GSW ConnectBot Android Client for use with SSH/Telnet and now includes the GSW Enterprise Browser

User's Guide

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GSW ConnectBot Version 2.9.194+

Default Admin Password is “admin”

GSW ConnectBot – Admin Mode launcher Icon
GSW ConnectBot Version 2.9.186 and below

GSW ConnectBot – Work Mode launcher Icon
GSW ConnectBot Version 2.9.186 and below

Hand Pointer Icon – used when requested to “tap” or select a location on the screen with your finger, stylus, mouse, etc.

Hosts - Host is used when identifying the SSH, Telnet, or Web Server to establish a connection

Host Connection and Host Configuration are used interchangeably when referring to the “Configuration that provides GSW ConnectBot with the information to establish a connection to a Host”. Typically used to refer to the list in the Hosts list Screen.

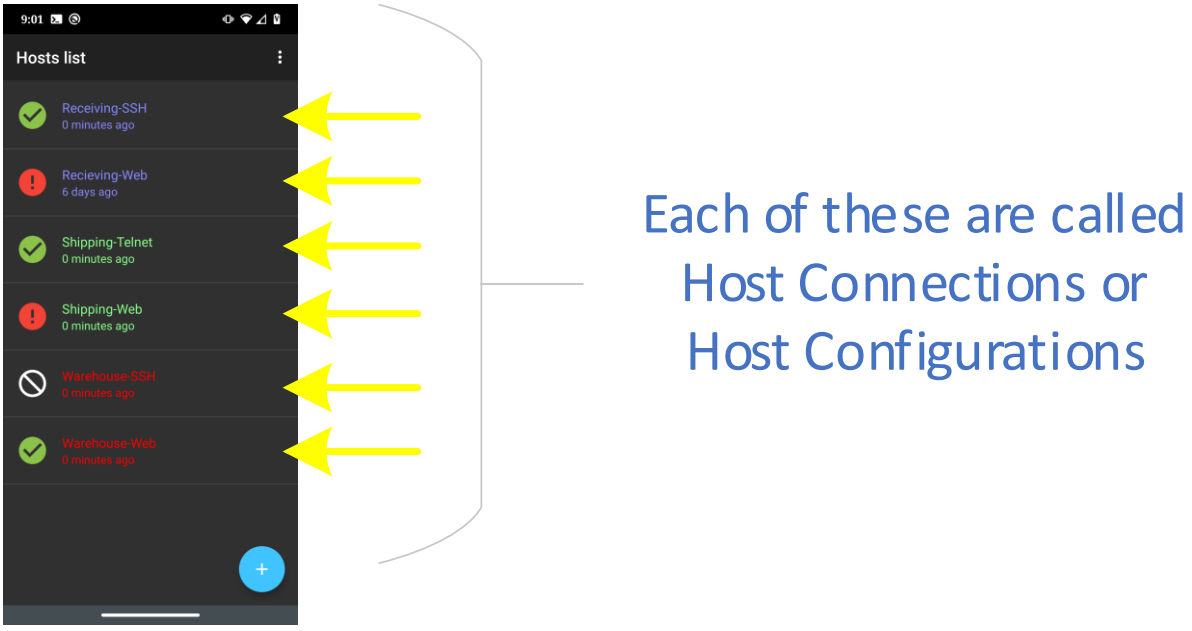


Figure 1: Host Connections / Host Configurations

Sideloading – Installing an application package in APK format on the Android device.

Vertical Ellipses Icon

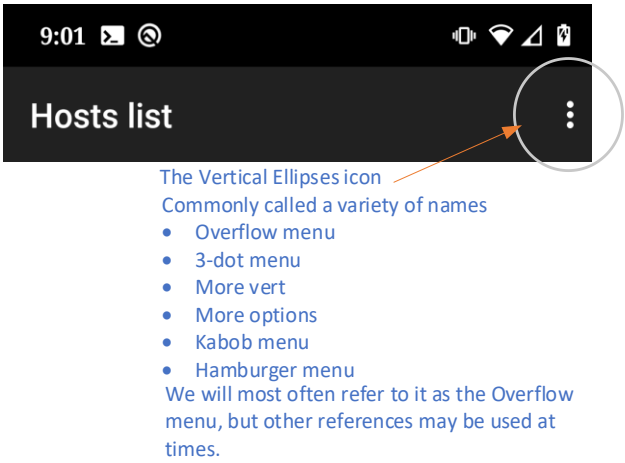


Figure 2: Overflow menu

On Window Operation System menu item navigation

Arrows or Pipes will be used

Start->Georgia SoftWorks Licensing and Deployment Server

Or

Start|Georgia SoftWorks Licensing and Deployment Server

Overview

Thank you for purchasing the GSW ConnectBot.

GSW ConnectBot is a simple to use commercial grade Secure Shell (SSH) and Telnet client for Android. Starting with version v2.8.085 GSW ConnectBot also includes the GSW Enterprise Browser, built for web-based applications with industrial grade features required to optimize productivity and secure access to web pages. GSW ConnectBot is a feature rich client that both system administrators and users will appreciate. It is well suited to the demands of industrial environments.

When coupled with the GSW License and Deployment Server (LADS), Licensing is automatic, Zero Touch configuration is available, and you can spend more time working than administering. See page 145.

For the system administrator that has many devices to manage, the GSW ConnectBot comes with GSW LADS that manages licensing, configuration updates, software updates, and deployments. A light weight, easy-to-use tool that is a major time saver for the administrator as well as all the people working on the devices. GSW Business Intelligence gathers structured data that can be used to assess strong and weak areas of operation allowing opportunities to improve as needed.

Next to correct operation and usability, security is paramount. GSW ConnectBot is the **most cryptographically secure, commercially supported SSH client for Android available.** GSW set out to make sure the default security algorithms are current and considered safe via peer review. No propriety algorithms, no – non-safe algorithms. Don't be the next headline about a security breach.

Dashalytics by GSW is a data-driven, real time, SaaS application. It operates by taking events created from GSW ConnectBot and GSW LADS and processing the data to provide business and operational intelligence. The Dashalytics Icon will be used to distinguish features or settings that require the usage of Dashalytics.

Obtaining GSW ConnectBot

GSW ConnectBot can be obtained from the Google Play Store or the Georgia SoftWorks web site. For upgrades you can also obtain from your local GSW LADS (page 108).

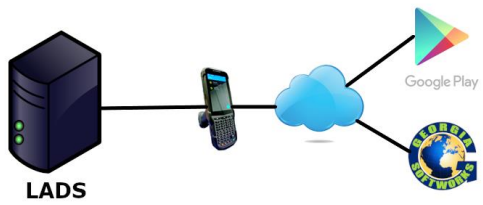


Figure 3: Where to obtain GSW ConnectBot

When first obtained and installed the GSW ConnectBot will operate in demo mode, that will allow a fully functional 30-minute connection to use for evaluation purposes. After 30 minutes, connections will be disconnected and can be restarted as many times as needed.

Quick Start SSH Configuration

For those wanting to get started fast, here is a quick start step guide to get that first connection up.

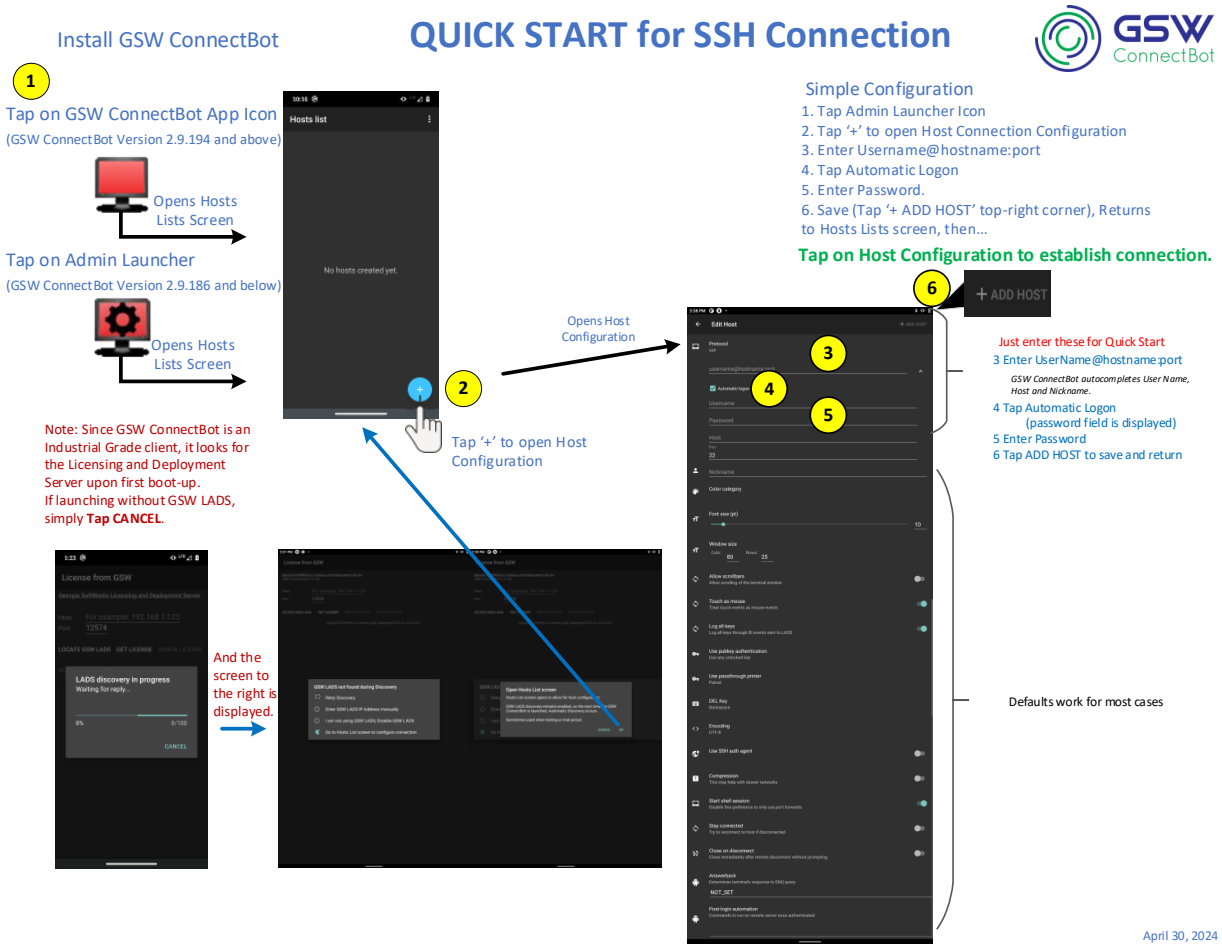


Figure 4: SSH Quick Start

Note: Telnet is similar, just be sure to change the Protocol in the Host Configuration from SSH to Telnet.

Quick Start GSW Enterprise Browser Configuration

The attached infographic (Fig. 5) provides step-by-step instructions for configuring a basic SSH connection in the app after initial installation.

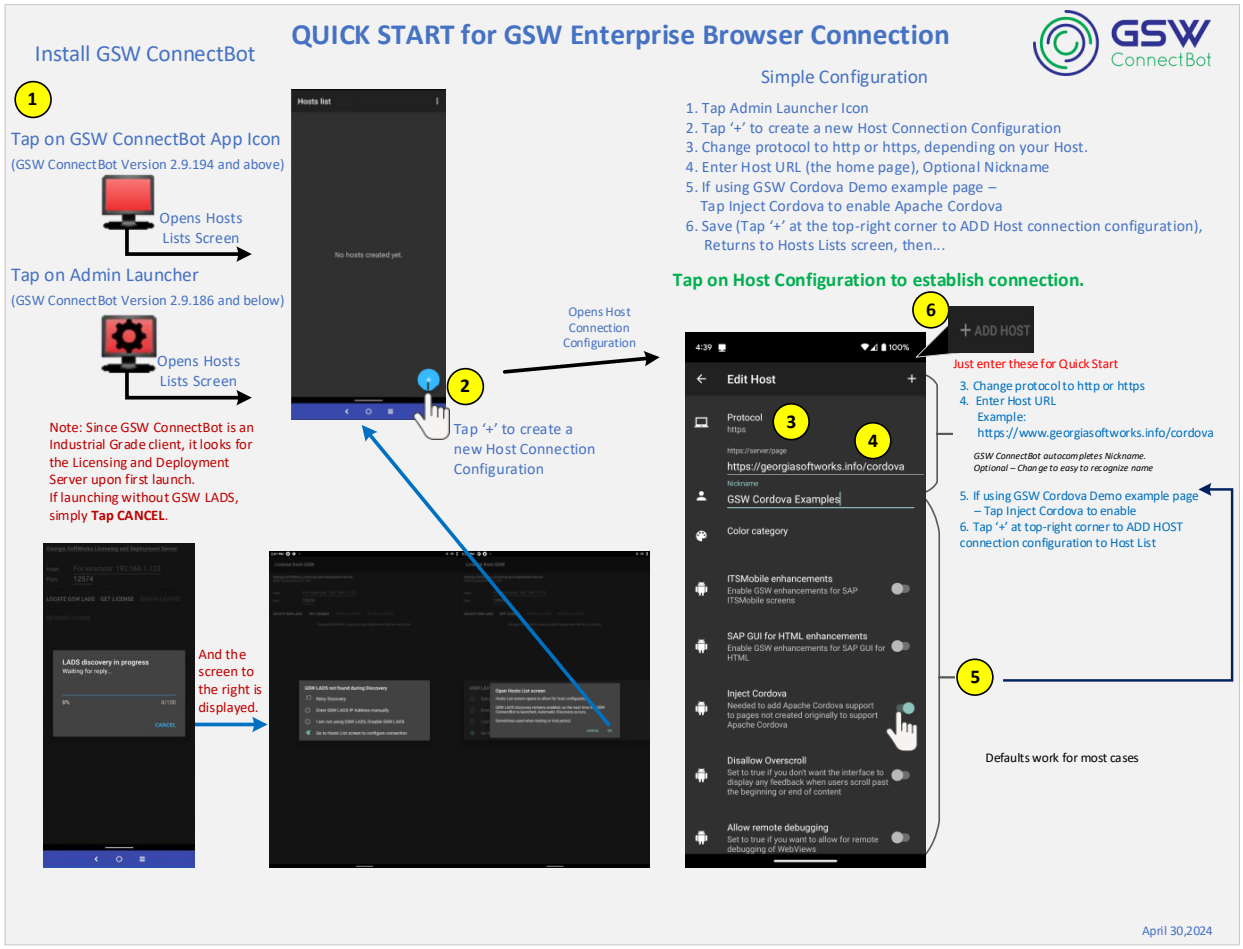


Figure 5: GSW Enterprise Browser - Quick Start

Installation

Installation can be done directly from Google Play Store or by downloading from Georgia SoftWorks website. The figure below is an overview of the steps. **We strongly recommend downloading from the Georgia SoftWorks website**. This ensures the latest and greatest features.

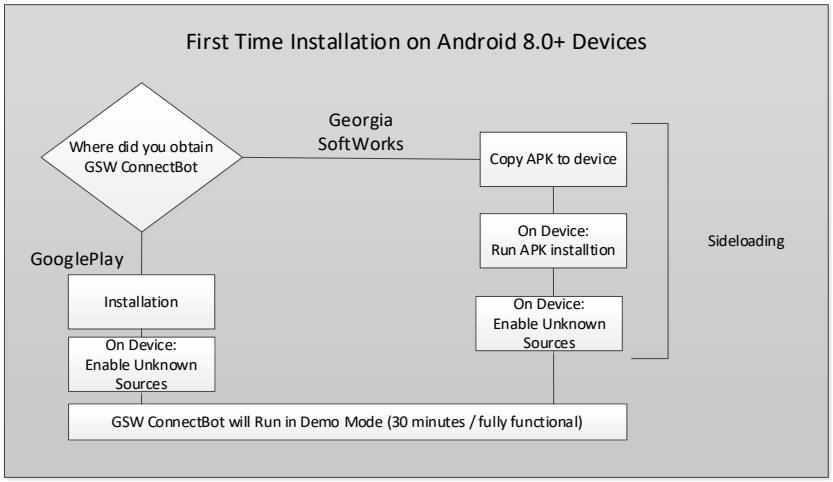


Figure 6: First time installation Android 8+

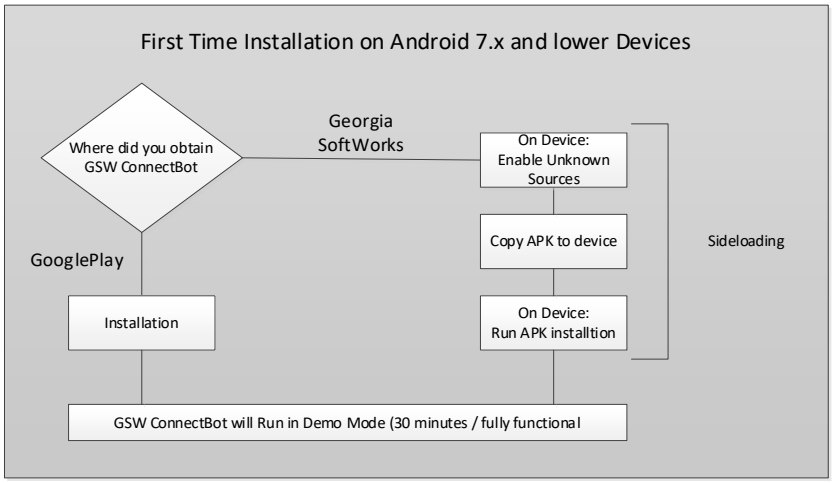


Figure 7: First time installation Android 7.x and lower

Installation from Google Play

To install from Google Play your device must have internet access.

- On your Android device, open Google Play Store.
- Search for GSW ConnectBot.
- Select GSW ConnectBot – TE & Browser.

Figure 8: GSW ConnectBot Google Play

- Select Install.

Installation from Download

The GSW ConnectBot is a standard Android Package Kit (APK). Download GSWConnectBot.apk from the GSW website. If your device has a browser and internet access you can download and install on the device. Otherwise use another computer to download the APK and then copy the APK to the device and execute.

Once installed, configure the connections with the features desired. Please keep in mind that ***device*** settings may vary between Manufacturers and Android versions. GSW ConnectBot has been tested on multiple devices, and Android versions 9 through 13. GSW cannot support versions of Android that are no longer supported by Google.

Following are instructions on how to install GSW ConnectBot on your device. Installation is a simple process. To summarize:

- Enable Allow Unknown Sources
- Copy APK to Device
- Run APK installation

Example 1. Using a USB Connection

To begin, connect the device to your workstation via a USB cable. The device should appear in the Windows Explorer navigation pane.

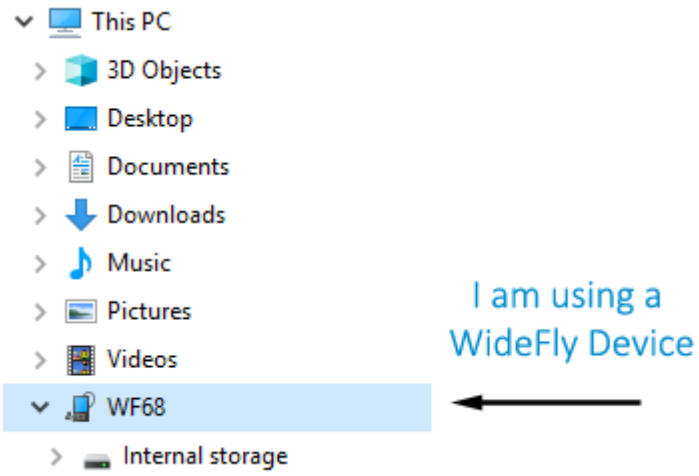


Figure 9: Android device listed in Windows Explorer

Enable "Unknown Sources"

Android security requires that "Install Unknown Apps/Allow from this source" be enabled in order to sideload updates or write to local storage from some applications.

Android versions prior to version 8 used a **global setting** to control sideloading, and must be enabled prior to the installation of the application.

This became a **per-application setting** for Android versions 8 and higher, and the setting can only be changed after the application has been installed.

Each manufacturer's devices setting location can differ, please see devices manual for further instructions on sideloading. See generalized examples below.

Android Version 8 and higher

Permissions on Android versions 8+ are set on a per-application basis. Regardless of whether you install from the Google Play Store or sideload the APK from www.georgiasoftworks.com, you must enable "Unknown Sources" for the GSW ConnectBot application to be able to sideload GSW ConnectBot updates from GSW LADS, and other instances where GSW ConnectBot needs to write to internal storage of device. Not all manufacturer implementations are the same. Some will offer a pop-up menu to dynamically set/allow unknown sources, and some will emit a terse error message about the inability to write data. In most cases, this security setting can be found under the target application (GSW ConnectBot) in the "Apps" settings menu.

Example: Generalized example of pop-ups to “allow from this source”.

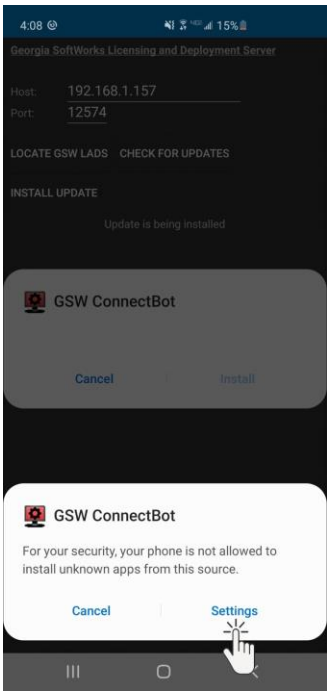


Figure 10: Unknown Apps pop-up

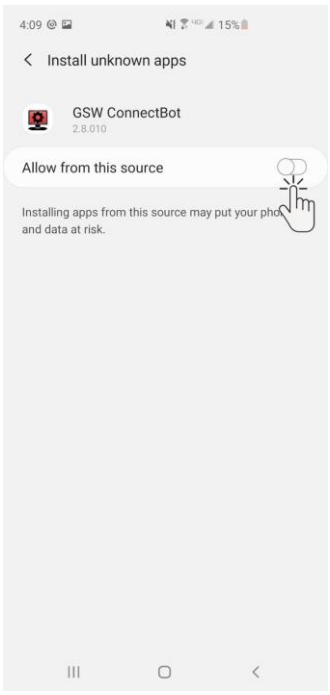


Figure 11: App specific Allow from Source Setting

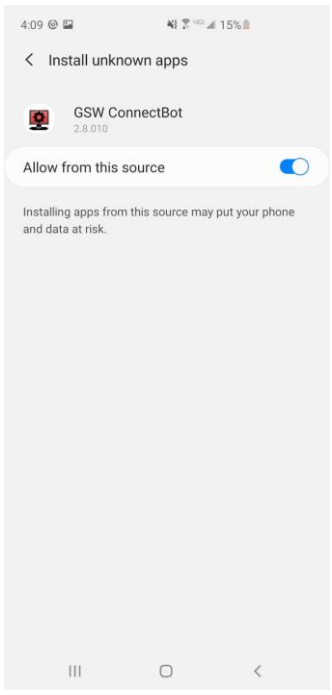


Figure 12: Enable App specific Allow from this source

Generalized terse messages that require enabling from unknown sources.

The example below with GSW ConnectBot shows permission error to write to the device. In the device settings, locate the App Info. Tap on the GSW ConnectBot and navigate to “Allow from this source” as shown in Figure 18.

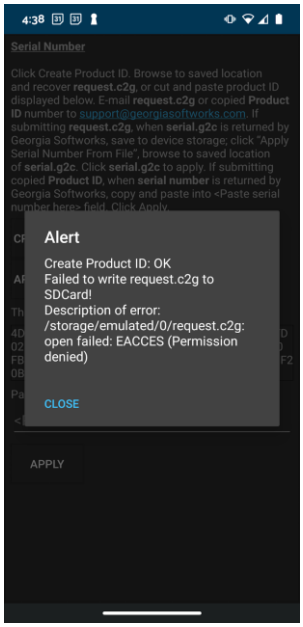


Figure 13: Terse Alert Message Writing to SDCard

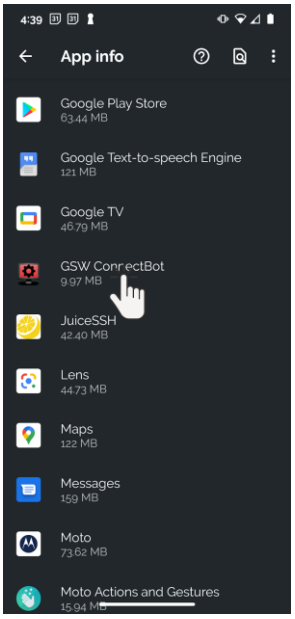


Figure 14: Locate GSW ConnectBot in the app Info. Opens GSW ConnectBot app settings

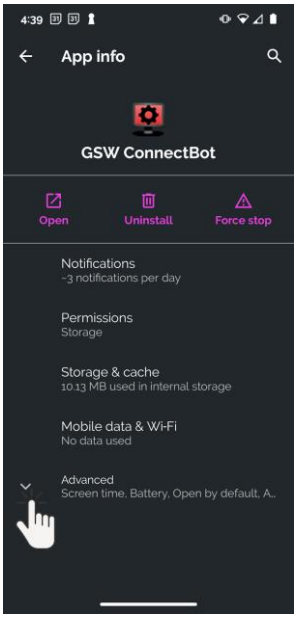


Figure 15: Tap Advanced

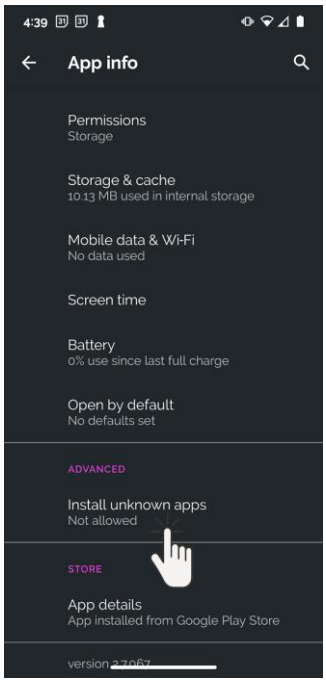


Figure 16: Tap Install unknown apps

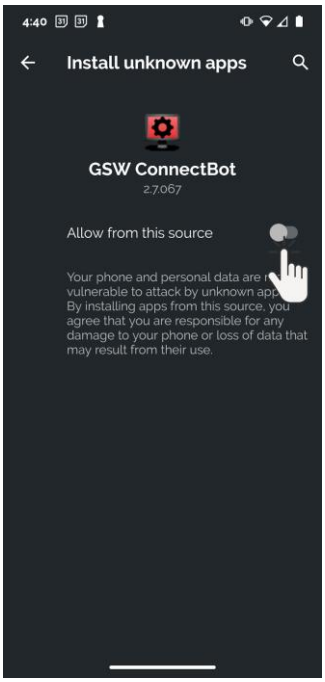


Figure 17: Tap Allow from this source

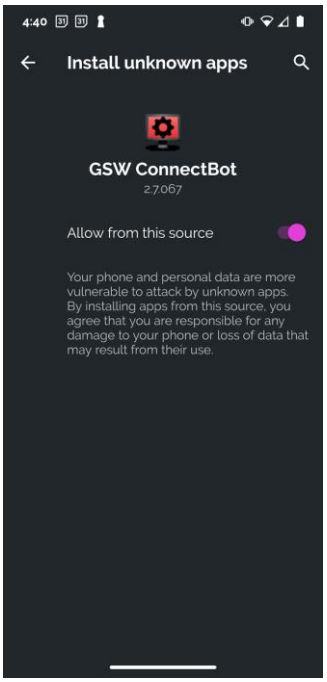


Figure 18: Allow from this source is enabled

Android Versions Prior to 8

On the device, make sure that “Unknown Sources” is turned **ON** under “Security” menu in “Settings”. This allows applications to be installed from outside the Google Play Store. The name of the “Security” menu may vary from device to device.

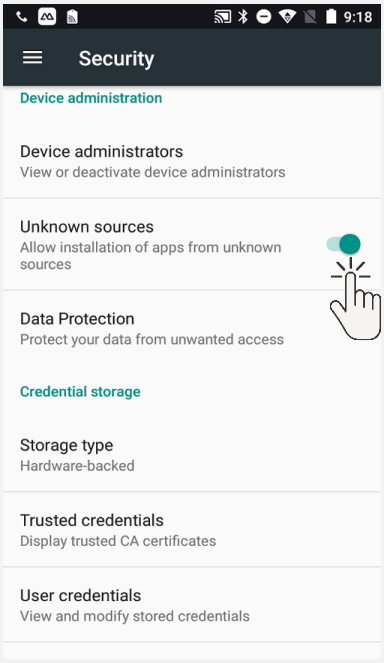


Figure 19: Set Unknown Sources

Copy and Install APK to Device - Sideloading

Copy the GSW ConnectBot APK to the device using Windows Explorer, download or by whatever method you choose, preferably to the "Download" folder, as some device File Managers limit access to files at the root of storage. The name of the actual GSW ConnectBot APK is gsw-connectbot.apk or gsw-connectbot-*version*.apk, where version is the version number of the release.

Next, Tap the GSW ConnectBot APK shown in Figure 20 and the screen in Figure 21 is displayed.

Copy APK to the Device

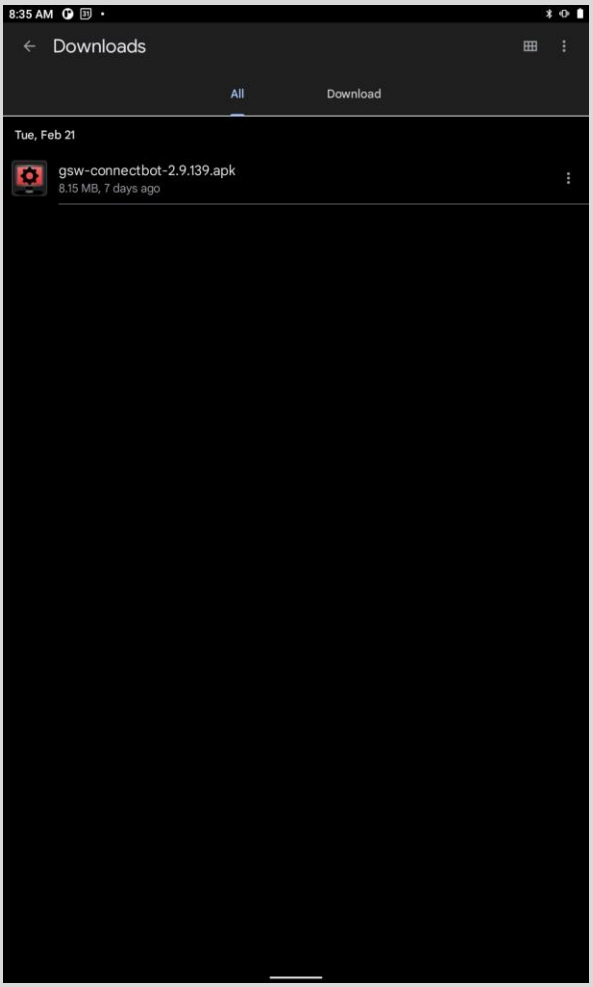


Figure 20: APK on device

Installation Screen

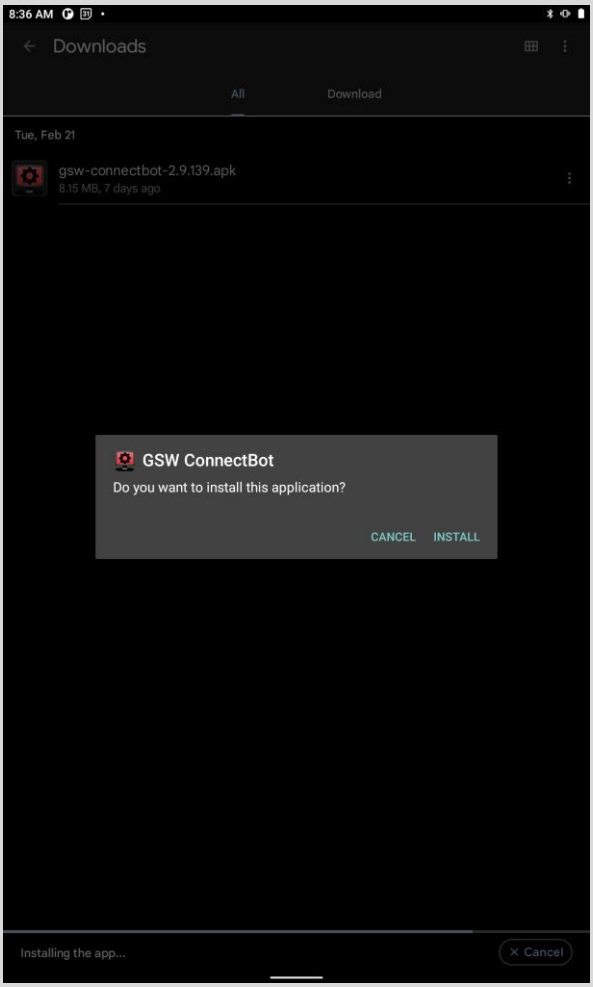


Figure 21: Install screen

Next, tap the "INSTALL" button as shown below in Figure 21.

Installation continues and completes.

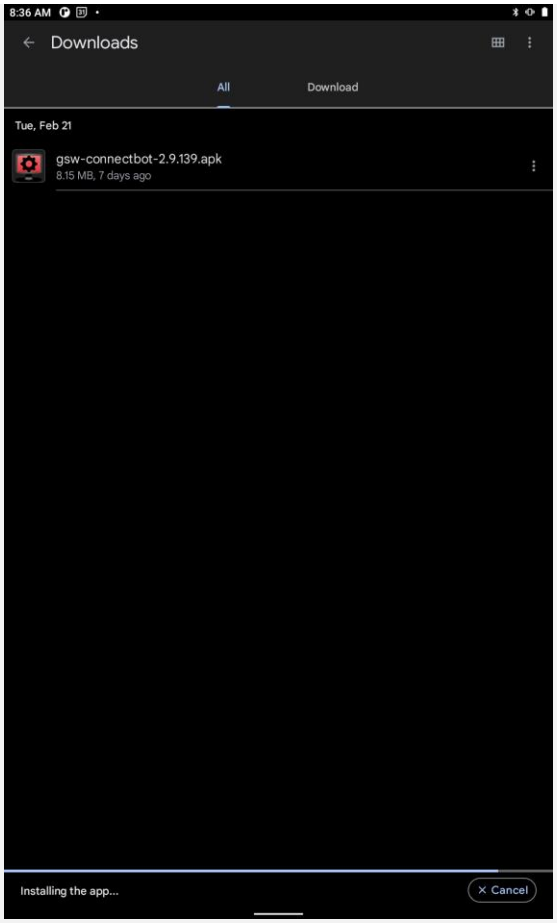


Figure 22: Installation progress bar

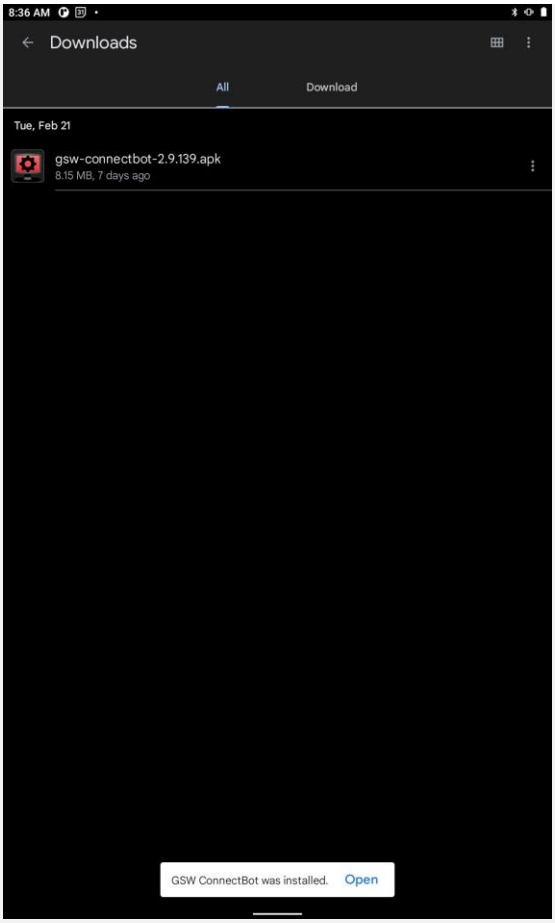


Figure 23: Installation complete

Tap “OPEN” to immediately begin configuration of GSW ConnectBot. The App will open into administrative mode by default, as described in the next section.

Launching GSW ConnectBot

The GSW ConnectBot, built for commercial environments has administrator mode and a user (work) mode. This provides a clean and distinct division of roles where the worker can focus on their activities without concern for the administration details, such as modifying settings or connection profiles. The Administrative mode is a superset of Work mode, meaning the Administrator can do everything the Worker can do plus more.
Administrative mode allows configuration/management of:

- Link OS Printers
- Licensing
- Global and Host Settings
- Creation/Deletion and configuration and use of connections
- Manage Public/Private key pairs
- Background/Foreground color translation
- Enter Work mode

The Work mode is used for:

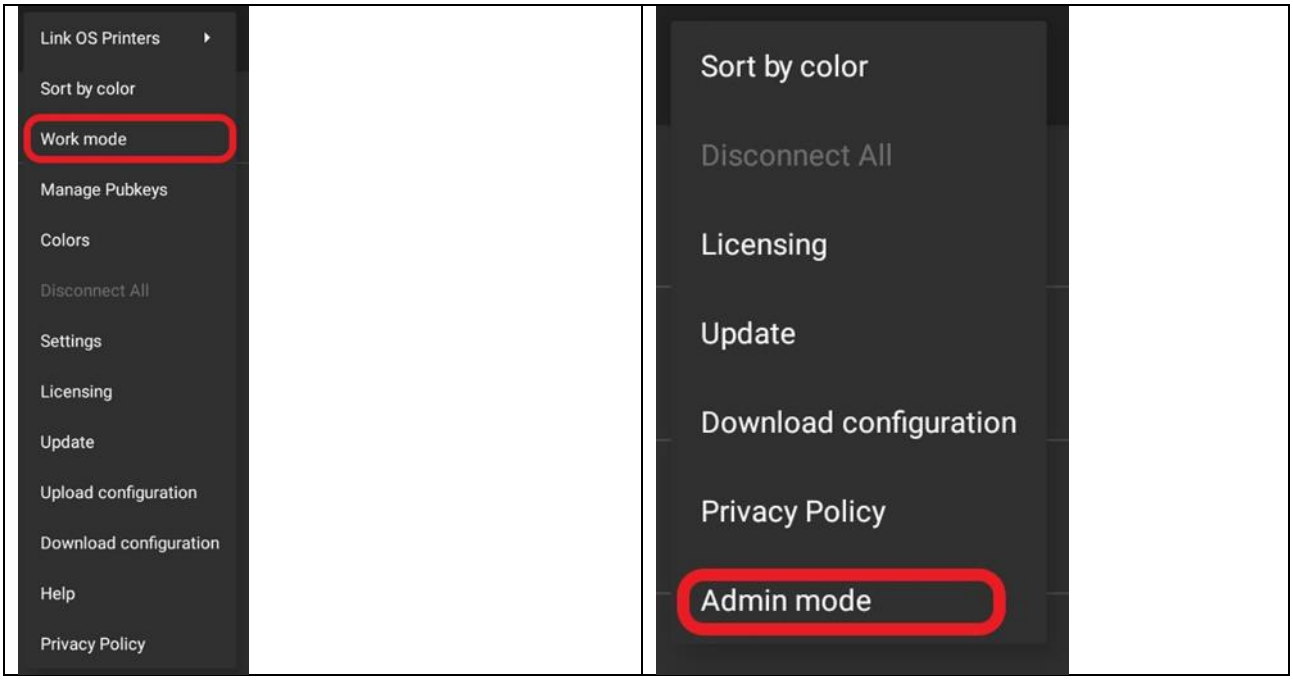
- Launching preconfigured connections
- Updating the software
- Downloading configuration
- Licensing

The administrator can preconfigure many connections to multiple host computers. Multiple connections can be active simultaneously, and the user can easily navigate between connections. The Work mode is a restricted, lockable version for the end users that the administrator controls.

Work mode users can only launch preconfigured connections created by the administrator. This allows workers to only use these preconfigured connections without the risk of inadvertently modifying settings, thus reducing errors and saving time. Additionally, the Work mode user can be further limited to running only GSW ConnectBot, using a process called “App Pinning”, which we will discuss later in this manual (page 100).

Starting with GSW ConnectBot version 2.9.194 and going forward you will only have one app icon displayed. Admin mode will be accessed from the 3-dot menu on the host list screen. During first launch you will automatically be in “Admin” mode, once you have configured device select the 3-dot menu from the host list screen and select “Work mode” from the menu, this will lock application down for production use. To return to admin mode select the 3-dot menu and select “Admin mode” a password prompt will be shown enter password (default password is “admin”)

	**GSW ConnectBot Admin/Work Launcher (One Icon)** **GSW ConnectBot Version 2.9.194 and above**



GSW ConnectBot versions 2.9.186 and below the launcher icon ***with the gear*** is the Administrator. The icon ***without the gear*** is for Work mode users which is a restricted, lockable version for end users.

Note: When switching between Admin and Work Mode apps (GSW ConnectBot versions 2.9.186 and below) you must force stop the application, then launch the desired mode.

GSW ConnectBot – Admin Launcher Icon **GSW ConnectBot Version 2.9.186 and below**	
GSW ConnectBot – Work Launcher Icon **GSW ConnectBot Version 2.9.186 and below**	

Table 1: Admin and Work Launcher Icons

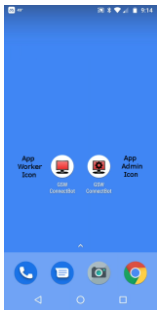


Figure 24: Admin and Work Modes

Once GSW ConnectBot is launched a pre-configured HTTPS host will automatically be configured to chat with Dashalytics by GSW.

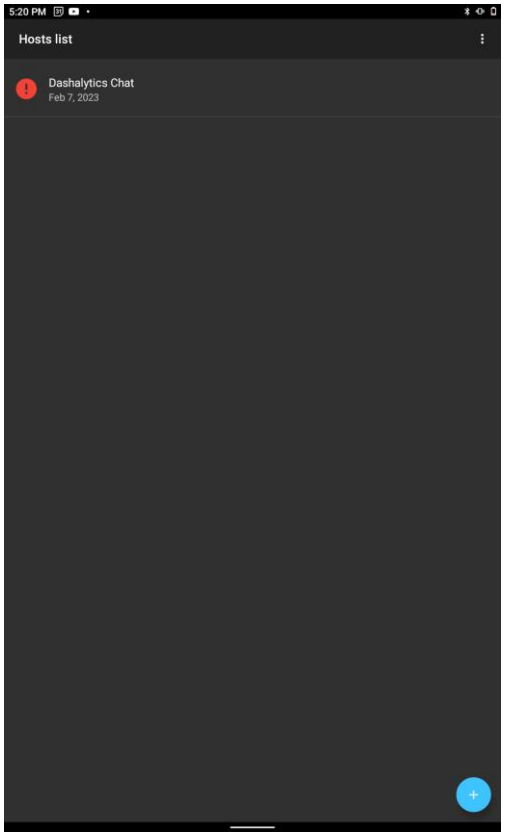


Figure 25: Pre-configured Dashalytics Chat Host

Registration of the GSW ConnectBot License

When first obtained and installed the GSW ConnectBot will operate in demo mode, that will allow a fully functional 30-minute connection to use for evaluation purposes.

To enable permanent operation, a software license needs to be applied. Registering the software is the process to obtain and apply a valid license for the GSW ConnectBot.

There are two options available to license the GSW ConnectBot

- Fast Registration - Use the Georgia SoftWorks Licensing and Deployment Server (LADS) See page 25
- Manual Registration - Send product identification code to GSW and a serial number is returned and applied. See page 28

Registration - This entails sending a product identification code to GSW and we will return a Serial Number. Apply the serial number and this activates the license for GSW ConnectBot.

Demo Mode

When launching a host, you will receive prompt shown in Figure 26, if unlicensed software is detected. To continue in Demo mode, select “demo”, a confirmation prompt will appear (Figure 27) select OK. The host will launch and allows connection to host for 30-minutes, when 30-minutes has ended the host will disconnect and the prompt shown in Figure 29 will be shown.

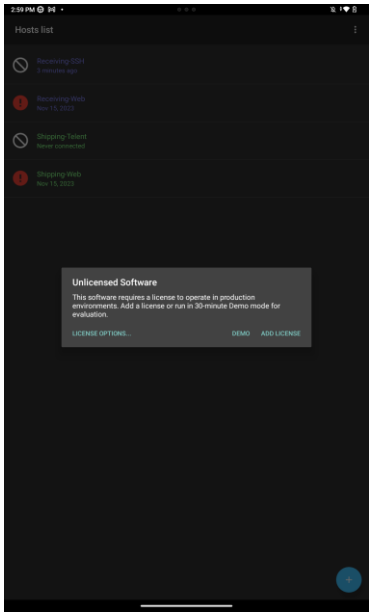


Figure 26: When launching a host and unlicensed software detected

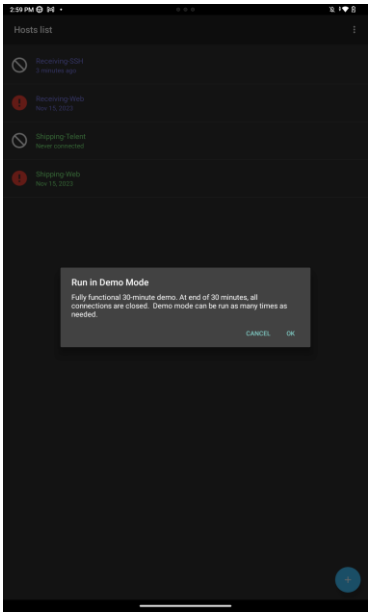


Figure 27: Selected Demo - prompt to continue in Demo Mode

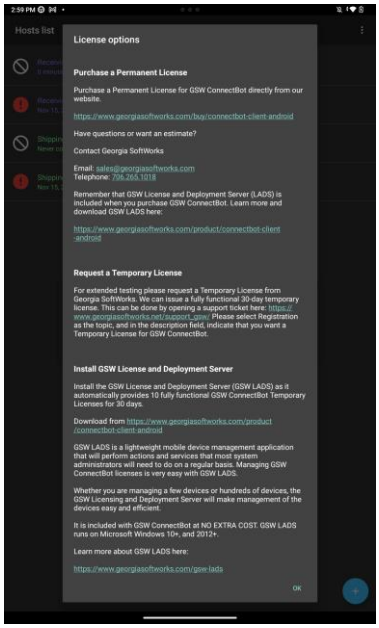


Figure 28: Selected License Options - Description on how to obtain license

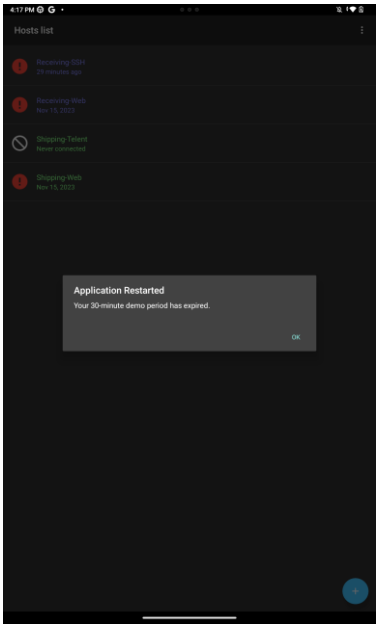


Figure 29: Prompt after 30-minute demo has expired

Check the License Status

To determine the status of your GSW ConnectBot license, navigate to the GSW ConnectBot Licensing screen.

Tap on the Admin Launcher Icon.

Tap on the overflow menu as shown in Figure 30.

