orange color, indicating that the Unity Server has not heard from the remote user's device for more than 15 seconds and is about to be removed from the active user list.

Password – Unity App users must log in to the system using a combination of user name and password. The password must be at least 4 characters long and is NOT case sensitive.

Admin – If this box is checked, the remote device used by this user will display two additional admin-only buttons. This allows the remote user to do Priority Calling, which not only overrides all other voice traffic but also flashes an indicator on all devices that the admin user is talking to. Admin users can also un-latch all communication from desired channels, clearing a channel from unnecessary chatter. Any number of users can be enabled as an Admin.

*Note:
Priority Calling is like an "all-page" function. It enables an admin user to "shout" over everyone else and flashes their screens. This Priority Call function is only heard by the channels the admin user has selected to talk to.*

Display Name – This field is sent to remote devices and is displayed at the top of the Unity app. This is simply a title for the user, and can be used for any purpose. This will display the *Username* by default. Normally the upper limit that will fit on a remote device is 20 characters. In the above example, it is used to indicate which camera the user is operating. If the user moves to a different camera each week, the *Display Name* can be changed to match their camera position.

Unity Settings - Users

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Note:

Using the Talent Tally feature will affect battery performance of the device. Consider local power for the device if using the Talent Tally for extended periods.

Note:

When a user selects a channel to Talk to on their device, Listen will automatically be selected as well.

Tally ID – Each of the remote devices can receive tally information and show it on the display of their device. This drop-down field selects which of the tally inputs will be sent to each user. Using the screenshot above, if Chuck is operating Camera 1 and his camera is plugged into input 1 of the video mixer, then selecting *Tally ID* “1” will light his Unity app display when the video mixer is switched to video input 1. Select **N/A** if you do not wish to send tally information to the selected user’s device.

Talent Tally – When the Tally ID is set to on and the Talent Tally checkbox is checked, the remote Unity device will illuminate the rear flash/LED when that device receives a tally signal. When you mount the device so that the rear of it can be seen from the talent position, this serves as an On-Air Tally light for the talent so they know which camera is live at any given moment.

Channel 1 through Channel 6 – These selections determine what each user can do on each of the 6 channels. Choose between “Listen”, “Talk/Listen”, and “Off” for each of the channels. If a user is set to “Listen” they can listen to all of the audio on that particular channel but are not allowed to talk on that channel. If set to “Talk/Listen”, then a user can both listen and talk. “Off” will not allow a user access to that channel at all. The name of each channel can be changed on the General tab.

Unity Settings - Upgrades

Unity Base 3 User License – This is an upgrade from the free version of the Unity Server, and allows you to use your own Program Feed input, or no Program Feed input at all. It also allows users to turn the program feed volume all the way down. With this license you can enable up to 3 users at one time.

Unity I/O – This upgrade allows you to send Unity audio streams to or receive external audio streams from audio devices. Using this feature you can integrate a Unity intercom system with other intercom systems from manufacturers like ClearCom or Telex/RTS. This will allow you to use a Unity system to provide a wireless com station in combination with the hard-wired system without the expense of RF wireless systems.

Unity Tally – This enables the Unity Server to receive external tally input from a video mixer. Unity Server provides both Preview and Program tally if the connected video mixer supports this feature.

Unity User Licenses – Add-on licenses are available in 2, 5 and 10 user quantities and can be purchased up to a maximum of 58 users. The 2 and 5 user licenses can each be purchased up to five times, while the 10 user license can be purchased a maximum of two times. Any number of users can be created in the Unity Server but you can only enable the number of users that you have licensed.

*Note:
You do not have to purchase the
Blackmagic GPI/Tally interface with
the Unity system.*