The overflow menu opens. Now tap on Licensing as shown in Figure 31, and the licensing screen opens as shown in Figure 32

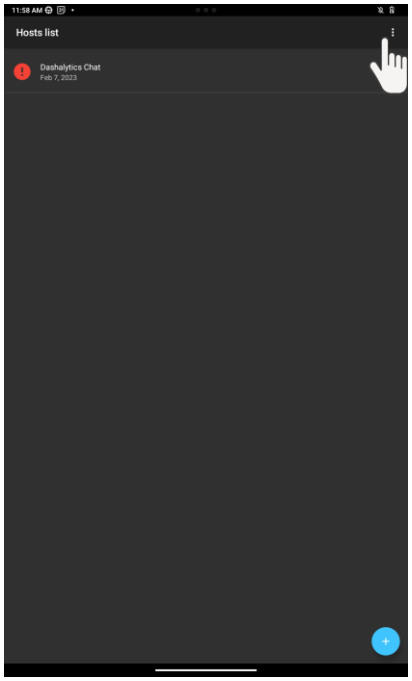


Figure 30: Hosts - More Options

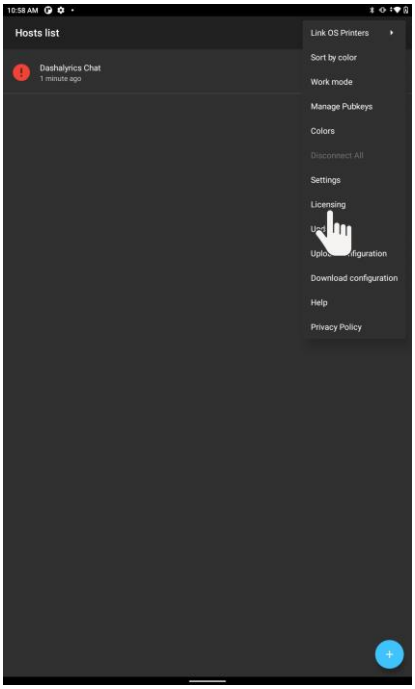


Figure 31: Hosts - Licensing

Tap on Check License Info, followed by CONTINUE

Figure 32: Check License Info

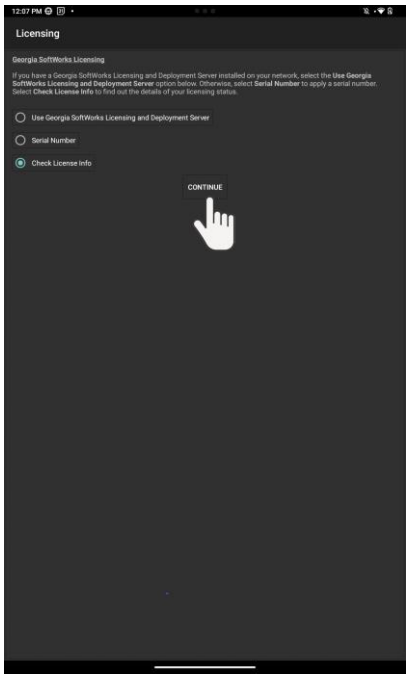


Figure 33: Tap Continue to see License Info

The type of license assigned to GSW ConnectBot is dependent on the installation and registration process. The software can have three types of licenses:

- **Demo Mode** - When installed via the Google Play store or an .apk from the GSW website, fully functional 30-minute demo for evaluation. (Unlicensed Software)

- **Temporary** – Manual temporary licenses are issued by GSW[1] through registration and allow for a fully functional license for a temporary period of time. GSW LADS initial download and install will *automatically* allow for temporary licenses for up to ten devices for a 30-day period (The license count and time period can be extended by a registration request to GSW)

- **Permanent** – Once GSW ConnectBot licenses have been purchased and product has been registered manually or by GSW LADs, GSW ConnectBot will obtain a permanent license. Permanent licenses will not expire.

The GSW ConnectBot License information shows the license status, the registration process, the subscription expiration date and other relevant information to the license status.

Expiration date

Temporary License Type: Date that the software will stop operating
Permanent License Type: Not Set; the software will not stop operating

[1] This is an implicit request either via registration or email.

Subscription until – The date that the subscription expires. The software will continue to operate with entitled versions. Versions released after the subscription date will not operate unless the subscription is renewed. In addition to access to free version upgrades, premium technical support is also included for the duration of the subscription.

User ID – Internally used and for diagnostic purposes

LADS Instance ID – GSW LADS Identifier can be found in GSW License Manager (see page157)

Lease expiration date – Date that GSW LADS will renew license for more information (see page 157)

Android_ID – This is an Android Identifier string

GSW CB Version – The GSW ConnectBot Version installed

GSW CB build date – The GSW ConnectBot build date

Examples of the GSW ConnectBot licensing information are shown on the following pages.

If the software is operating using the Temporary license the status will be similar as shown in Figure 34.

Temporary Version

Fully Functional Temporary Manual License Found

Temporary Expiration Date

Figure 34: Free Temporary Manual License Found

Temporary Version Expired – No License

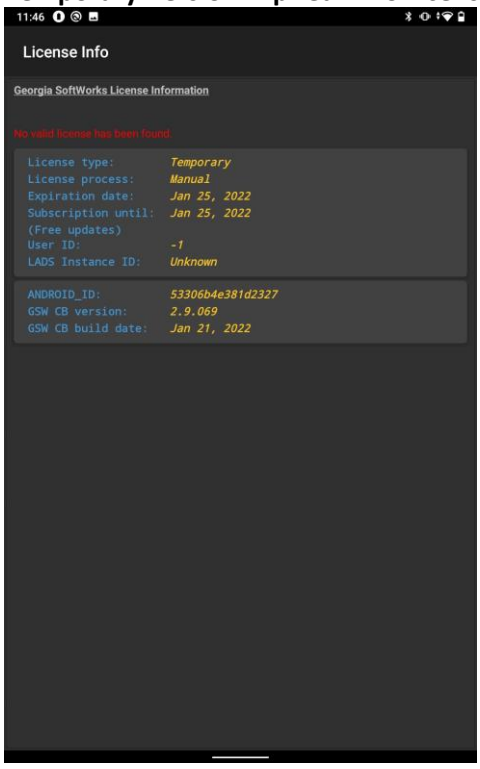
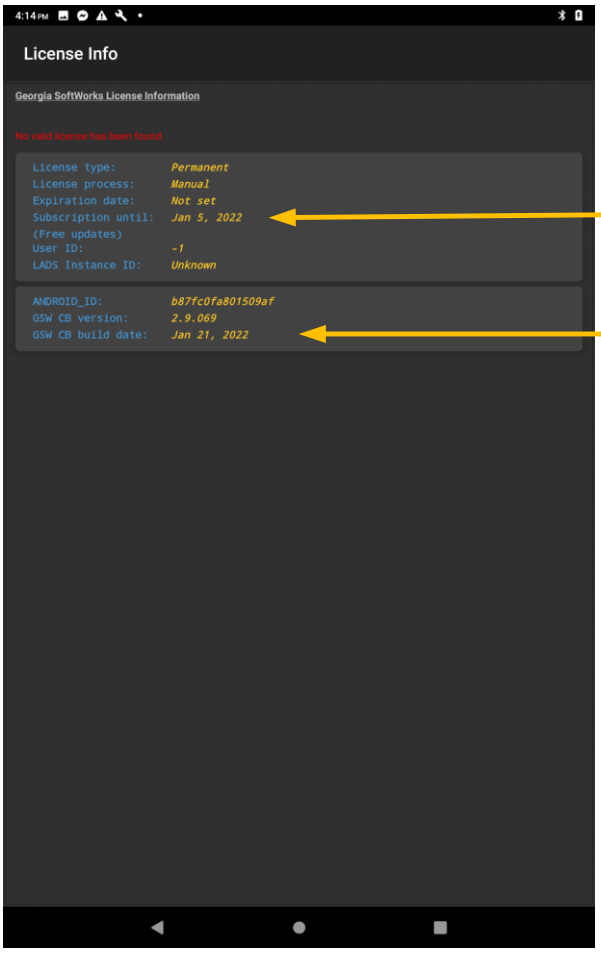


Figure 35: Temporary Manual License Expired

Expired Temporary or Expired subscription license status is show in Figure 35 and Figure 36.

Subscription Expired – New software version not allowed with expired subscription



Keeping the Subscription up to date allows all new versions of the GSW ConnectBot to be installed. If the subscription expires, the software continues to run without issue. However new versions are not eligible unless the subscription is updated.

The build of GSW ConnectBot loaded on the device has a “Build date” later than the “Subscription until” date.

The subscription must be updated to run the newer software build.

Figure 36: Subscription Expired

When a permanent license is applied using a Manual registration, it will be displayed similar as shown in

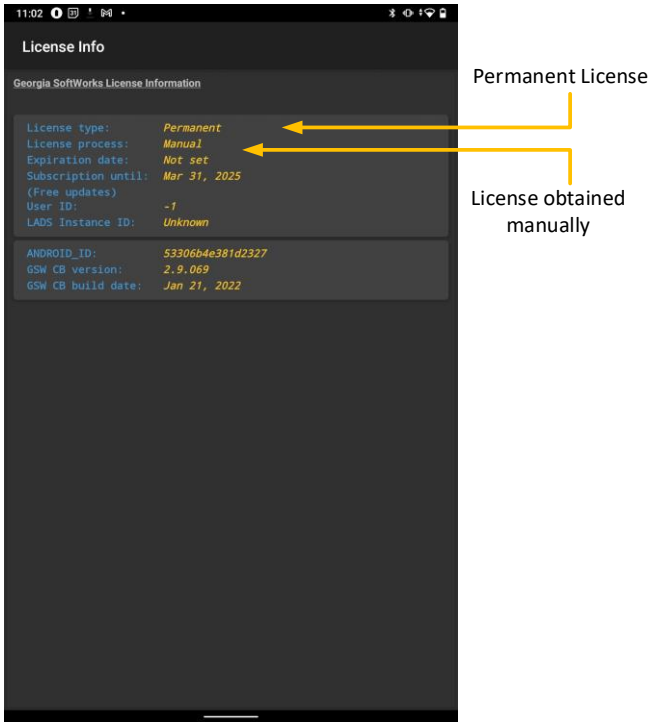


Figure 37

If the software was licensed via GSW LADS (License and Deployment Server) the License information will look as described in Figure 38.

Permanent License – Manual Registration

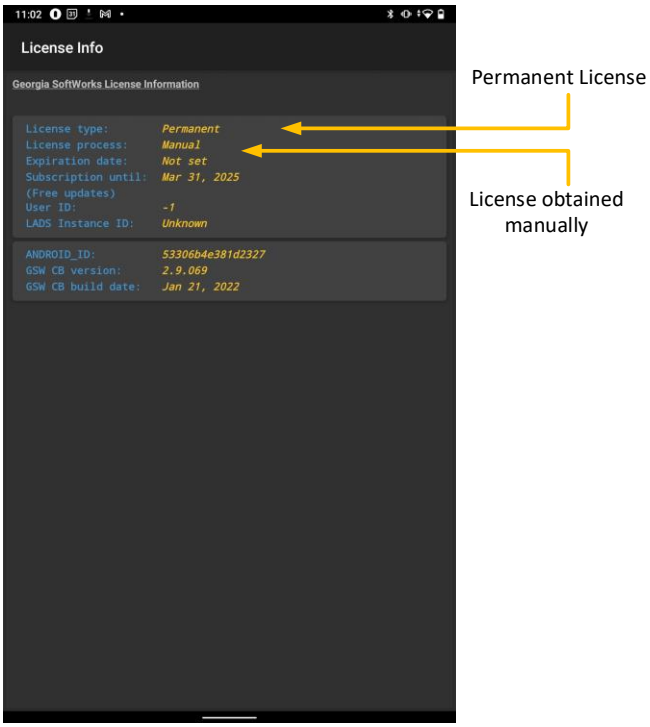


Figure 37: Permanent License - Manual Registration

The date that the subscription expires is shown as well.

Permanent License – GSW LADS Registration

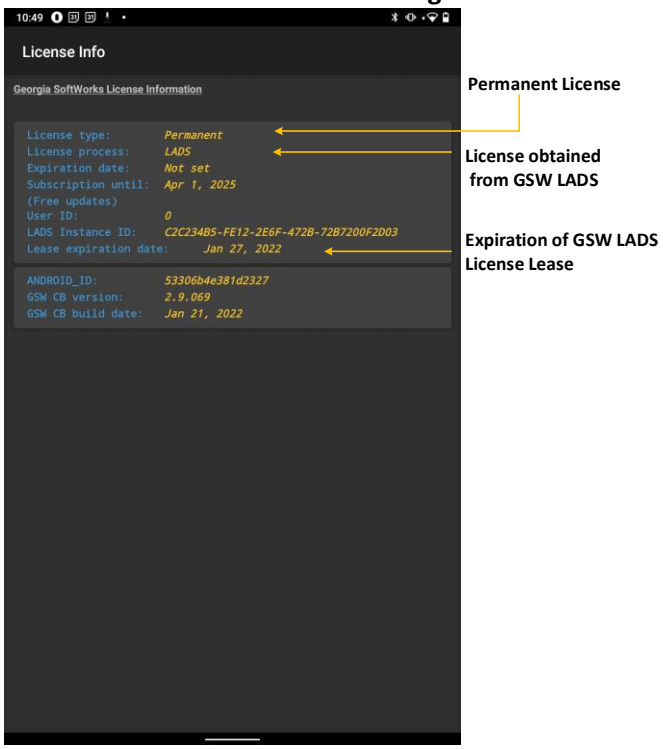


Figure 38: Permanent License Applied – GSW LADS

Free version updates and support are available through the “Subscription Until” date.

Registration by GSW Licensing and Deployment Server (LADS)

If you have the Georgia SoftWorks Licensing and Deployment Server (LADS) installed, obtaining a license for GSW ConnectBot is a breeze.

See your system administrator to determine if GSW LADS is installed or use the GSW ConnectBot Locate GSW LADS “button” to try and locate a GSW LADS.

To lease a license, GSW ConnectBot locates the GSW LADS and requests a license.

Navigate to the Georgia SoftWorks Licensing screen. Select “Use Georgia SoftWorks License Server” radio button and TAP “Continue” as shown in

Figure 39.

The screen in Figure 40 is opened.

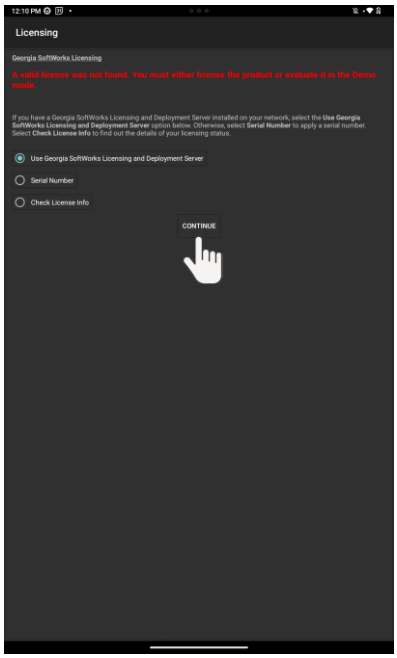
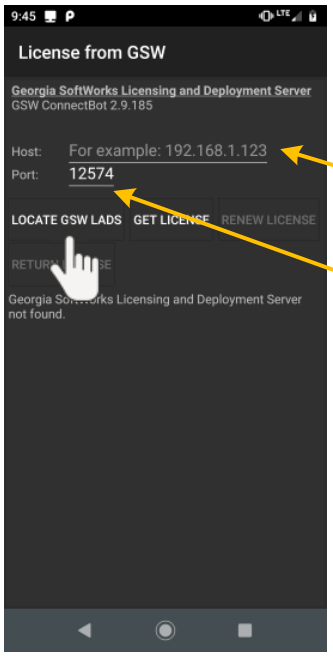


Figure 39: Register Using GSW LADS



You do NOT need to enter the Host unless the LADS server cannot be located

The default port number used by the LADs Server is automatically displayed here. Do not change this port number unless you know what you are doing.

Figure 40: Automatically Locate GSW LADS

1. If the Host is not already populated then you must Locate GSW LADS. If it is populated then you can skip this step.

   TAP “LOCATE GSW LADS” as shown in Figure 40 to locate the GSW License and Deployment Server. Notice that the Host does not need to be manually filled in unless GSW LADS cannot be located. Also, the default port 12574 should not be changed without a good reason.

When located, the screen is updated. The Host address of the GSW LADS server as shown in Figure 40 Note: Your host IP address will be different than the one displayed in the example.

2. TAP “GET LICENSE” as show in Figure 41.

If a license is available for distribution, GSW ConnectBot will be licensed. This is confirmed by GSW LADS that the product license has been retrieved. TAP “Continue” to finish licensing.

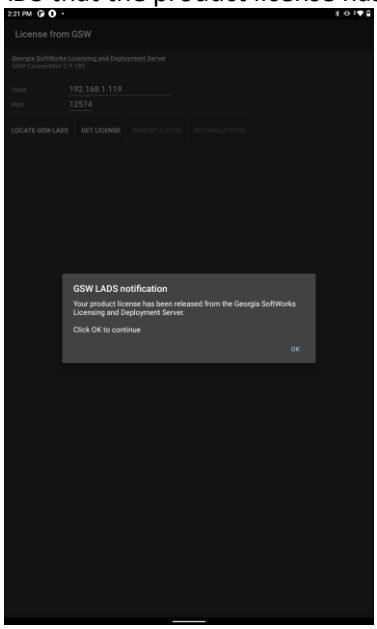


Figure 41:Product License retrieved from GSW LADS

Figure 42: Get License for GSW LADS

Return License to License and Deployment Server (LADS)

If a device is being de-commissioned; return the license to GSW LADS so the license can be reused with another device. Navigate to Georgia SoftWorks Licensing and Deployment Server as described starting in Figure 39.

Locate GSW LADS as shown in Figure 40 and Figure 42.

TAP “Return License” (Figure 43)button to unregister the device and return the license to the pool to be distributed again.

Figure 43: Return GSW ConnectBot License from device

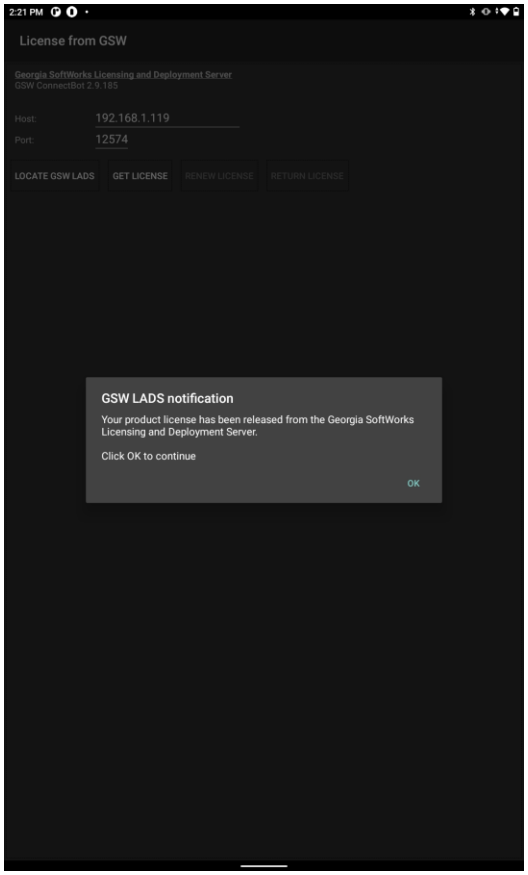


Figure 44: Notification that the License was successfully released.

Your license has been returned to GSW LADS. Please note that at this point GSW ConnectBot will no longer operate on this device.

Note 1: Only licenses obtained from GSW LADS may be returned to GSW LADS.
Note 2: Licenses are not portable between GSW LADS instances.

Manual Registration

In brief, the Manual registration entails creating a Product ID, then sending it to GSW. GSW will use the Product Id to generate a device specific Serial number and send it to you. The Serial Number is used to apply a permanent license.

When GSW ConnectBot (version 2.8.010 and higher) generates the Product Id, it saves it in a file named "request.c2g"[2] and places it at the {*root}/Android/data/com.gsw.connectbot/files*.

Note: *if using GSW ConnectBot version 2.7.067 or lower, the "request.c2g" file will store at the root of main storage*.

That file is sent to GSW to generate and GSW sends a file back with the name "request.g2c"[3] that contains the serial number.

Step by step instructions follow.

Navigate to the Licensing screen to Manually register the software. This is de,5scribed as shown in the "check the license status" on page 19.

Tap on Serial Number radio button as show in Figure 45, then tap on continue.

Permanent License – Manual Registration

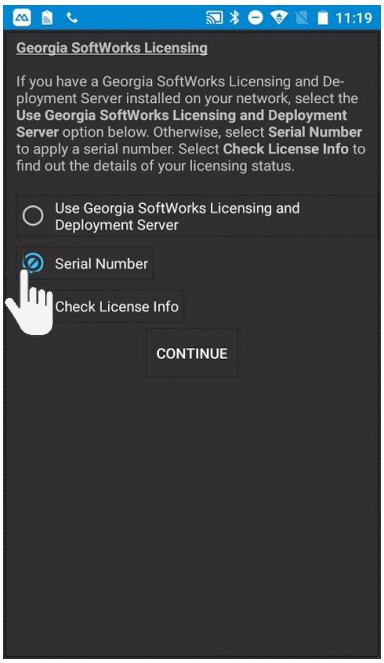


Figure 45: Permanent License – Serial Number

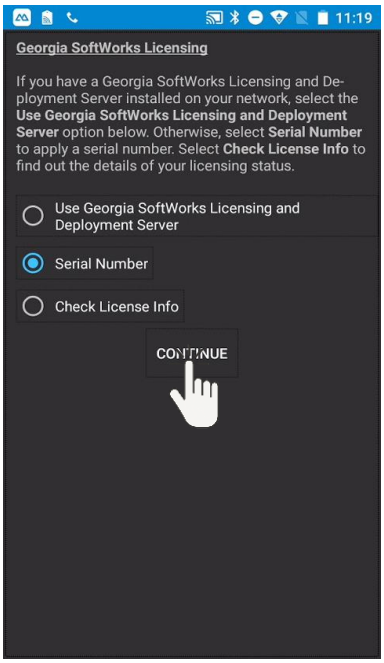


Figure 46: Permanent License - Continue

[2] TIP – The suffix "c2g" stands for "Customer to Georgia SoftWorks".
[3] TIP – The suffix "g2c" stands for "Georgia SoftWorks to Customer"

The screen to create the Product ID is opened as show in Figure 47.

Example: Create Product ID

Step 1. Tap "CREATE PRODUCT ID" to generate a product id as shown Figure 47. A pop-up indicating that the creation of the product id was successful as shown

Create Product ID

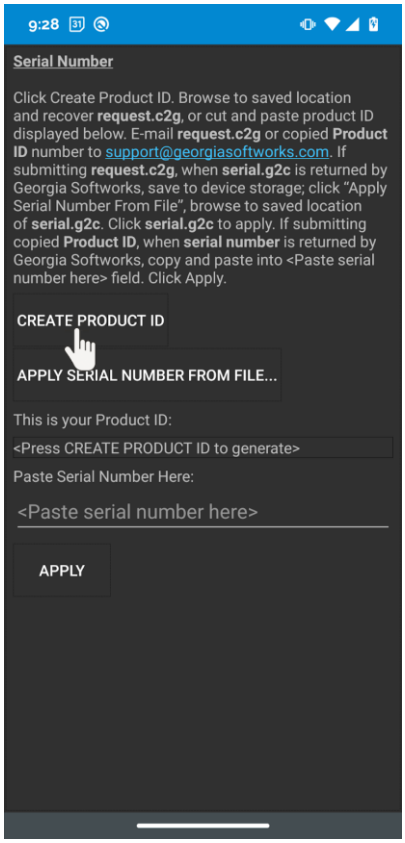


Figure 47: Create Product ID

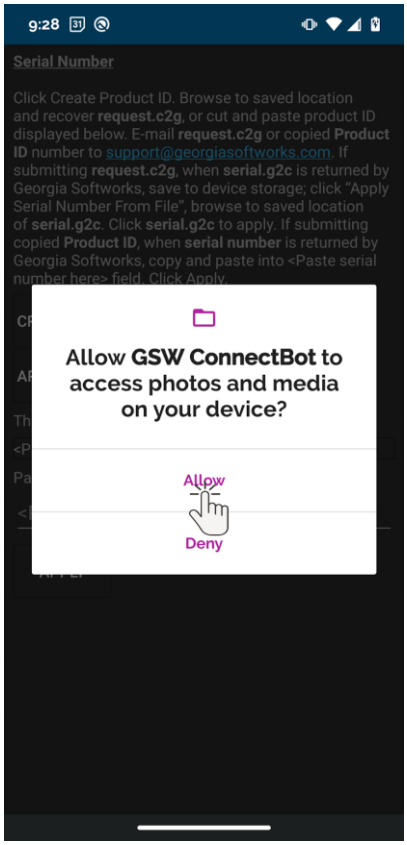


Figure 48: Allow access if needed

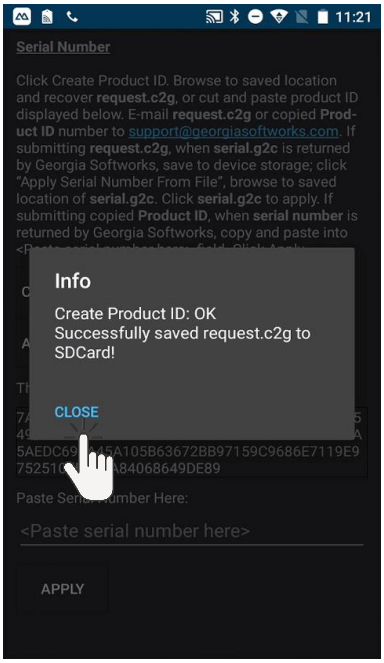
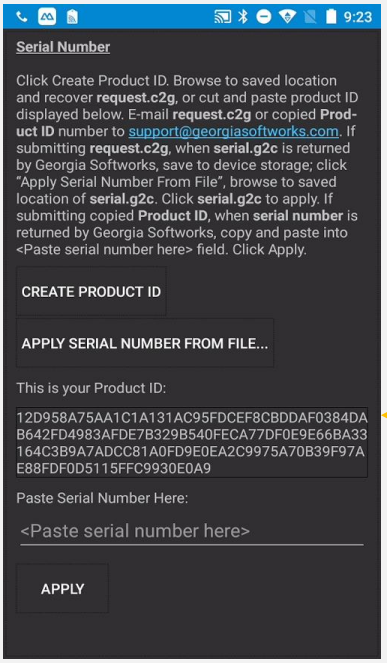


Figure 49: Close Dialog

The Product ID is displayed as shown in Figure 50. Additionally, a file “request.c2g” is created and placed in {root}/Android/data/com.gsw.connectbot/files when using GSW ConnectBot versions 2.8.010 and higher as shown in Figure 51.

Create Product ID



Product ID is Created

Figure 50: Product ID created

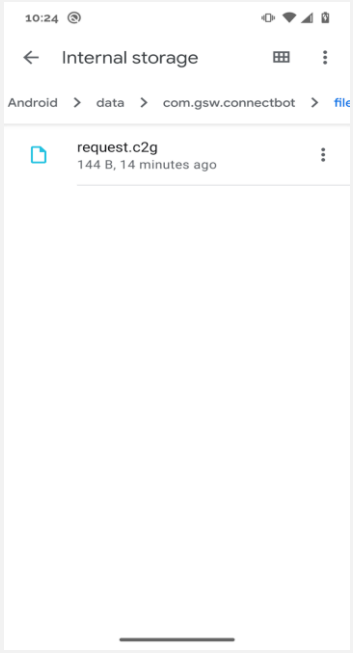
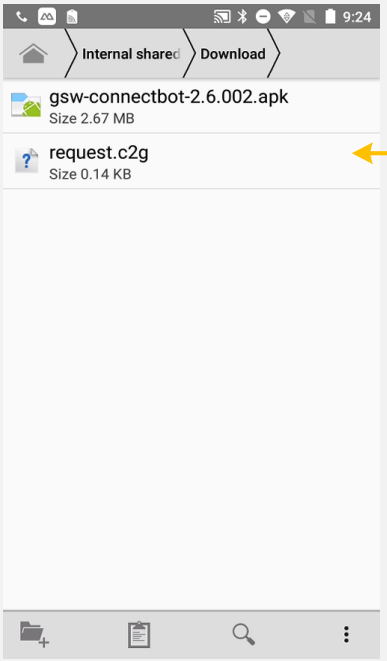


Figure 51: request.c2g placed in root/android/data/com.gsw.connectbot/files



request.c2g file created that contains the Product ID

Figure 52: Request .c2g placed in root - v2.7.067 and lower

Step 2. Copy the file "request.c2g" to a location either on the device or another computer where you can send it to GSW.

Step 3. Go to the GSW Support Page (preferred and fastest method) to initiate a registration ticket and attach the "request.c2g" file. You may need to move the file from the root of main storage to another folder (Download) to be able to copy it via USB or another method to make it available for sending to GSW.

A few alternate methods exist to send the Product ID to GSW to the 3 steps above.

- Alternatively email the file to registration@georgiasoftworks.com
  OR
- Copy and paste the Product ID from the Serial Number screen and send it to GSW as in Step 3 above. To copy the Product ID – Press and hold your finger on the Product ID, a Copy/Paste dialog will appear. Tap "Copy" to send the product ID to the Android clipboard, and paste it to a location where you can send it to GSW via the GSW Support Page or email as described above

Georgia SoftWorks will take the Product ID and generate a serial number that is device specific and send it back to you via the GSW Registration ticket system. Simply apply the Serial Number to activate the permanent license.

Apply Serial Number

GSW will return a "serial.g2c" file that contains the Serial Number to activate the permanent license.

Step 1: (Starting with version v2.9.022+)
Copy this file to the root/android/data/com.gsw.connectbot/files folder on your device as shown using the Android file manager in Figure 53.

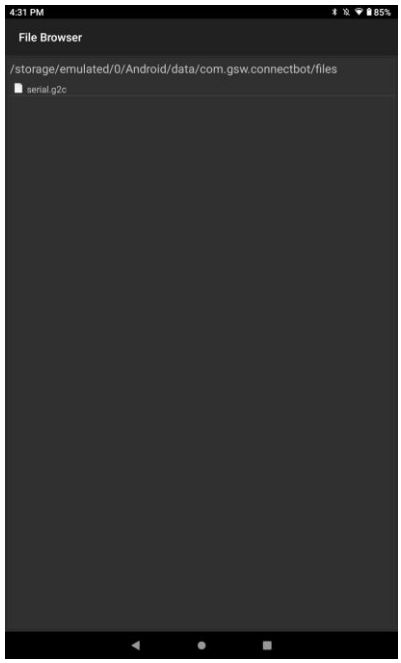


Figure 53: Copy serial.g2c to root folder described

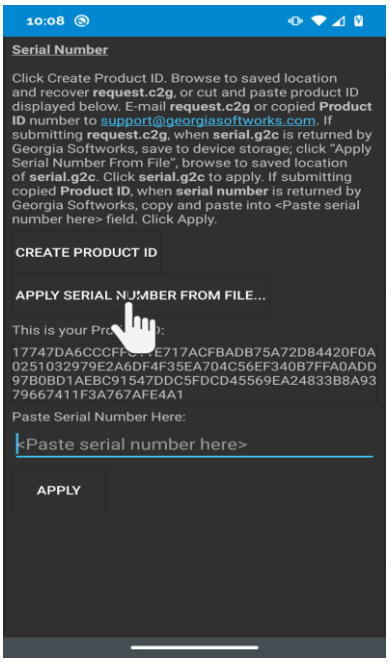


Figure 54: Apply Serial Number from file

Step 2: Apply Serial Number from File

Navigate to Manual Serial Number screen (as shown in Figure 45 and Figure 46) and TAP on APPLY SERIAL NUMBER FROM FILE as shown in Figure 54.

The GSW ConnectBot file manager opens that allows you to navigate the folder locations on the device.

Go to the location you placed the serial.g2c file in step 1.

TAP on the file serial.g2c.

The screen that the Serial Number was successfully set is displayed as shown in Figure 56.

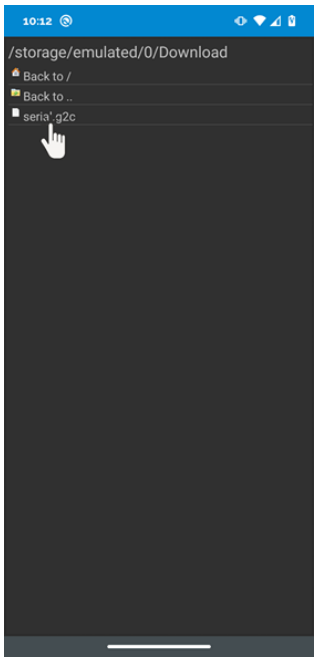


Figure 55: Locate the serial.g2c file

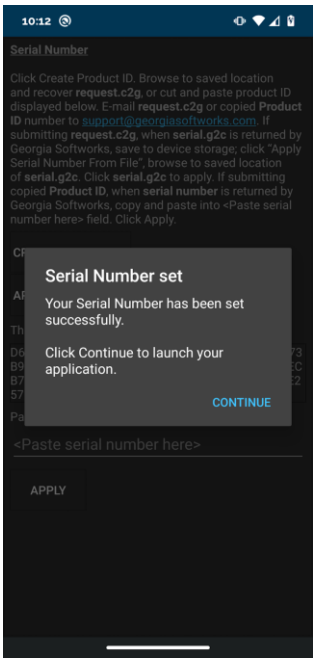


Figure 56: Serial Number Applied Successfully

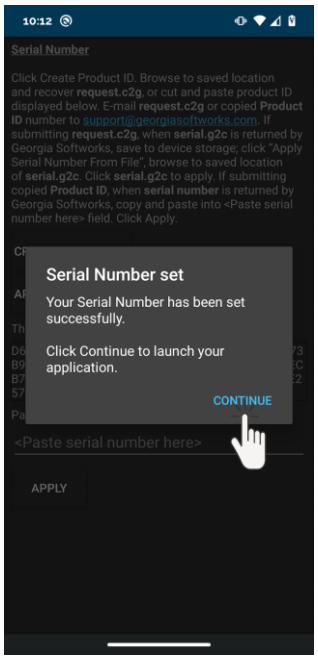


Figure 57: All Done, Tap Continue

You license is now permanent. TAP Continue to launch the GSW ConnectBot.

Note: As an alternative to selecting a serial.g2c file, you can paste the Serial Number in the field “Paste serial number here” as shown in Figure 58. Once you paste it then Tap APPLY as shown in Figure 59

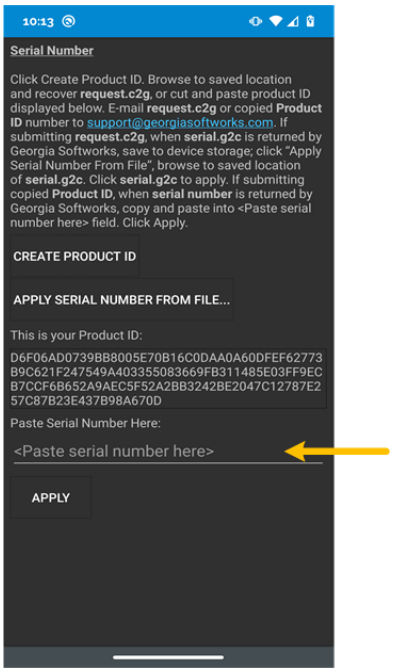


Figure 58: Paste Serial Number

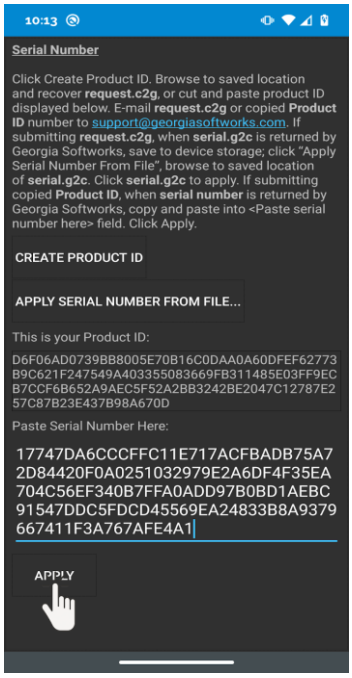


Figure 59: Tap APPLY after pasting serial number

The serial number is applied and the license is permanent. Tap CONTINUE.

Update the GSW ConnectBot software

An important benefit of a GSW ConnectBot subscription is that it allows access to version upgrades at no additional cost. This is important to easily obtain new features that are introduced and problem resolutions that are rolled out.

Similar to licensing, updates can be obtained and installed either using the License and Deployment Server (LADS) or manually. GSW LADS make checking for updates and installation a breeze.

Administrator Mode or Work Mode can both perform software updates. Often it is easier for the user in Work mode perform the update rather than the system administrator touching all the devices.

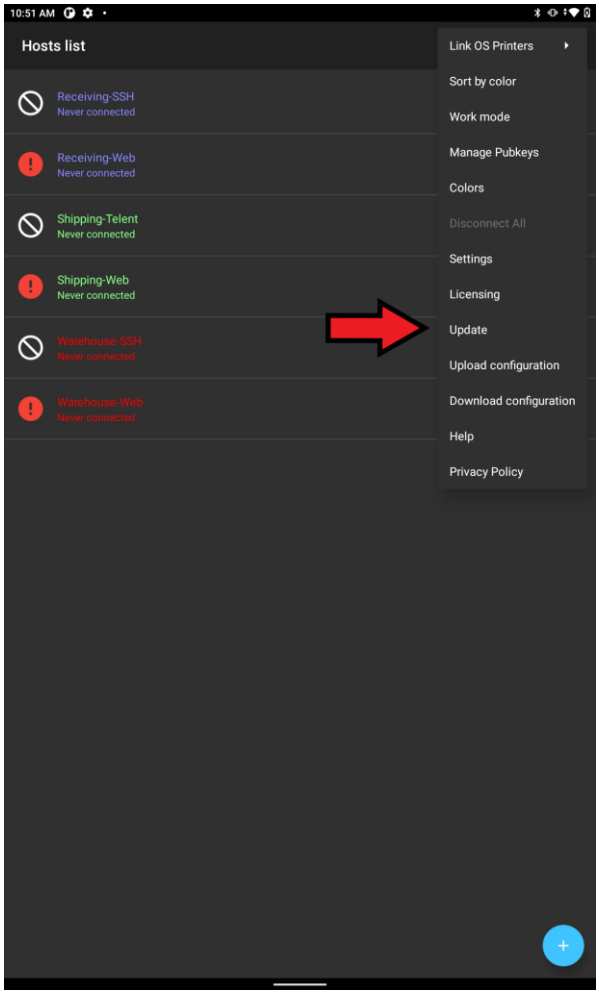


Figure 60: Admin Mode - Update software

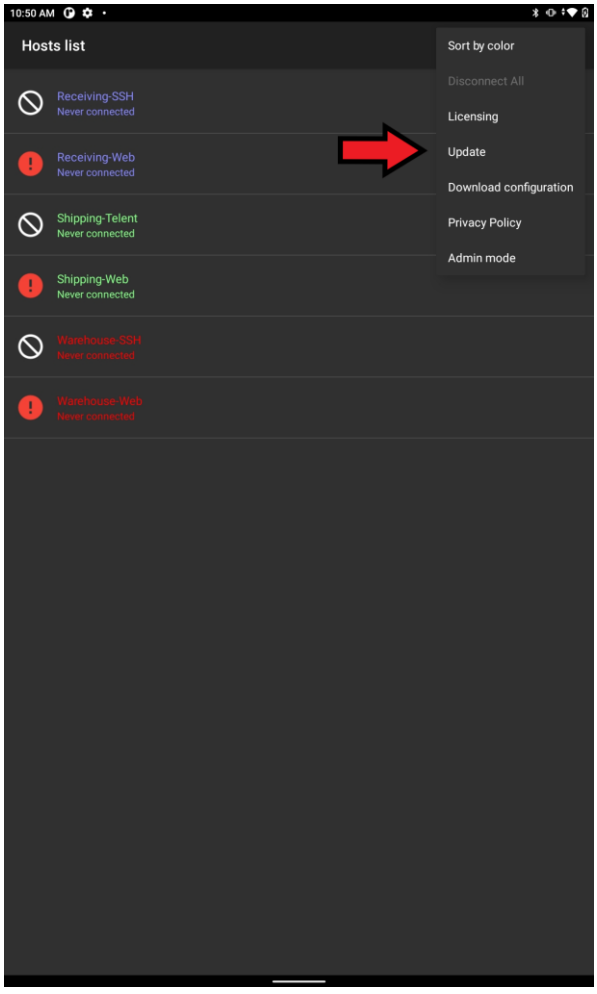


Figure 61: Work Mode - Update Software

Updating Software by Licensing and Deployment Server (LADS)

Managing the GSW ConnectBot version can also be done from the server.

The administrator can place specific files on GSW LADS that allow GSW ConnectBot to get software updates (see page 160).

Note: Android 11 implemented new security changes that require modification of the GSW ConnectBot update procedure in certain situations. On Android 11, if upgrading GSW ConnectBot version 2.7.067 or earlier, the .apk file must be manually placed on the Android device (not in the GSW LADS folder). GSW ConnectBot 2.8.010 and later is updated using the normal process.

When the GSW ConnectBot client checks for an update, if a newer version has been placed in that location, it will confirm that an update is available and ask if you wish to perform the update.

Tap on the Admin or Work Launcher Icon (below is in Admin mode).

1. Tap on the “over flow” menu in the upper right-hand corner of the client.
2. Select “Update” from the menu.
3. Tap “Use Georgia SoftWorks Licensing and Deployment Server”
4. Tap “CONTINUE”
5. Tap “CHECK FOR UPDATES”

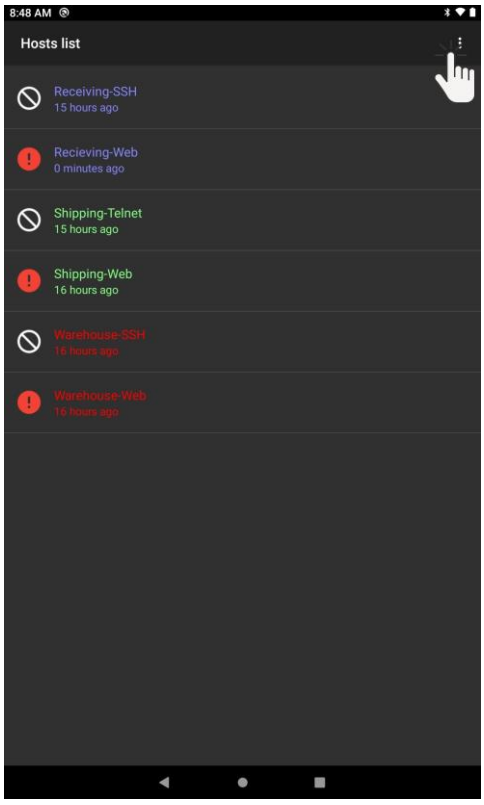


Figure 62: Hosts - More Options - Update

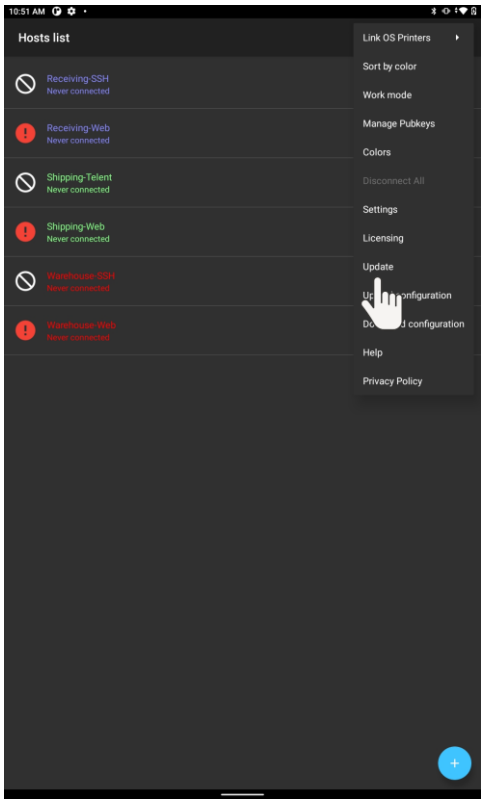


Figure 63: Tap Update

Figure 64: Update TAP GSW LADS

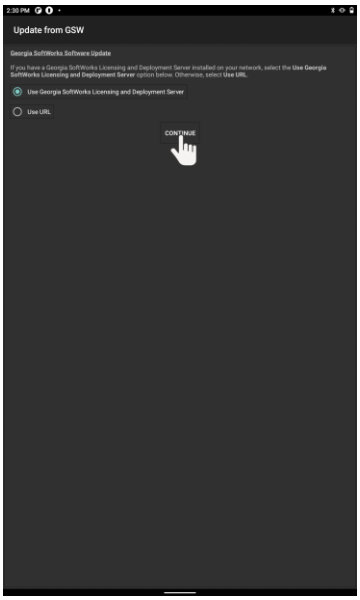


Figure 65: TAP Continue

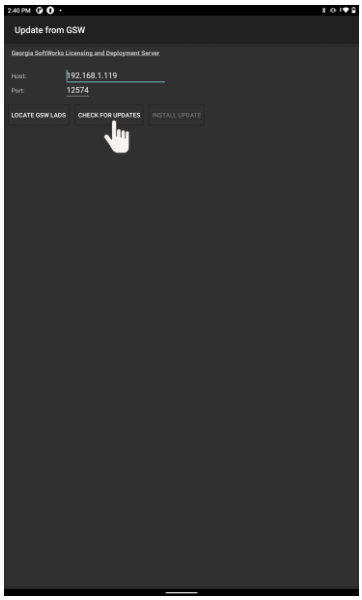


Figure 66: Check for Update

If the Host field (Figure 67) is not already populated then you must Locate the GSW LADS. If it is populated then you can skip this step.

Tap “LOCATE GSW LADS” as shown in Figure 68 to locate the GSW License and Deployment Server. Notice that the Host does not need to be manually filled in unless the GSW LADS cannot be located. Also, the default port 12574 should not be changed without a good reason.

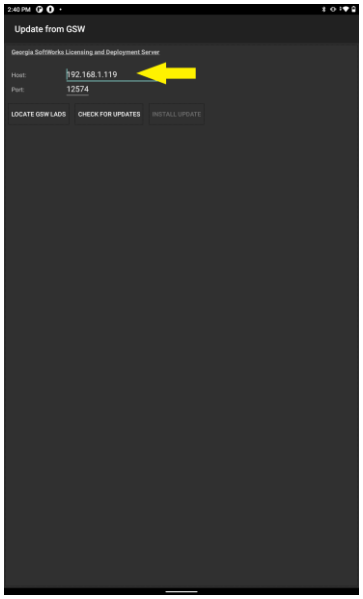


Figure 67: Use GSW LADS Update Screen

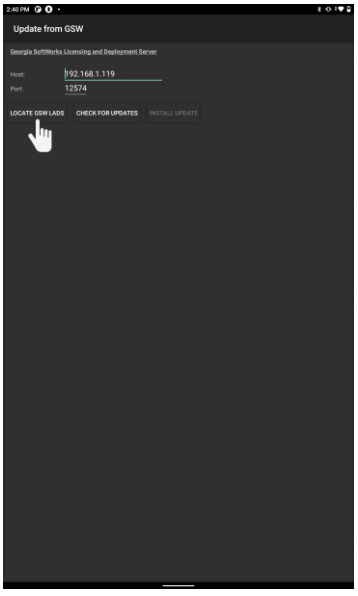


Figure 68: Locate GSW LADS

6. If a different version of the GSW ConnectBot client is available the “Update Found!” message will be displayed as in Figure 69. (Go to step 8)
7. If no update is available, you will receive a message that “You are running the latest available version:” as shown in Figure 70. No need to go further (swipe right/or back button to go to host screen)

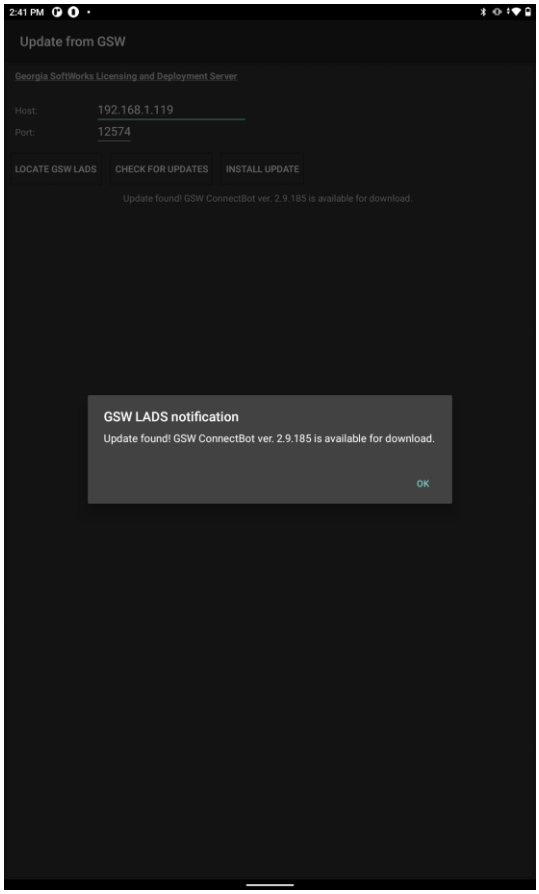


Figure 69: GSW LADS - Update Found

Figure 70: GSW LADS - running latest version

8. Click “OK”.
9. Click “Install Update”
10. A progress bar will be displayed to provide the status of the download.
11. Once the download is complete, Android Security will ask for permission tap “Allow”

Figure 71: Install Update

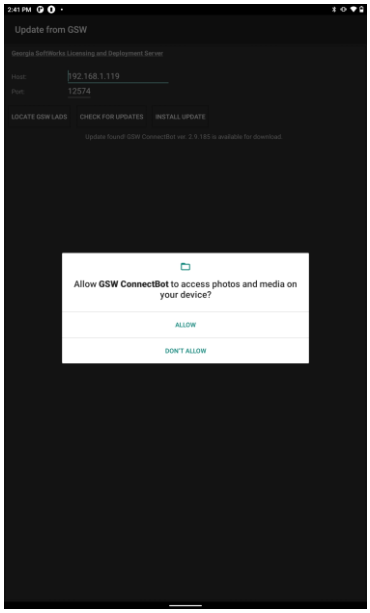


Figure 72: May be prompted to allow access to photos

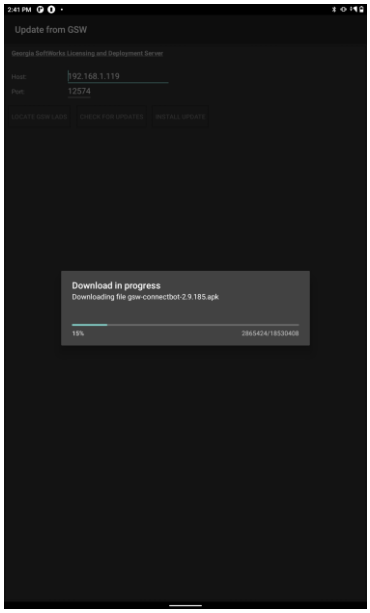


Figure 73: Update is downloading

12. A confirmation message will pop-up asking if you wish to install the update.
13. Click “INSTALL” to proceed with the update.
14. When the download is complete, tap open to relaunch GSW ConnectBot and connect to a session.

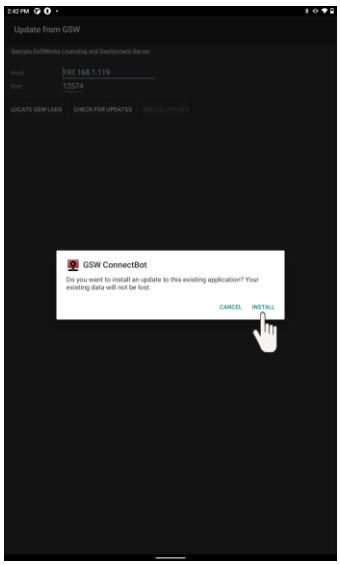


Figure 74: Install Update

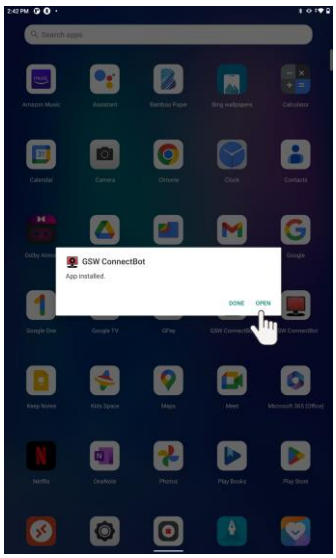


Figure 75: Tap Open to launch

Updating Software by manually obtaining gsw-connectbot.apk

Note: Sideloading example on page 13

Copy the new version GSW ConnectBot APK to the device using Windows Explorer, download or by whatever method you choose, preferably to the “Download” folder, as some device File Managers limit access to files at the root of storage. The name of the actual GSW ConnectBot APK is gsw-connectbot.apk or gsw-connectbot-*version*.apk, where version is the version number of the release.

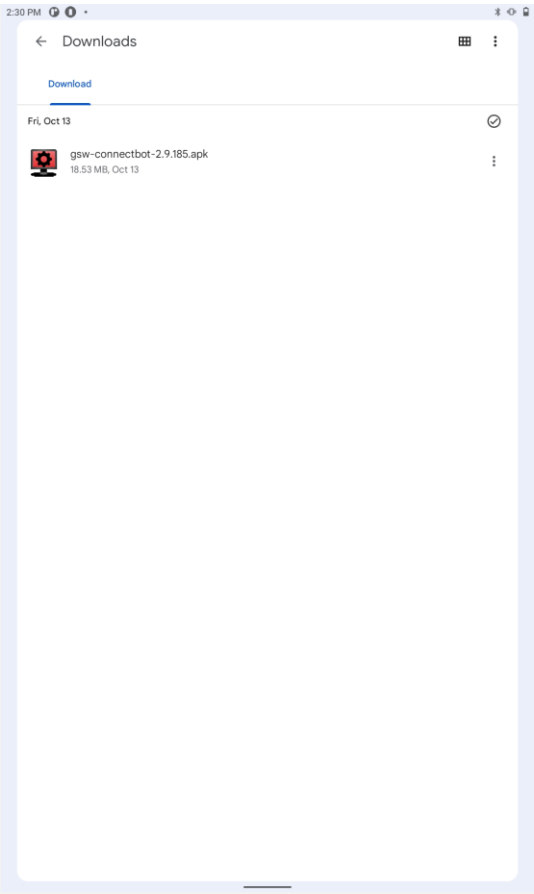


Figure 76: Select version to install

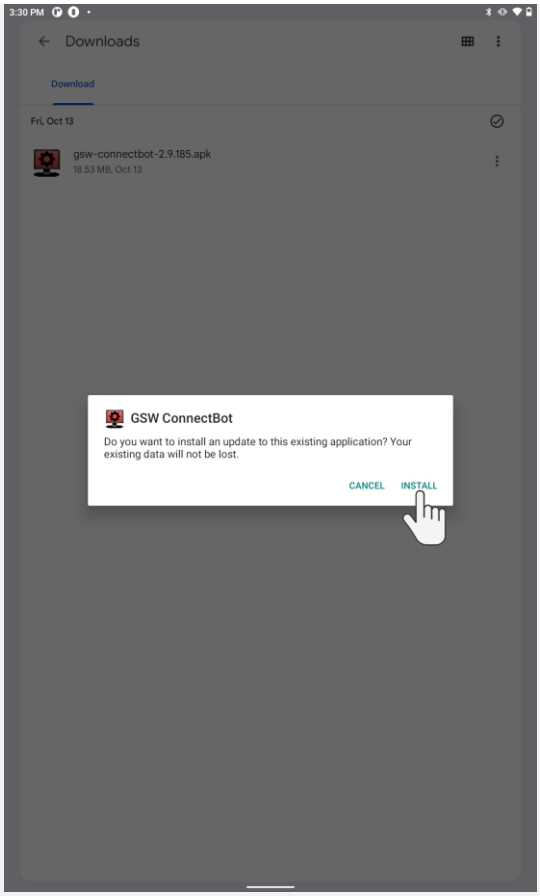


Figure 77: Tap install

The hosts configuration and licensing are not affected when the updated version of GSW ConnectBot has finished.

Updating Software by URL

URL Update allows you to update GSW ConnectBot directly from a web location. By default, the URL points to the GSW website[4]. You may also download the .apk and .json file and place them on your own intranet website for download.

Select “Update” from the overflow menu.

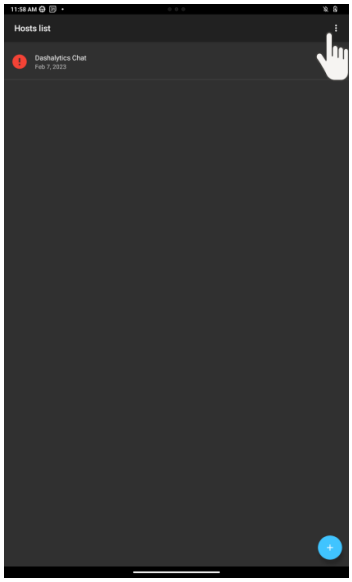


Figure 78: Tap the overflow menu

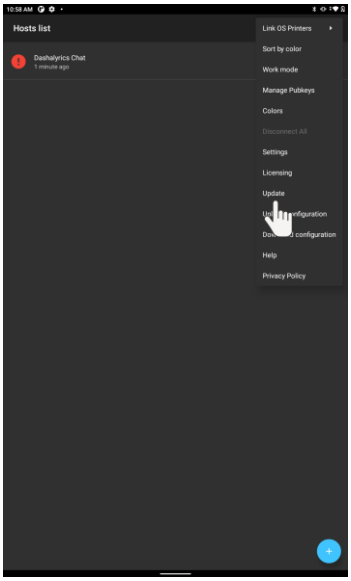


Figure 79: Tap Update

Figure 80: Select Use URL

Select “Use URL” then select “Continue”. The URL default is updating from the GSW Website. If using a website, type the URL in “URL:” field. Tap “Check for Updates” button (Figure 82).

[4] The device must have internet access to update from external locations.

Figure 81: Tap Continue

Figure 82: Tap Check For Updates

Figure 83: Update Found - Tap OK

Above images show tapping the “Check For Update” button. You will then see a message stating you are running the latest available version or “Update Found!” as shown in Figure 83. If update is found tap OK and you will then see the “Install Update” button highlighted (Figure 84).

Figure 84: Install Update button highlighted

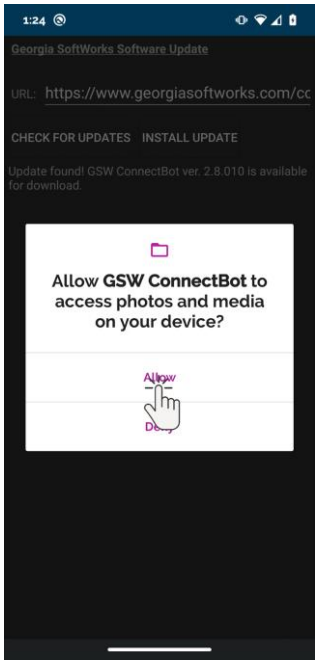


Figure 85: You may a security prompt - tap Allow

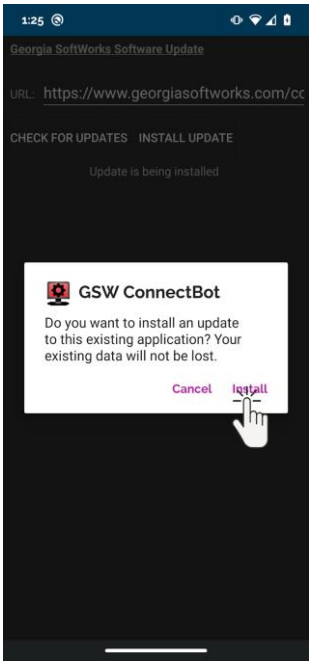


Figure 86: Tap Install

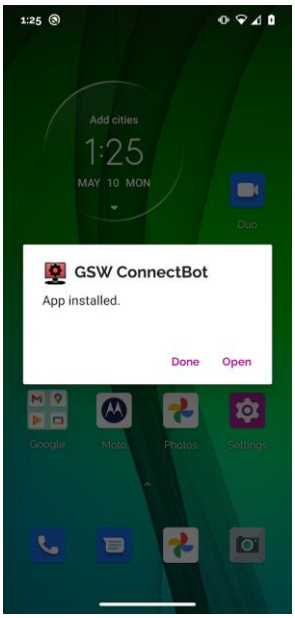


Figure 87: Installed

Once the “Install Update” button has been tapped, you may or may not[5] receive an Android pop-up asking for access to photos and media on device (Figure 85). If you do, select “Allow”. Then you will have the option to finish installation just follow prompts. After the update has been installed you can launch the GSW ConnectBot app and all host configurations remain the same.

[5] Depending on Android version and particular device

GSW ConnectBot Host Configuration and Connections

The “Hosts List” screen displays all the configured connections and the connection status of each one. When using the System Admin icon  , you can add, delete, and modify configurations as well as initiate connections. Unless noted otherwise, configuration description is by the System Administrator.

Starting with GSW ConnectBot version 2.9.194 and going forward you will only have one app icon displayed. Admin mode will be accessed from the 3-dot menu on the host list screen. During first launch you will automatically be in “Admin” mode, once you have configured device select the 3-dot menu from the host list screen and select “Work mode” from the menu, this will lock application down for production use. To return to admin mode select the 3-dot menu and select “Admin mode” a password prompt will be shown enter password (default password is “admin”)

Multiple connections can be defined, each with a nickname and color-coded text for easy identification.

Additionally, you can have multiple connections running simultaneously and navigate back and forth between them by horizontal swiping and by the selection of tabs.

Open GSW ConnectBot App on your Android device.

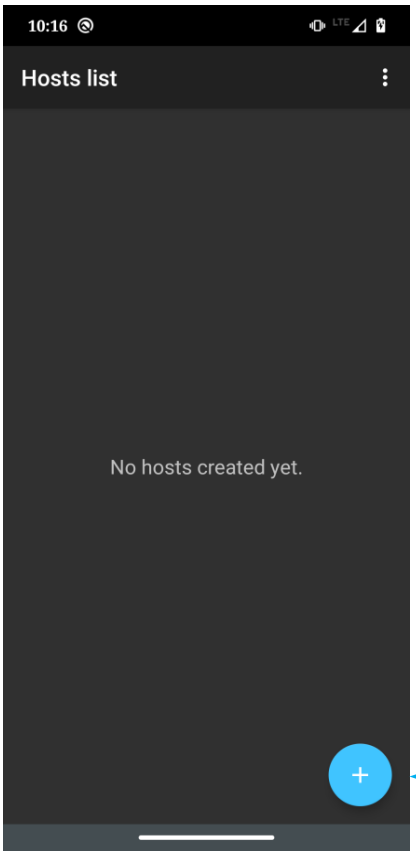


Figure 88: Creating a Host

Create new Host Connection Configuration

Tap the plus sign button in the lower right corner to start a new host configuration.

The following screen is displayed (Figure 89):

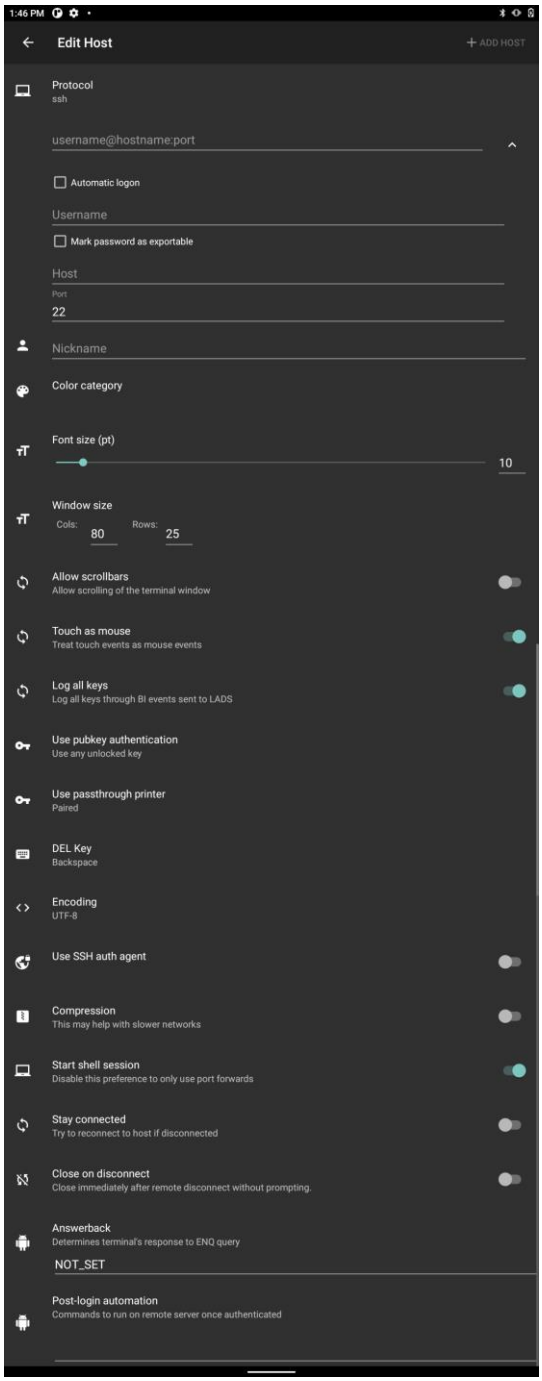


Figure 89: Configuring a Host connection

Configuration Parameter and defaults are emboldened.

SAVE – Tap the plus sign to save the configuration

Protocol: Options are **ssh**, telnet, http, https, and local. Local gives access to the local Android shell.

Username@hostname.port:

This is the username and hostname/IP address of the ssh host.

Entered in the format <username>@<hostname>

Automatic Logon: Click the check box to access Username and Password fields for Automatic Logon

Mark Password as exportable: Click the check box to include the password in the exported configuration

Nickname: Easy name to associate with the username/hostname on the ssh host configuration. This is displayed on the Hosts screen (Figure 90)

Color category: This is the color for the text displayed in the Hosts screen.

Font size: Can be adjusted when "Allow scrollbars" is enabled. Otherwise GSW ConnectBot will calculate the optimal font size to utilize all available space.

Window size: Adjust window size to match your server's settings. Default **80 Cols 25 Rows**.

Allow scrollbars: Options: enabled / **disabled.** Enables scrolling when the Window size exceeds the display size. When enabled, Optional "Show Scroller Control" is displayed. It provides a widget that can be used to scroll vertical and horizontal.

Touch as mouse: Options: **enabled** / disabled. Enables touch as mouse events, if supported by hardware. Translates Touch events to Mouse Events for server.

Log all keys: Options: **enabled** / disabled. Enables log of all keys through BI events and sent to LADS/Dashalytics

Use pubkey authentication:

Options are: "Use any unlocked key", "Do not use keys" and select one of the available public keys. Ignore this if using telnet as the protocol.

Use passthrough printer – Allows host to print to printers attached to client. Provides printing to paired printers

DEL Key: Options: Delete or **Backspace**

Encoding: Options: **UTF8** / multiple options available.

Use SSH auth agent: Options: enabled / **disabled**. Handles subsequent SSH Auth.

Compression: Options: enabled / **disabled**. May help with slower networks.

Start Shell Session: Options: **enabled** / disabled. Disable to only use port forwards.

Stay connected: Options: enabled / **disabled**.
Try to reconnect to the host if disconnected.

Close on disconnect: Options: enabled / **disabled**.
Close immediately after a remote disconnect without prompting.

AnswerBack: Enter an Answerback if needed by your application (see 66 for additional information when using GSW UTS).

Post-login automation: Commands to run on remote server once authenticated.

Host Connection Operations

Configured Host Connections are displayed on the Hosts List screen.

Each connection has a status Icon, the Nickname and connection duration. By default, host connections are sorted alphanumerically.

Please notice the icons, the color of the text for each host connection and the nicknames. Each connection is customizable so that you can quickly recognize the connection by the nickname, the text color and the status.

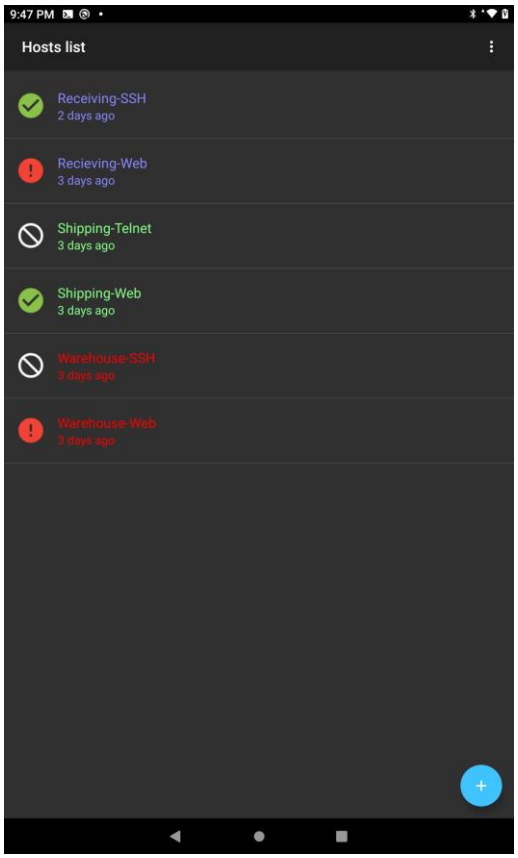


Figure 90: Host Connection Screen Display

Icon	Status Description
	Connected
	Not Connected
	Session Disconnected

The time the connection has been in that status is displayed under the nickname.

From this screen, you can perform a variety of operations on the connections.

Initiate Connection

Tap a Host Configuration to initiate the connection

With an active connection, the overflow menus have the following options for the session.

Session Menu

When connected to SSH or Telnet session, the overflow menu provides the operations as shown in Figure 91, Figure 92 and Figure 93 and described below.

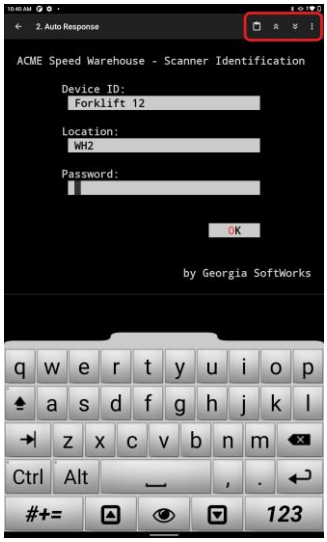


Figure 91 - Tool Bar Menu

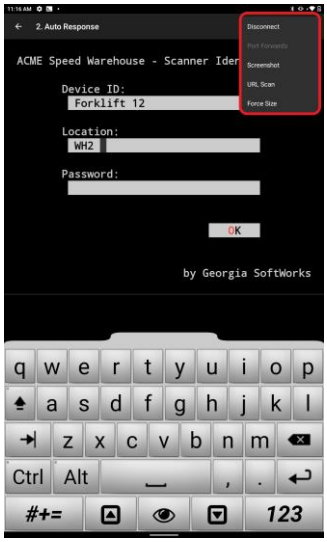


Figure 92 - Admin Mode TE Over-Flow Menu

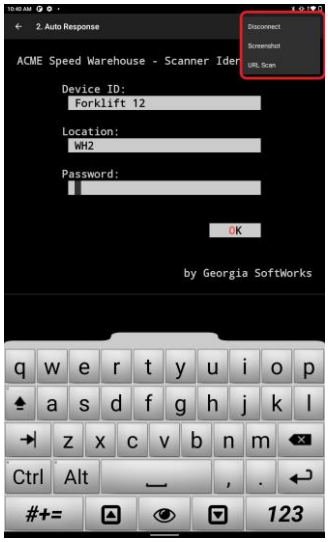
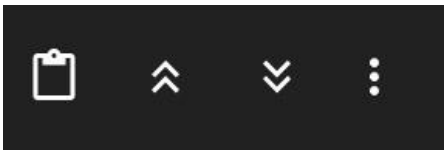


Figure 93 - Work Mode TE Over-Flow Menu



	**Allows pasting of clipboard data into a field**
	**Show GSW keyboard if keyboard is hidden.** (Icon will not be shown if using 3rd party or Android keyboard)
	**Hide GSW keyboard.** (Icon will not be shown if using 3rd party or Android keyboard)
	• **Disconnect -** Closes the connection • **Port Forward**- GSW ConnectBot provides basic port forward capability. This menu allows the configuration of port forwards. • **Screen Shot**- Takes a screen shot of the activity on the device. Only 2-Taps. See Below. • **URL Scan**- Scans host session screen for URLs. Any found are placed in a clickable list. Users can tap on the list to request the operating system to open selected URL on the device. • **Force Size**- NA, Do not use.

Table 2: TE connection options

When connected to a Web session, the overflow menu provides the operations as show in and described below

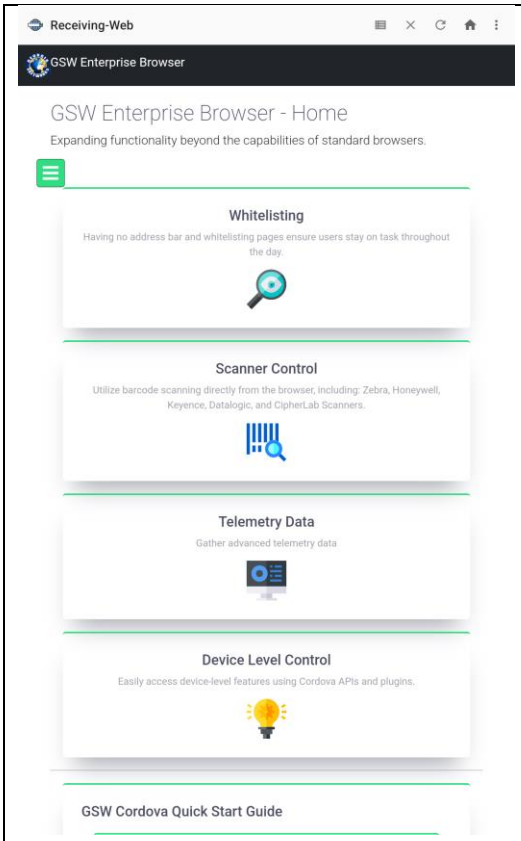


Figure 94: Cordova Examples Home Page

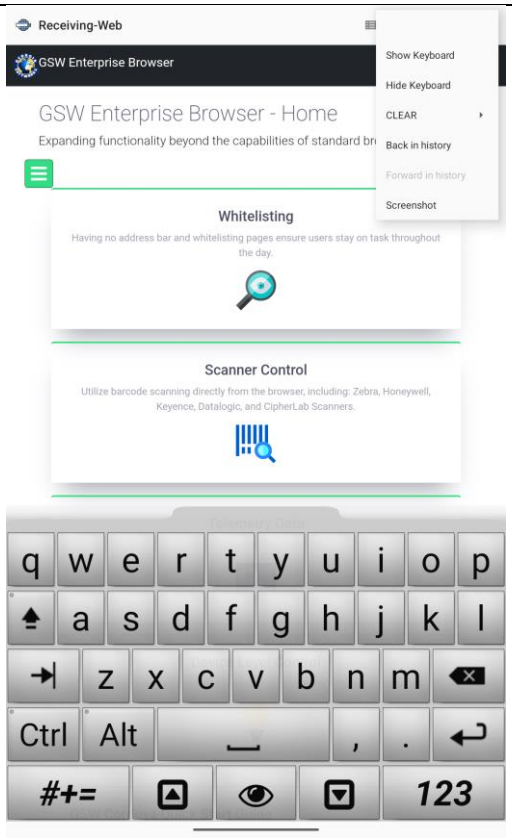
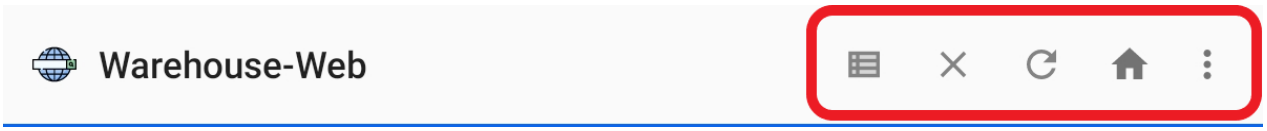


Figure 95: Industrial Browser Overflow Menu



	Returns to "Hosts list" screen without closing session
	Closes session, returns to "Host list" screen
	Refreshes current webpage
	Returns to homepage of current session
	Overflow menu as shown in Figure 95 • Show Keyboard – available if "Use GSW keyboards for web" is enabled in global settings • Hide Keyboard – Available if "Use GSW keyboards for web" is enabled in global settings and the keyboard is shown on screen • Clear – Clear cache, history, cookies, for data, certificates, passwords • Back in Browser history – if history is available • Forward in Browser history – if history is available • Screen shot – Sends screenshot to LADS

Table 3: Web connection options

2-Tap Screenshot

The GSW ConnectBot allows for screenshots to be quickly captured as needed. The need for screenshots has been around for years. If an anomaly or application error occurs the worker may need help with a screen, but not at that instant.

Other Android clients offer screenshots, but there is a difference. Often complicated navigation is required to get to the screenshot command. GSW ConnectBot purposely designed screen shots to be quick and easy as to minimize work interruption. This allows the worker to grab the screen shot and continue working.

Figure 96: Tap 1 - Tap overflow menu

Figure 97: Tap 2 - Tap Screenshot

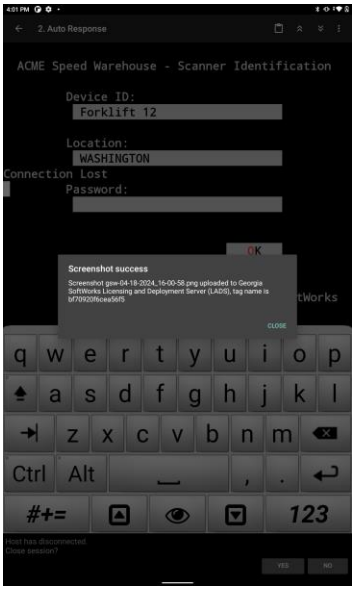


Figure 98: Success. This prompt can be disabled in the Global Settings.

Additionally, GSW ConnectBot can be configured to either store the images on the device or automatically send to GSW LADS where they can be viewed by the administrator at their convenience.

Administrators have easy access and are able to provide immediate support for devices in production from the comfort of their desk.

The worker simply taps the overflow menu and then taps “Screenshot” and boom - done! The image is uploaded to LADS see 163.

Host Connection Menu

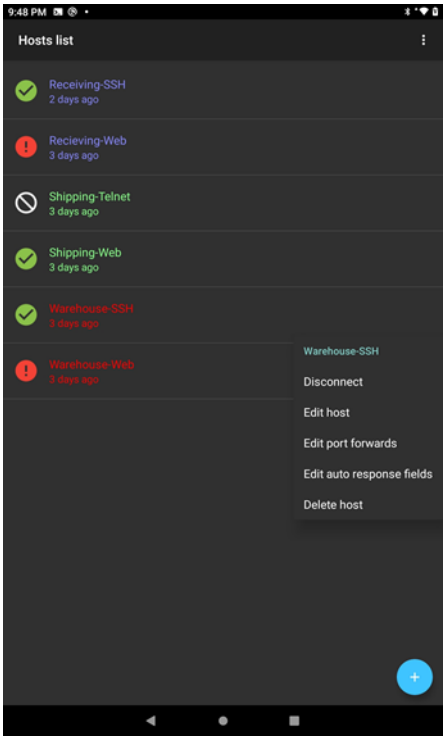


Figure 99: Telnet/SSH Host List - Long Press Menu

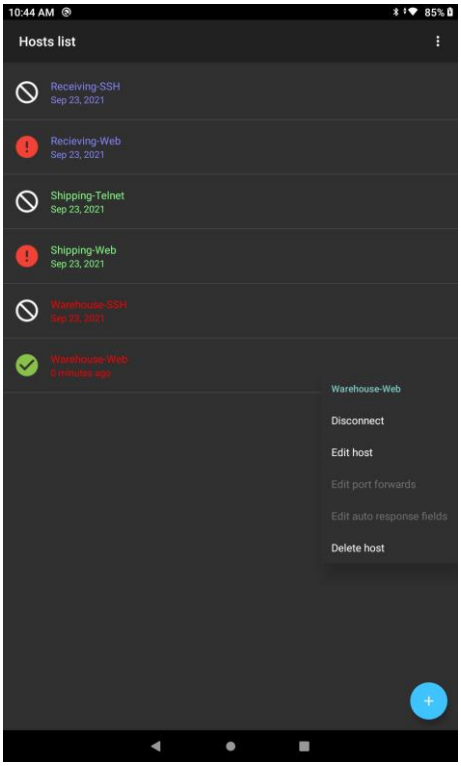


Figure 100: Web Host List - Long Press Menu

To access to the Host Connection menu, use a “Long Press” (Touch and Hold) on the **specific Host connection**. The result of the Long Press is a menu is displayed with the following options.

- Disconnect
- Edit Host
- Edit port forward, (Web Host Menu greyed out as option not available to edit)
- Edit auto response fields, (Web Host Menu greyed out as option not available to edit)
- Delete host
- Security Info (only displays when connected to host). (Not available for Web Host Connections)

Disconnect

Tap to Disconnect from the host

Edit Host

Tap to modify the Host Connection settings. You save the changes by Tapping Save Host, in the upper right hand of the screen.

Edit Port Forward

This allows editing of the Host Connection Port Forward settings.

Edit auto response fields

This allows editing of the auto responses fields. The administrator can preconfigure responses that GSW ConnectBot will insert when defined fields are recognized. For example, if the application prompts for the "Department Code", the administration can preconfigure the "Department Code" so the user does not have to remember and enter the correct department code. The administrator defines the field to scan for, as well as the response when detected.

As many "Auto Response" fields can be configured as needed.

When Edit Auto Response Field is selected, a screen is displayed that shows all the auto responses configured (Figure 102). Tap plus to create the auto response field (Figure 102).

Nickname: This is an easy to remember nickname for this Auto Response.

Prompt: This is the text to scan for from the application.

Response: This is how you want the GSW ConnectBot to reply to the Prompt.

Use once checkbox: This determines if you only want the GSW ConnectBot to perform the auto response one time or if it should respond every time the Prompt appears.

Macros are a tremendous tool when coupled with Auto Response Fields. Please see page 106.

Macros can be used to provide unique device information such as android id, mac address [6]etc.

Example: Auto Response

In the example below, each time a device is connected to the server, the application prompts for the assigned Device Identifier. Instead of the user having to remember the identifier for different devices, and entering it, the administrator can create an auto response and preconfigure each device with its identifier.

The nick name is `DeviceID`. The prompt from the application is `ID`. The response for this device is `rcving-tm-fl-4`

[6] Android 11 and above will not report MAC address will show as 02-00-00-00-00-00

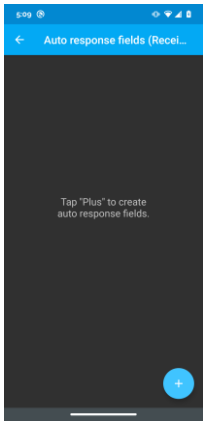


Figure 101: Create Auto-Response field

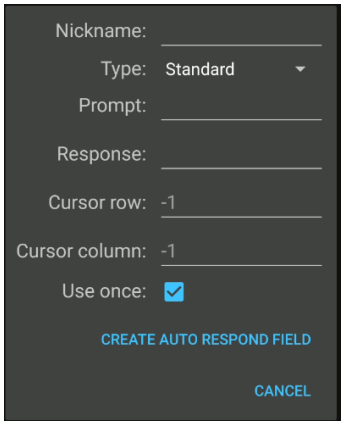


Figure 102: Edit Auto Response Field

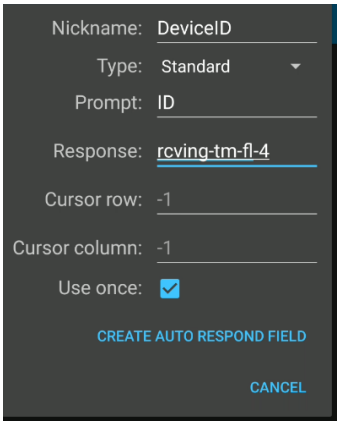


Figure 103: Auto Response Field completed

This saves the User time, reduces errors in entry providing an easier user experience and more productive work shift. Then tap on Create Auto Response Field.

As shown in Figure 104, you will see the auto response with the Nick Name, Prompt and Response. You can add as many auto response fields as needed.

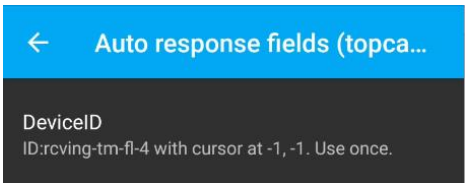


Figure 104: Auto Response created.

A long press on the Auto Response definition will allow you to edit or delete it.

If multiple prompts are required such as User Name/Password, you can use Escape sequences where appropriate in the response to move from field to field, etc.

Escape Sequence	Description
\a	Form feed
\b	Backslash
\e	ESC
\n	Newline
\r	Carriage return
\t	tab
\v	Vertical tab

Table 4: Escape sequences for Auto Response

Delete Host Connection

Tap to delete the Host Connection.

Security Information[7]

This displays the current status of the SSH Security Algorithms in use. This will let you know the security level of the negotiated algorithms between GSW ConnectBot and the SSH Server.

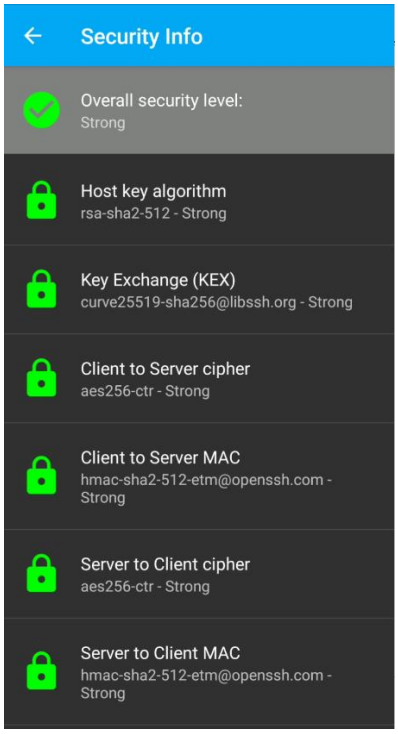


Figure 105: Secure Algorithms

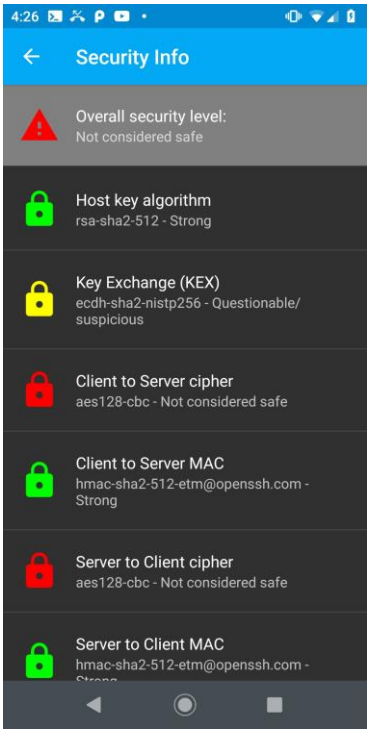


Figure 106: Un-Secure Algorithms

If you do not have a Strong Security grade, you will want to look at any of the main security algorithms that do not have the Green Lock icon to determine what needs to be done (contact GSW Support).

[7] Security Information setting only available in terminal emulation sessions, not available with web sessions

Global Settings

The “Hosts List” Overflow menu (3 vertical dots) allow access to the ***GLOBAL*** GSW Connect Bot configuration settings.

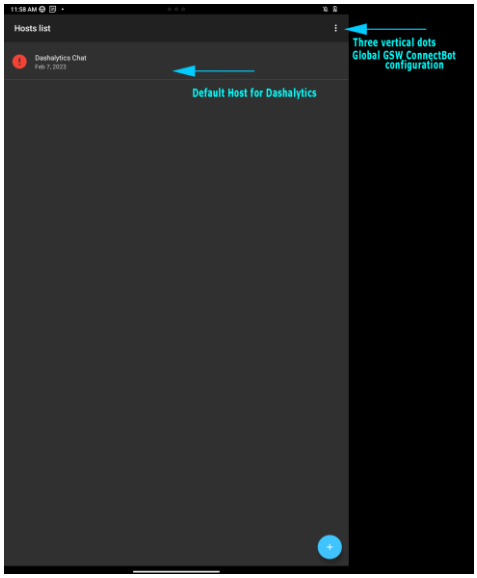


Figure 107: Menu to access Global configuration

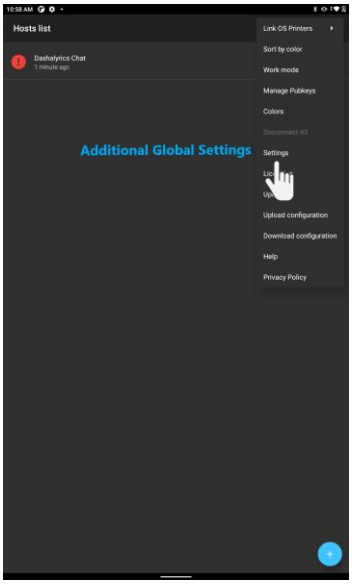


Figure 108: Accessing Settings

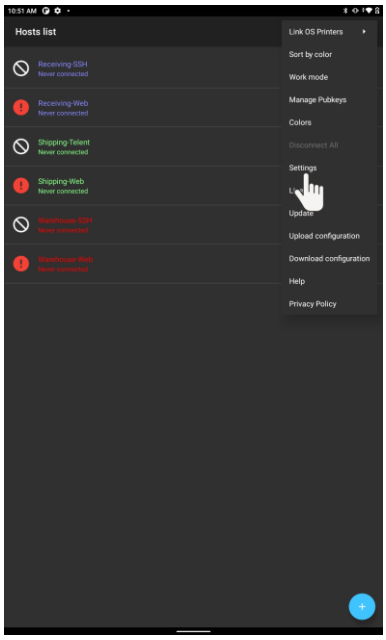


Figure 109: Select Settings

Additional settings are accessed by tapping the overflow menu (three vertical dots) in the upper right-hand corner of the app and selecting “Settings”.

The available settings are shown in the screen shot in Figure 110: Global Settings Menu. The settings include:

- Automatic provisioning
- Use location information
- Enable HTTPD
- Remember keys in memory
- Persist connections
- Keep Wi-Fi active
- Backup pubkeys
- Emulation mode
- Scrollback size
- Rotation mode
- Auto hide title bar
- Full screen
- Page up/down gesture
- Volume keys change font size
- Keep screen awake
- Fast updates
- Enable Wi-Fi alerts
- Enable Battery alerts
- Collect Business Intelligence data
- Track TE Scans
- Track Web Scans
- Use GSW keyboards
- Use GSW keyboards for web
- Opacity Control
- Use GSW keyboard skins
- Special keys always visible
- Shift+num are F-keys
- Hide soft keyboard
- Ctrl+num are F-keys
- Sticky modifiers
- Directory shortcuts
- Camera shortcut
- Bumpy arrows
- Audible bell
- Bell volume
- Vibrate on bell
- Background notifications

- Upload screenshots to GSW LADS
- Show screenshot message
- Full screen
- Status bar style
- Log level
- Clear cache on Startup
- Accept cookies
- Accept file scheme cookies
- Change password

In the list below the default value for setting is "**Bolded**"

Automatic provisioning

Disabling turns off auto discovering for GSW LADS. Disable when not using GSW LADS. This prevents GSW ConnectBot from searching the network for GSW LADS, allowing (**enabled**/disabled)

Use location information

If enabled will send location information to LADS for tracking and reporting. (enabled/**disabled**)

Enable HTTPD

If enabled will allow for HTTPS access for remote reporting, diagnostics and control of GSW ConnectBot. (**enabled**/disabled)

Remember keys in memory

Keep unlocked keys in memory until backend service is terminated (**enabled**/disabled)

Persist connections

Force connections to stay connected while in background (**enabled**/disabled)

Keep Wi-Fi active

Prevent Wi-Fi from turning off while a session is still active (**enabled**/disabled)

Backup pubkeys

Keep back-ups of the private keys using Android's backup mechanism(enabled/**disabled**)

Emulation mode

Terminal emulation mode to use for PTY connections (xterm-color, **xterm-256color**, xterm, vt100, ansi, screen)

Scrollback size

The number of lines indicating the size of the scrollback buffer to keep in memory for each console. (Default **140**)

Rotation mode

Controls display in Portrait or Landscape based on device orientation. (Default[8], Force landscape, Force portrait, Force reverse landscape, Force reverse portrait, **Automatic**).

Auto hide title bar

Tap console to show the title bar and access menu (enabled/**disabled**) The entire session display is the console unless Mouse to Touch is enabled.

Full screen

Hide status bar while in console (enabled/**disabled**)

Page up/down gesture

Swipe the left third of the screen to send page up/down to the terminal (enabled/**disabled**)

Volume keys change font size

Font sizes can also be changed in per-host settings (**enabled**/disabled)

Keep Screen awake

Prevent the screen from turning off when working in a console (**enabled**/disabled)

Fast updates

Faster display, but some characters may not line up vertically (enabled/**disabled**)

Enable WI-FI alerts

Notify user when WI-F is not connected or signal is very low. (enabled/**disabled**)

Enable Battery Alerts

Notify user when battery level is very low. (**enabled**/disabled)

Collect Business Intelligence data

Send Business Intelligence data to GSW LADS for storage and analysis (**enabled**/disabled)

Track TE Scans

Create DataWedge profile to track scan data for TE sessions (enabled/**disabled**)

Track Web Scans

Create DataWedge profile to track scan data for Web sessions (enabled/**disabled**)

Use GSW keyboards

Use Georgia Softworks keyboards instead of the default system keyboard in telnet/ssh sessions (**enabled**/disabled)

[8] The option “Default” is the default display format (Portrait / Landscape / Automatic) of the specific device.

Use GSW keyboards for web

Use Georgia Softworks keyboards instead of the default system keyboard for web. (enabled/**disabled**)

Opacity control

Support the ability to control the opacity of GSW keyboards. (**enabled**/disabled)

Use GSW keyboard skins

Use Georgia Softworks keyboard skins to modify the look of keyboards displayed in telnet/ssh sessions (**enabled**/disabled)

Special keys always visible

Special keys always visible (enabled/**disabled**)

Shift+num are F-keys

On hardware with keyboards, simultaneous press of [Shift & number] keys send F1-F10 (enabled/**disabled**)

Hide Soft Keyboard

Hide soft keyboard when host session starts (enabled/**disabled**)

Ctrl+num are F-Keys

On software keyboards, number keys send F1-F10 with ctrl (enabled/**disabled**)

Sticky modifiers

Modifier keys remain enabled until another key is pressed (**No**, Only alt, Yes)

Directory shortcuts

Select how to use Alt for '/' and Shift for Tab (Use right-side keys, Use left-side keys, **Disable**)

Camera shortcut

Select which shortcut to trigger when the camera button is pressed (**Ctrl+A then Space**, Ctrl+A, Esc, Esc+A, None)

Bumpy arrows

Vibrate when sending arrow keys. Useful for laggy connections. (**enabled**/disabled)

Audible Bell

Bell is audible (**enabled**/disabled)

Bell Volume

Set bell volume (A slider to set the bell volume)

Vibrate on bell

Vibrate on bell (**enabled**/disabled)

Background notification

Send a notification when a terminal running in the background sounds a bell (enabled/**disabled**)

Upload screenshots to GWS LADS

Upload screenshots to Georgia Softworks Licensing and Deployment Server, if available (**enabled**/disabled)

Show screenshot message

Show message when screenshot processing is completed (**enabled**/disabled)

Full Screen

Enable full screen browsing. Enables you to hide the status bar at the top of the screen. (**enabled**/disabled)

Status bar style

Choose between default, light and dark status bar style. (**default,** light, dark)

Log Level

Sets the minimum log level through which log messages from your application will be filtered. (error/warn/info/**debug**/verbose)

Clear cache on Startup

Clear the Browser Cache on every start of the Web Browser activity. (enabled/**disabled**)

Accept cookies

Sets whether the application's WebView instances should send and accept cookies. (**enabled**/disabled)

Accept file scheme cookies

Sets whether the application's WebView instances should send and accept cookies for file scheme URLs. Use of cookies with file scheme URLs is potentially insecure and turned off by default. (enabled/**disabled**)

Change password

Set a new password for the Admin mode

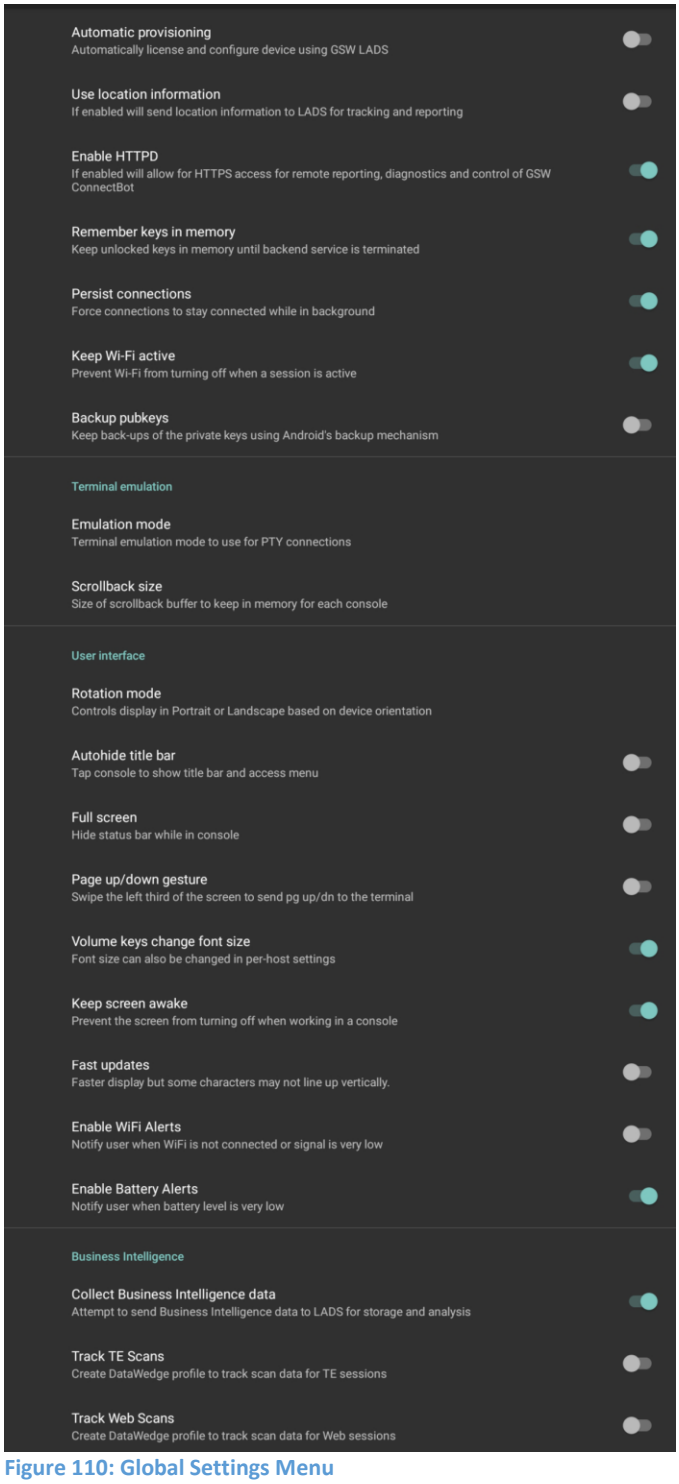


Figure 110: Global Settings Menu

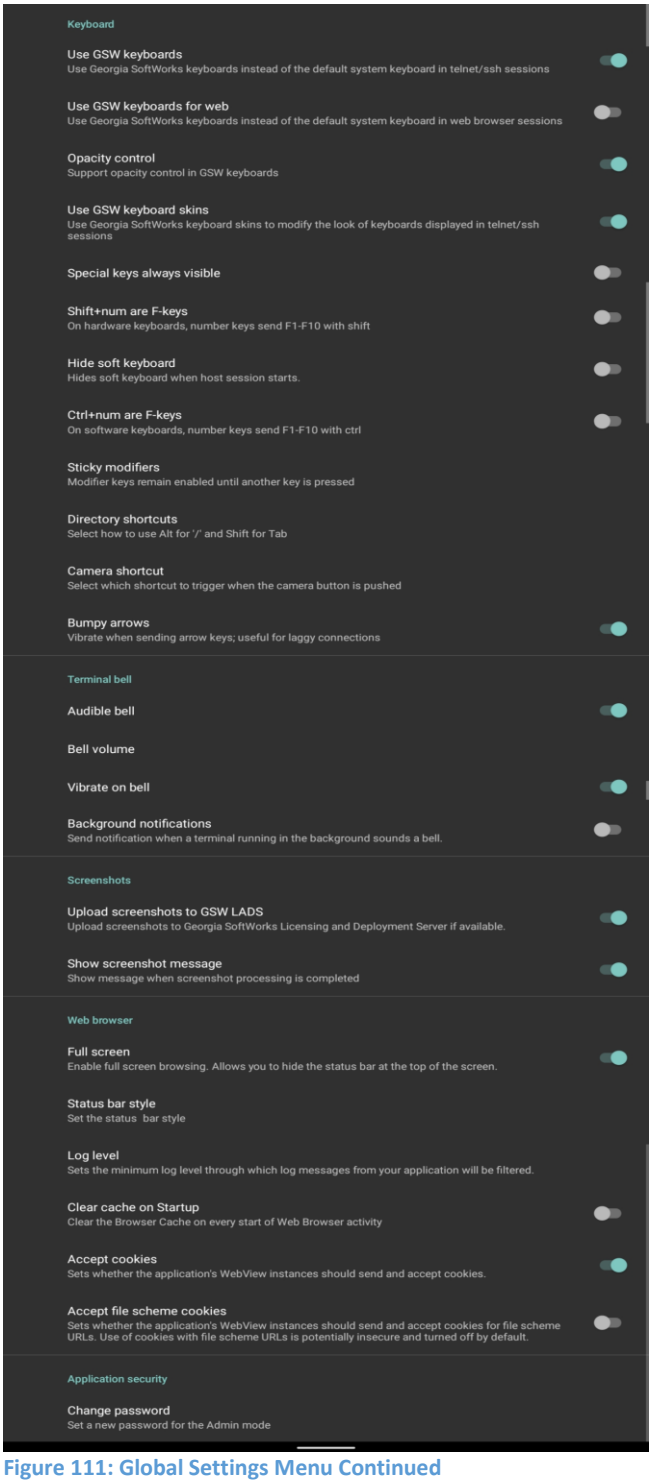


Figure 111: Global Settings Menu Continued

Georgia SoftWorks ConnectBot Global Configuration settings

Using Answerback with the GSW SSH/Telnet Server

Answerback allows the mobile client to pass a text string (up to 20 characters) to the SSH/Telnet server when requested.

The Answerback string is set in the GSW ConnectBot Host connection configuration.
This is the only configuration required on the client for answerback.

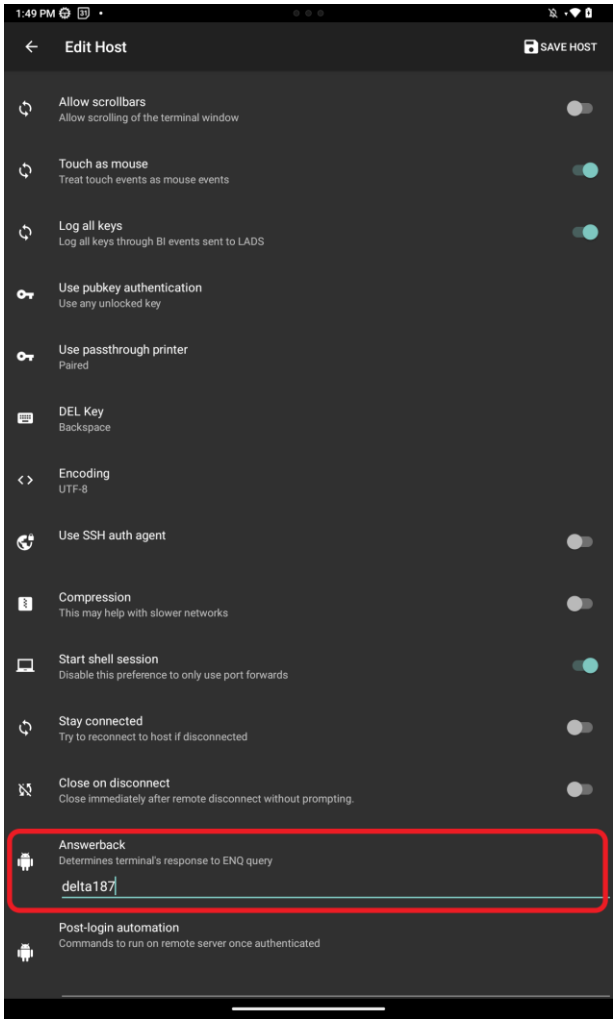


Figure 112: Answerback Settings

An enhanced method of obtaining the Answerback is available when using the GSW SSH/Telnet Server (UTS). The application running on the GSW UTS accesses the answerback value using the server-side environment variable gwtn_answerback.

This does not use any screen locations and the display is not impacted as with many Answerback solutions. An environment variable is much easier to read than a screen location.

Following is an example of how to configure the GSW UTS to obtain the Answerback from the GSW ConnectBot.

The Server-side configuration consists of a lightweight utility (answerback utility) and logon scripting (example below). When the GSW ConnectBot connects to the UTS, the logon script is executed and the answerback utility obtains the Answerback string from the GSW ConnectBot. It then inserts it in the environment variable gwtn_answerback for the application to access.

From the GSW UTS SSH/Telnet Server. –

1. Download and copy the gs_enq.exe, gs_enq64.exe files to a folder that the logon scripts can access. To download these utilities *Click Here*.

2. Set the user's home directory to point to a folder where they can write a temporary file.

3. Edit the users Logon Script (c_start.bat or k_start.bat) and add the lines to retrieve the Answerback.

   Modify the Logon script of the User to the following, making sure to change any environmental variables to match the User connection being queried. In this example, we are querying for the Answerback of RFUser.

Answerback Example Configuration

```
::========== Start of Logon Script=========
@echo off
set gwtn_color=1
set gwtn_graphics=1
set gwtn_term=1
set gwtn_home_dir=C:\GS_UTS\scripts\LocalUsers\RFuser
 @if %gwtn_gsclnt%==1 goto :GSW
@set GWTN_ANSWERBACK=%GWTN_CLIENT_IP%
@c:\gs_uts\gs_enq.exe
@if errorlevel 1 goto :NOANSWERBACK
@set /P GWTN_ANSWERBACK=<ab%gwtn_agntpid%.txt
@del ab%gwtn_agntpid%.txt
@:NOANSWERBACK
@:GSW
<Launch your Application here, using GWTN_ANSWERBACK as a variable>
Example:
C:\hjs\adv\bin\telterm.exe 10.200.150.8 4700 %gwtn_answerback%
:: ============ Answerback stored in GWTN_ANSWERBACK.=========
```

Connect the user to the server using GSW ConnectBot. The Answerback in the GSW ConnectBot configuration should be returned within the connection shell.

Note:
On x64 systems **gs_enq64.exe** must be used instead of **gs_enq.exe**. After this block is executed the variable GWTN_ANSWERBACK is going to be set. Of course, **c:\GS_UTS** must be substituted with your own path.

SSH Configuration

GSW ConnectBot is the most secure commercially available SSH Client for Android.

The GSW ConnectBot is using the current SSH algorithms recognized as secure to ensure you have the best protection available. Algorithms that are not deemed safe are not used.

Configure a Host Connection Example 1

SSH with Password Authentication

Below we are going to show you how to configure the GSW ConnectBot client to make SSH connections using Password Authentication.

Open GSW ConnectBot App on your Android device.

Tap the blue plus sign button in the lower right corner to start a new host configuration.

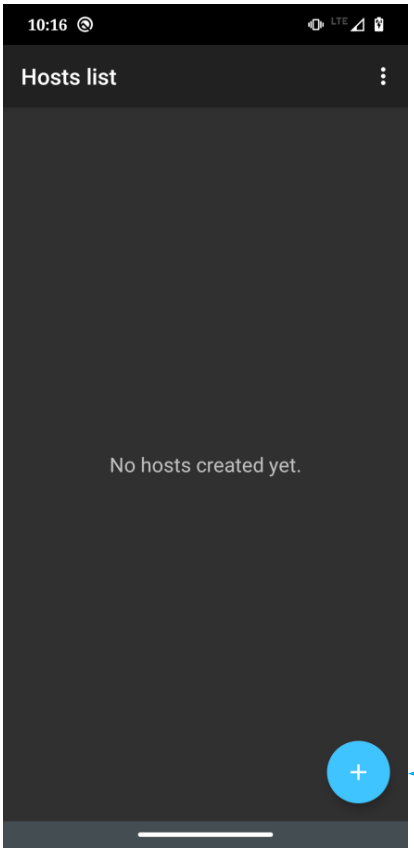


Figure 113: Creating a Host

Configure these options to get a working connection:

1. Enter <user>@<IP address> and
2. Check “Automatic Logon”
3. Enter Username and Password
4. (Host and Port Autofill).
5. “Mark passwords as exportable” includes the password when a configuration is uploaded to a LADS server.
6. Choose a nickname (not required).

- You may also want to modify other items if necessary

- Select the Color of the text used on this Host Connection when displayed on the Hosts list screen.

- The Font size does not need to be set unless the column and rows of the Window Size are set to zero.

- Adjust Window size to match your server’s settings.

- Confirm:
  - “Start shell session” is on.
  - “Stay connected” is on, to keep trying to reconnect if disconnected.
  - Choose whether to close the session on disconnect.

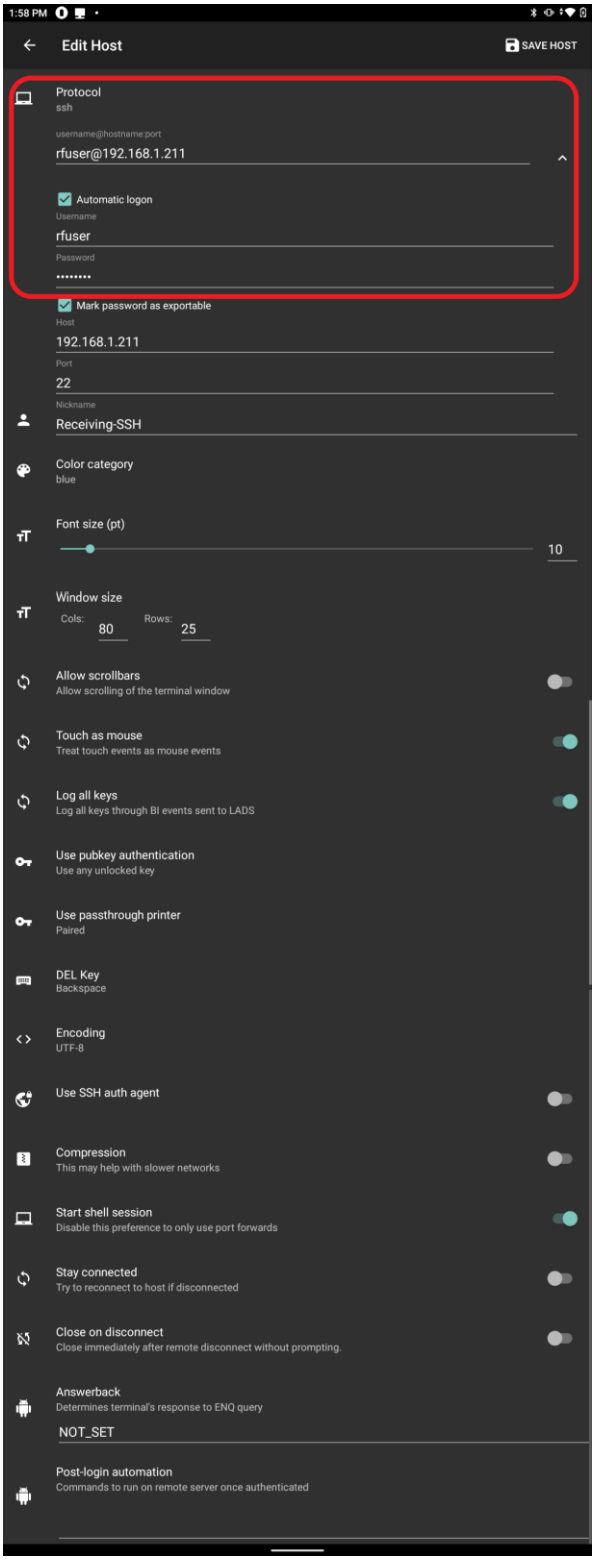


Figure 114: Enter Host Information

Save host connection configuration

Tap “+ ADD HOST” in the upper right to save the connection.

Connect to the new configured connection

Tap on the connection to connect to your Georgia Softworks Universal Terminal Server.

Configure a Host Connection Example 2

SSH with Public/Private Key Authentication

Public/Private key SSH connections are an extremely secure and convenient method of logging on to an SSH host. This method of authentication is more secure than traditional username and password. Using public/private key eliminates the need for user name and password entry. Public keys are installed on the server and private keys are installed on the client.

When using GSW ConnectBot, GSW LADS, GSW UTS and Public/Private key authentication, users can be assured that they are using the most cryptographically secure commercially available SSH solution.

This example is the same as Example 1, with some configurations difference.
Here are the modified items for the SSH Public/Private Key Authentication.

You can configure these options to get a working connection.

1. Enter <user>@<IP address> and
2. Choose a nickname (not required).
3. Tap “Use pubkey authentication” as shown in Figure 115. Select hosts specific key (recommend) or “Use any unlock key” (Default setting)

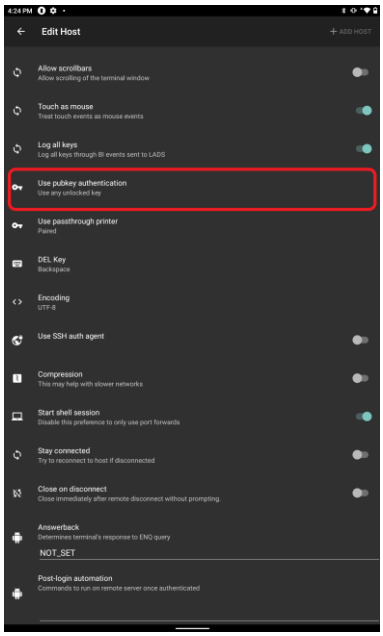


Figure 115: Use pubkey authentication setting in Edit Host

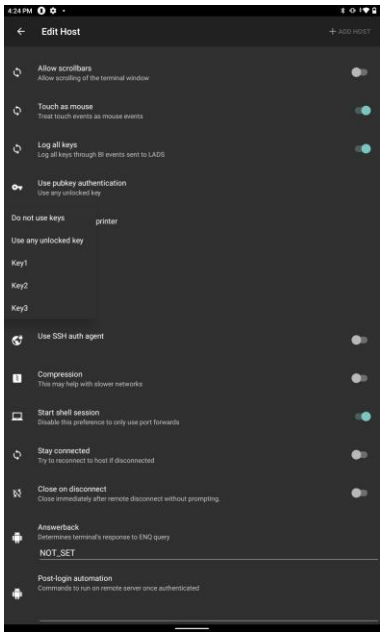


Figure 116: If multiple keys are needed

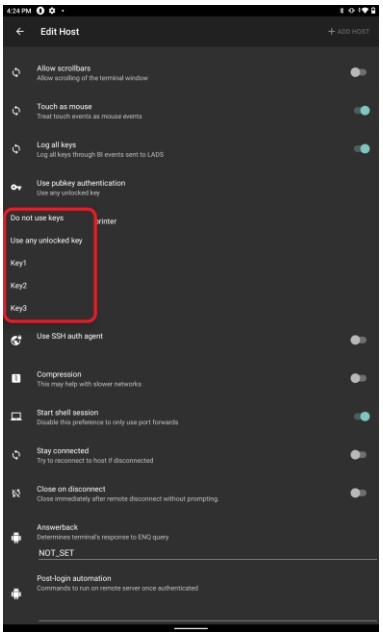


Figure 117: Select Use any unlocked key (Default) or choose specific key

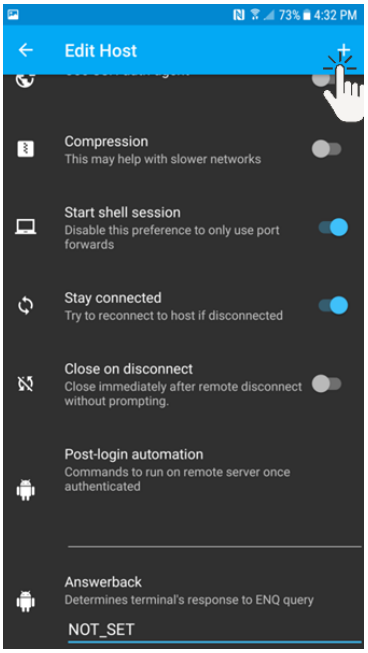


Figure 118: Saving the Connection Installing Private Key to GSW ConnectBot Android Client

Tap the "plus sign" in the upper right corner to save the configuration for the host connection.

Creating a Public/Private key pair

Configuring a public/private key pair consist of the following steps.

- Enter the configurable parameters for the Public/Private Keys
- Generate (using randomness)
- Unlock the Key
- Transfer the public key to the SSH server
- Install the public key on the SSH Server

Enter the configurable parameters for the Public/Private Keys

To create a Public/Private key pair on GSW ConnectBot, complete the following steps. From the "Hosts list" screen, tap the "Three Dot" menu in the upper right-hand corner and select "Manage Pubkeys" from the drop-down menu.

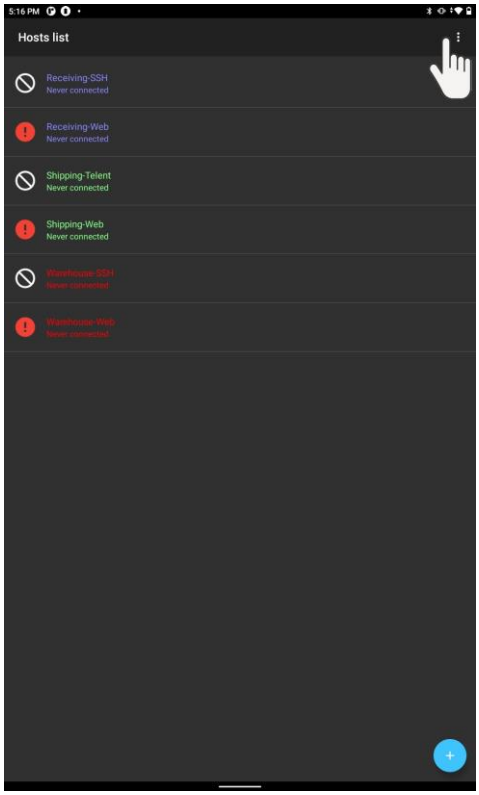


Figure 119: Tap the Overflow Menu

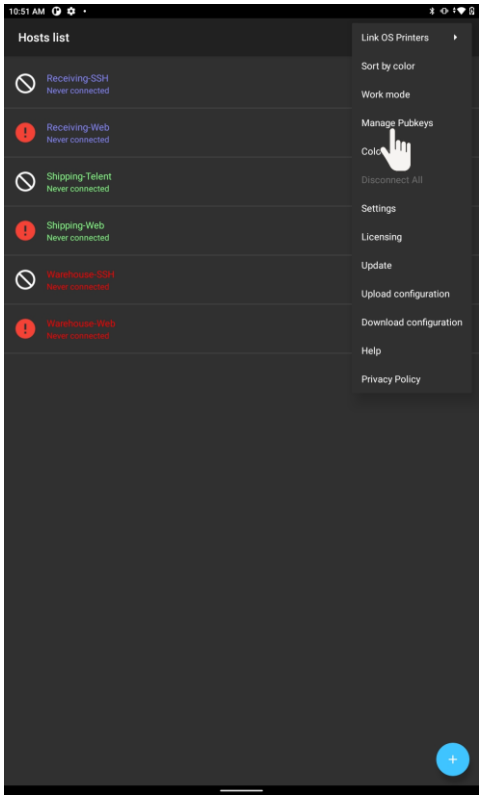


Figure 120: Tap Manage Pubkeys

To create a key pair, tap the "+" in the top right corner of the "Pubkeys" screen as shown in Figure 121.

- **Nickname:** Enter a nickname for the key pair [Required field].
- **Type:** Select the type of key you would like to generate. [RSA is the default].
- **Bits:** Select the encryption strength by entering a value manually or by using the slide bar. Anything less than 2048 bits is not recommended.
- **Password:** Enter a password for your key pair [optional, but recommended].
- **Password: (again)** Confirm password in previous field
- **Load key on start** – "Checking" will automatically load key on start of host connection [optional, but recommended].
- **Confirm before use** – "Checking" will confirm before use will require you to confirm that you want to use the key when you attempt a Host connection [optional, but recommended].
- Tap "Generate"

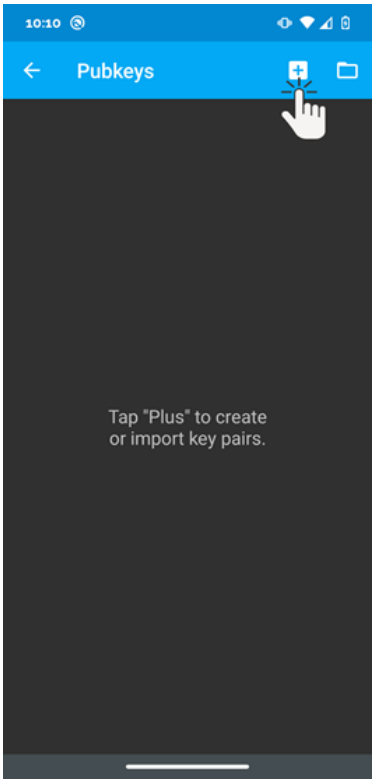


Figure 121: Tap "+"

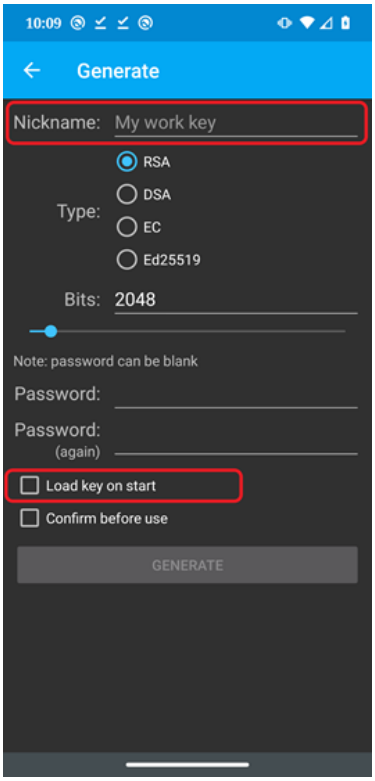


Figure 122: Add Nickname (Password is optional) and check Load key on start

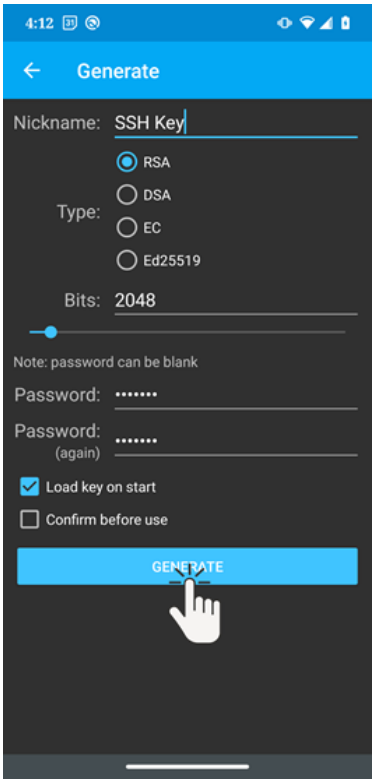


Figure 123: Tap Generate

Generate (using randomness)

The next step will be to generate randomness by moving your finger around the field, the percentage will increase as shown in Figure 125 . Once randomness reaches 100% the key pair is created.

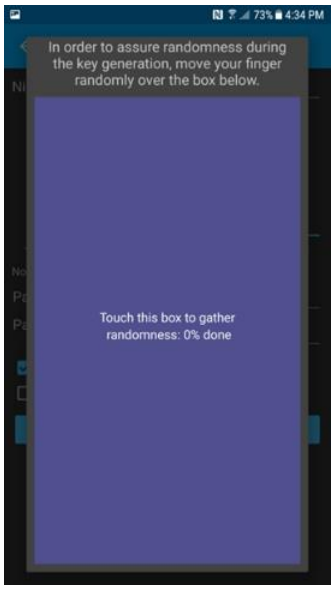


Figure 124: Generate Randomness for Keys

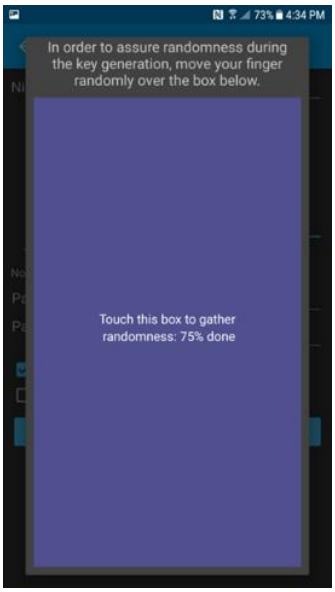


Figure 125: Generate Randomness until 100%

Unlock the Key

The Pubkeys screen is opened as shown below in Figure 126 . Tap key to unlock, if password was added during setup a prompt will pop-up requesting password as shown in Figure 127.

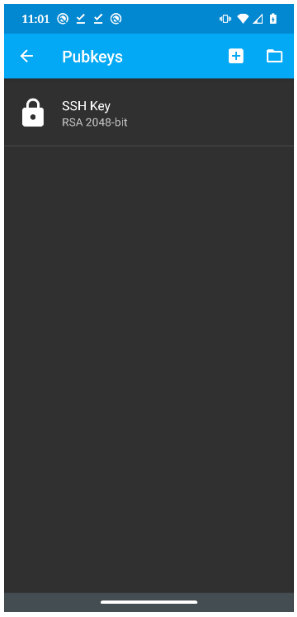


Figure 126: Locked Key

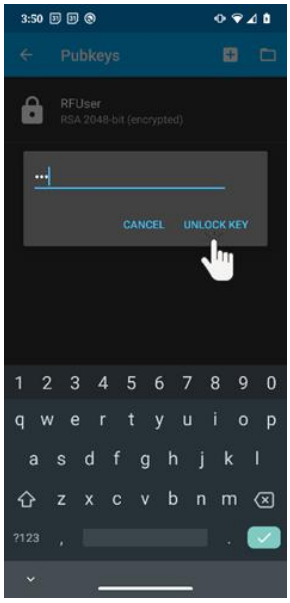


Figure 127: Enter password if added

Figure 128: Unlocked Key

Transfer the key to the SSH Server

There are two options to transfer generated public key to server for mapping of the private key from the GSW ConnectBot to a Windows user account. The most convenient and easy way is to upload the public key with a host configuration (specifically “pubkeys.xml”) to the GSW LADS as explained on page 164.

The second way is to long press on the key and tap “Copy public key” as shown in Figure 129, this copies the key to Android clipboard, then paste to a file and transfer to server using a preferred method (ex. Email, USB connection, etc.)

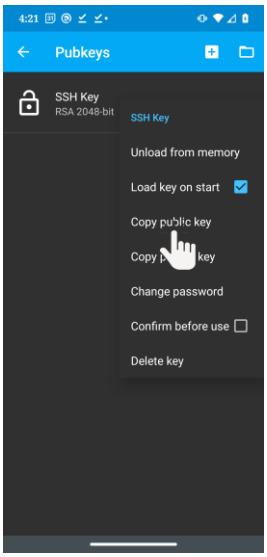


Figure 129: Tap Copy public key

Once the key has been copied to the GSW UTS SSH server see how to configure the Host (Public) key on a GSW UTS SSH Server with Certificate Mapping Tool on page 81.

Create a Key Pair using PuTTY

1. Download PuTTY Terminal Emulator Package HERE.
2. Open PuTTYgen (included as part of the PuTTY terminal emulator package).

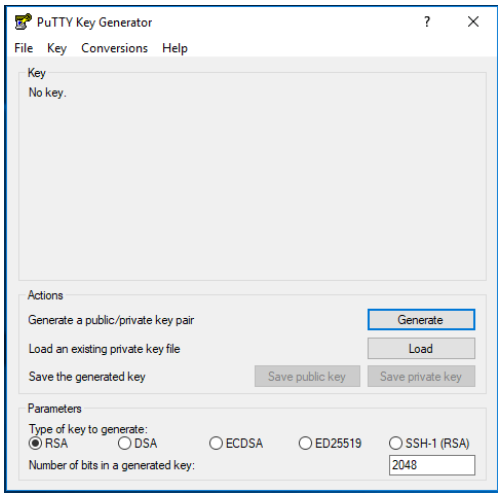


Figure 130: Open PuTTYgen

3. Click the “Generate” button and move mouse over the blank area to generate randomness.

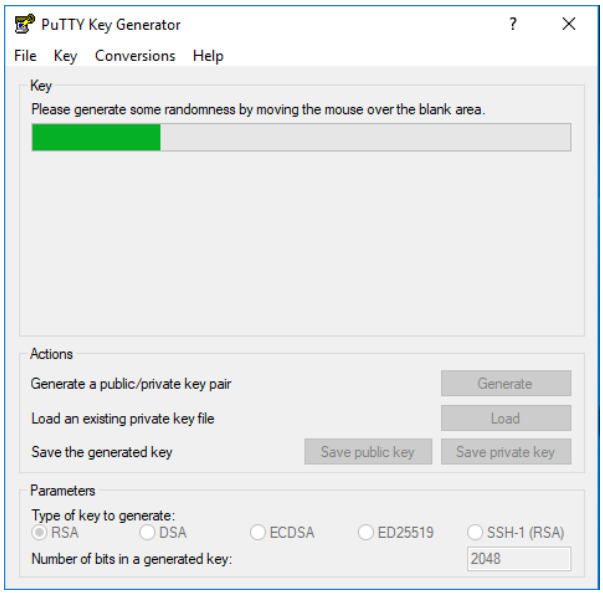


Figure 131: Generate Randomness

4. Key is created.

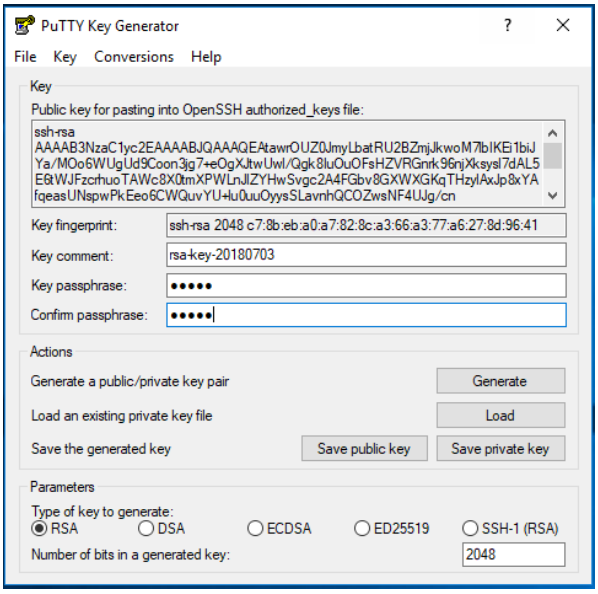


Figure 132: Enter Passphrase

5. From the top menu bar, select “Conversions” then “Export OpenSSH Key”.

6. Name and save the key.
7. Click “Save Public Key” name, and save on server.
8. Using a direct USB connection, copy the private OpenSSH key, saved in step 6, to the Android device in the following location:
   (Device Name)\Internal shared storage\Android\data\com.gsw.connectbot\files)
   (This location is also called the GSW ConnectBot external files folder)

Installing Private Key to GSW ConnectBot Android Client

1. GSW ConnectBot Version 2.9.194 and above - Enter Admin mode by clicking overflow menu and selecting “Admin mode” enter password (default password “admin”)

   GSW ConnectBot Version 2.9.186 and below - Launch GSW ConnectBot – Admin Mode (Icon with gear).

Figure 133: GSW ConnectBot Admin Icon

2. Navigate to the Pubkeys screen by tapping the overflow menu then tapping Manage Pubkeys. Then tap the folder icon in the top right corner.

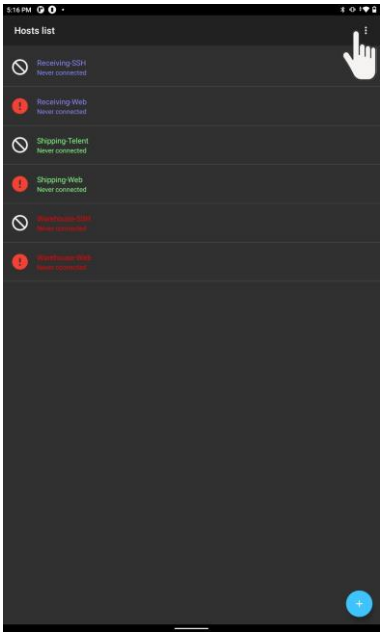


Figure 134: Tap overflow menu

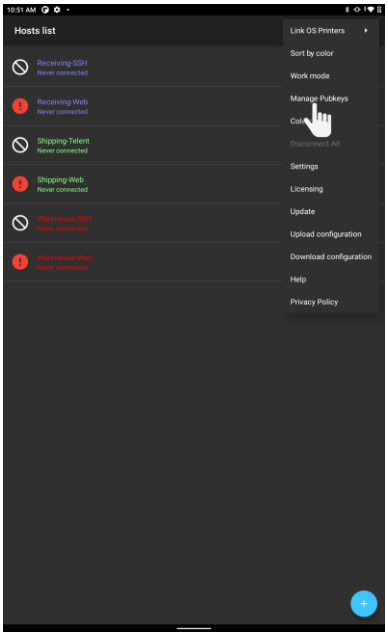


Figure 135: Tap Manage Pubkeys

Figure 136: Tap folder icon

3. Navigate to "*Internal shared storage\Android\data\com.gsw.connectbot\files*" and Select key as shown in Figure 137 , this will import key into GSW ConnectBot.

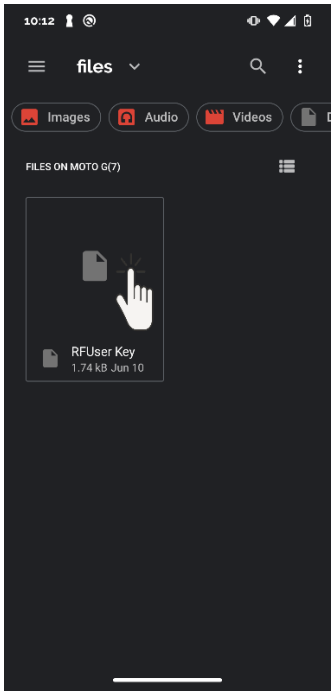


Figure 137: Select Public Key

4. Tap the key. If a password was entered when the key was generated, you will need to enter it, if not, the key will automatically unlock.

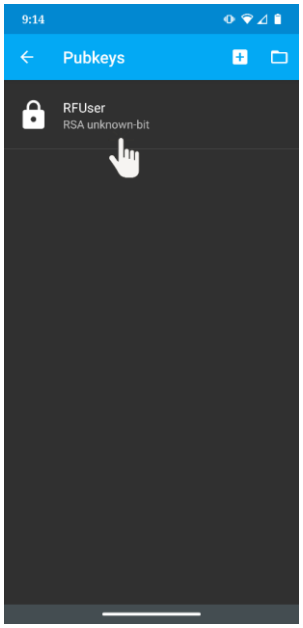


Figure 138: Tap key to unlock

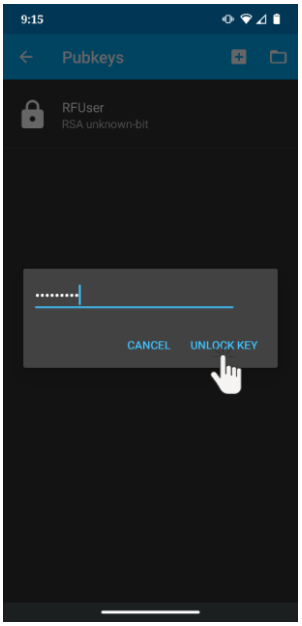


Figure 139: Enter Password if prompted

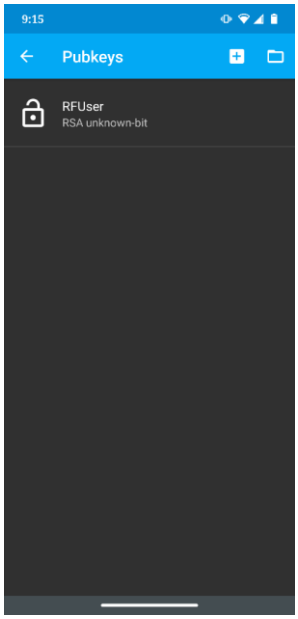


Figure 140: Key is unlocked

Configuring the Host (Public) key on a GSW UTS SSH Server

1. On the Georgia Softworks UTS server, go to Start > All Programs > Georgia Softworks UTS > Certificate Mapping Tool for GSW SSH Shield.
2. Expand Public Key Mapping, and select 1-to-1. Next click Add.

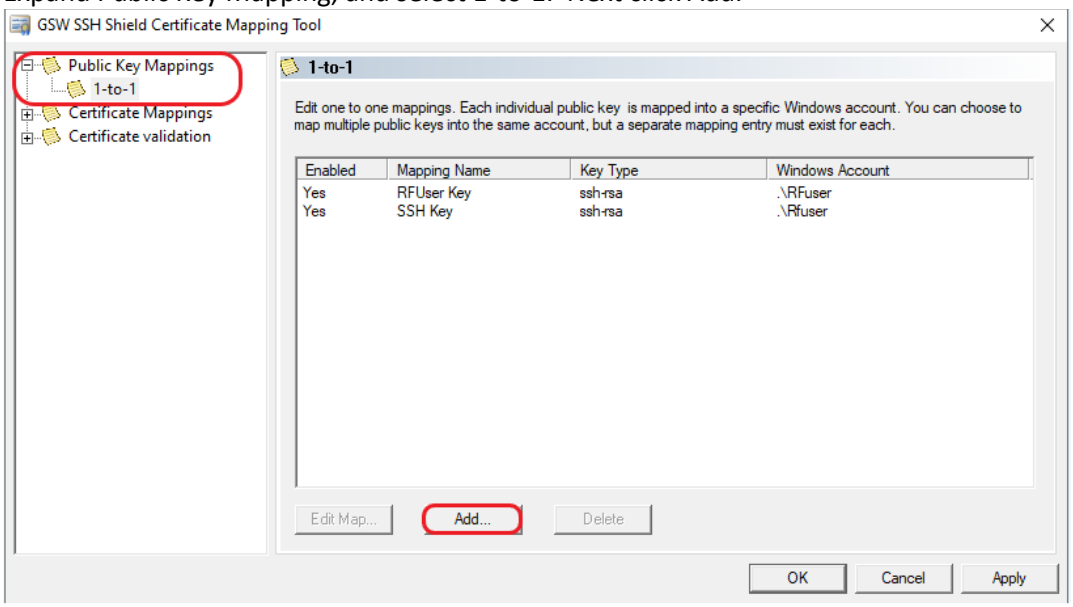


Figure 141: Certificate Mapping Tool

3. Locate the public key file that was created and saved in previous steps, either by GSW ConnectBot or PuTTYgen. Right click on files and select edit. Copy the highlighted area as shown in Figure 142, Figure 143, or Figure 144. Do not include the leading and trailing description tags.

4. Click “Enable this mapping”, paste the public key contents shown in previous step in the public key area. Fill out the rest of the fields below. The User, Domain and Password fields must correspond to an existing Windows user, that will be using the key pair.

```
<?xml version='1.0' encoding='utf-8' standalone='yes' ?>

<map>

  <string name="1">ssh-rsa
AAAAB3NzaC1yc2EAAAADAQABAAABAQDoQcOkXUI/vYqeQm4Oe6wL
W9p7sXBb8O4izGeZ17FjtgqHd/cRfHWWNmkYt7rfwz7tZvsrvZCl97
+ji78YE5sWBhN3gYR3XoTzK5gZobNEs0S2/sHv7oEi9RrCPEnaZYkf1hiJJ8i
WU6Obi6G5Q7V8ECC5Hj9/MpxWTt2bzdie2aqAiRLBG5vz1JcNw4KJAm
Oq8iBfh9VvRbuR44Kl7p8K1n+RcuFtEGwl8INh00P7jpFm0ctK9fclGQqvk
NTG6AJO5SOvAMyZ4R2gY9AaVvn35jYQzpFq0raxYM+
11O6Thg2/lamOqB6SU4clxa4CqcmzORUkvVcV6fXRFnDGNQbp
SSH</string>
```

Figure 142: Example of pubkeys.xml uploaded to GSW LADS from key generated on GSW ConnectBot

```
---- BEGIN SSH2 PUBLIC KEY ----
Comment: "rsa-key-20210628"
AAAAB3NzaC1yc2EAAAADAQABAAABAQCkofsKIXhQY8hNngMklm1z2TLtubEX5V2W
zFT85cDUafrIm4xDjBSL8haN4kK8CBsZBqqBWa5DrWThZCD0deZDI+nHeb9wPCNK
cN5K9eJmeLtcbN9jxOtzGkB/j/22vBz7Ia2dCqLjKyHCPzHv2CegOqbG9Wxqrg8h
n7vcWljEjICrQeMg30lOaro23eQVC2W4EKZAHySg4hyhGckm2PsO+wQ9Poc9T4Dx
bAXkfqnzcBi+d2RQuxrxfWdhD49rLblzXDXuWT5KhpFINSmQMJwS6EcgFXyWMFh1
2YVjkkB6ptRXu7sHglNsEpBXGyTPReXlkCTomxbO2usbSKYKxSnn
---- END SSH2 PUBLIC KEY ----
```

Figure 143: Example of public key generated by puTTYgen

```
ssh-rsa
AAAAB3NzaC1yc2EAAAADAQABAAABAQDoQcOkXUI/vYqeQm4Oe6wLW9p7sXBb8O4izGeZ
17FjtgqHd/cRfHWWNmkYt7rfwz7tZvsrvZCl97+ji78YE5sWBhN3gYR3XoTzK5gZobNEs0S2/sHv
7oEi9RrCPEnaZYkf1hiJJ8iWU6Obi6G5Q7V8ECC5Hj9/MpxWTt2bzdie2aqAiRLBG5vz1JcNw4K
JAmOq8iBfh9VvRbuR44Kl7p8K1n+RcuFtEGwl8INh00P7jpFm0ctK9fclGQqvkNTG6AJO5SOvA
MyZ4R2gY9AaVvn35jYQzpFq0raxYM+11O6Thg2/lamOqB6SU4clxa4CqcmzORUkvVcV6fXRFn
DGNQbp SSH
```

Figure 144: Example of public key generated on GSW ConnectBot to clipboard

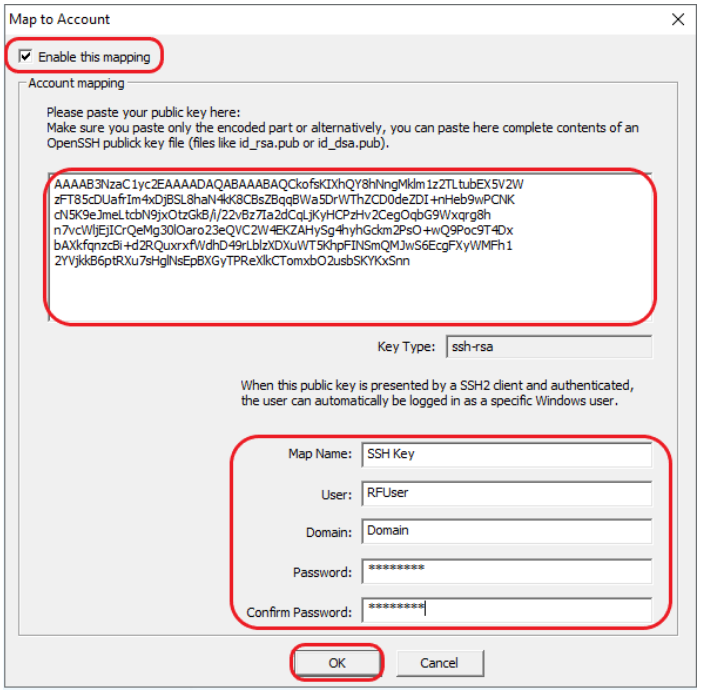


Figure 145: Installing Public Key

5. The mapping created should now be displayed, click “Apply”

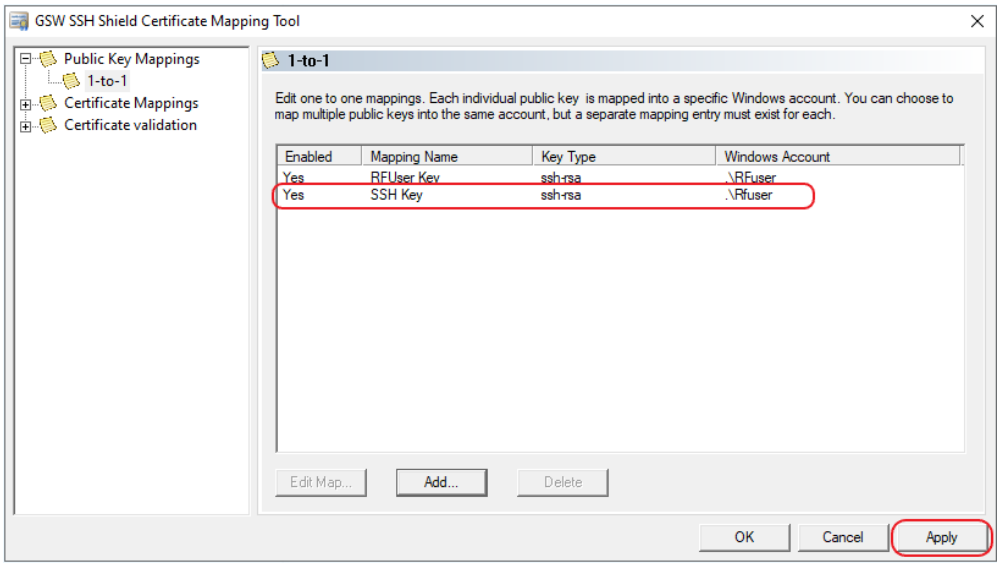


Figure 146: Key Installed

6. After “Apply” has been clicked a pop-up will appear as shown in Figure 147. The changes will not take effect until the Georgia SoftWorks SSH Shield service is restarted. Click YES to restart SSH (all current connections will be dropped) or NO if you intend to restart later.

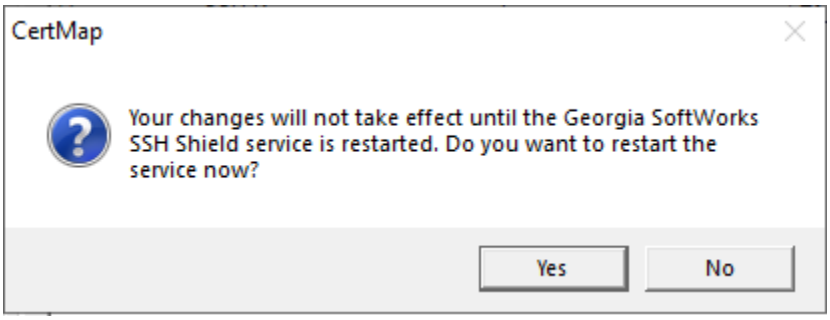


Figure 147: Restart SSH Service

Once the UTS server has restarted, you may test the GSW ConnectBot SSH connection.

Telnet Configuration

The following guide will show how to configure the GSW ConnectBot client to make Telnet connections using Password Authentication.

Open the GSW ConnectBot App on the Android device.

Configure a Telnet Host Connection

Tap the blue plus sign button in the lower right corner to start a new host configuration.

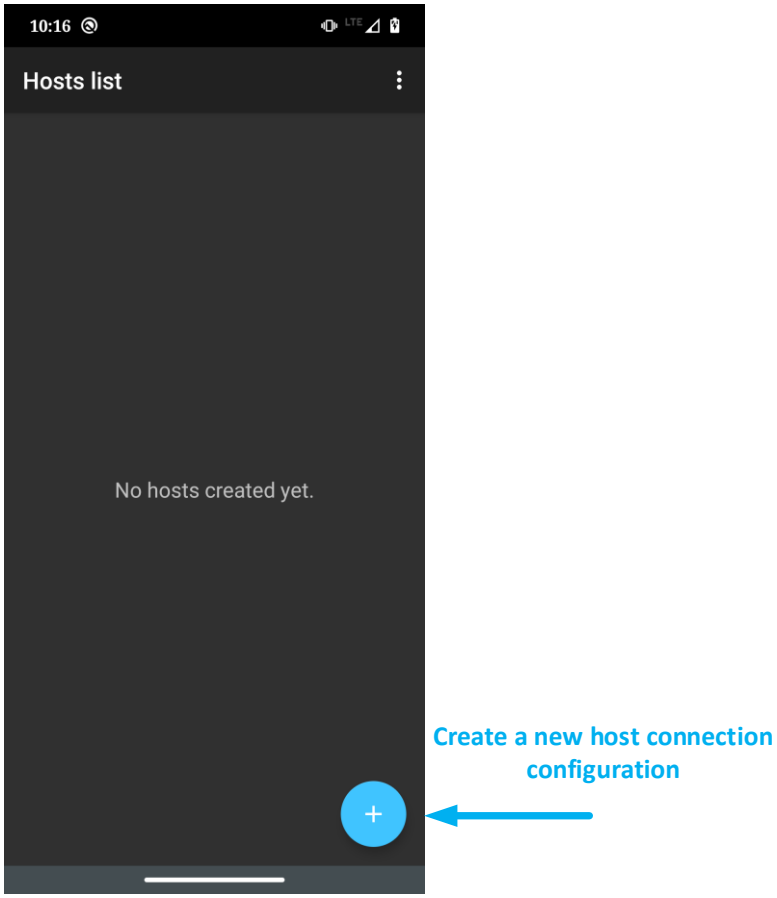


Figure 148: Creating a Host

A new Host Connection Configuration screen is displayed as shown in Figure 149.

SSH is the default protocol, tap protocol and select Telnet.

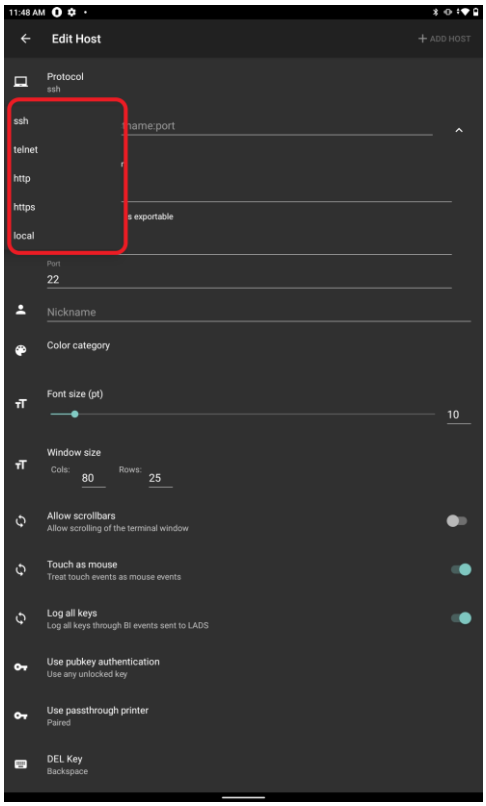


Figure 149: Defining a Telnet Host

Configure these options to get a working connection.

1. Tap the down arrow next to the “hostname:port” field
   Enter <IP address>
   If an alternate port is used for Telnet, specify it here (ex: <IP address>:567)
   Otherwise leave it as the default Telnet port, 23.
2. Check “Automatic Logon”
3. Enter Username and Password
4. “Mark passwords as exportable” includes the password when a configuration is uploaded to a LADS server.
5. (Host and Port Autofill).
6. Choose a nickname (not required).

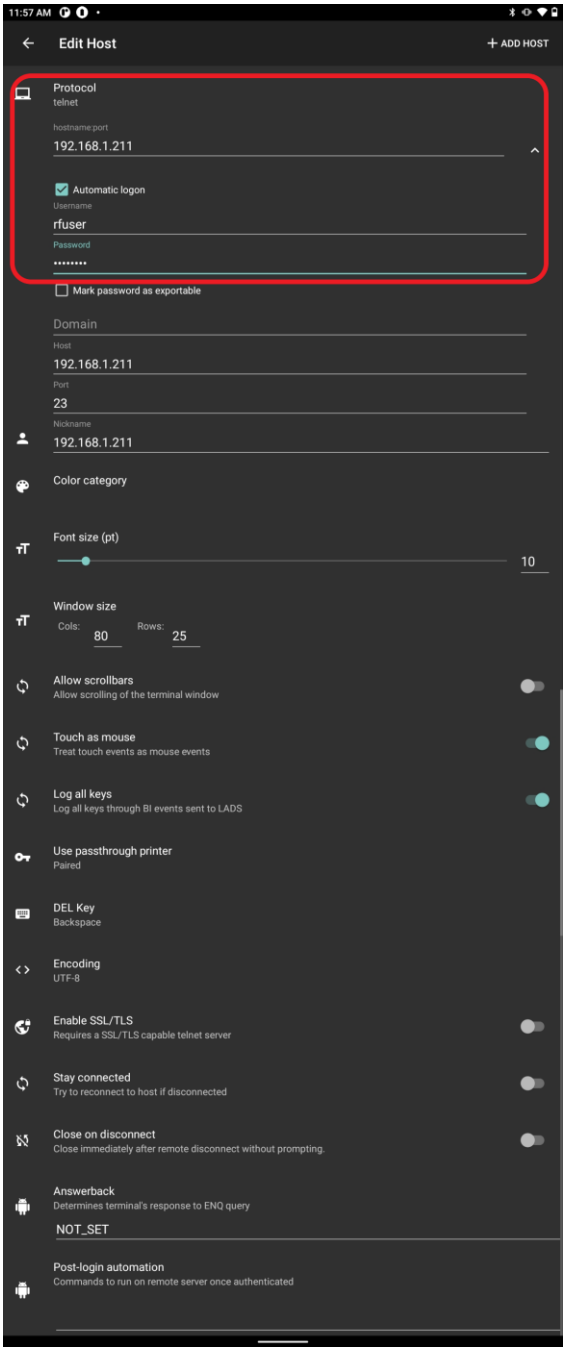


Figure 150: Enter Telnet Configuration Information

Other options may be modified if necessary.

Select the Color of the text used on this Host Connection when displayed on the Hosts screen.

The Font size does not need to be set unless the column and rows of the Window Size are set to zero.

Adjust Window size to match the server’s settings.

Telnet will not use public/private keys. The “Use pubkey authentication” field may be ignored.
Tap the DEL Key to specify the key use to send a “delete” message. Choices are “Delete” and “Backspace”.

Continued on next page

Choose the encoding, UTF-8 is the default.

Ignore “Use SSH auth agent”, as this is a Telnet connection.

Compression not used with Telnet.

Make sure “Start shell session” is on.

Make sure “Stay connected” is on, to keep trying to reconnect, if disconnected.

Choose whether to close the session on disconnect.

Enter any Post-login commands as required, commands in user’s logon script is a better option.

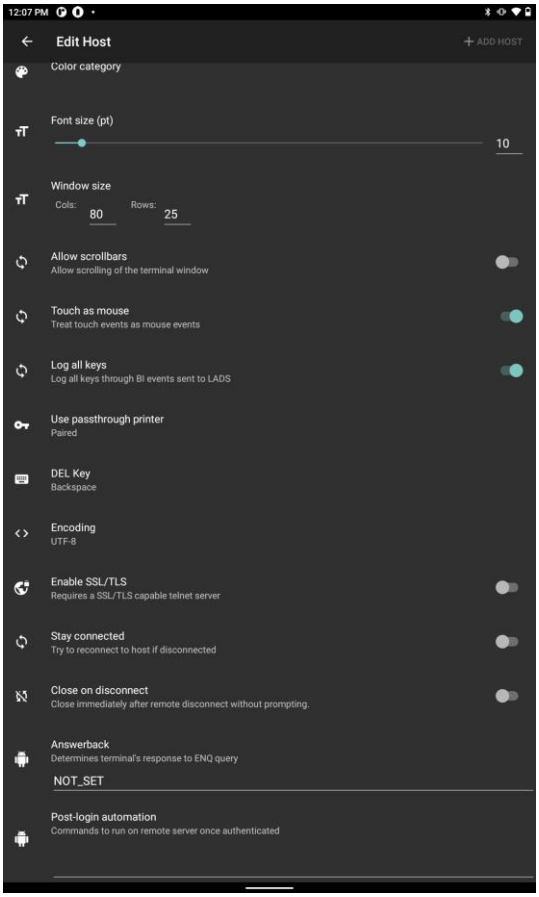


Figure 151: Connection Settings

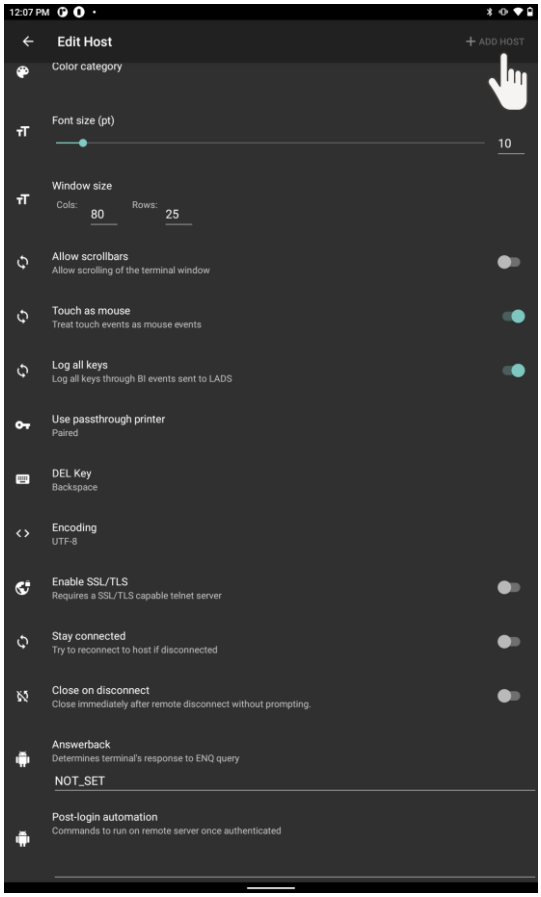


Figure 152: Saving the Connection

Enter an Answerback if required by th application.

As discussed in the “Host Connection Menu” section, additional settings (under “Additional Settings”) can be found by tapping the three vertical dots in the upper right-hand corner of the app and selecting “Settings”.

Managing Host Configuration with the GSW LADS

Once the host(s) have been configured on the Android device, the configuration may be uploaded to the GSW LADS. This will allow other devices to download a duplicate configuration.

For example, if there are three different types of devices or work areas (truck mount, shipping, etc.), and various quantities of each, configure each host and upload the configurations to the GSW LADS. The next time a similar unit is needed, simply connect that device to the GSW LADS and download the saved configuration. This is a huge time saver.

Uploading an Existing Configuration

Once one instance of a device has been configured, simply “clone” the configuration to other devices, by doing the following.

1. Click on the “three dot” menu in the upper right-hand corner of the client.
2. Select “Upload configuration” from the menu.
3. Tap “LOCATE GSW LADS”
4. Name the Tag, for example: Truck Mount, Shipping, etc.
5. Tap “UPLOAD CONFIGURATION”. A folder will be created in the “Upload” folder with the name used when naming the Tag, in this case “Truck Mount”.

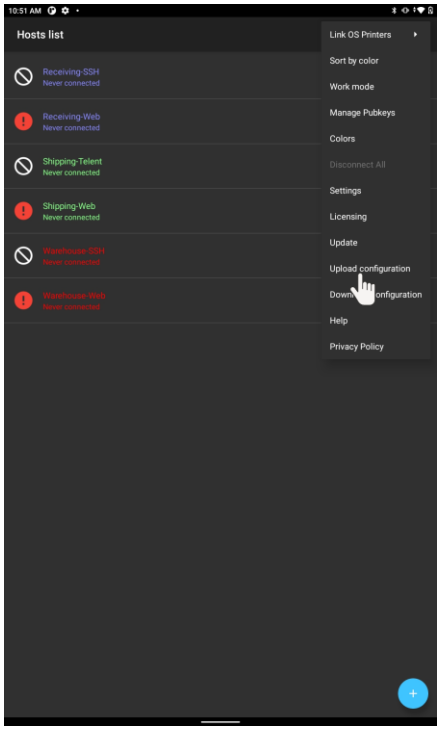


Figure 153: Tap Upload configuration from the overflow menu

Figure 154: Locate GSW LADS

6. Progress bar will appear
7. GSW LADS will confirm successful upload of configuration.

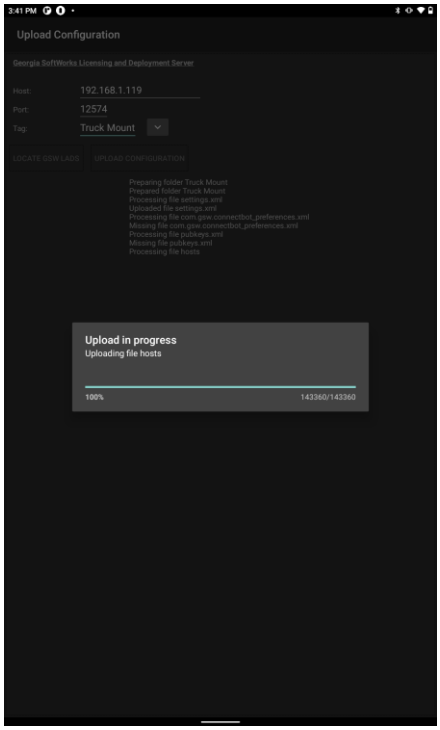


Figure 155: Upload Configuration

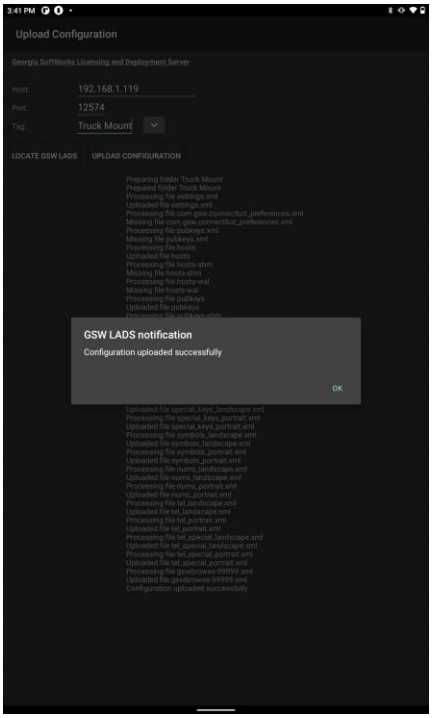


Figure 156: Upload Complete

8. On the server, navigate to C:\Program Files (x86)\Georgia SoftWorks\Georgia SoftWorks Licensing and Development Server\files\configs\upload
9. Copy your uploaded configuration[9] to C:\Program Files (x86)\Georgia SoftWorks\ Georgia SoftWorks\Georgia SoftWorks Licensing and Development Server\files\configs\download

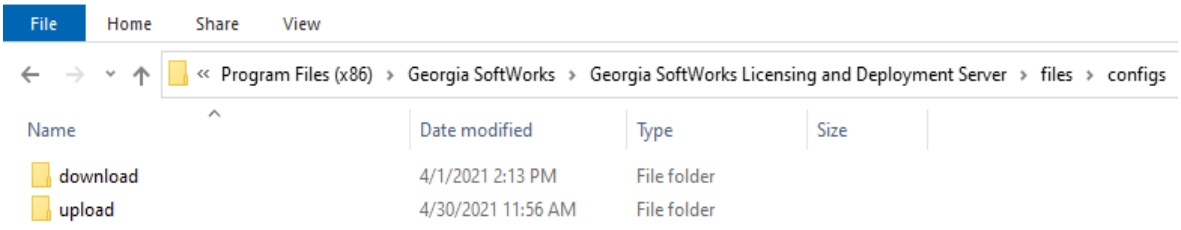


Figure 157: Copy upload configuration to download folder

[9] In step 4 of this example, we named the configuration “Truck Mount”, so select the folder.

Hint: Access the “Config Files” location using shortcut from the Windows Start Menu[10]

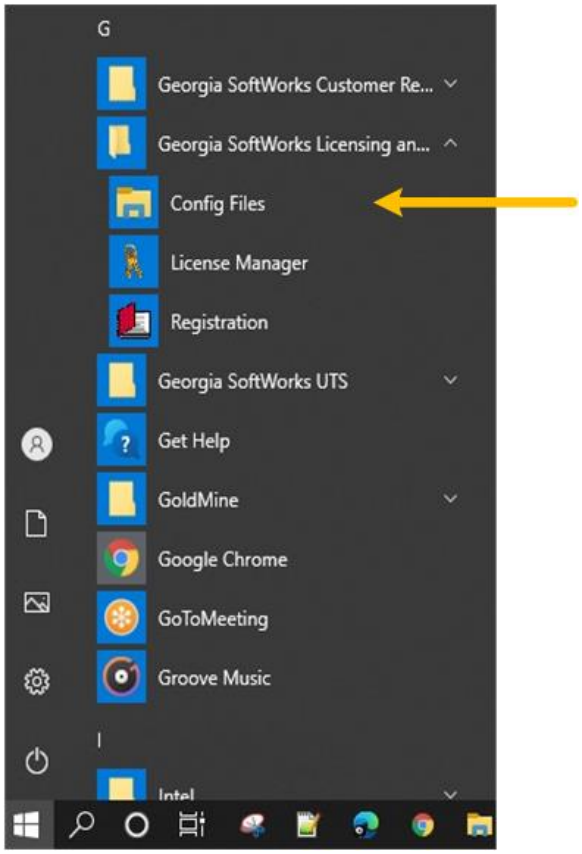


Figure 158: GSW LADS Config File shortcut

10. Now the uploaded configuration is accessible and can be downloaded to another device.

[10] Config file shortcut was added with GSW LADS ver 1.40

Downloading an existing configuration

1. Click on the “overflow menu” in the upper right-hand corner of the client.
2. Tap “Download configuration” from the menu.
3. Tap “LOCATE GSW LADS”.
4. Select the uploaded configuration to install on the current device from the tag list.
5. Tap “DOWNLOAD CONFIGURATION”.

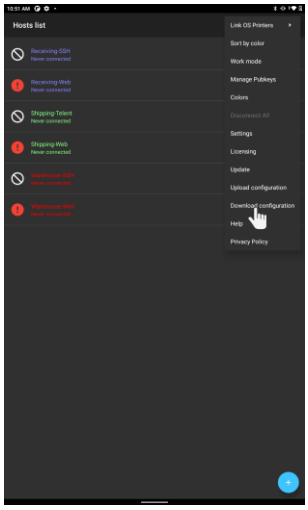


Figure 159: Tap Download Configuration

Figure 160: Select Configuration

6. Progress bar will appear.
7. GSW LADS will confirm successful download of configuration.

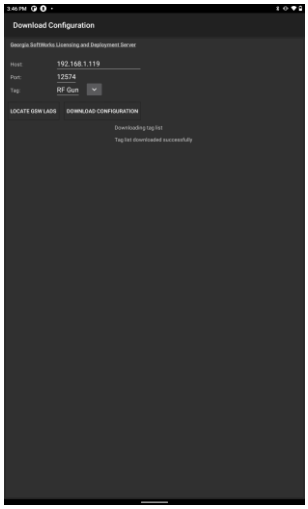


Figure 161: Tap download configuration

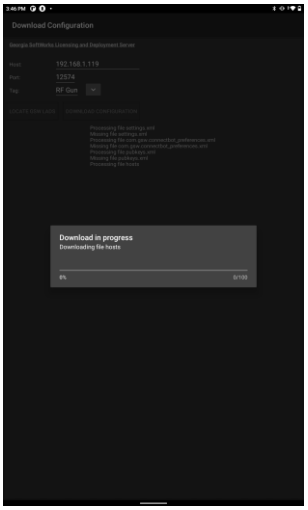


Figure 162: Configuration download in progress

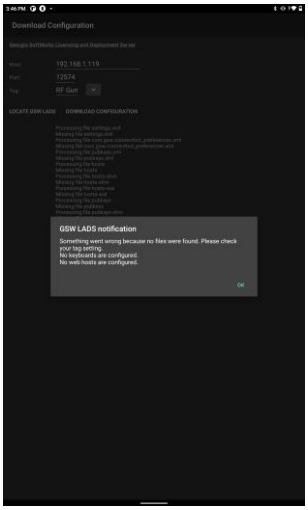


Figure 163: Configuration download successful

Client Lockdown

Client Lockdown limits a user to the specific application. This prevents the Worker from modifying the connection and other administration level settings or accessing other applications. Georgia SoftWorks has provided a secure way to lock down the GSW ConnectBot application by providing a distinct Admin mode and Work mode. Kiosk and App pinning application and methods are available through 3rd party providers.

- Locking down GSW ConnectBot in “Work mode”
    - GSW ConnectBot version 2.9.194 and above
    - GSW ConnectBot version 2.9.186 and below
- Pinning work mode icon with Android (GSW ConnectBot 2.9.186 and below)
- Admin mode vs Work mode

GSW ConnectBot Admin mode / Work mode version 2.9.194 and above

Starting with GSW ConnectBot Version 2.9.194 Admin and Work Mode will be combined to one app icon. You will access through the 3-dot menu from the host list screen, shown in Figure 164. If you are in work mode you will see Admin mode in the drop-down menu, shown in Figure 165, if you are in Admin mode you will see Work mode in the drop-down menu, shown in Figure 166. To enter admin mode, tap admin mode in the drop-down menu and you will be prompted to enter admin password (default admin password is “admin”). You may change the admin password from choosing Settings in the Admin mode drop down menu. Select “Change password” and enter new password and confirm password. This only changes the password for the current configuration. If configuration is uploaded to GSW LADS and download configuration to other devices this password will be carried to devices.

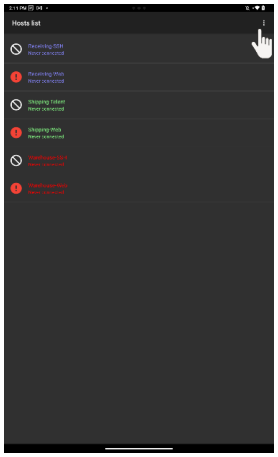


Figure 164 - 3-Dot Menu from Host List screen

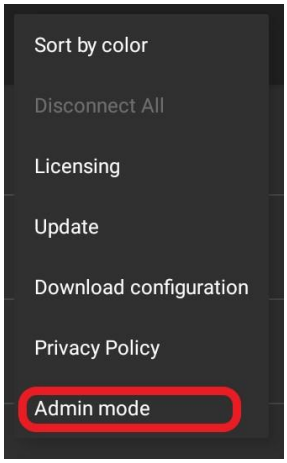


Figure 165 - Work mode drop down menu

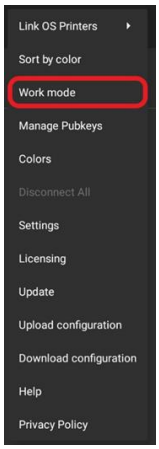


Figure 166 - Admin mode drop down menu

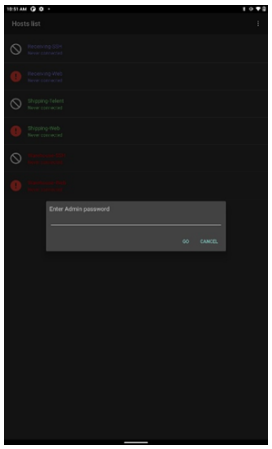


Figure 167 - Enter admin password (default "admin)

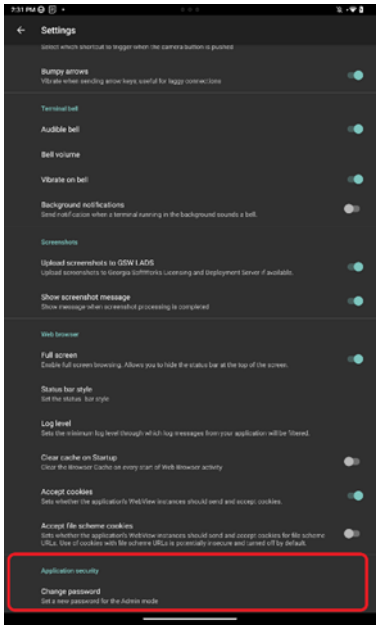


Figure 168 - Global setting to change admin password

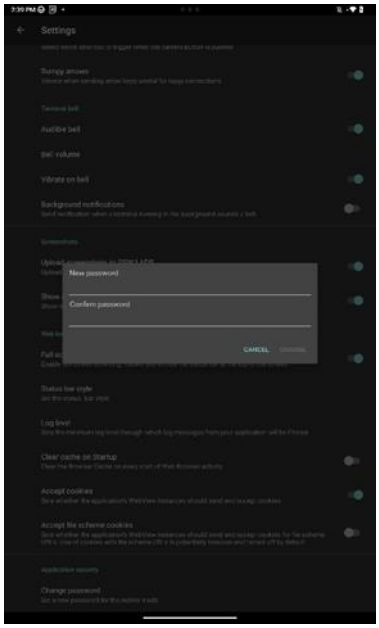


Figure 169 - Enter new password then confirm new password

Reset changed Admin Password

If admin password is forgotten you can follow the following steps to reset password. (You must be using GSW LADS to reset the password, GSW LADS is free and can be downloaded here)

The admin password is stored in the com.gsw.connectbot_preferences.xml file located in the config file, default location:

C:\Program Files (x86)\Georgia SoftWorks\Georgia SoftWorks Licensing and Deployment Server\files\configs\download\ (Name of config file that password needs to be changed)

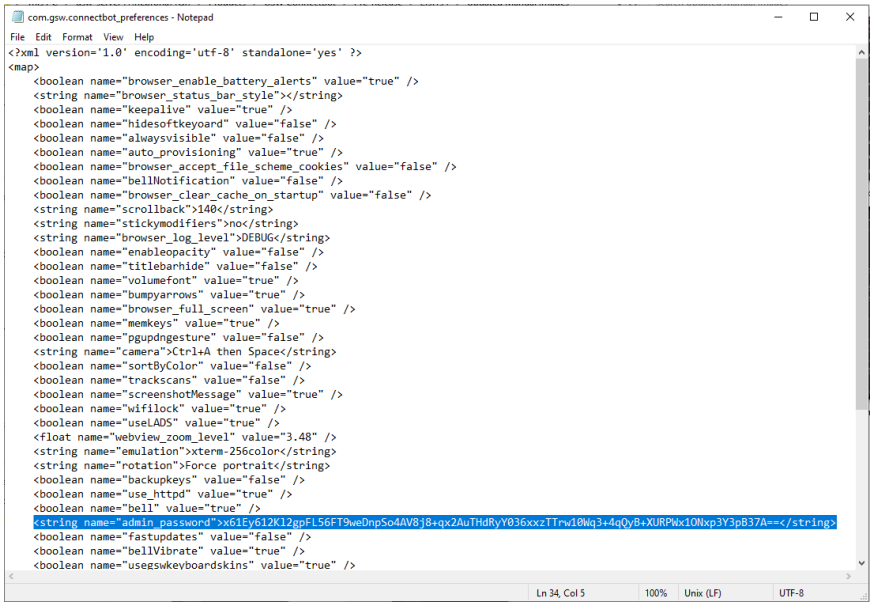


Figure 170 - com.gsw.connecbot_preferences text file to change admin password

Open the xml file with a text editor and locate the following line:

<string name="admin_password"> <string name="admin_password">1ARVn2Auq2/WAqx2gNrL+q3RNjAzXpUfCXrzkA6d4Xa22yhRLy4AC50E+6UTPoscbo31nbOoq51gvkuXzJ6B2w==</string>

*Note this line will only be in the file if password has been changed

To change the password back to the default “admin” replace the highlighted field (above) with the following data:

(This corresponds to the default password of “admin”)

x61Ey612Kl2gpFL56FT9weDnpSo4AV8j8+qx2AuTHdRyY036xxzTTrw10Wq3+4qQyB+XURPWx1ONxp3Y3pB37A==

Another option to change the default password is to use PowerShell by running the following command

powershell -Command "[Convert]::ToBase64String([System.Security.Cryptography.HashAlgorithm]::Create('SHA512').ComputeHash([System.Text.Encoding]::UTF8.GetBytes('PasswordHere')))"

GSW ConnectBot Admin mode / Work mode version 2.9.186 and below

Installation of GSW ConnectBot version 2.9.186 and below results in creation of two user icons. There is an Administrator launcher and a Work launcher.

The Icon ***without the gear*** is for companies using the client in restricted production and or screen lockout mode.

Using the icon ***with the gear*** enters administrative mode. The intent is that the administrator will preconfigure hosts, public/private key etc.

The administrator will then open the Work mode icon and pin the app.

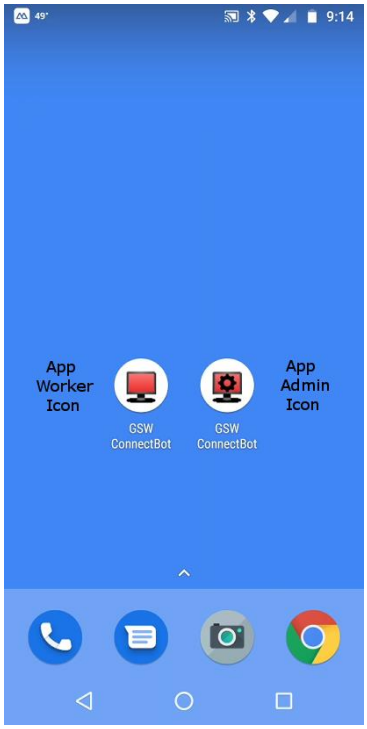


Figure 171: Two Modes of Connection

Lockdown (Pinning the app) on Android 7.0+[11]

An administrator can limit a worker to the GSW ConnectBot by using Android screen pinning. The process varies slightly with different versions and devices.

To Pin (lockdown) GSW ConnectBot app, perform the following steps configuration:

Performed by administrator

- Create Hosts
- Enable “Pin Window”
- Enable “Ask for Pin before Unpinning”
- Pin the App

Create one or more hosts.

This is described in the section Create new Host Connection Configuration

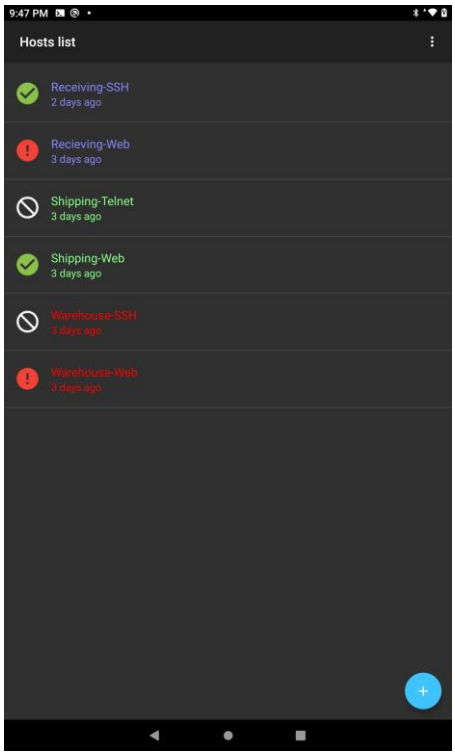


Figure 172: Create Host(s)

[11] Preferred kiosk app can also be used to lock down GSW worker mode

Enable Pin Window.

Enable Pin Window allows the application to be “pinned” such that that it is the only application available to the Worker.

To enable Pin Window, navigate to Settings->Lock screen and security->other security settings.

From the Android home screen, tap “Settings”. On the example device, the home screen and settings look as shown in Figure 173.

The settings screen opens as shown on the right in Figure 174.

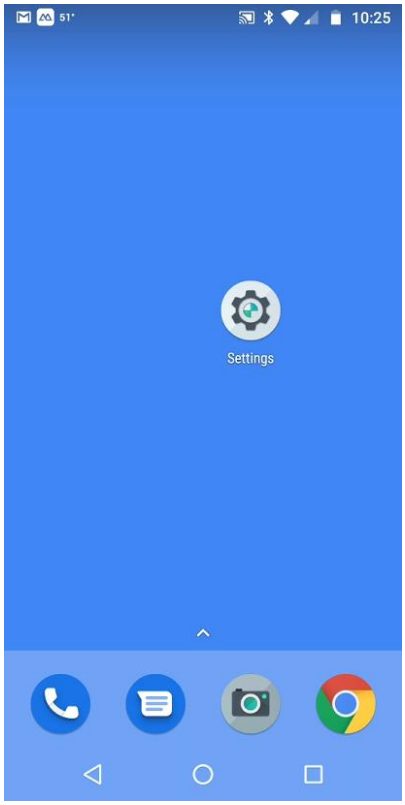


Figure 173: Settings Icon

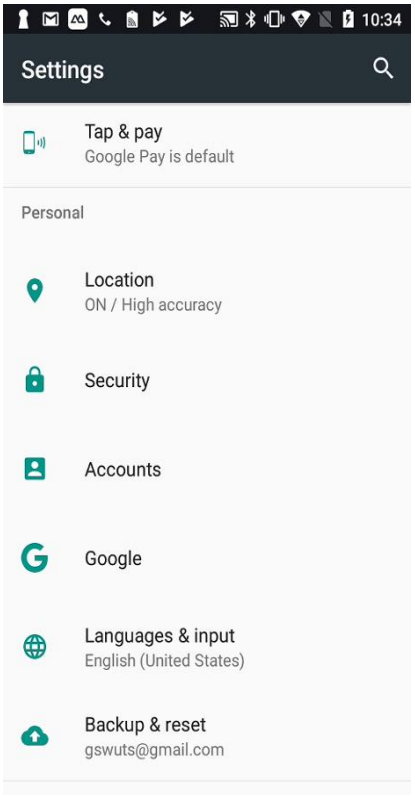


Figure 174: Tap Security Setting

Tap on the “Security” setting. The name of this setting may vary between Android devices.

The Other Security Settings screen contains the “Pin Windows” configuration item.

In “Pin Windows” field, tap the switch icon to turn this feature on.

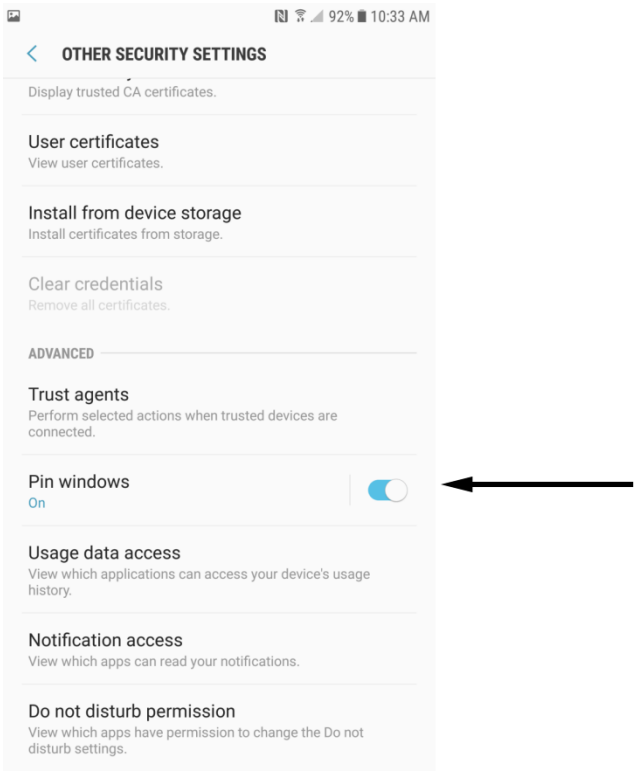


Figure 175: Pin Windows Option

The Pin windows option is now enabled.

Enable "Ask for Pin before Unpinning"

Enabling "Asking for the Pin" requires the PIN for the device be entered to exit the application. If you don't enable "Ask for Pin before unpinning", the worker can exit the application simply by pressing common key sequences.

Tap on the Pin windows field to display the "Ask for Pin before unpinning" option.

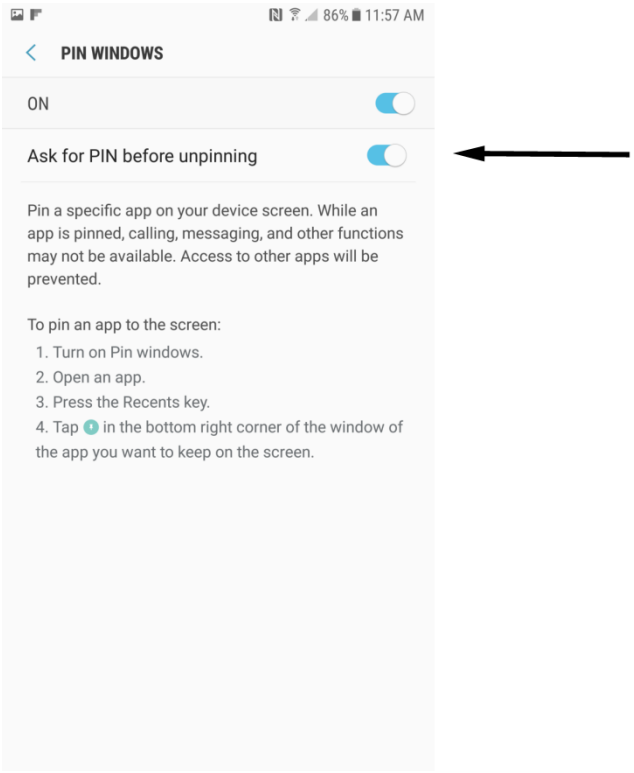


Figure 176: Ask for PIN before unpinning

Now Exit Settings.

The last step is to Pin the Window.

Pin the Window

With ***GSW ConnectBot, Android Work App*** open, press the “Recent” button on the home screen.

Tap the “Pin” Icon in the bottom right corner of the GSW ConnectBot App Card.

Note: If the pin icon in the bottom right corner is not visible, move the window up to display the pin icon.

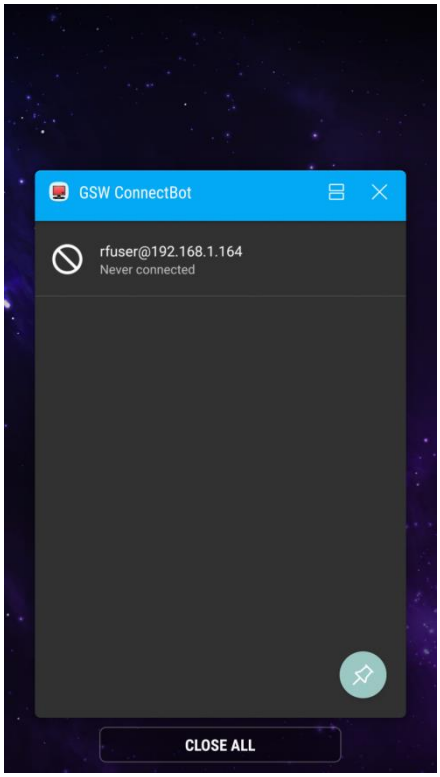


Figure 177: Pinning the Window

Unpin the Window

To Unpin an App, press both the “Back” and “Recent” buttons simultaneously.
Enter PIN to complete unpinning.

To maintain security of the device, only the Administrator should have the PIN, otherwise the end user would have full access to the device and file system.

Admin mode vs Work mode

Figure 178 shows the GSW ConnectBot screen in Administrator Mode.
Notice the full menu options available.

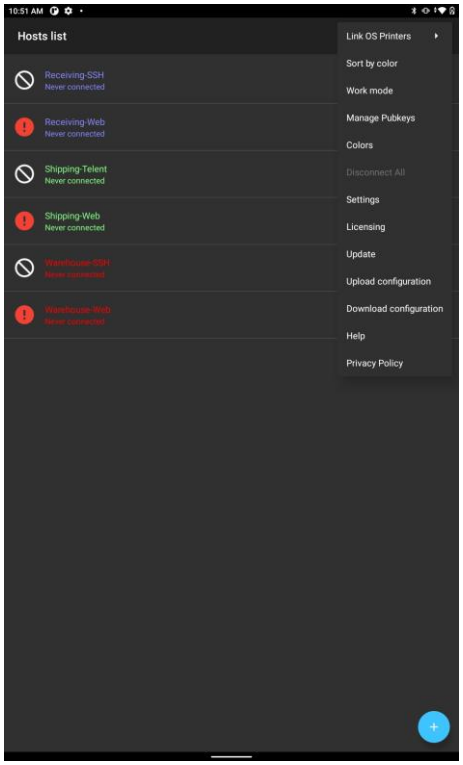


Figure 178: GSW ConnectBot - Admin Mode

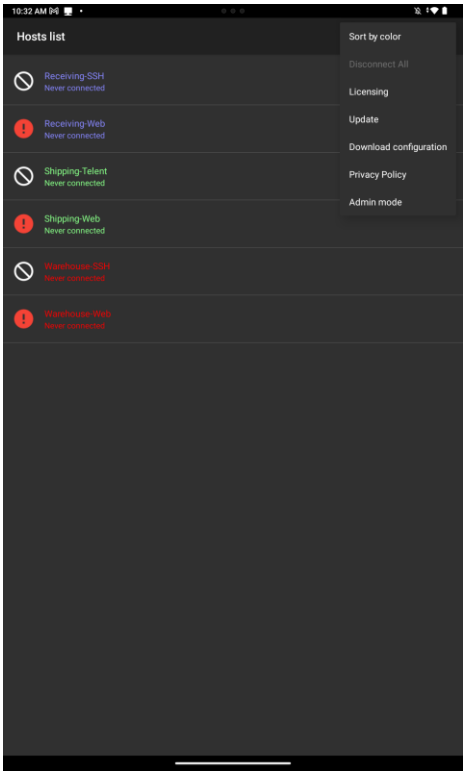


Figure 179: GSW ConnectBot Work Mode

Figure 179 shows the GSW ConnectBot screen in Work mode.
Notice the menu is restricted to “Sort by color”, “Disconnect All”, “Licensing”, “Update” and “Download configuration”.

No administrative functions are enabled in Work Mode.

NOTE: GSW ConnectBot must be Forced Closed to switch between Admin and Work modes with GSW ConnectBot version 2.9.186 and below.

Device Telemetry Data Variables

When using the GSW ConnectBot with GSW UTS, useful device information is available for applications to provide a better experience for users.

These provide “smarter” applications the capability to make changes based on the device that they are connected. This includes knowing the display size, the IP Address of the device and much more.

The data is available on the device as Macros and on the UTS as environment variables.

Macros

This data is available to use in the Host Connection configuration in items such as AutoResponse Fields (see page 56) and Answerback (see page 66).

Macro Syntax: ${macroname}

Data Name	Macro Syntax	Evaluates to: (in our example)
build_device	${build_device}	river
build_display	${build_display}	PPOS29.114-134-10
build_hardware	${build_hardware}	qcom
build_host	${build_host}	ilclbld158
build_id	${build_id}	PPOS29.114-134-10
build_manufacturer	${build_manufacturer}	Motorola
build_model	${build_model}	moto g(7)
build_product	${build_product}	river
build_serial	${build_serial}	UNKNOWN
display_density	${display_density}	xxhdpi
display_dimensions	${display_dimensions}	2016x1080
gswcb_build_type	${gswcb_build_type}	release
gswcb_version	${gswcb_version}	2.7.016
network_clnt_side_ip	${network_clnt_side_ip}	192.168.1.157
network_mac	${network_mac}	24-46-C8-0C-E8-61
status_code	${status_code}	0
version_codename	${version_codename}	REL
version _release	${version_release}	9
version_sdk	${version_sdk}	28
version_security_patch	${version_security_patch}	2020-02-01

Environment Variables

These variables are passed to the server so the application or the logon script running on the server can take advantage of this information.

For example: The application running on the server can look at the size of the screen and, based on the screen size, may launch a different application profile which was built for that particular screen size. For example, the application screen size might be 16x20 or 16x50. The application, invoked by the logon script, will be able to make an intelligent determination of the size of screen from environment variables and send the appropriate screen size to the device. The goal is to match the resolution. Avoid sending a very detailed screen when a particular android device has very limited resolution.

Example of Environment Variable[12]

gwtncl_answerback=1234
gwtncl_build_device=river
gwtncl_build_display=PPOS29.114-134-10
gwtncl_build_hardware=qcom
gwtncl_build_host=ilclbld158
gwtncl_build_id=PPOS29.114-134-10
gwtncl_build_manufacturer=Motorola
gwtncl_build_model=moto g(7)
gwtncl_build_product=river
gwtncl_build_Serial=UNKNOWN
gwtncl_ display_density=xxhdpi
gwtncl_ display_dimensions=2016x1080
gwtncl_gswcb_build_type=release
gwtncl_gswcb_version=2.7.016
gwtncl_network_clnt_side_ip=192.168.1.157
gwtncl_network_mac=24-46-C8-0C-E8-61
gwtncl_status_code=0
gwtncl_version_codename=REL
gwtncl_version_release=9
gwtncl_version_sdk=28
gwtncl_version_security_patch=2020-02-01

[12] Variables are dependent upon device capabilities.

GSW Browser

The Georgia SoftWorks ConnectBot contains GSW Browser, an Enterprise Browser suitable for industrial and commercial environments. Some notable features include:

No Address Bar

Prevents arbitrary URLs to be entered so no distractions from work.

Security

Provide detailed specification of URLs that may be accessed in different scenarios like page navigation, image source, media file source, email access, phone access, etc.

Injection

CCS and Javascript Injection. Allows modifications to the web page without having to modify the actual web page source.

SAP ITSMobile

Automatically enhance the SAP ITSMobile screens to improve readability, navigation and usability. No development required. Simply enable in the configuration and the enhancements work “out of the box”.

SAPGui for HTML

Excellent Enterprise Browser for SAPGui for HTML. On recommended list with SAP. Supports sound profiles, allowing the user to determine the sounds to use for Error, Information, Warning and Success scenarios.

Apache Cordova Support

Access a variety of Apache Cordova plugins to allow for rich interaction with the device and avoids limitations imposed by standard browsers. For example, work with files on the device, record video, take pictures, record audio, upload files to any destinations, use geolocation, 3 ways to control built-in scanner, or use device camera as a scanner. Also, battery, WiFi status, screen orientation and more.

GSW Keyboards

Dynamically transparent and moveable keyboards to maximize screen real-estate.

GSW Browser Configuration

Configuration is easy and to get up and running fast, for most users simply enter the URL of the page to start. For the GSW Browser Quick Start chart please see Figure 5.

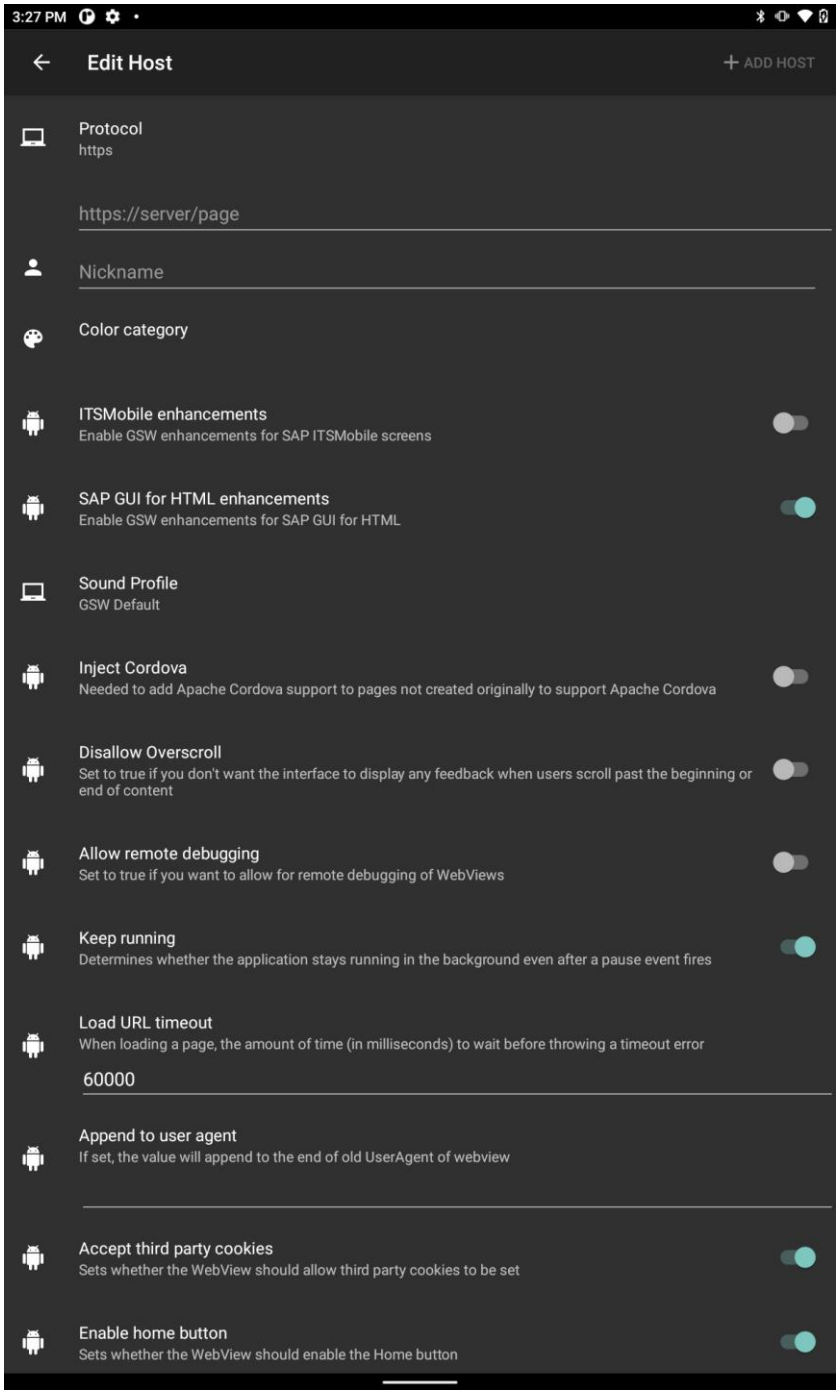


Figure 180: HTTPS Protocol Configuration Menu

Protocol

- http://server/page
- https://server/page
- Nickname

Color category

- red
- green
- blue
- gray

ITSMobile enhancements

Enable GSW Enhancements for SAP ITSMobile screens. (enabled/**disabled**)

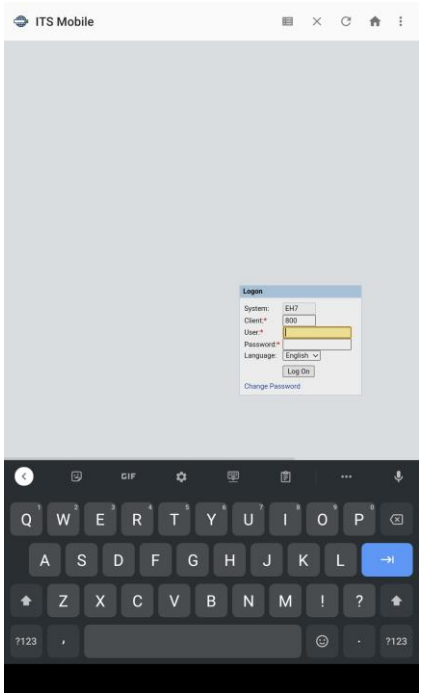


Figure 181: SAP ITS Mobile with GSW Enhancements Disabled

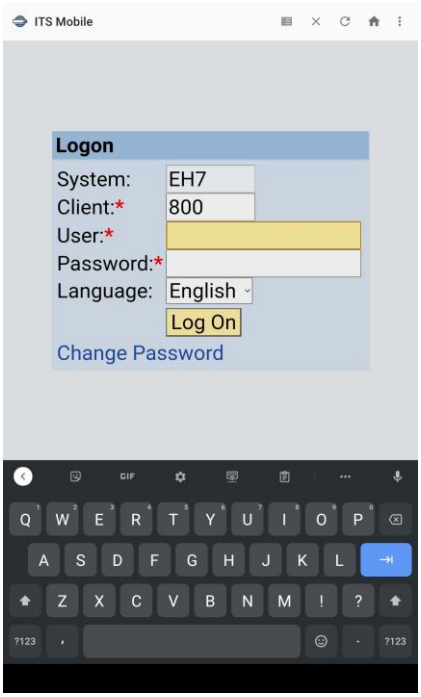


Figure 182: SAP ITS Mobile with GSW Enhancements Enabled

When the ITSMobile Enhancements setting is enabled the Skin option will appear as shown in Figure 183, allowing you to changes the color scheme of the ITS Mobile screen.

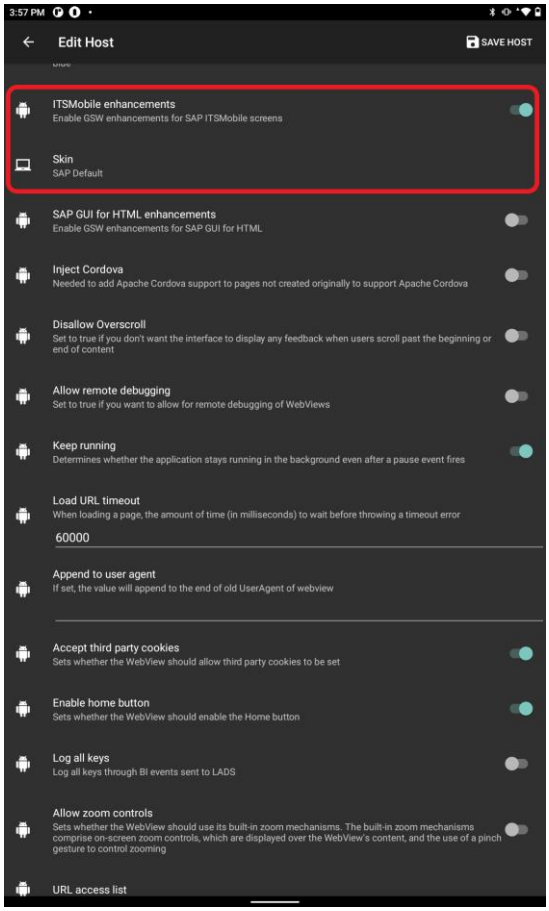


Figure 183: Enable ITSMobile Enhancements Shows Skin Menu

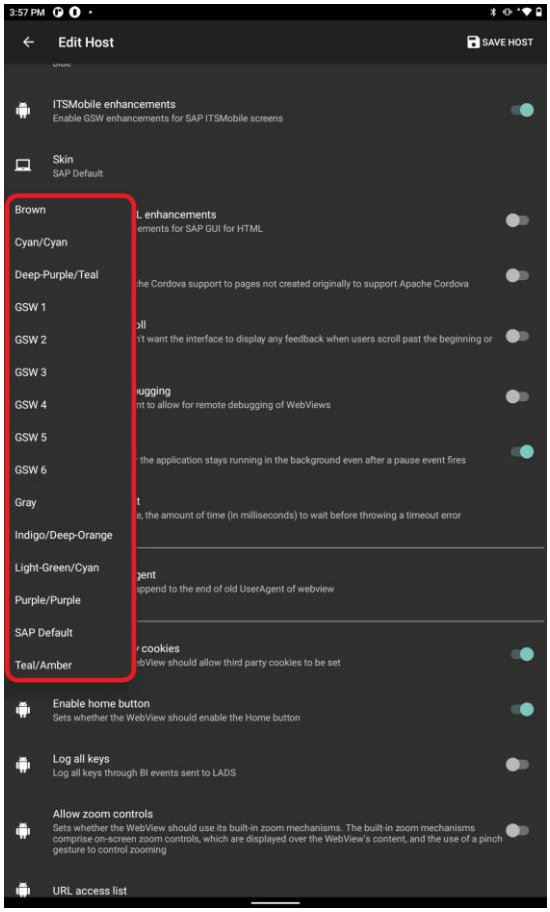
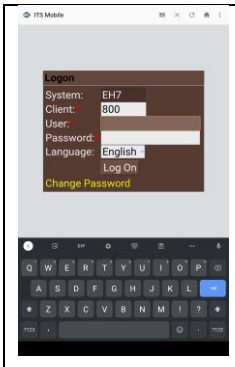
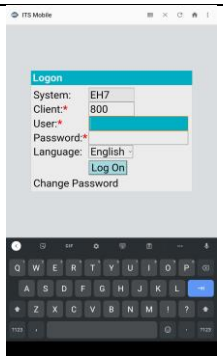
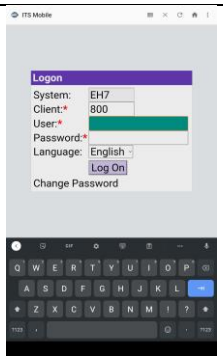
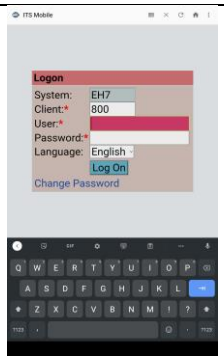
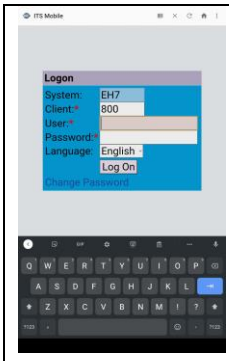


Figure 184: Skin options menu

Below is a variety of the GSW skins, so you can get an idea of flexibility of ITSMobile looks available. Color schemes are customizable.

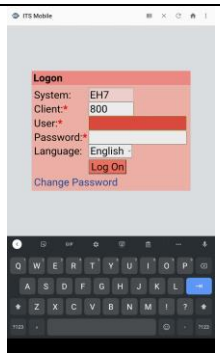
				
Brown	Cyan/Cyan	Deep-Purple/Teal	SAP Default	GSW 1



GSW 2

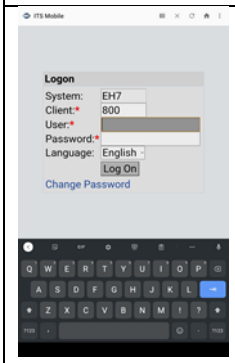
GSW 3

GSW 4

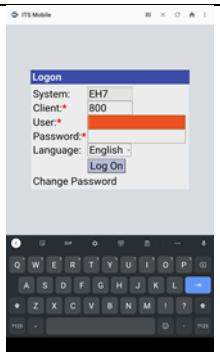


GSW 5

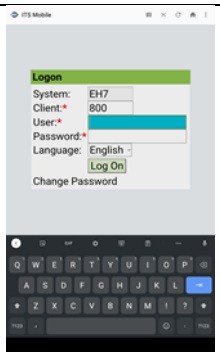
GSW 6



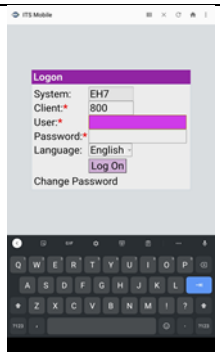
Gray



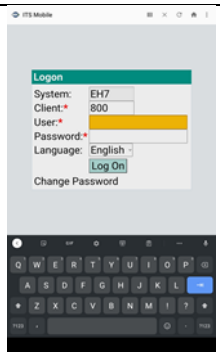
Indigo/Deep-Orange



Light-Green/Cyan



Purple/Purple



Teal/Amber

Figure 185: ITSMobile Skin Options

SAPGui for HTML Enhancements

Enable GSW Sound Profiles for SAPGui for Html.

There are situations where the default Success, Warning, Information and Error sounds from the application are not suitable for the environment. You may want sounds that can pierce through noise, or more subtle sounds. GSW Enterprise Browser provides more than a dozen Sound Profiles for SAPGui for HTML.

When enabled the Sound Profile option is displayed. The currently selected Sound Profile is displayed under the Sound Profile option

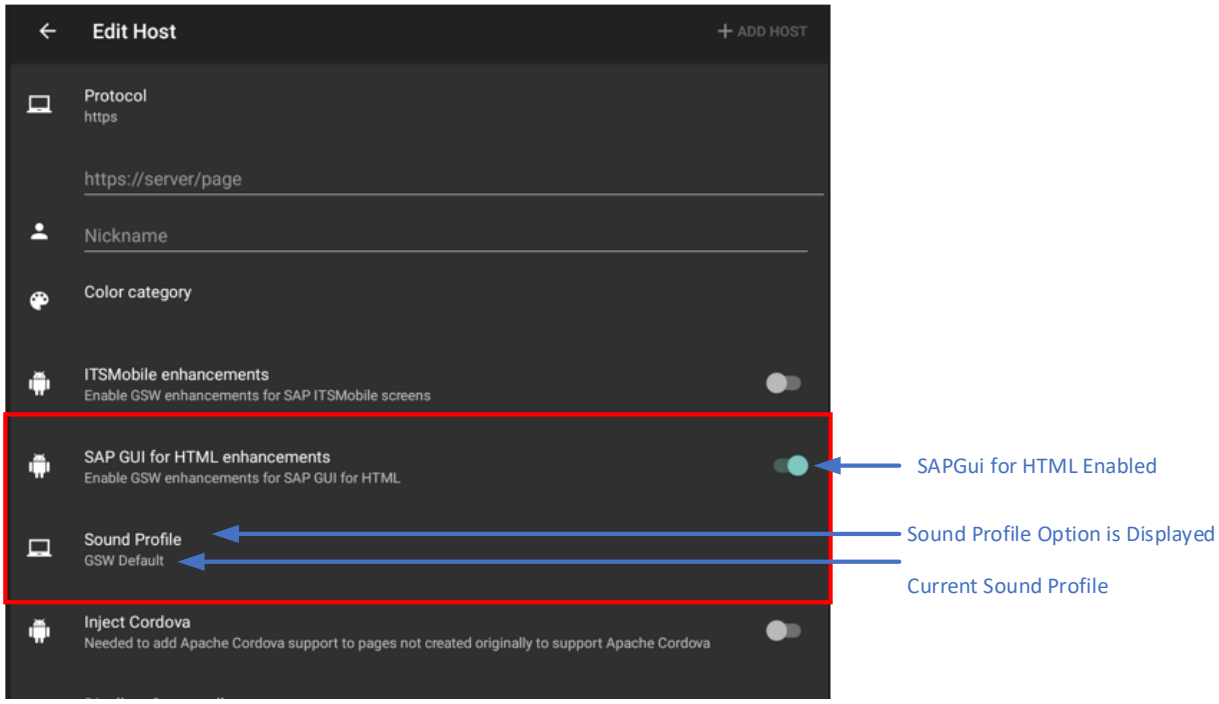


Figure 186: Sound Profile option

Select the Sound Profile option to display the list of available Sound Profiles.

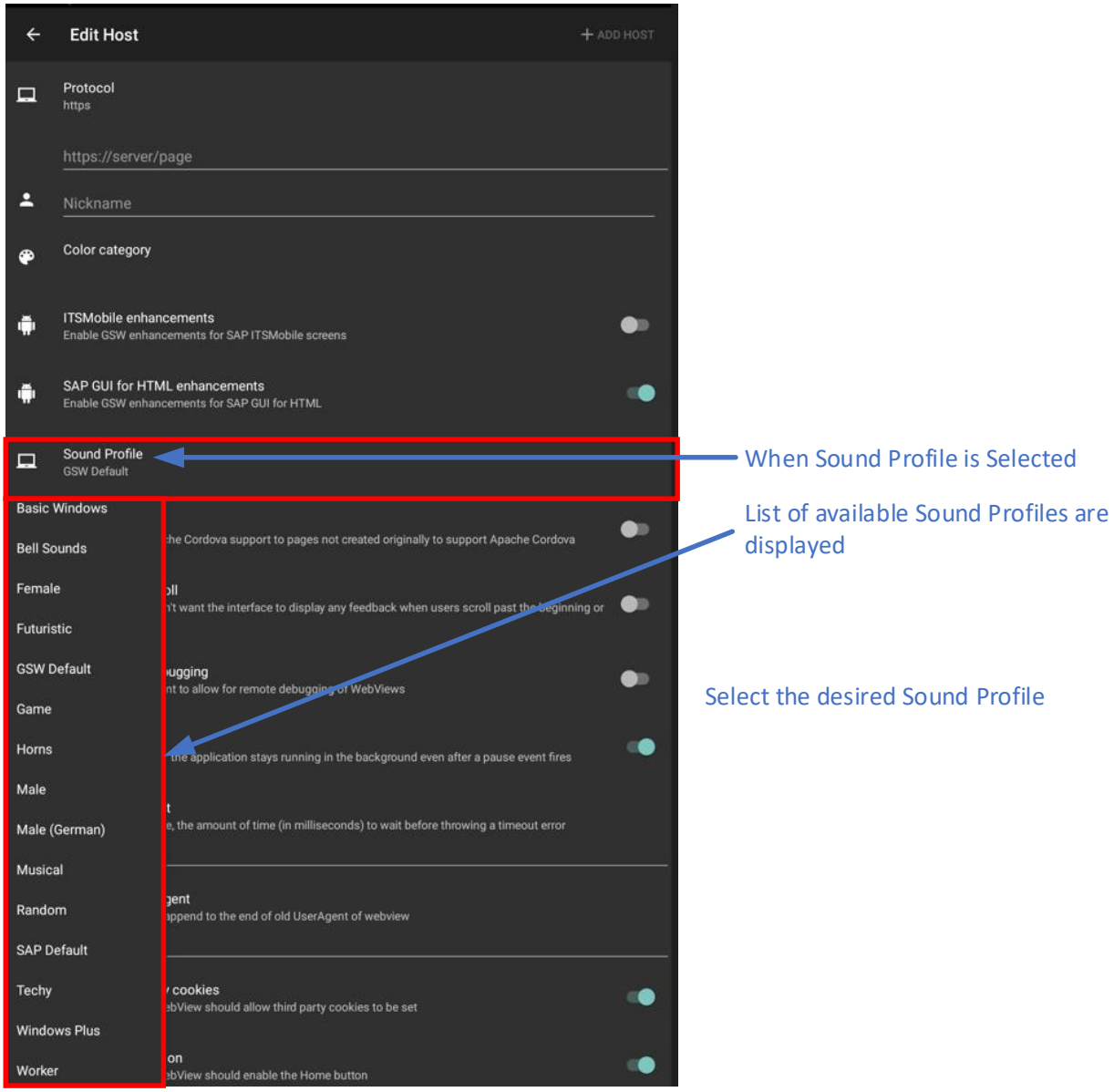


Figure 187: Sound Profiles available

Select the desired sound profile to start using it.

Custom Sound Profile

If you want to use your own custom sounds you can override any selected Sound Profile.

A Sound Profile consist of four files, one for each Sound Error, Information, Success, Warning.

Determine the sounds to override the configured Sound Profile. Rename the files as shown below:

They must have the specified names:

smsg.wav	Success sound
wmsg.wav	Warning sound
imsg.wav	Informational sound
emsg.wav	Error sound

The extensions can be `.wav, .mp3, or .ogg`.

Once the file(s) are renamed, please them in the `webhostsdir` folder on the GSW LADS server.

Example: `%GSW_LADS_ROOT%\files\configs\download\default\webhostsdir`

On GSW ConnectBot, download the configuration to the use the new Sound files.

Inject Cordova

Inject Javascript support code needed by Apache Cordova plugins. Please enable this option if you are using Apache Cordova plugins. (enabled/**disabled**)

Disallow Overscroll

Enable if you don't want the interface to display any feedback when users scroll past the beginning or end of content (enabled/**disabled**)

Allow remote debugging

Enable if you want to allow for remote debugging of WebViews using Chrome browser developer tools on the server. (enabled/**disabled**)

Keep running

Specify if the application stays running in the background even after a pause event fires. (enabled/**disabled**)

Load URL timeout

When loading a page, the amount of time (in milliseconds) to wait before throwing a timeout error. Set value. **Default: 60000**

Append to user agent:

If set, the value will append to the end of old UserAgent of webview. Set value on the line provided The user agent tells the website information about the browser that is being used by the client. Advanced option.

Accept third party cookies

Sets whether the WebView should allow third party cookies to be set (**enabled**/disabled)

Enable home button

Set whether the WebView should enable the Home button (enabled/**disabled**)

Log all keys

Log all keys through BI events sent to LADS

Allow zoom controls

Sets whether the WebView should use its built-in zoom mechanisms. The Built-in zoom mechanisms comprise on-screen zoom controls, which are displayed over the WebView's content, and the use of a pinch gesture to control zooming. (enabled/**disabled**)

Information entered in the three sections below follow the rules described in the Apache Cordova team documentation for whitelisting. (URL Access List, Allow Navigation List, Allow Intent List)

https://cordova.apache.org/docs/en/9.x/reference/cordova-plugin-whitelist/

URL access list

Defines the set of external domains the app is allowed to communicate with.
Enter list of URL's.
May also enable Subdomains. Checkbox
The default list is * meaning all URLs, with Subdomains enabled (checked)

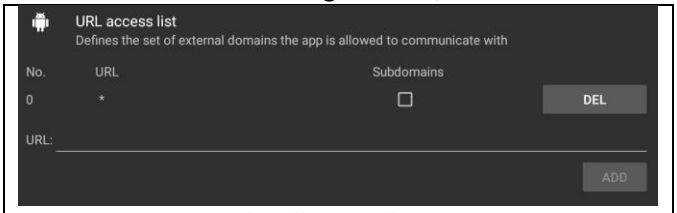
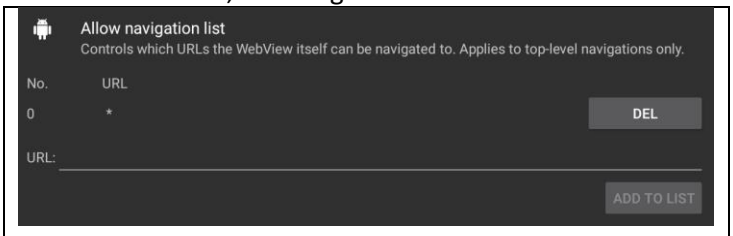


Figure 188: URL access list allowing all URLs

Allow navigation list

Controls which URL's the WebView itself can be navigated to. Applies to top-level navigations only.
Enter list of URL's.
The default list is *, meaning all URLs



Allow Intent list

Controls which URLs the app is allowed to ask the system to open.

Number	Intents the system can open	
0	http://*/*	
1	https://*/*	
2	tel:*	
3	sms:*	
4	mailto:*	
5	geo:*	
6	market:*	
	URL	Add your own URLs if needed
		Add your own URLs if needed

Table 5: Allow Intent List

GSW Browser Full Screen

To configure GSW Browser for full screen:

1. Tap the 3-dot menu from the host list screen and tap settings.
2. Enable Autohide title bar in user interface section of global settings.
3. Enable Full screen in Web Browser section of global settings.
4. Return to host list screen and launch web session.
5. Swipe down to access title bar
6. Swipe up to hide title bar

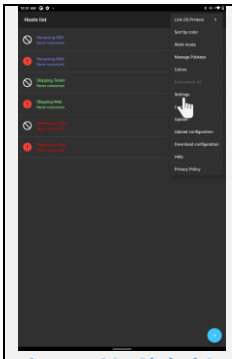


Figure 189: Global Settings

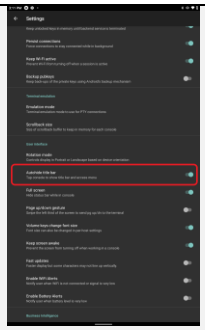


Figure 190: User Interface - Enable Autohide tool bar

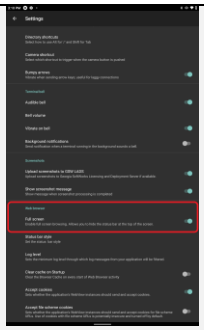


Figure 191: Web Browser - Enable Full Screen

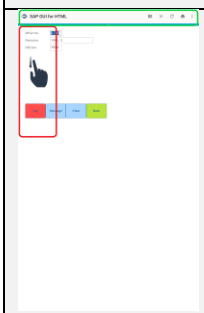


Figure 192: Swipe down to show tool bar

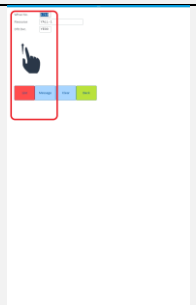


Figure 193: Swipe up to hide tool bar

GSW Browser Telephone Keyboard

GSW ConnectBot will recognize when the input field has the type "Telephone" to display the telephone only keyboard. In Figure 194 shows example where numeric characters are all that are needed and so it calls the telephone keyboard when field is selected.

Figure 194: GSW Browser Standard Telephone Keyboard

GSW DOM Injection syntax

Overview

GSW ConnectBot supports DOM Injection, which allows to insert CSS and JavaScript into a loaded web page. This permits to add features, capabilities and change the look and feel of a part or all of any website at runtime without changing the original source code on the web server. Additionally, many websites are not designed to accommodate mobile device screens and require injection of device-specific CSS and JavaScript to properly format user interface elements and their layout.

The DOM Injection feature can be used, for example, to inject style sheets (CSS) or business logic (JavaScript code) into an SAP ITSmobile or other website for which it is not feasible to modify the source. To make sure that page modifications are applied only after the DOM is ready for them GSW ConnectBot DOM injection occurs after the page is completely loaded. GSW DOM Injection supports both CSS and JavaScript injection. At the time of this writing there is no GUI to support DOM Injection and manual editing of the host specific XML configuration file is required. Host specific XML configuration files are located in the 'webhostsdir' folder in the LADS configs area, typically in this location:

```
C:\Program Files (x86)\Georgia SoftWorks\Georgia SoftWorks Licensing and Deployment Server\files\configs\upload\configuration_name\webhostsdir
```

CSS injection uses XML element named 'css-injection' and JavaScript injection uses 'js-injection'. The rest of the XML syntax is the same for both 'css-injection' and 'js-injection'.

Attributes.

1.1. file

File to be injected located in the respective webhostsdir

1.2. pages

You can restrict the urls where GSW ConnectBot performs injection based on the url value. This field allows you to specify a semicolon-separated list of url patterns where you want the injection to occur. If url being loaded matches any of the patterns then injection will be performed. The type of match being performed depends on the value of pages_uses_regex. If the latter is false then the pattern must be either the star character to match all pages or an exact url of a specific page. If pages_uses_regex is true then the GSW ConnectBot will perform a regular expression match.

1.3. pages_uses_regex

Specifies the type of match for the pages field as detailed in the section 1.2.

1.4. conditions

You can further restrict the urls where GSW ConnectBot performs injection based on the content of the page being loaded. This field allows you to specify list of url content patterns where you want the injection to occur. The list is separated by the value specified in the conditions_separator. If conditions is not empty then the url being loaded must match all of the conditions specified in this field. The type of match being performed depends on the value of conditions_uses_selector. If the latter is false then the specified pattern must match a piece of text somewhere on the page. If conditions_uses_selector is set to true then the match is performed using jsoup CSS selector syntax as specified in https://jsoup.org/apidocs/org/jsoup/select/Selector.html.

1.5. conditions_uses_selector

Specifies the type of match for the conditions field as detailed in the section 1.4.

1.6. conditions_separator

Specifies the separator for the conditions field as detailed in the section 1.4.

Examples

EXAMPLE: INJECT MYSTYLE.CSS IN EVERY PAGE

```
<css-injection conditions_uses_selector="true" conditions_separator="|"
conditions="" file="mystyle.css" pages="*" pages_uses_regex="false"/>
```

EXAMPLE: INJECT LIVEOAK.JS IN PAGES

http://www.gardenoaks.com/live.php and http://www.gardenoaks.com/live-oak-culture.php

```
<js-injection conditions_uses_selector="false" conditions_separator="|"
conditions="" file="liveoak.js" pages="http://www.gardenoaks.com/live.php;
http://www.gardenoaks.com/live-oak-culture.php" pages_uses_regex="false"/>
```

EXAMPLE: INJECT GREENSTYLE.CSS INTO THE HOME PAGE OF GREENFIELDSANDVALLEYS.COM

```
<css-injection conditions_uses_selector="false" conditions_separator="|"
conditions="" file=" greenstyle.css" pages="
https?:\/\/(www\.)?greenfieldsandvalleys\.com\/?" pages_uses_regex="true"/>
```

EXAMPLE: INJECT OYAMA.CSS INTO ALL PAGES on amazon.com when the following two conditions are both true:

- Book's contributor contains Oyama or book's title includes the word Kyokushin starting with either lower or upper case
- Book's title includes the word Karate starting with either lower or upper case

```
<css-injection conditions_uses_selector="true"
conditions_separator="|"
conditions="a[id=bylineContributor]:contains(Oyama),h1[id=title]:match
es([kK]yokushin)|h1[id=title]:matches([kK]arate)" file="oyama.css"
pages=" https?:\/\/(www\.)?amazon\.com\/.*" pages_uses_regex="true"/>
```

Apache Cordova

GSW ConnectBot Industrial Browser uses Apache Cordova, an open-sourced **mobile** development framework that uses standard web technologies – HTML5, CSS3 and Javascript. Not only does this framework enhance the gsw-connectbot.apk, it provides "you" the developer opportunities easily access device level API's via plugins for use by your application.

The Apache Cordova Plugins and CSS can be used

- directly by your application
- injected to enhance existing applications

Apache Cordova Plugins

GSW Industrial Browser uses **`Cordova version 9.x`**

The Georgia SoftWorks Industrial Browser provides over a dozen Apache Cordova plugins for the web application developer that can greatly augment and simplify the programming involved. Currently there are thousands of Android plugins and if the one you need is not listed, please contact us and we will try to have it included in the GSW ConnectBot in a future release.

We have included the ones that application developers using GSW ConnectBot have shown interest.

For each plugin we include:

- Description,
- Plugin usage information,
- Link to the Apache Cordova documentation page for described plugin,
- Location of a working example

Here is the link to the Cordova Examples Home Page.

GSW Browser - Home (georgiasoftworks.info)

Please keep in mind that these examples will ONLY work when using the Cordova Enabled GSW Industrial Browser.

Barcode Scanner (Zxing plugin)

Ability to scan barcodes using the cameraPlugin Highlights		**cordova-plugin-zxing**	
Object	`zxingPlugin.scan`	`(params, onSuccess, onFailure)`	

Parameters	`prompt_message`
	`beep_enabled`
	`extras`
		`orientation_locked`
		`scan_type`
			`camera_id`
			`barcode_formats`

Events	`onSuccess`	`onFailure`	
Return	*`success(barcode_value)`*	*`error('cancelled')`*	*`error('misc error')`*
Supported Barcode Formats	*`1D product`* *`UPC_A`* *`UPC_E`* *`EAN_8`* *`EAN_13`*	*`1D industrial`* *`CODE_39`* *`CODE_93`* *`CODE_128`* *`ITF`* *`RSS_14`* *`RSS_EXPANDED`*	*`2D`* *`QR_CODE`* *`DATA_MATRIX`* *`PDF_417`*
Cordova Documentation Link		cordova-plugin-zxing - npm (npmjs.com)	
Live Demo Page		GSW Browser - Barcode Scanner (georgiasoftworks.info)	

Table 6: Zxing Plugin

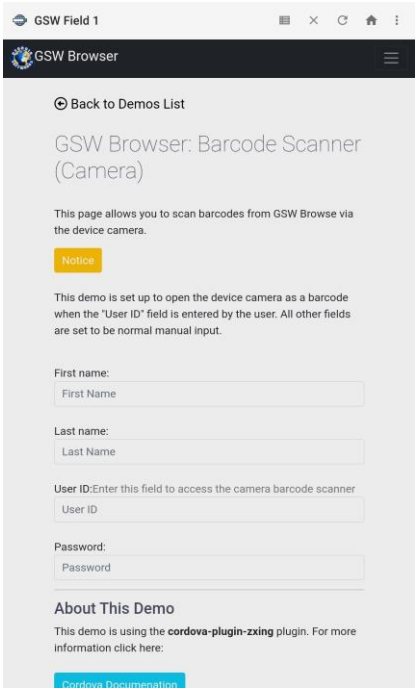


Figure 195: GSW Browser Barcode Scanner Plugin Example

Battery-Status

This allows you to monitor the battery level, whether it is charging and has events for Battery Low and Battery Critically Low.

Plugin Highlights	**cordova-plugin-battery-status**		
Object	`window`		
Events	`batteryStatus`	`batteryLow`	`batteryCritical`
Properties	`level` `isPlugged`	`level` `isPlugged`	`level` `isPlugged`
Cordova Documentation Link	Battery Status - Apache Cordova		
Live Demo Page	GSW Browser - Battery (georgiasoftworks.info)		

Table 7: Battery Status Plugin info

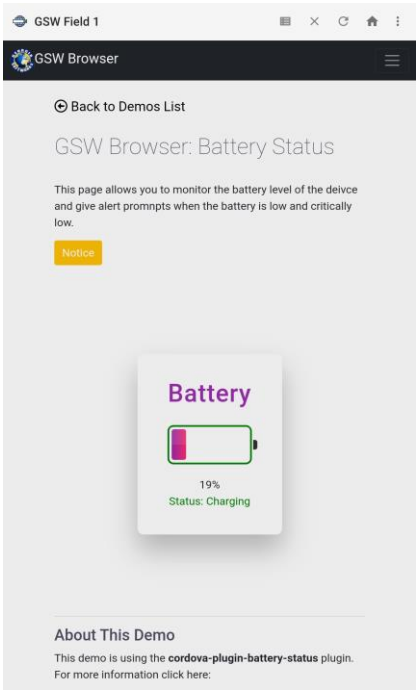


Figure 196: GSW Browser Battery Status Plugin Example

Camera

This allows you to access the camera and take pictures or select a photo from the device image gallery.

Plugin Highlights	**cordova-plugin-camera**			
Object	`navigator.camera`			
API Reference	`getPicture`	`onError`	`onSuccess`	`CameraOptions`
Type	`function`	`function`	`function`	`Object`

Parameters	`successCallback`
	`errorCallback`
	`options`
		`message`	`imgData`	`quality`
				`destinationType`
				`sourceType`
				`encodingType`
				`targetWidth`
				`targetHeight`
				`mediaType`
				`correctOrientation`
				`cameraDirection`

Cordova Documentation Link	Camera - Apache Cordova			
Live Demo Page	GSW Browser - Camera (georgiasoftworks.info)			

Table 8: Camera Plugin

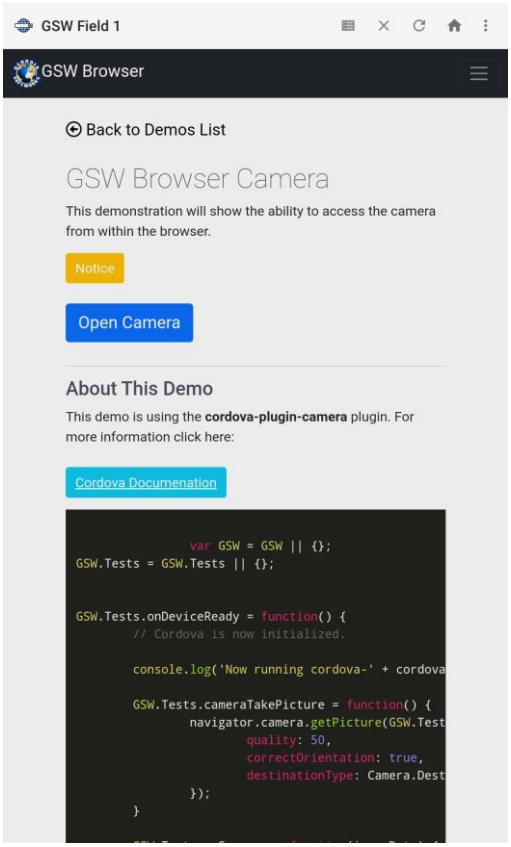


Figure 197: GSW Browser Camera Plugin Example

Georgia SoftWorks Scanner (cordova-plugin-gswscanner)

Javascript API

Introduction

Georgia SoftWorks Scanner Plugin for GSW ConnectBot provides unified interface to all supported scanners manufactured by CipherLab, Honeywell, Keyence, and Zebra.

General rules

1. All API functions and member variable are available through **navigator.gswscanner** object, for example navigator.gswscanner.listen
2. Method initialize must be called before any other method with the exception of isAvailable.
3. Successful call to claim disables Data Wedge until release is called.
4. Error callback receives an error message as its argument

Member variables

1. **api**

   This member variable holds string representing the name of interface being used as selected by the GSW ConnectBot

Methods

1. **Initialize(success_callback, error_callback)**

   This method needs to be called first to activate the plugin. initialize calls claim automatically.

2. **claim(success_callback, error_callback)**

   This method is used to take control of the scanner. Please notice that this method is called automatically by initialize. This method must be called after release to regain control of the scanner.

3. **listen(success_callback, error_callback)**

   This method is used to start listening for scanner data. Scanner data will be received in the callback to listen as an object with the following properties:
   - data (scanned characters)
   - character_set
   - code_id
   - aim_id
   - timestamp
   - label_type
   - code_type

4. **release()**

   This method is used to release control of the scanner. It is necessary to call claim before being able to receive scanner events again.

5. **softwareTriggerStart(success_callback, error_callback)**

   This method is used to configure the scanner to use software trigger instead of hardware trigger. Scanner data will be received in the callback to softwareTriggerStart
   as an object with the following properties:
   - data (scanned characters)
   - character_set
   - code_id
   - aim_id
   - timestamp
   - label_type
   - code_type

   It is necessary to call softwareTriggerStop to switch off this mode of operation

6. **softwareTriggerStop(success_callback, error_callback)**

   This method is used to switch off the software trigger mode initiated by softwareTriggerStart

7. **enableTrigger(success_callback, error_callback)**

   This method is used to re-enable the hardware trigger after a successful call to disableTrigger

8. **disableTrigger(success_callback, error_callback)**

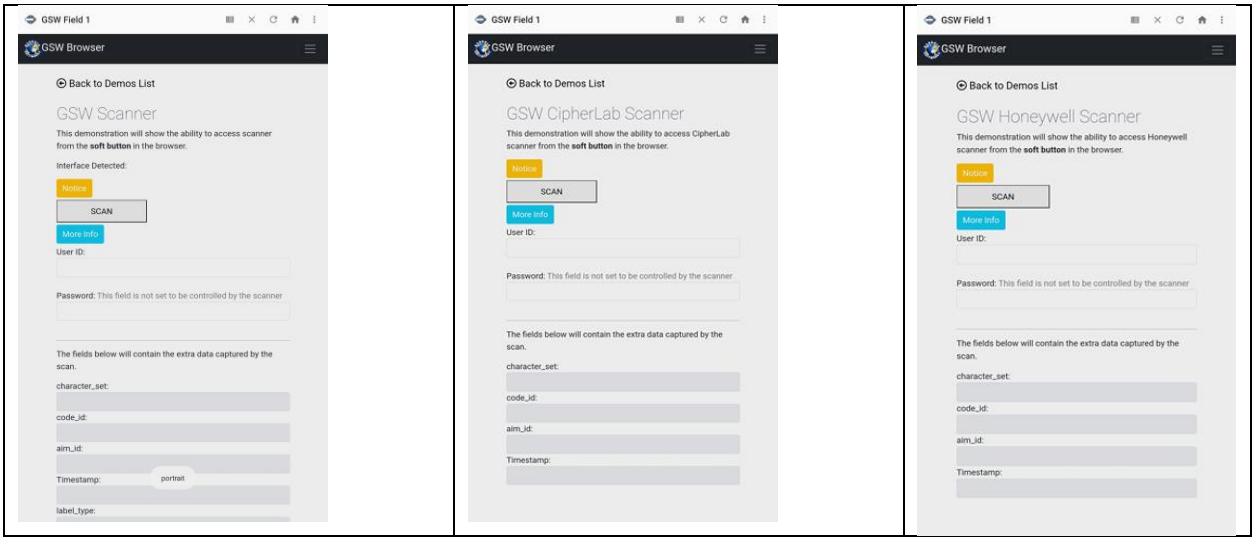
   This method is used to disable the hardware trigger after a successful call to enableTrigger. Call enableTrigger to re-enable the hardware trigger after a successful call to this method.

9. **isAvailable()**

   This method returns true if our preliminary check indicates that GSW scanner support is available on given device, otherwise it returns false.

Plugin Highlights	cordova-plugin-gswscanner		
Objects	navigator.gswscanner	navigator.gswscanner.listen	
Methods	initialize(success_callback, error_callback) claim(success_callback, error_callback) claim(success_callback, error_callback) release() softwareTriggerStop(success_callback, error_callback) enableTrigger(success_callback, error_callback) disableTrigger(success_callback, error_callback) isAvaliable()		
Method	listen(success_callback, error_callback)		
Properties	data timestamp	code_id label_type	aim_id code_type
Cordova Documentation Link Live Demo Page	GSW Browser - GSW Scanner API (georgiasoftworks.info) GSW Browse - Scanner (georgiasoftworks.info) GSW Browse - CipherLab Scanner (georgiasoftworks.info) GSW Browse - Honeywell Scanner (georgiasoftworks.info) GSW Browse - Keyence Scanner (georgiasoftworks.info) GSW Browse - Zebra Scanner (georgiasoftworks.info) GSW Browse - Datalogic Scanner (georgiasoftworks.info)		

Table 9: gswscanner plug-in



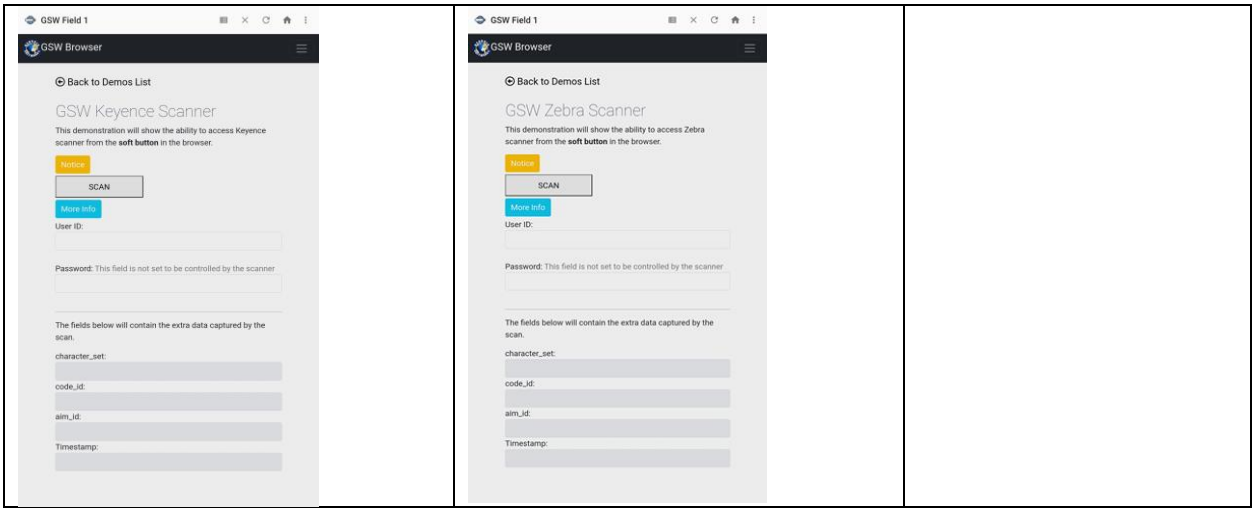


Figure 198: GSW Scanner Plugin Example

Cordova-plugin-cert-authentication.

This plugin handles client certificate request on Android. This plugin supports using client certificates from the key chain, using shared preferences from the preference manager.

This plugin adds certificate-based authentication (SSO) to your cordova application. There is no extra coding or Android platform knowledge required when using this plugin on Android. It does not contain any JavaScript since it just waits until the SSLSocket asks the client for a certificate and then shows the default client-cert pop-up you would also get when visiting your web page using the Android Chrome browser.

More information can be found here:
GitHub - cordova-ccafix/cordova-plugin-client-certificate-support: Cordova Client Certificate authentication support for both iOS and Android (limited testing of updates on Android)

Device

Ability to access device specific information

Plugin Highlights	**cordova-plugin-device**		
Object	`device`		
Properties	`.cordova`	`.model`	`.platform`
	`.uuid`	`.version`	`.manufacturer`
Parameters	`.isVirtual`	`.serial`	
Cordova Documentation Link	Device - Apache Cordova		
Example Demo File			
Live Demo Page	Device (georgiasoftworks.info)		

Table 10: Device Plug-in

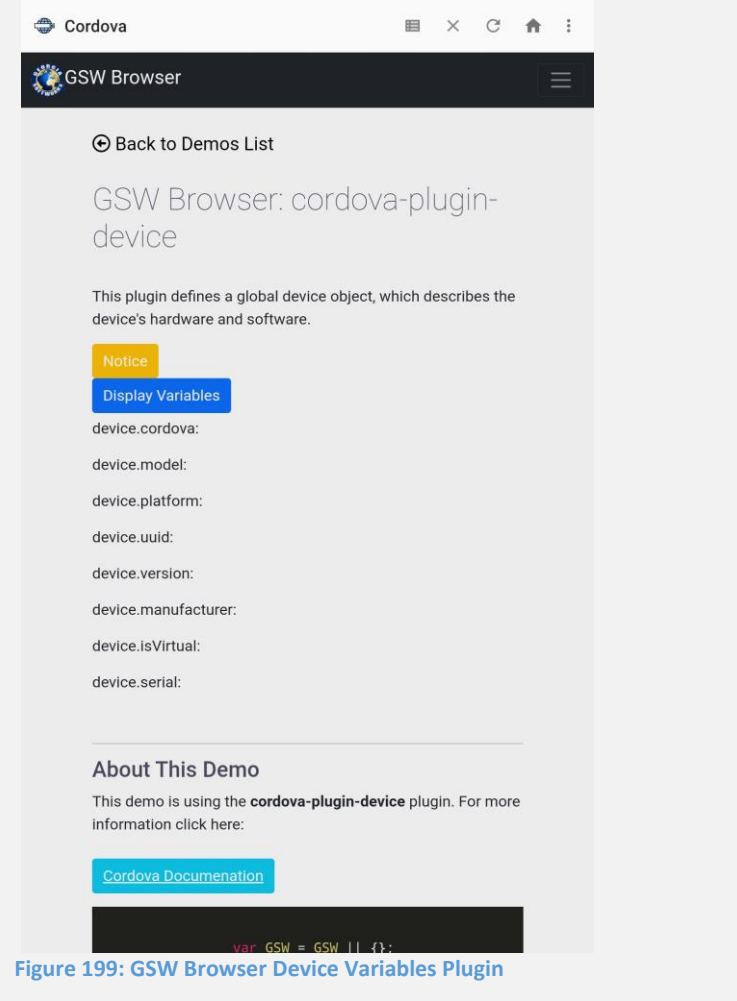


Figure 199: GSW Browser Device Variables Plugin

Dialogs

Ability to give alerts, confirmation messages, prompts, and beeps

Plugin Highlights	**cordova-plugin-dialogs**					
Object	`navigator.notification`					
Methods	`alert`	`confirm` `confirm`	`prompt`	`beep`	`dismissPrevious`	`dismissAll`

Parameters	`message`
	`alertCallback`
	`title`
	`buttonName`
		`message`
		`confirmCallback`
		`title`
		`buttonLabels`
			`message`
			`confirmCallback`
			`title`
			`buttonLabels`
			`defaultText`
				`times`	`successCallback`
					`errorCallback`
						`successCallback`
						`errorCallback`

Cordova Documentation Link	Dialogs - Apache Cordova					
Live Demo Page	GSW Browser - Dialogs (georgiasoftworks.info)					

Table 5: Dialogs Plugin

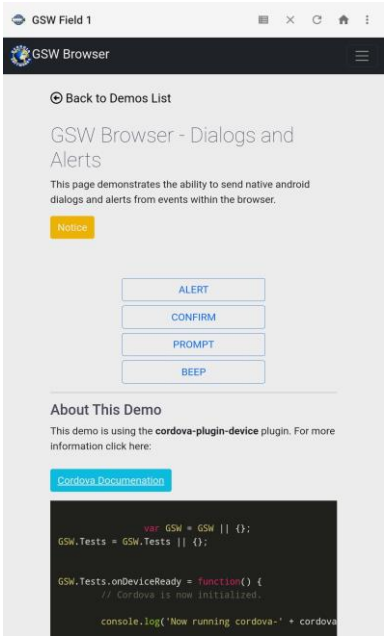


Figure 200: GSW Browser Dialogs and Alerts Plugin Example

ES6-Promise

Cordova-promise-polyfill

Necessary for other plugins to work properly

The web view components on Cordova supported platforms lack support for ES6 Promise. A polyfill library bundled with the plugin fixes the limitation. However, as more plugin use promises, the application developer using these plugins will end up with multiple promise polyfill libraries.

This plugin attempts to fix this situation by providing a Promise polyfill so that other plugins can rely on this functionality.

GSW Variables (Telemetry Data)

GSW Variables as described under Device Telemetry Data Variables on page 106.

Plugin Highlights				
Object	gswconnectbot.clientStrings			
Properties	android_id	build_brand	build_device	build_display
	build_hardware	build_host	build_id	build_manufacturer
	build_model	build_product	build_serial	display_density
	display_dimensions	gswcb_build_type	gswcb_version	network_mac
	network_clnt_side_ip	version_codename	version_release	version_sdk
	version_security_patch	status_code		
Cordova Documentation Link		on page 106		
Live Demo Page		GSW Variables (georgiasoftworks.info)		

Table 11: gswconnectbot – Telemetry Data / GSW Variables

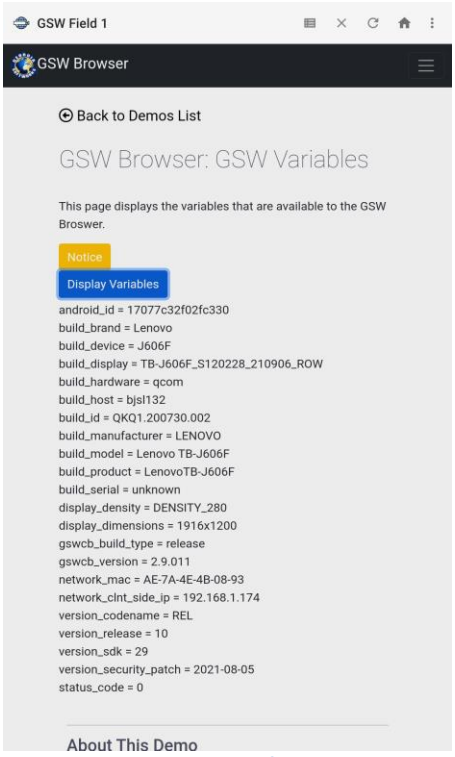


Figure 201: GSW Variables / Device Plugin

Write to File (File Storage plugin)

This plugin implements a File API allowing read/write access to files residing on the device.

Link to documentation: File - Apache Cordova

Link to Demo Page: GSW Browser - File Storage (georgiasoftworks.info)

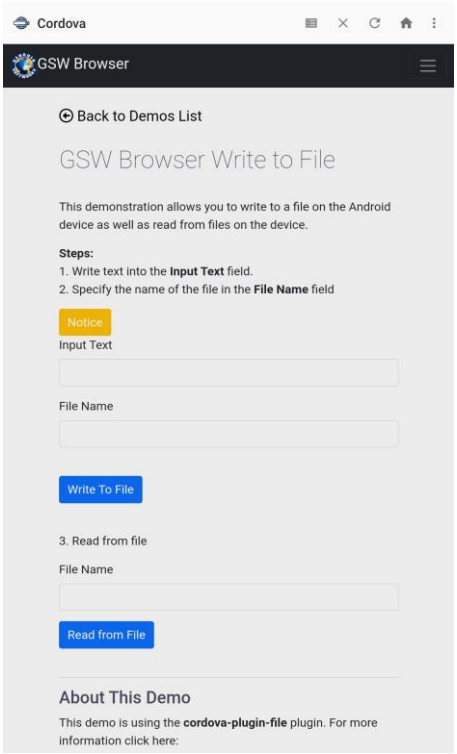


Figure 202: GSW Browser File Storage Plugin Example

File Transfer

This allows you to download and upload files to/from a server.

Plugin Highlights	**cordova-plugin-file-transfer**		
Object	File Transfer		
Methods	upload	download	abort
Pararameters	fileURL server successCallback errorCallback trustAllHosts	source target successCallback errorCallback trustAllHosts	
Results	bytesSent responseCode response headers		
Errors	FileTransferError		
Properties	code source	target http_status	body exception
Cordova Documentation Link	File Transfer - Apache Cordova		
Live Demo Page	GSW Browser - File Transfer (georgiasoftworks.info)		

Table 12: File Transfer - Download and Upload files

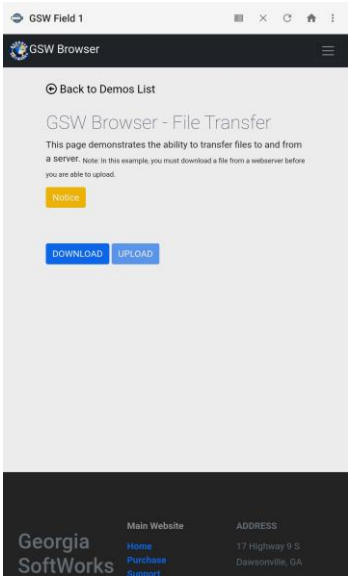


Figure 203: GSW Browser File Transfer Plugin Example

Geolocation

This plugin provides information about the device's location, such as latitude and longitude.

Plugin Highlights	cordova-plugin-geolocation		
Object	`Navigator.geolocation`		
Methods	`getCurrentPosition`	`watchPosition`	`clearWatch`

Pararameters	`geolocationSuccess`
	`geoolocationError`
	`geolocationOptions`
		`geolocationSuccess`
		`geoolocationError`
		`geolocationOptions`	

Geolocation Options		`enableHighAccuracy`
		`timeout`
		`maximumAge`	

Errors	`PositionError`		

Properties	Position
	`coords`
	`timestamp`
		Coordinates
		`latitude`
		`longitude`
		`altitude`
		`accuracy`
		`altitudeAccuracy`
		`heading`
		`speed`
			PositionError
			`code`
			`message`

Cordova Documentation Link		Geolocation - Apache Cordova	
Live Demo Page		GSW Browser - GeoLocation (georgiasoftworks.info)	

Table 13: Geolocation Plugin

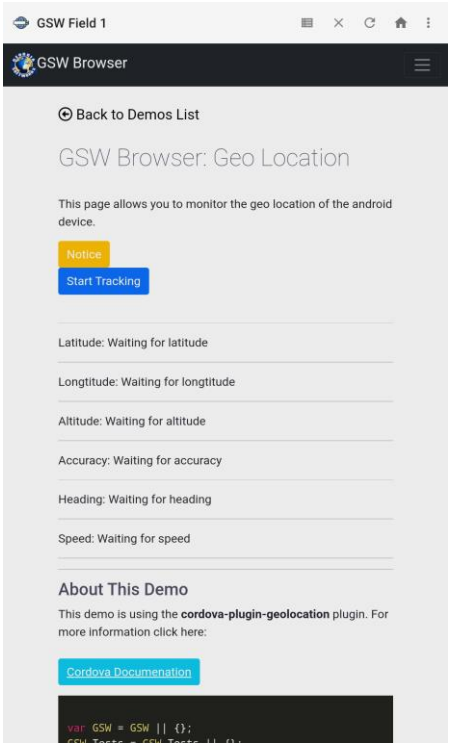


Figure 204: GSW Browser Geo Location Plugin Example

Media

Ability to play media files.

Plugin Highlights	**cordova-plugin-media**				
Object	Media				
Parameters	src	mediaSuccess	mediaError	mediaStatus	mediaStatus
Constants	MEDIA_NONE 0	MEDIA_Starting 1	MEDIA_RUNNING 2	MEDIA_PAUSED 3	MEDIA_STOPPED 4
Methods	getCurrentAmplitude pauseRecord startRecord	getCurrentPosition release stopRecord	getDuration resumeRecord stop	play seekTo setRate	pause setVolume
ReadOnly	position	duration			
Parameters	src	mediaSuccess	mediaStatus	position	duration
Cordova Documentation Link	Media - Apache Cordova				
Live Demo Page	GSW Browser - Media (georgiasoftworks.info)				

Table 14: Media Player Plugin

Figure 205: GSW Browser Media Player Plugin Example

Media Capture

The Media Capture plugin allows you to take images, record video, and record audio.

Plugin Highlights	**cordova-plugin-media-capture**		
Objects	`Capture`	`CaptureAutioOptions`	`CaptureImage Options`
	`CaptureVideoOptions`	`CaptureCallback`	`CaptureErrorCB`
	`ConfigurationData`	`MediaFile`	`MediaFileData`
Methods	`capture.captureaAudio`		`capture.captureImage`
	`capture.captureVideo`		`MediaFile.getFormatData`
Properties	`supportedAudioModes`	`supportedImageModes`	`supportedVideoModes`
Cordova Documentation Link	Media Capture - Apache Cordova		
Live Demo Page	GSW Browser - Media Capture (georgiasoftworks.info)		

Table 15: Media Capture Plugin

In the live demo, the captured media is being sent to an external server to show how this functionality can be accomplished.

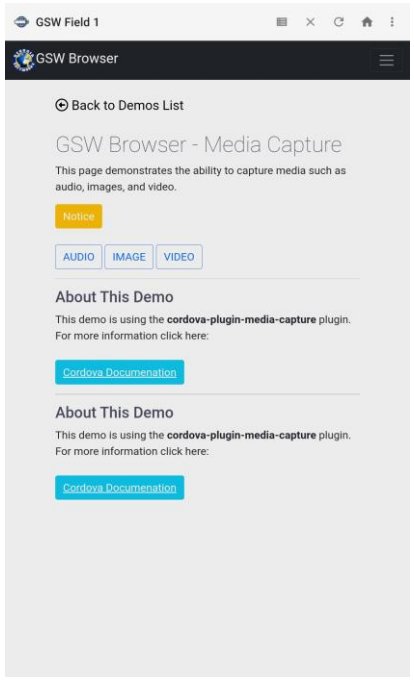


Figure 206: GSW Browser Media Capture Plugin Example

Network

Shows network information

Plugin Highlights	cordova-plugin-network-information		
Object	`connection`	`(navigator.connection)`	
Properties	`connection.type`		
Constants	`.UNKNOWN`	`.ETHERNET`	`.WIFI`
	`.CELL_2G`	`.CELL_3G`	`.CELL_4G`
	`.CELL`	`.NONE`	
Cordova Documentation Link	Network Information - Apache Cordova		
Live Demo Page	Network (georgiasoftworks.info)		

Table 16: Network Information Plugin

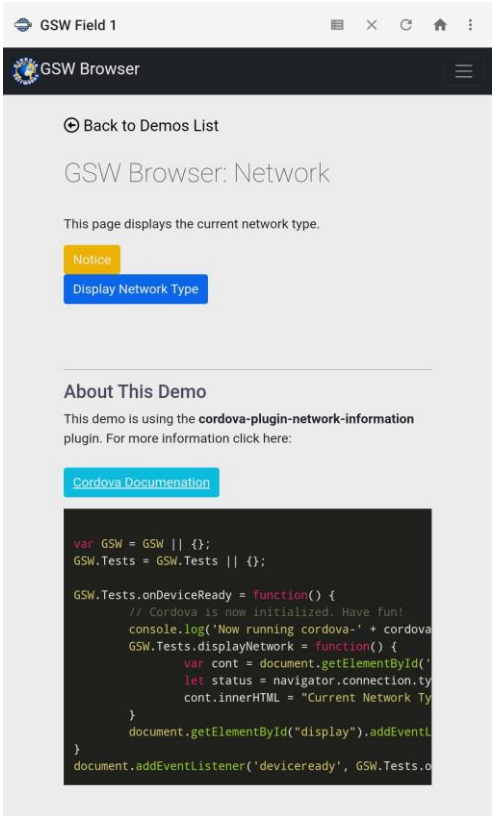


Figure 207: Network Plugin Example

Screen Orientation

Allows you to lock the orientation: portrait, landscape, reverse portrait, reverse landscape.

Plugin Highlights	**cordova-plugin-screen-orientation**
Object	`window.screen`
Supported Orientations	`portrait-primary` `portrait-secondary` `portrait` `landscape-primary` `landscape-secondary` `landscape` `any`
Usage	`.orientation.lock('portrait')` `.orientation.unlock();` `.orientation`
Event	`orientationChange`
Cordova Documentation Link	Screen Orientation - Apache Cordova
Live Demo Page	GSW Browser - Screen Orientation (georgiasoftworks.info)

Table 17: Screen Orientation

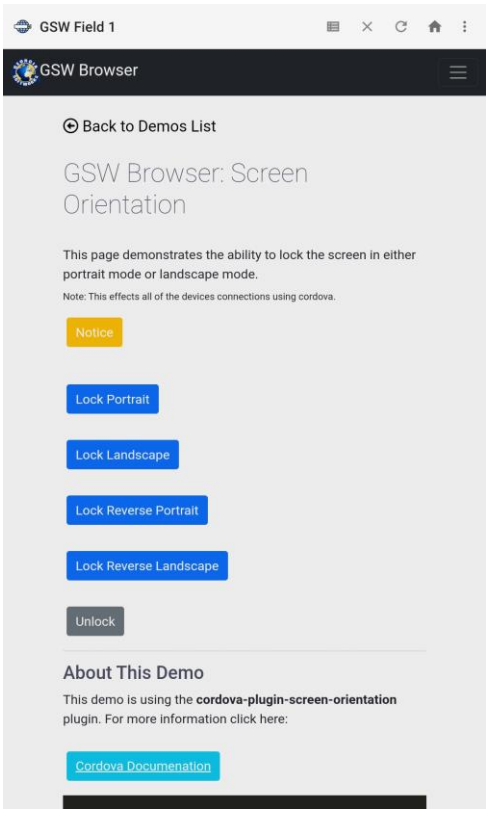


Figure 208: GSW Browser Screen Orientation Plugin Example

Statusbar

The Statusbar plugin allows access to the Android status bar.

Plugin Highlights		**cordova-plugin-statusbar**	
Object	`StatusBar`		

Methods	`.overlaysWebView`
	`.styleBlackTranslucent`
	`.backgroundColorByHexString`
		`.styleDefault`
		`.styleBlackOpaque`
		`.hide`
			`.styleLightContent`
			`.backgroundColorByName`
			`.show`

Properties	`.isVisible`		
Events	`statusTap`		
Cordova Documentation Link		[Statusbar - Apache Cordova]	
Live Demo Page		[Status Bar (georgiasoftworks.info)]	

Table 18: Status bar

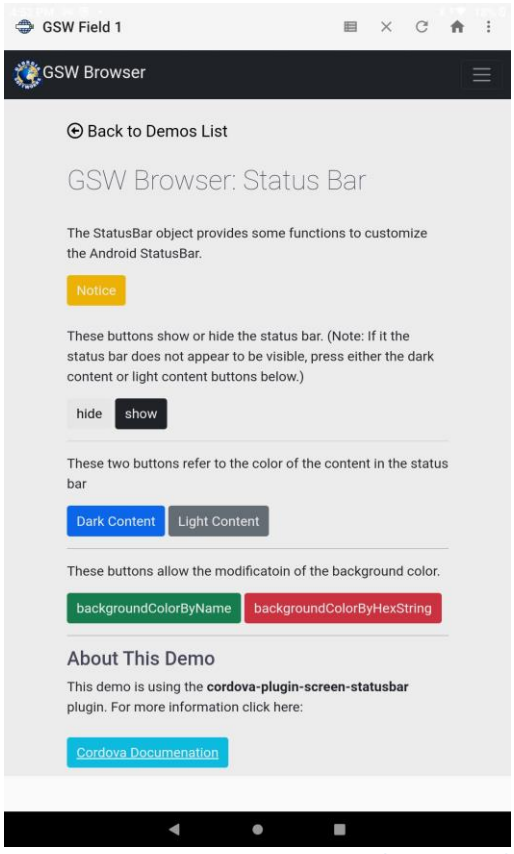


Figure 209: GSW Browser Status Bar Plugin Example

Vibration

Allows you to access the device vibration.

Plugin Highlights		**cordova-plugin-vibration**
Object	`navigator.vibrate`	
Parameters	`time`	`(in Milliseconds)`
Usage	`navigator.vibrate(time)`	`navigator.vibrate([time])`
	`navigator.vibrate([1000, 1000 , 3000 , 1000 , 5000]);` *`This will: vibrate 1s, wait 1s, vibrate 3s, wait 1s, vibrate 5s)`*	
Cordova Documentation Link		Vibration - Apache Cordova
Live Demo Page		GSW Browser - Vibrate (georgiasoftworks.info)

Table 19: Screen Vibration

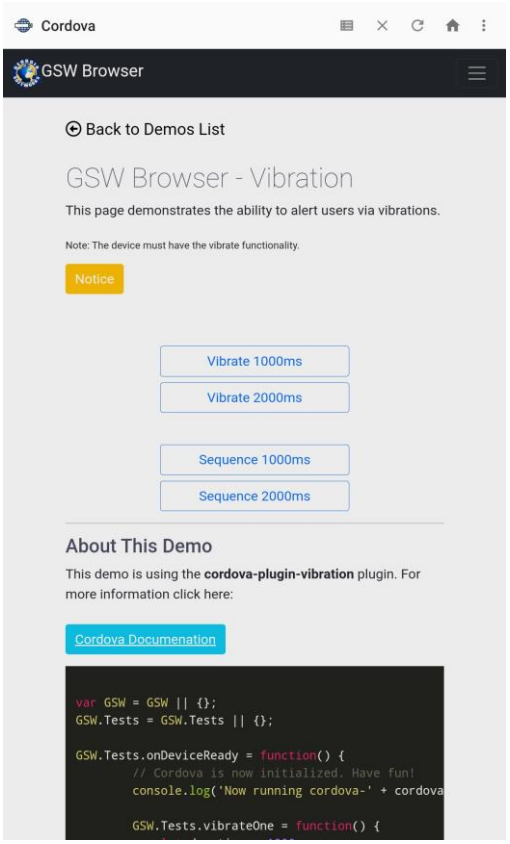


Figure 210: GSW Broswer Vibration Plugin Example

Whitelist

Controls which URL the webview can be navigated. Applies to top-level navigation.

Whitelist - Apache Cordova

Zebra Bluetooth Printing

This allows you to print via Bluetooth on zebra printers.

Object: gswconnectbot.printString

Demo Page: [GSW Browser - Zebra Printing (georgiasoftworks.info)]

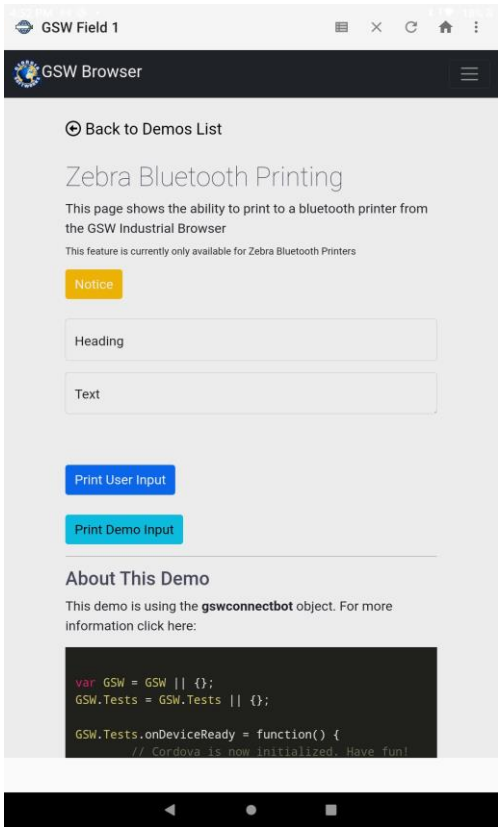


Figure 211: Zebra Bluetooth Printing Plugin Example

GSW Licensing and Deployment Server (GSW LADS) for Windows

GSW LADS is a lightweight intuitive mobile device management system that takes care of most mobile device administrative needs without the expense or complexity and large footprint so common with many mobile device management systems.

Figure 212: LADS components

GSW LADS provides several capabilities for GSW ConnectBot:

- Status and Management tools
- GSW LADS is the central repository for all of the GSW ConnectBot configurations, licensing data, software upgrades, Public/Private keys, custom keyboards, Business Intelligence, saved screen shots and more.

GSW LADS features are listed below:

- Manage Licensing
- Zero-Touch Configuration to Multiple Devices
- Upload/Download Device Configurations
- Manage Updates to Client Software
- Public/Private Key Import/Export
- Business Intelligence
- Custom Keyboards
- Rapid 2-Tap Screen Shot/Automatic Upload to GSW LADS

Installing the Georgia SoftWorks Licensing and Deployment Server

GSW LADS is installed on a Windows Operating System computer that the devices running GSW ConnectBot are able to access. Installation is simple and described below.

1. Download the Georgia SoftWorks LADS setup program here. GSW LADS can be installed on any modern Windows OS and must reside on the same LAN as the GSW ConnectBot devices that are being licensed. Once licensed, the device is portable to other networks.

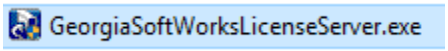


Figure 213: GSW LADS setup program

2. User Account Control Dialog.
Often you will get a UAC prompt. Select Yes

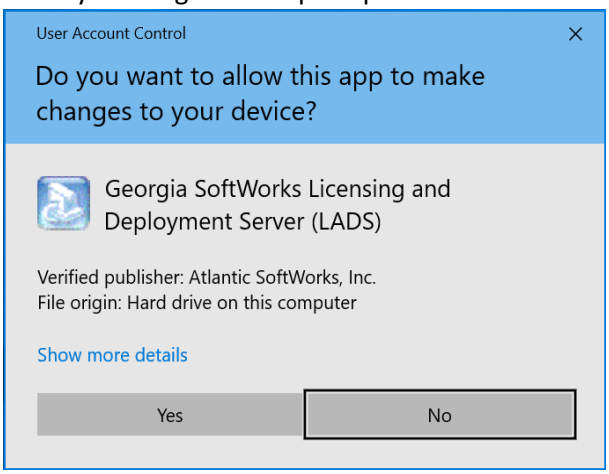


Figure 214: User Account Control Dialog

3. Double click the executable. You will see the initial setup dialog. Let it run until finished.

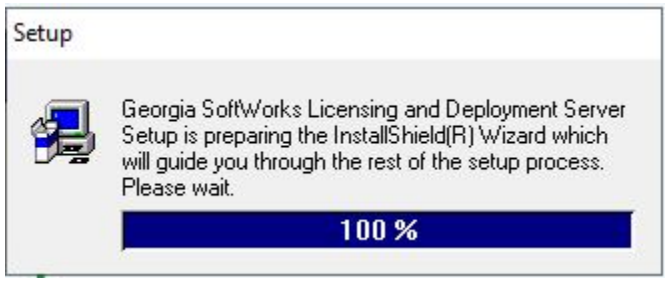


Figure 215: Setup progress bar

4. Select “Next” on the following dialog, to move to location dialog.

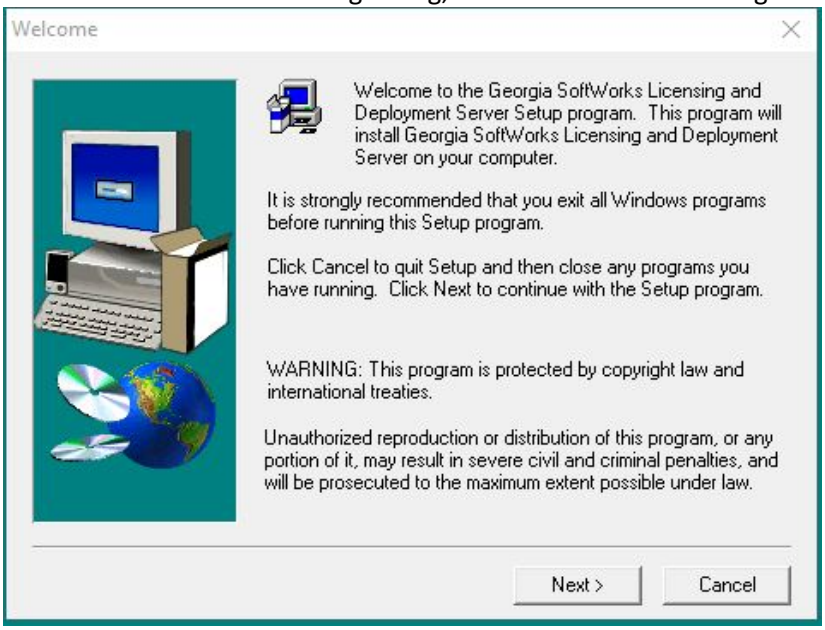


Figure 216: Welcome

5. Select “Next” on the following dialog, to move to folder dialog

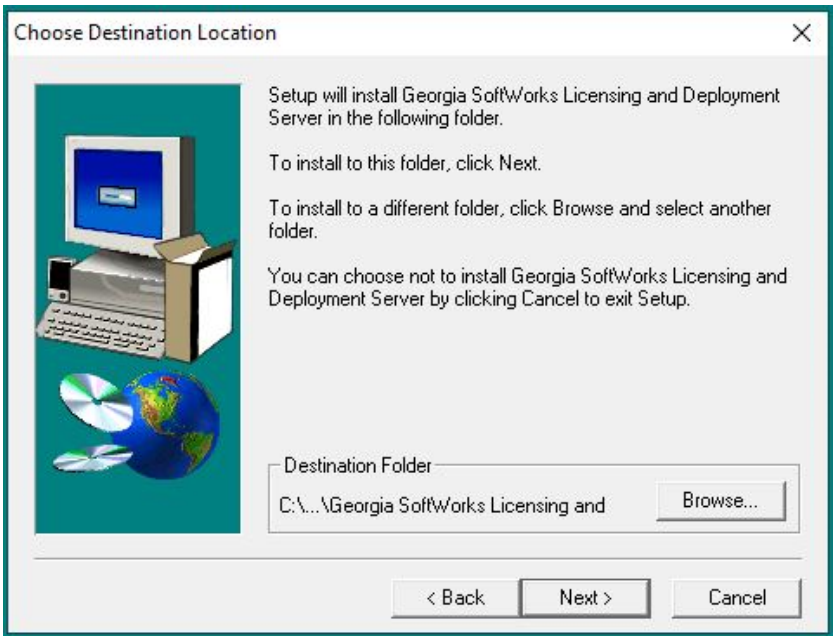


Figure 217: Installation Location

6. Select “Next” on the following dialogs to move to Setup Complete Dialog.

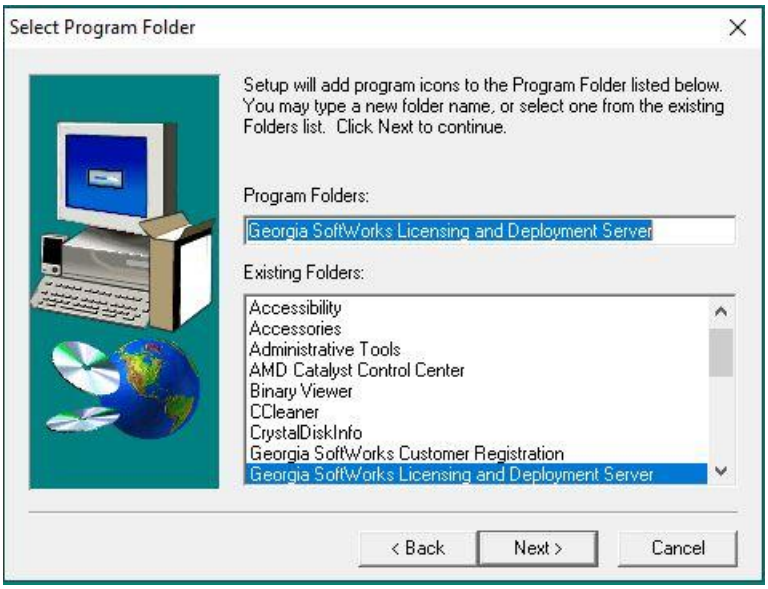


Figure 218: Install folder

7. Select Finish to complete GSW LADS installation.

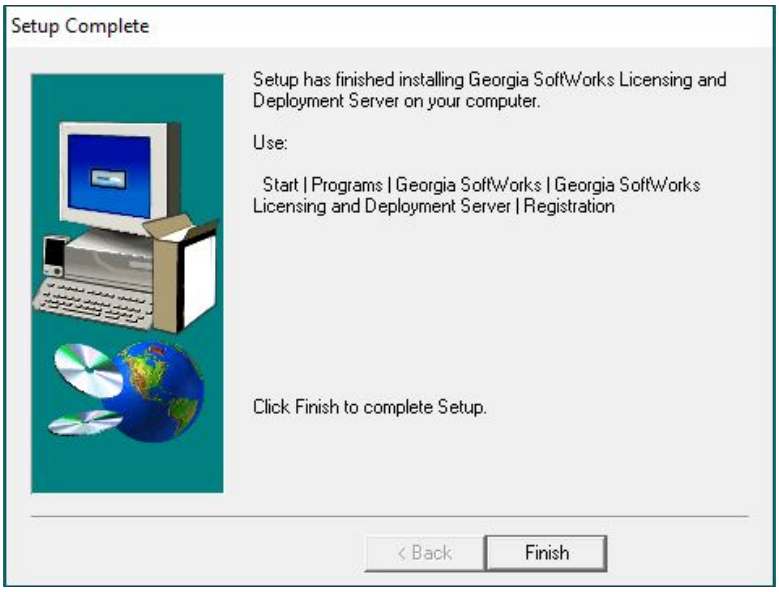


Figure 219: Setup Complete

Setup is now complete. GSW LADS when first installed comes with 10 GSW ConnectBot temporary licenses for 30 days for testing purposes. Once evaluated, please license GSW LADS with Georgia SoftWorks, using the registration process to activate the software.

Registering the Georgia SoftWorks Licensing and Deployment Server

Overview:
GSW LADS when first installed is licensed with 10 temporary GSW ConnectBot licenses for 30 days. Once 30 days has expired, you must register the software. This entails just a few steps that involve obtaining the Product ID and other registration information and providing this information to Georgia SoftWorks so a Serial Number can be generated. The Serial Number is sent back to you and when applied it activates the GSW LADS software.

These are the steps to register and activate the GSW LADS.

1. From the Start Menu, select
   Georgia SoftWorks Licensing and Deployment Server -> Registration.
   You may get a UAC prompt. Select Yes.

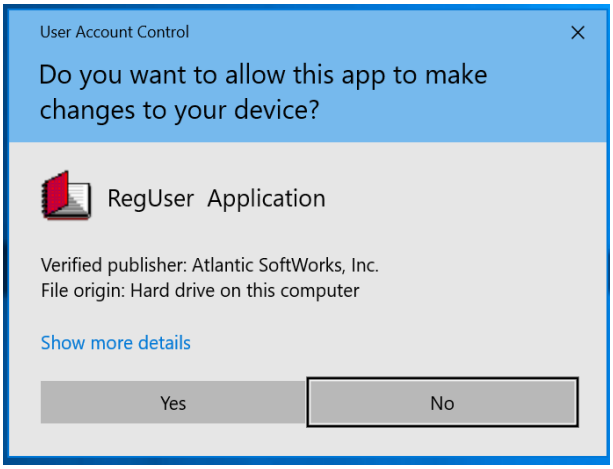


Figure 220: LADS Registration UAC dialog

2. The registration tool dialog for GSW LADS appears.
   The registration software automatically fills in the Product Information fields as shown below.

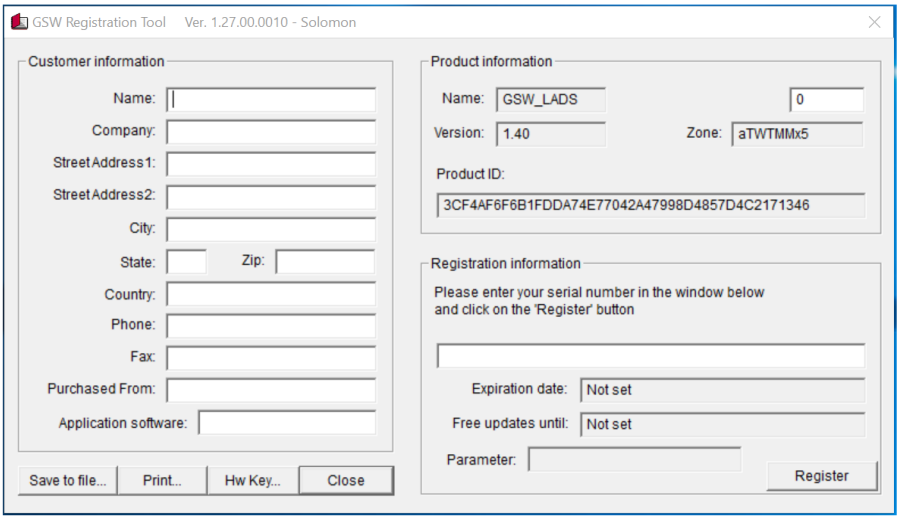


Figure 221: GSW LADS registration tool opens

Please complete the “Customer Information”, the “Purchased From”, “Application software” in the form as shown. Also enter the number of GSW ConnectBot licenses requested as shown in Figure 222.

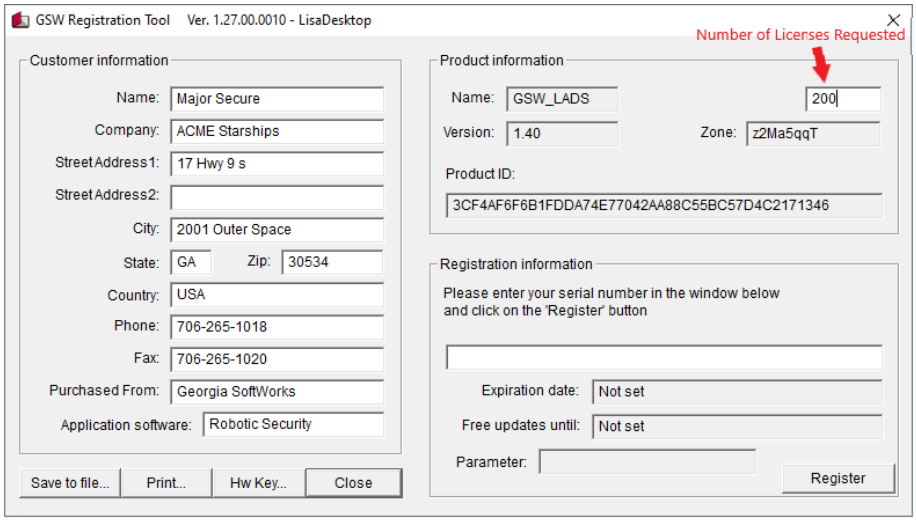


Figure 222: Registration Tool with completed information

Save the file using the “Save to file…” button.
You may close the Registration program at this time.

The registration information must be provided to Georgia SoftWorks to obtain the Serial Number. Several methods are available for your convenience.
Please use option “a” if possible.

a. Go to https://www.georgiasoftworks.net/support_gsw/open.php to submit a support ticket for Registration. Complete necessary fields and attach the file you saved in the previous step.

This is the preferred method – Fastest Response time.
OR

b. Email the file to registration@georgiasoftworks.com. A support ticket will be opened and you will receive instructions how to proceed with the registration.
c. Print the information and Fax it to Georgia SoftWorks – 706.265.1020

3. Once Georgia SoftWorks receives the information, a Serial Number will be generated and sent back to you.
   Open the registration program again.

Please copy the Serial Number and paste it into the Registration information field in the Registration tool. The easiest method to copy the serial number is to highlight the returned Serial number and copy (`ctrl-c`) it. Then position the mouse in the Serial Number Field in the Registration Information box and paste (`ctrl-v`).

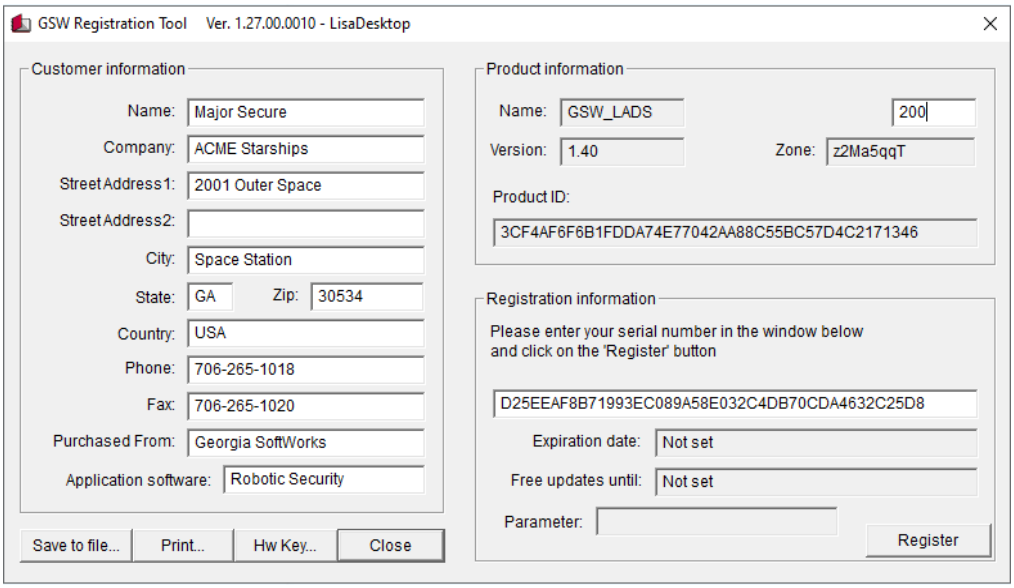


Figure 223: Registration Tool - Serial Number Entered

Click Register.

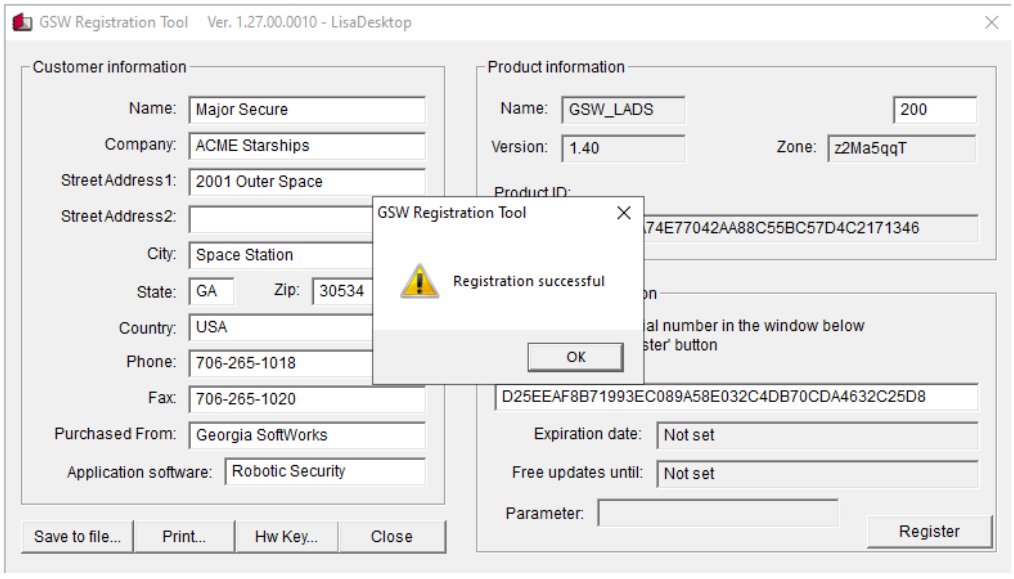


Figure 224: Registration Successful

After a successful GSW LADS registration, restart the Georgia SoftWorks gswlads service in Microsoft Services. GSW LADS will now distribute licenses for GSW ConnectBot software, up to the number of purchased activations.

GSW LADS Operation

After installation, GSW LADS will run as a Microsoft Windows Service.

GSW ConnectBot will automatically discover LADS on the network. Two other options are available for specifying the IP address of GSW LADS:

1. Enter the IP address of the GSW LADS server on the device. (See page 25)
2. Modify and transfer the `xml` configuration file to the device running GSW ConnectBot.
   At times the system administrator may want to define configuration information for the device to ensure specific parameters are used by GSW ConnectBot. This is accomplished using the config.xml file. See below.

GSW ConnectBot LADS XML Configuration File

The GSW LADS XML configuration file (name: `config.xml`). A template of the xml file is located in LADS directory default path:

```
C:\Program Files (x86)\Georgia SoftWorks\Georgia SoftWorks Licensing and
Deployment Server\files\com.gsw.connectbot\files\config.xml
```

This xml file allows specification of information that GSW ConnectBot will use instead of discovery or requiring manual entry at the device.

- IP Address of the GSW LADS server
- Port number on the GSW LADS server
- Name of specific configuration file to use
- Auto Erase

The format of the XML files is as follows and should be placed on the device in the following location:

`{root`[13]`}/Android/data/com.gsw.connectbot/files`

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE properties SYSTEM "http://java.sun.com/dtd/properties.dtd">
<!--
This file should be placed in /{root}/Android/data/com.gsw.connectbot/files
-->
<properties>
	<entry key="lads_ip">lads_ip_address</entry>
	<entry key="lads_port">12574</entry>
	<entry key="lads_config">Name of configuration to download</entry>
	<entry key="auto_erase">false</entry>
</properties>
```

```
LADS IP ADDRESS:  <entry key="lads_ip">lads_ip_address</entry>
Example:          <entry key="lads_ip">192.168.77.1</entry>
```

[13] Root refers to Media/Shared Storage Root

```
LADS PORT:          <entry key="lads_port">lads_port_number</entry>
Example:            <entry key="lads_port">12574</entry>

LADS Config file: <entry key="lads_config">Name of configuration to
download</entry>
Example:            <entry key="lads_config">trunkmount-charlie</entry>

LADS IP ADDRESS:   <entry key="auto_erase">[true|false]</entry>
Example:            <entry key="auto_erase">true</entry>
This is provided for completeness. You may want to return to discovery
of LADS instead of using the config.xml file. You set this to "true" if
you want the config.xml file automatically be deleted after being used.
```

Automatic Provisioning (Auto Discovery)

If GSW LADS is unable to be found during auto discovery of initial launch of GSW ConnectBot, after several failed attempts, "GSW LADS not found during Discovery" will appear. Several options are available to choose from and are described below.

- **Retry Discovery –** Will scan network again to automatically locate GSW LADS. See Figure 225
- **Enter GSW LADS IP Address manually –** Will allow manual entry of IP address of system GSW LADS has been installed. See Figure 227
- **I am not using GSW LADS, Disable GSW LADS –** Automatic Provisioning disabled in "Global Settings" Can be re-enabled at any time by changing setting. See Figure 229
- **Go to Hosts List screen to configure connection –** "Hosts List" Screen launched. See Figure 231

LADS Port Descriptions

PORTS use by GSW LADS server:

Firewall rules added by installation for ports 10010, and 12574

Firewall rules are not needed for ports 12575 and 12576 as they run on internal loopback 127.0.0.1

Port	Description
10011	Used for multicast discovery, Hardware dependent
10010	UDP data gram for auto discover/zero touch
12574	TCP SSH Tunnel
12575	Licensing, Configuration upload and download, screenshots, and configuration data
12576	Strictly for business intelligence

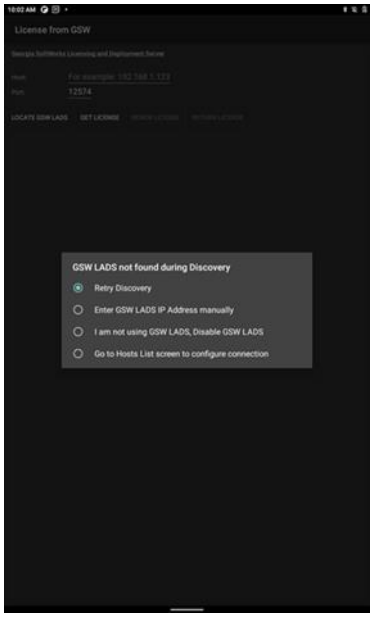


Figure 225: Retry Discovery

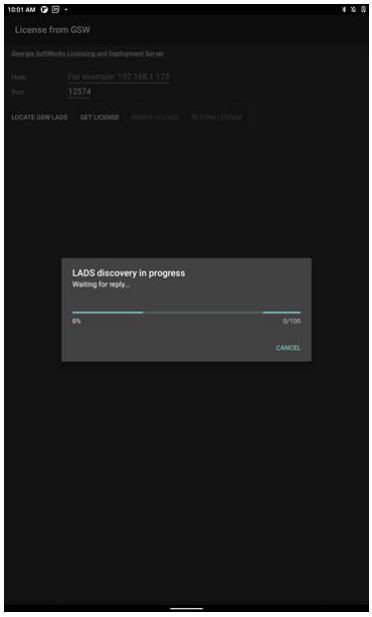


Figure 226: Searching network for GSW LADS

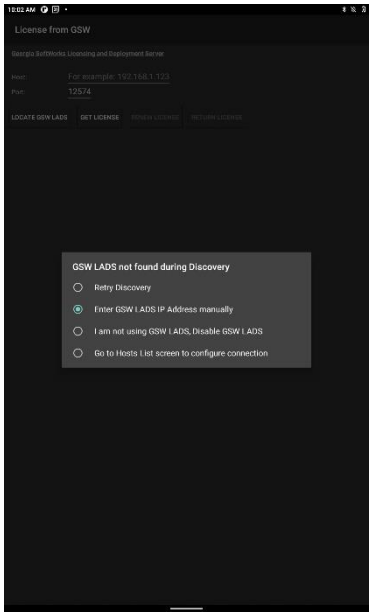


Figure 227: Enter GSW LADS IP Address manually

Figure 228: Enter IP where GSW LADS is located

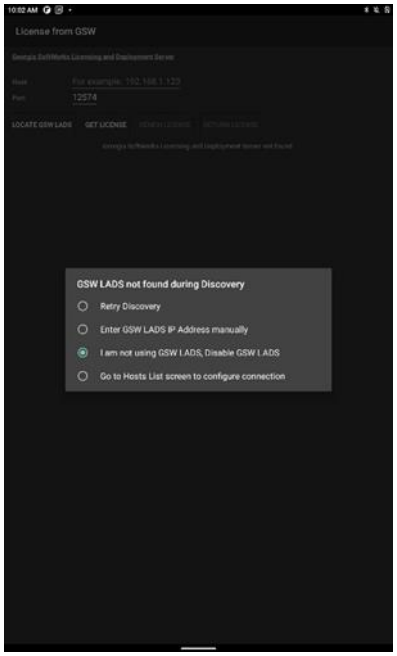


Figure 229: I am not using GSW LADS, Disable GSW LADS

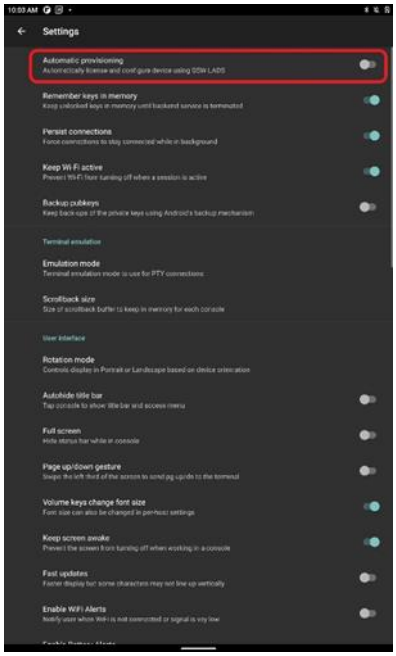


Figure 230: Automatic Provisioning disabled in Global Settings

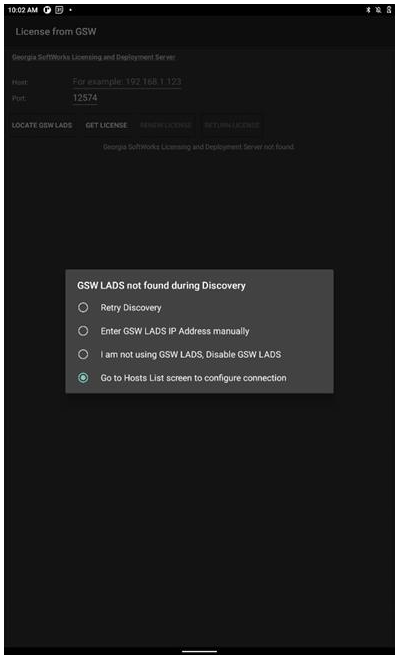


Figure 231: Go to Hosts List screen to configure connection

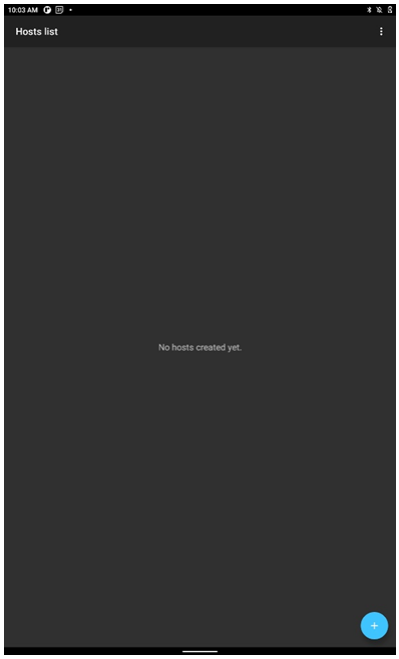


Figure 232: Taken to Hosts List screen not changes made

Manage Licensing

GSW LADS makes the licensing of GSW ConnectBot on devices automatic and *virtually effortless*. Instead of having to manually license each individual GSW ConnectBot, the launch of each instance of GSW ConnectBot will automatically request a license from GSW LADS. If a license is available, it is provided to GSW ConnectBot. If a license is not available the user is alerted to this condition and should contact the system administrator.

The GSW License Manager displays the total number of GSW ConnectBot licenses registered as well as the number that have not been assigned.

Navigate to the GSW LADS License Manager

Start | GSW License and Deployment Server | License Manager

Below is the GSW License Manager dialog.

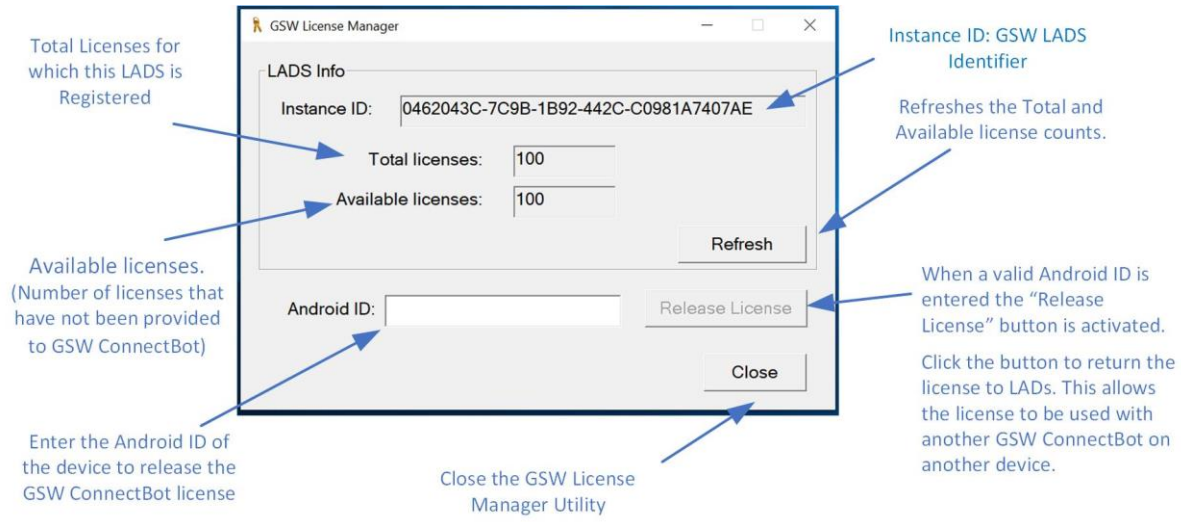


Figure 233: GSW License Manager tool

The GSW License manager provides a quick method for the administrator to:

- View how many GSW ConnectBot licenses are registered with GSW LADS - `Total licenses`
- View how many GSW ConnectBot licenses are available for assignment – `Available licenses`
- Manually release a GSW ConnectBot license from GSW LADS

If a device is being retired or replaced, the best practice is to return the license from GSW ConnectBot (as described on page 26). The released license will be available to assign to a new device.

GSW LADS manages a GSW ConnectBot License Lease for each GSW ConnectBot assigned a license. When the GSW ConnectBot License Lease expires, a new lease is acquired. This automatically recovers the licenses from inactive devices, making them available to be assigned to GSW ConnectBots in use.

If a device is lost, or destroyed and the GSW ConnectBot license has not been released, GSW LADS will make the license available to other devices after the license lease expires. The default is 3 days.

The value can be changed if needed for your particular environment.

The registry contains the License Lease value which is the number of days for the License Lease.

`Computer\HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\Georgia SoftWorks\gswlads\Parameters\dwLicenseLeaseDuration`

Default: 3 days

If you do not want to have Leased Licensing then set the value to 0.

If the license is needed before that time, the administrator can use the GSW LADS License Manager utility to release the license so it can be assigned to other devices. To open the GSW LADS License Manager:

Start Button|Georgia SoftWorks Licensing and Deployment Server|License Manager

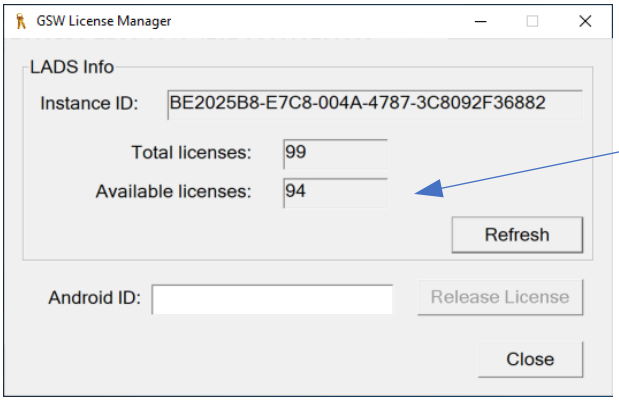


Figure 234: Release License - Notice Available License Count

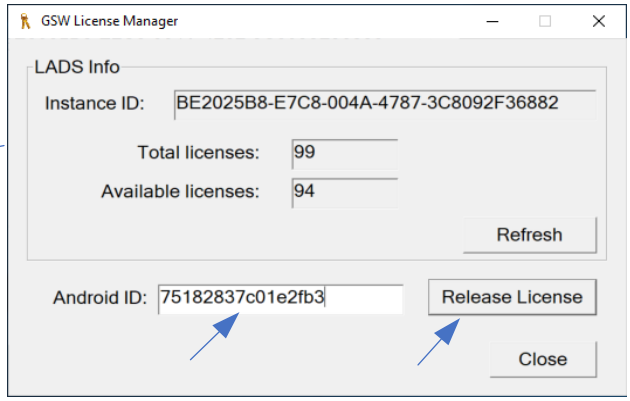


Figure 235: Enter Android ID, Click Release License

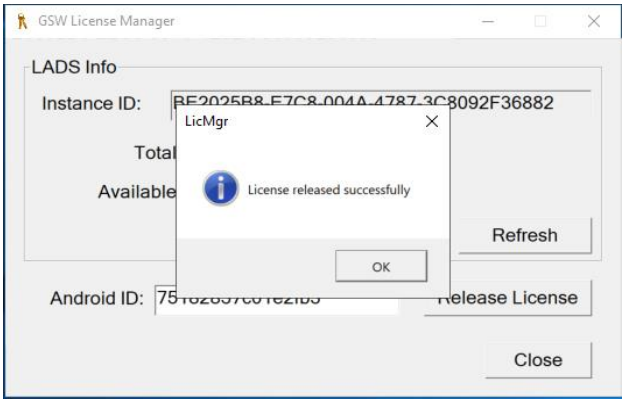


Figure 236: License Released Confirmation

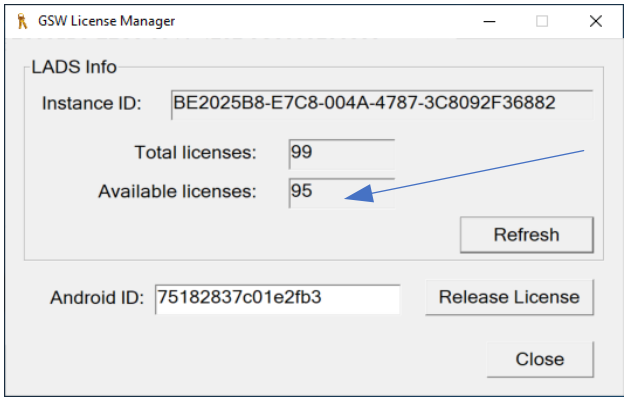


Figure 237: Release License - Notice Available License Count Incremented

Enter the Android ID of the GSW ConnectBot to release from the missing or destroyed device.

Click “Release License”. The available license count is incremented to reflect the license returned as shown in Figure 237.

LADS Table Utility

To use the Release License feature of the License Manager, the Android ID must be known. Often system administrators have the devices inventoried, so the Android ID may already be known. If not, then GSW LADS utility `LADSTbl.exe` can help the system administrator identify the Android ID of the GSW ConnectBot on the missing/destroyed etc. device. To utilize this tool the “Collect Business Intelligence” setting must be enabled on the GSW ConnectBot. See page 62.

The tool is located in the GSW LADS installation folder.

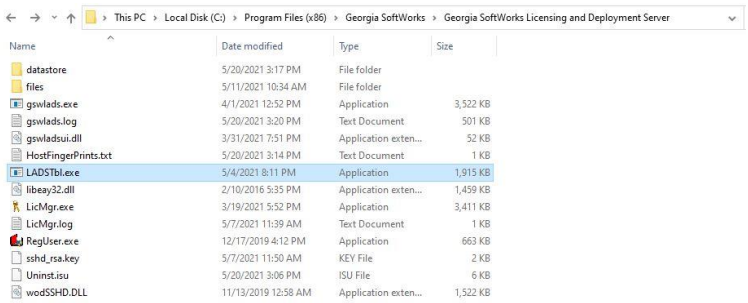


Figure 238: LADSTble.exe folder

Open a command shell (as Administrator), navigate to the folder above and type:

```
LADSTbl.exe
```

A table will be created that shows the Android ID, the IP address and the last times GSW LADS recognized the GSW ConnectBot as active. An example is shown in Figure 239. Usually, that will be enough information to identify the Android ID of the GSW ConnectBot to release.

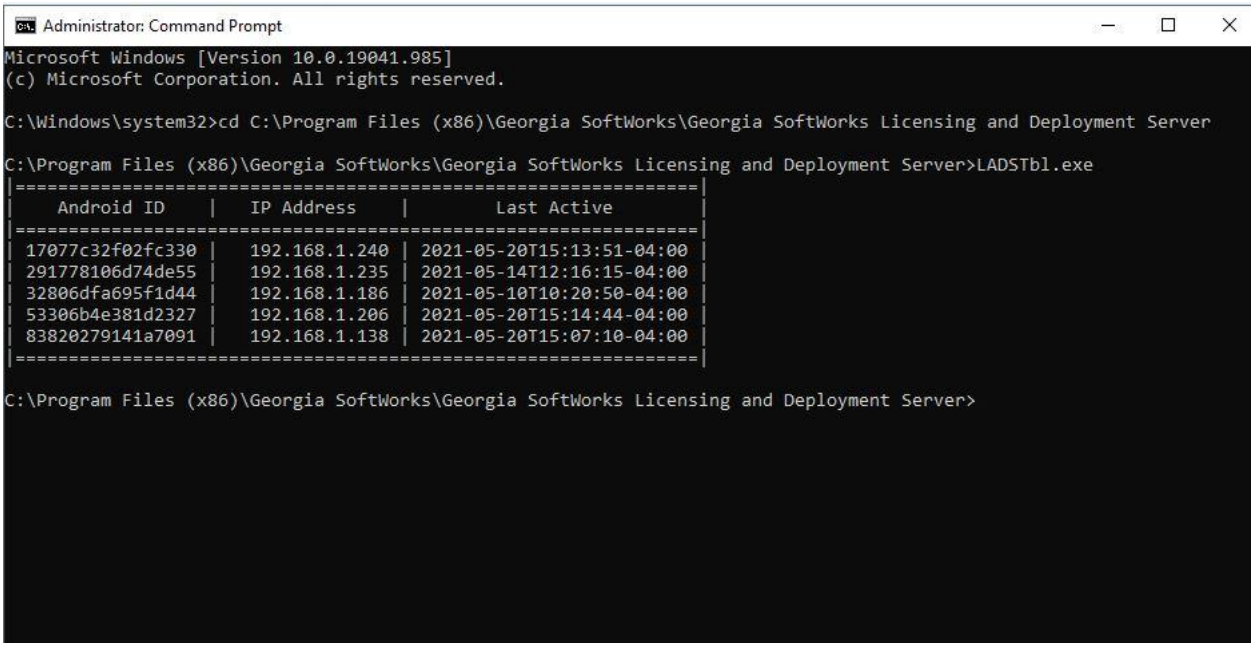


Figure 239: Output of LADSTbl.exe utility

Beginning with LADS version 1.41.0001, LADSTbl.exe is disabled by default. It can be enabled with a Windows Registry edit. Computer\HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\Georgia SoftWorks\gswlads\Parameters\ bBIUseEventsFile Change the value to "1" and restart the LADS service to enable.

Manage Software Updates to GSW ConnectBot

GSW ConnectBot may be updated from GSW LADS on your intranet by placing the updated software in a specific GSW LADS folder and then follow the standard updating instructions (page 37).

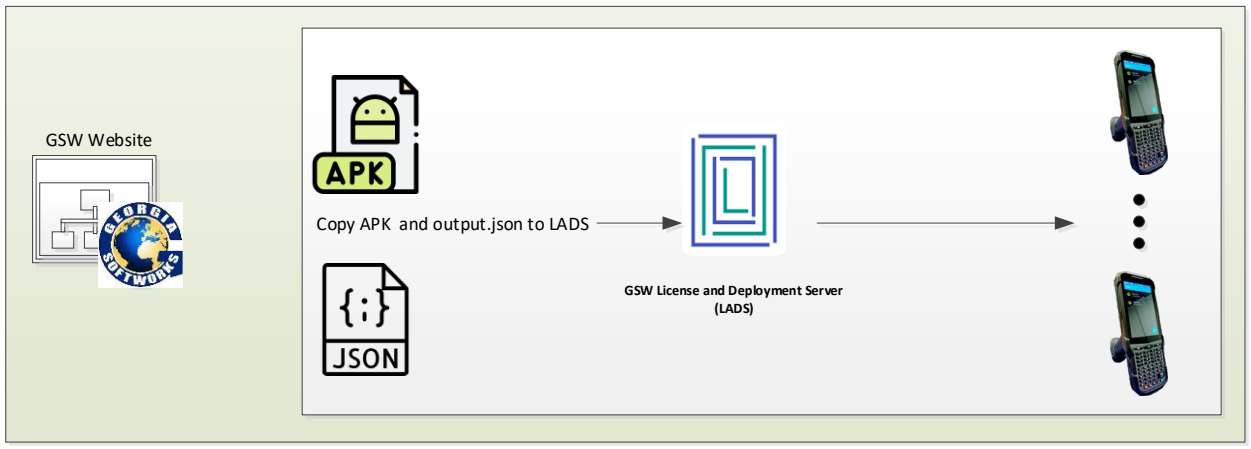


Figure 240: GSW LADS - Software Updates

Copy the GSW ConnectBot installation files to the folder `%gsw_lads_root%\files.`

Specifically, the following files:

- `output.json`
- `gsw-connectbot-z.zz.zzz.apk` (where the "z's" refer to the version number)
  `Example: gsw-connectbot-2.8.010.apk`

  You can obtain the files from the Georgia SoftWorks ConnectBot webpage by downloading the GSW ConnectBot Software **.zip** file and place both the .apk and .json file with corresponding versions into the GSW LADS "files" folder as shown in Figure 241.

Then on the GSW ConnectBot client follow instructions on Updating Software by Licensing and Deployment Server (LADS) on page 37.

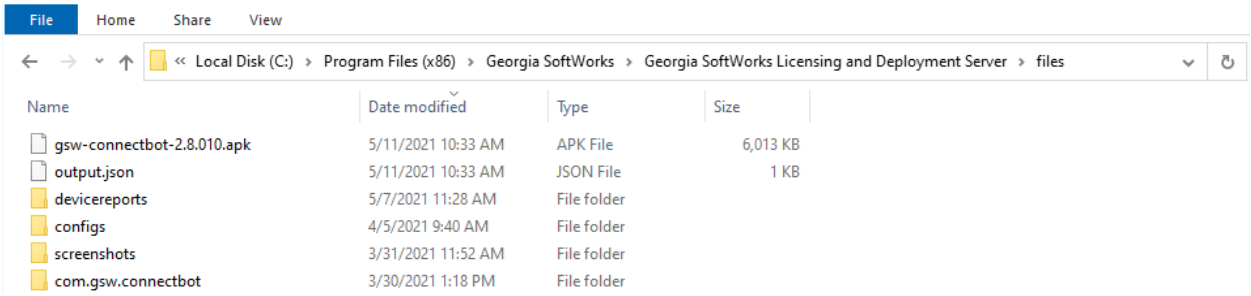


Figure 241: Apk and .json located in the GSW LADS files folder

Upload / Download GSW ConnectBot Configuration

This is a very important feature, as it saves time and reduces errors by allowing configuration and testing of a single device before deployment to all devices.

GSW LADS allows for upload and download of host configurations once host(s) has/have been configured and tested on the GSW ConnectBot. Typically, the administrator will create host(s) on one device and upload to the GSW LADS. Once uploaded the configuration is moved from the "Upload" to the "Download" folder[14]. Next, simply download the configuration to other GSW ConnectBot devices.

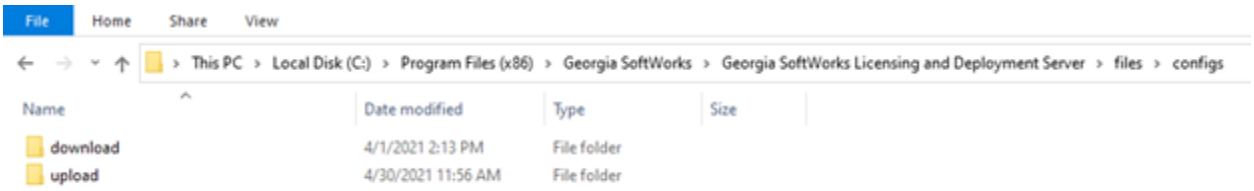


Figure 242: GSW LADS Config Upload/Download folders

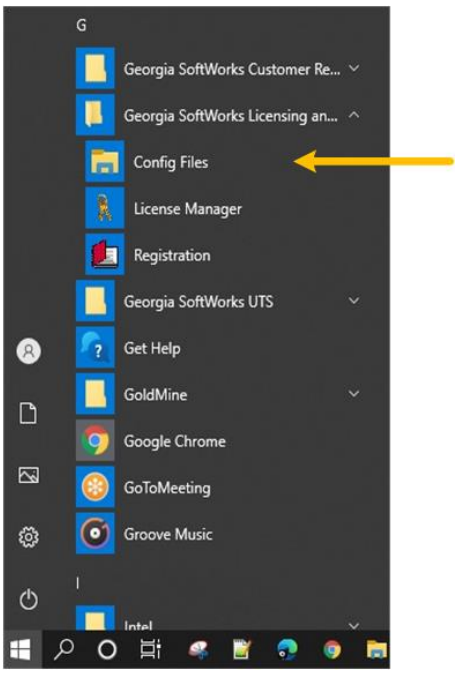


Figure 243: Easy access to the Config Files via Windows Start Menu

[14] This step is a safety measure to prevent accidental configuration placement of a configuration in the downloads folder.

Zero Touch Configuration

Zero touch means the administrator does not have to touch any of the multitude of devices to deploy configurations. Only a single device has to be configured and saved to GSW LADS. On all the other devices, when GSW ConnectBot is launched for the first time, they will automatically obtain the configuration from GSW LADS. This immensely simplifies configuration and deployment.

Zero Touch configuration allows automatic deployment of a designated default GSW ConnectBot configuration. A GSW ConnectBot can be configured and tested fully on a single device. Once the device has been successfully tested, the configuration can be uploaded and mass deployed to any number of GSW ConnectBot's, as soon as the application is launched on a device.

Once configuration and testing are completed

1. In the Hosts List overflow menu select "Upload Configuration"
2. Change Tag: to "Default"
3. Tap "Upload Configuration, Upload in Progress will show on screen
4. Then a message will appear once upload is successful, Tap OK

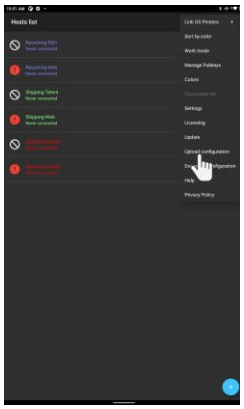


Figure 244: Hosts List - Select Upload Configuration

Figure 245: Set Tag field to "Default"

Figure 246: Tap Upload Configuration

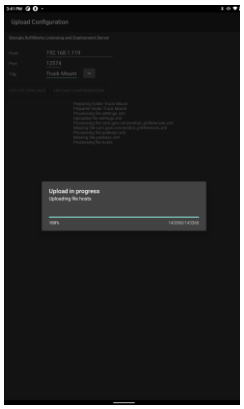


Figure 247: Upload Progress bar

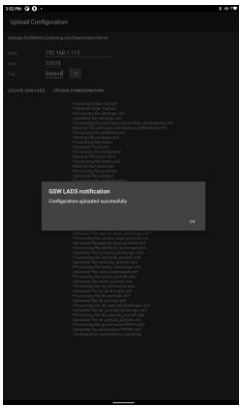


Figure 248: Uploaded Successfully

5. Move the uploaded "Default" Folder to the "Download" folder as described in Upload / Download GSW ConnectBot Configuration on page 161
6. Now launch GSW ConnectBot on other devices, if on the same network it will automatically find GSW LADS, retrieve available license, and "Default" configuration will be downloaded
7. Start using GSW ConnectBot!

Rapid 2-Tap Screen Shot Upload to GSW LADS

The 2-Tap screen shot as described on the Host Connection Operation section on page 54, can automatically send the screen shot to GSW LADS so they can easily be reviewed later[15]. Images are time stamped and associated with the device that took the screen shots.

A folder will be created and labeled as the devices Android ID, and each screenshot is date/time stamped making it extremely easy for administrator to identify.

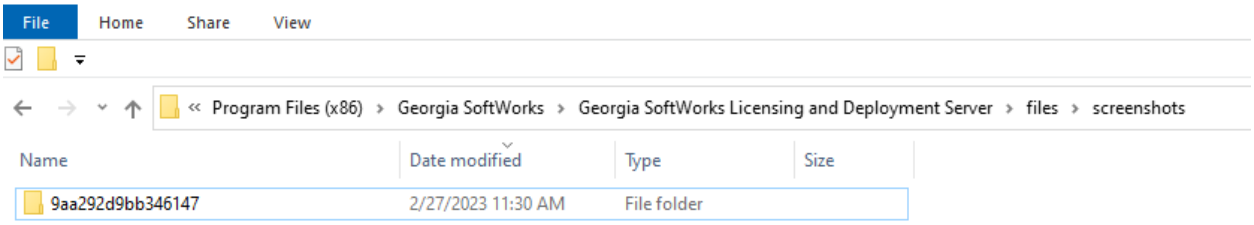


Figure 249: GSW LADS Screen Shot storage location Android ID

GSW ConnectBot version 2.9.115 labeled folder as MAC Address

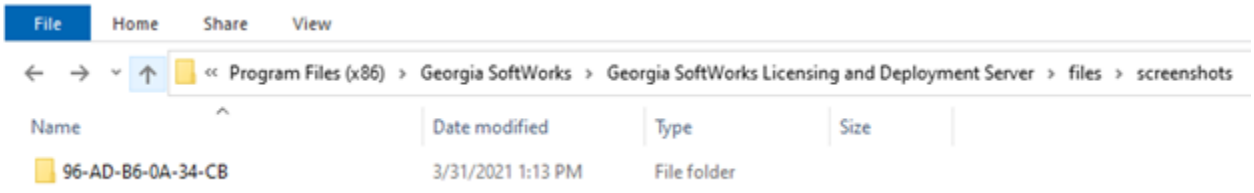


Figure 250: GSW LADS Screen Shot storage location MAC Address

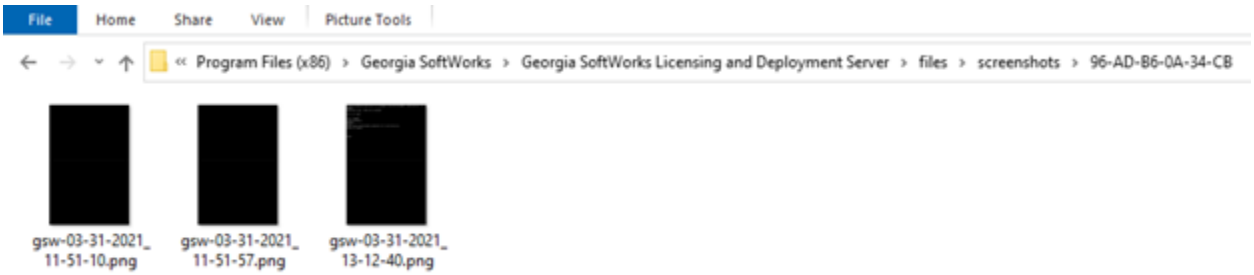


Figure 251: Examples of stored Screen shots

[15] The configuration to enable / disable automatically sending the images to GSW LADS is described on page 57.

Public/Private Key Import/Export

With GSW ConnectBot, the Public/Private SSH keys can be imported and exported using GSW LADS. When a configuration is uploaded from GSW ConnectBot, Public keys, for server configuration, are saved as pubkeys.xml file on GSW LADS. Private keys, for client configuration, are saved in the GSW ConnectBot configuration database. When a Host configuration is download from LADS, the private key will automatically be installed. To generate a public/private key on the GSW ConnectBot see page 73.

Once a key has been generated, upload the configuration as explained in Managing Host Configuration with the GSW LADS on page 90.

You can then find the public key generated in the configuration file that was uploaded at the following location:

C:\Program Files (x86)\Georgia SoftWorks\Georgia SoftWorks Licensing and Deployment Server\files\configs\(config folder tag name)\pubkeys.xml

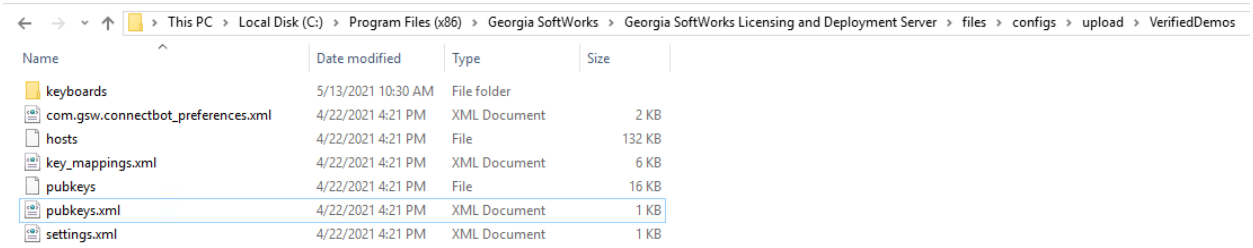


Figure 252: pubkey.xml located on GSW LADS

After key has been mapped as shown on page 72, and configuration folder has been moved from the "upload" to the "download" folder on GSW LADS. When a configuration is downloaded to another device, the private key will be automatically installed.

Business Intelligence (BI)

GSW LADS can collect information (Android ID, IP Address, MAC Address[16], other…) that is sent from GSW ConnectBot clients and produced by GSW LADS. The collected information can be gathered, processed and used to guide management on the use and overall operational efficiency.

Below you will see examples of how Business Intelligence can be used when collected. BI Data is continuously output to a text file (csv format) or fed to a PowerShell script if provided, and can be used to visually show live data.

There is a clear separation of the data collection and the presentation, which provide the user with ability to use the data in any way needed. This is in contrast to fixed/canned reports available to customers using other vendors' products. As an example, with the use of PowerShell scripts, the BI data

[16] Android 11+ does not allow reporting of MAC Address and will show as 02-00-00-00-00-00

can be easily fed to websites and databases. Users can also use Dashalytics by GSW for a pre-built solution learn more at https://dashalytics.app/overview.

- Watch live picks happen, keep track of battery life of devices
- License usage, Items Picked
- Productivity of workers, etc.

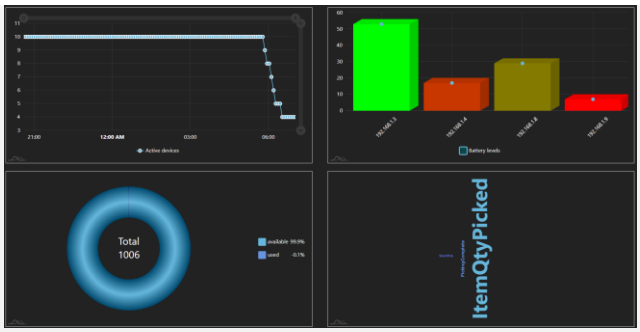


Figure 253: BI example charts

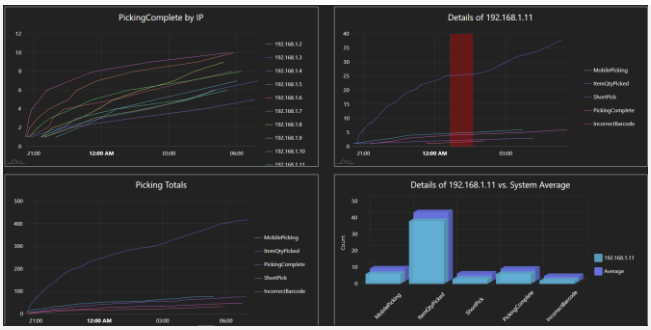


Figure 254: More BI example charts

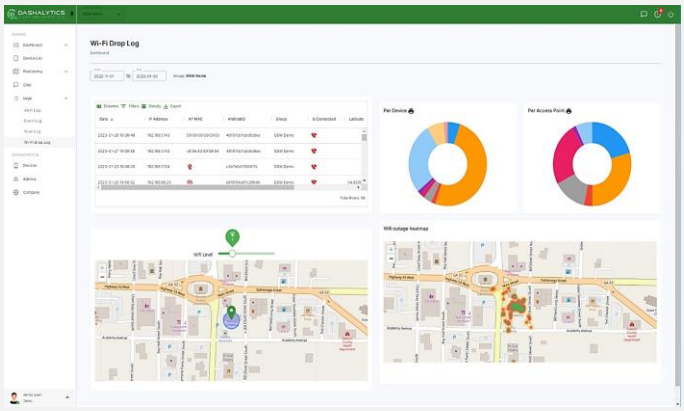


Figure 255: Dashalytics – Wi-Fi Drop Log

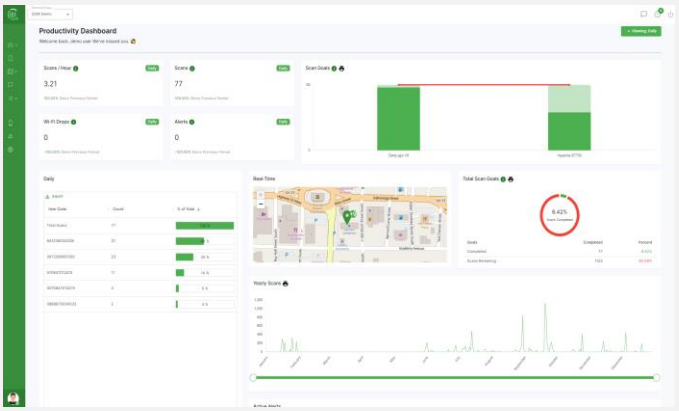


Figure 256: Dashalytics - Productivity Dashboard

Understanding Business Intelligence (BI) Data

Business Intelligence data provides a wealth of structured real-time data that can be organized in various ways to illuminate important events in the GSW ConnectBot ecosystem that can be used to identify operational strengths to preserve and weaknesses to strengthen. Some common questions are:

- Where does Business Intelligence data originate?
- Where does it end up?
- How does it get there?

The figure below should help gain an understanding of the flow of data for GSW Business Intelligence.

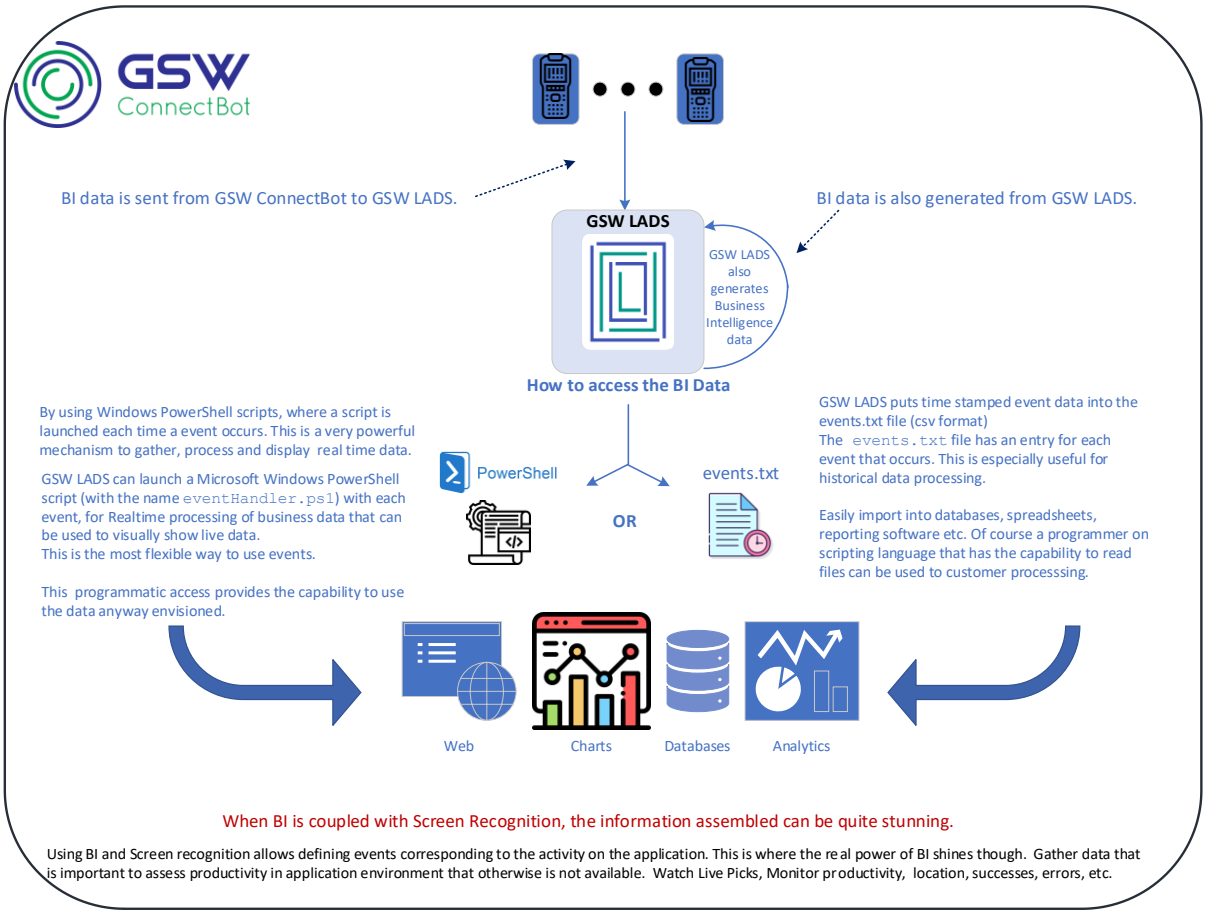


Figure 257: Business Intelligence Data Flow

The high-level answers are:

- Business Intelligence originates from GSW ConnectBot and GSW LADS when configured.
- It ends up either in the `events.txt` file, or where ever your Power Shell script sends it, such as live views, a database, etc.
- It gets there (`events.txt file`) by GSW LADS or the destination of the custom Power Shell script.

GSW Business Intelligence Data Collection – Overview

To enable GSW Business Intelligence Data Collection on GSW ConnectBot simply enable "Send Business Intelligence data to GSW LADS" in the Global Config as shown on page 62 . This is a basic requirement for gathering all Business Intelligence data. In a few cases other configuration may be required, and that will be specified as needed in the following descriptions.

Each time an "Event" occurs, the data associated with the event is made available that can be accessed by one of two methods. One is by using a `events.txt` file to collect the events. The other is by using a PowerShell program to process the events. The exact same data is available to both methods.

Note: Only one method can be used at a time.

- **Events.txt file method**. This method is that with every event, GSW LADS puts time stamped event data into the `events.txt` file in csv format.
  This file is located in the (GSW LADS installation folder)-> `datastore`.

  The default installation folder is usually:
  `C:\Program Files (x86)\Georgia SoftWorks\Georgia SoftWorks Licensing and Deployment Server\datastore`

  The `events.txt` is a standard ascii text file in csv[17] format. It can be easily imported into spreadsheets, database's, reporting software etc.
  Additionally, a programmer can use any programming or scripting language that has the capability to read files to customize processing to satisfy the requirements of the business.

  Note: If the `eventHandler.ps1` PowerShell script exists, then the EventHandler method is used. If it does not exist then the Events.txt file method is used.

- **EventHandler method** – This method is that with every event, GSW LADS invokes a PowerShell script with the name `eventHandler.ps1`. This is a very powerful mechanism for real-time processing of business and operational data. PowerShell scripting offers custom processing to fit the specific needs of the customer. A PowerShell programmer can do everything from visually showing live data using graphics, inserting the data into a database, to providing real-time alerts to users.

  To enable the EventHandler method of processing events, simply place the PowerShell script in the (GSW LADS installation folder)-> `datastore`.
  It must have the exact name: `eventHandler.ps1`

  If this file exists, then the GSW LADS will invoke it each time an event occurs. If it does not exist then the events.txt method is used for event collection.
  See page 192 for more details.

[17] Comma Separated Values

Events.txt Format

Each event is sent as a message to GSW LADS. With each event GSW LADS adds a row to the events.txt file. This row contains all the information that is associated with the event.

The information for each event includes data such as the type of event, the time it occurred, which GSW ConnectBot or GSW LADS is the source of the event, and other relevant data.

A few rows excerpted from an `events.txt` file can be viewed on page 170.

Each row has multiple components of information associated with the event. Each component is called a field, and each field is delimited with a defined character. As you can see in the excerpt of the `events.txt` file, the separator character between each field is the "|" (called the pipe or vertical bar) symbol, ASCII code 124.

The data in each row of the `events.txt` file has some variation that is dependent on the source of the event as well as the particular event. For example, if the source of the event is the GSW ConnectBot, then the data for that field will be the Android ID. If the source is GSW LADS, the data will be the computer name that GSW LADS is installed.

The format of the data in the `events.txt` file is as described below:

Message Version 100002 – GSW ConnectBot version 2.9.103 and above

- Message ID Code
- Version
- Create Time
- Send Time
- Latitude
- Longitude
- Horizontal Accuracy
- AndroidID
- IP Address
- Application Name
- Application Version
- Message
- Parameter 1
- Parameter 2
- Parameter 3

Message Version 100001 – GSW ConnectBot Version 2.9.070 and below

- Message ID code
- Message version
- Message creation time (ISO 8601 format)
- Message sent time (ISO 8601 format)
- Message Source: Android ID *OR (All (16) zero's if GSW LADS is installed)*
- Client IP address: Client IP address OR (name of computer that GSW LADS is installed)

- Application name
- Application version
- Message
- Parameter 1
- Parameter 2
- Parameter 3

Notes:

Both Message Creation Time and Sent Timer are provided in case there is a delay between the two.

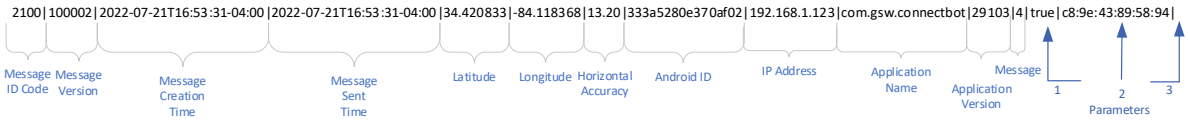
The message source will be the Android ID if the source of the event is the GSW ConnectBot client.
The message source will be the all Zeros, if the source of the event is GSW LADS.

If the source is the GSW ConnectBot then Client IP will contain the IP address.
If the source is GSW LADS then the Client IP address filed will contain the compute name that GSW LADS is installed.

The application name will contain com.gsw.connectbot if the source is the GSW ConnectBot.
The application name will contain com.gsw.lads if the source is GSW LADS.

An example entry in the events.txt file is shown below.

Message Version 100002



Message ID Code:	2001
Message version:	100002
Message Creation Time:	2022-07-21T16:53:31-04:00
Message Sent Time:	2022-07-21T16:53:31-04:00
Latitude:	34.420833
Longitude:	-84.118368
Horizontal Accuracy:	13.20[18]
Android ID:	a219bc851148d444
Client IP Address:	192.168.1.168
Application Name:	com.gsw.connectbot
Application version:	28010
Message:	4
Parameter 1:	true
Parameter 2:	c8:9e:43:89:58:94
Parameter 3:	

[18] Latitude, Longitude, and Horizontal Accuracy will be empty if location services are disabled on device.

Message Version 100001

Message ID Code:	1000
Message version:	100001
Message Creation Time:	2021-07-13T16:43:19-04:00
Message Sent Time:	2021-07-13T16:43:20-04:00
Message Source:	a219bc851148d444
Client IP Address:	192.168.1.168
Application Name:	com.gsw.connectbot
Application version:	28010
Message:	113
Parameter 1:	
Parameter 2:	
Parameter 3:	

EXAMPLE: EVENTS.TXT – GENERIC

Message Version 100002

```
3003|100002|2022-07-18T16:26:17-04:00|2022-07-18T16:26:17-04:00|||ada4fab12010cff7|192.168.1.124|com.gsw.connectbot|29103|WebActivity|||
3003|100002|2022-07-18T16:26:17-04:00|2022-07-18T16:26:17-04:00|||ada4fab12010cff7|192.168.1.124|com.gsw.connectbot|29103|GSWHostListActivity|||
2000|100002|2022-07-18T13:28:57-04:00|2022-07-18T16:26:18-04:00|||ada4fab12010cff7|192.168.1.124|com.gsw.connectbot|29103|15|false||
2000|100002|2022-07-18T13:31:28-04:00|2022-07-18T16:26:23-04:00|||ada4fab12010cff7|192.168.1.124|com.gsw.connectbot|29103|14|false||
2100|100002|2022-07-19T04:26:23+08:00|2022-07-19T04:26:23+08:00||||176f0009acf6a13b|192.168.1.154|com.gsw.connectbot|29103|4|true|6c:cd:d6:50:9e:db|
3002|100002|2022-07-18T16:26:24-04:00|2022-07-18T16:26:24-04:00|||ada4fab12010cff7|192.168.1.124|com.gsw.connectbot|29103|ConsoleActivity|||
1100|100002|2022-07-18T16:26:24-04:00|2022-07-18T16:26:24-04:00|||ada4fab12010cff7|192.168.1.124|com.gsw.connectbot|29103|qwerty_portrait.xml|||
1200|100002|2022-07-18T16:26:24-04:00|2022-07-18T16:26:24-04:00|||ada4fab12010cff7|192.168.1.124|com.gsw.connectbot|29103|192.168.1.39|||
2100|100002|2022-07-19T04:26:53+08:00|2022-07-19T04:26:53+08:00||||176f0009acf6a13b|192.168.1.154|com.gsw.connectbot|29103|3|true|6c:cd:d6:50:9e:db|
2100|100002|2022-07-19T04:26:58+08:00|2022-07-19T04:26:58+08:00||||176f0009acf6a13b|192.168.1.154|com.gsw.connectbot|29103|4|true|6c:cd:d6:50:9e:db|
```

Message Version 100001

```
100000|100001|2021-03-08T21:12:00Z|2021-03-08T21:12:00Z|0000000000000000|CONFERENCE|com.gsw.lads|139045|89|99|||
100000|100001|2021-03-14T09:07:35Z|2021-03-14T09:07:35Z|0000000000000000|CONFERENCE|com.gsw.lads|139045|89|99|||
100001|100001|2021-03-18T13:54:15Z|2021-03-18T13:54:15Z|0000000000000000|CONFERENCE|com.gsw.lads|139045|88|99|a59e424fe6034873|
3000|100001|2021-03-18T09:53:39-04:00|2021-03-18T09:53:40-04:00|a59e424fe6034873|192.168.1.140|com.gsw.connectbot|28001|com.gsw.connectbot|||
3002|100001|2021-03-18T09:53:39-04:00|2021-03-18T09:53:40-04:00|a59e424fe6034873|192.168.1.140|com.gsw.connectbot|28001|GSWHostListActivity|||
2000|100001|2021-03-18T09:53:39-04:00|2021-03-18T09:53:40-04:00|a59e424fe6034873|192.168.1.140|com.gsw.connectbot|28001|97|||
3002|100001|2021-03-18T09:53:40-04:00|2021-03-18T09:53:41-04:00|a59e424fe6034873|192.168.1.140|com.gsw.connectbot|28001|LicenseFromGSWServerActivity|||
100001|100001|2021-03-18T13:54:19Z|2021-03-18T13:54:19Z|0000000000000000|CONFERENCE|com.gsw.lads|139045|87|99|a59e424fe6034873
```

eventHandler.ps1 Format

GSW ConnectBot provides a very powerful way to collect and process event information by launching a PowerShell script each time an event occurs.

To enable the EventHandler method of processing events, simply place the PowerShell script in the (GSW LADS installation folder)-> `datastore`.

It must have the exact name: `eventHandler.ps1`

Similar to the Events.txt format, eventHandler.ps1 is passed the parameters below for each event.

```
param(
[string]$messageID,
[string]$messageVersion,
[string]$createTime,
[string]$sendTime,
[string]$androidID,
[string]$clientIP,
[string]$appName,
[string]$appVersion,
[string]$message,
[string]$param1,
[string]$param2,
[string]$param3
)
```

Table 20: eventHandler.ps1 function parameters

Examples of PowerShell Scripts are shown in Appendix A.

- Take Event and insert into database
  Create BI for
- Battery
- Connections
- License Usage

Message ID Codes

Message ID codes are the Event Identifiers that indicate the type (or category) of event that occurred.

GSW ConnectBot Events Overview

Events generated by the GSW ConnectBot have the Message ID codes shown in Table 21

Message ID Code	Description	GSW ConnectBot Version
1000	Key code – Key code sent to GSW ConnectBot when key is pressed.	2.8.010
1001	Key output text – Text sent to server when key is pressed	2.8.010
1100	Keyboard Set – GSW Keyboard file name when keyboard is selected.	2.8.010
1200	Host Launched, nickname is included as an event's parameter (this event is supported for all hosts)	2.9.021
1201	Connected to a TE host, host's URL and nickname are included as parameters	2.9.021
1202	Disconnected to a TE host, host's URL and nickname are included as parameters	2.9.186
1300	Web page loaded, host's nickname and base64-encoded URL are included as parameters	2.9.021
1301	Web request not allowed, host's nickname and base64-encoded URL of the request are included as parameters	2.9.021
1302	Top level URL not allowed, host's nickname and base64-encoded URL are included as parameters	2.9.021
1400	Key Event from Telnet or SSH Connections	2.9.112
1401	Scan Event from Telnet or SSH Connects from supported device manufacturers	2.9.112
1402	Key Event from web connections	2.9.112
1410	TE Scan tracking is enabled or disabled for connection / TE session activity (ConsoleActivity or ConsoleWorkActivity) is created	2.9.127
1411	Web Scan tracking is enabled or disabled for connection to web session	2.9.127
1500	Screen Recognition - A configured screen is recognized.	2.8.010
1600	When a user replies to a chat message	2.9.139
2000	Battery Level – Battery level changes	2.8.010
2100	WIFI level changed	2.8.085
3000	App Started	2.8.010
3001	App Stopped	2.8.010
3002	Activity Resumed	2.8.010
3003	Activity Destroyed	2.9.103
4000	Duplicate License Removed	2.8.010

5000	GSW unified scanner interface receives scanned data from web session, base64-encoded URL of the request are included as parameters [Updated in version 2.9.112 to a new message format]	2.9.070
100000	License Count Information	2.8.010
100001	License Obtained	2.8.010
100002	License Released	2.8.010
100100	Device Telemetry Data variables change	2.9.069
100101	LADS instance ID	2.9.103

Table 21: GSW ConnectBot Events / Message ID Codes

GSW Keyboard Events

GSW Keyboard events can be configured to provide data when keys are pressed or GSW keyboards are selected. The Key code and Key text must be enabled for each key that an event is desired.

GSW Keyboards must be enabled for GSW Keyboard events to be generated. (page 62)

Message ID Code	Description
1000	Key code – Key code sent to GSW ConnectBot when key is pressed.
1001	Key output text – Text sent to server when key is pressed
1100	Keyboard Set – Keyboard name is provided when a GSW keyboard is selected for a session. For example, when new session, left/right keyboard navigation, screen recognition etc.

Table 22: GSW Keyboard Events

Message ID code: 1000 – Key code

Description: This event provides the Key code when a configured GSW keyboard **key** is pressed.

This is useful when specific keys have particularly useful meanings. Often function keys have business actions associated with them such as Help Requested, Picking complete, On Break, etc. Any key that can provide information that can be used to identify productivity data points can be configured to provide BI data.

Data: Message is the key code.

How to Enable:

Automatically enabled when GSW ConnectBot Global settings Business Intelligence is set.

and

On each GSW keyboard definition file (.xml) where the desired event is needed.

Applies to: One or more Key definitions with the `gsw:codes` field

Add the text to enable:

Syntax: `gsw:logUsage="true"`

Action: When the configured key on the keyboard is pressed, the key code event is generated.

EXAMPLE: KEY CODE EVENT

When the "r" key is pressed, generate a BI Event.

In the qwerty_portriat.xml keyboard definition file.

```
<Key  gsw:codes="114"  gsw:keyLabel="r" gsw:logUsage="true"/>
```

Events.txt

1000|100001|2021-07-08T09:13:10-04:00|2021-07- 08T09:13:10-04:00|a219bc851148d444|192.168.1.168|com.gsw.connectbot|28010|114|||

In the first field of the events.txt file the message id of 1000, in the message field (in red) is the key code (114).

Note: Do not enable on all keys as the amount of processing required on the device, the network and GSW LADS would be excessive. Purpose to only use keys that provide useful data and all should be fine.

eventHandler.ps1

Message ID code: 1001 – Key Output text

Description: This event provides the text sent to the server when a configured GSW keyboard **key** is pressed.

This is useful when the text output provides useful information. Any key that can provide information that can be used to identify productivity data points can be configured to provide BI data.

Data: Message is the key text sent to the server. It may be multiple characters if defined.

How to Enable:

Automatically enabled when GSW ConnectBot Global settings Business Intelligence is set.

and

On each GSW keyboard definition file (.xml) where the desired event is needed.

Applies to: One or more Key definitions with the `gsw:keyOutputText` field

Add the text to enable:

Syntax: `gsw:logUsage="true"`

Action: When the configured key on the keyboard is pressed, the key output text event is generated.

EXAMPLE: KEY OUTPUT TEXT

When the key with the label "ABC" is pressed, generate a BI Event.

In the qwerty_portriat.xml keyboard definition file.

```
<Key gsw:keyLabel="ABC" gsw:keyOutputText="Zorro" gsw:logUsage="true"/>
```

Events.txt

```
1001|100001|2021-07-13T16:41:29-04:00|2021-07-13T16:41:29-04:00|a219bc851148d444|192.168.1.168|com.gsw.connectbot|28010|Zorro|||
```

In the first field of the events.txt file the message id of 1001, in the message field (in red) is the key output (Zorro).

Note: Do not enable on all keys as the amount of processing required on the device, the network and GSW LADS would be excessive. Purpose to only use keys that provide useful data and all should be fine.

Message ID code: 1100 – Keyboard Selected

Description: This event provides the name of the GSW keyboard selected.

Keyboards are selected when a new session is established, or when using the left/right arrow and keyboard navigation keys, swiping and re-orienting the device if a keyboard change occurs.

This can be useful to identify which keyboards are being used for what tasks, as well as frequency, orientation etc. Gain insight as to better keyboard key layouts as well as identifying inefficiencies and errors caused by using less than optimal keyboard to the task.

Data: GSW Keyboards

How to Enable:

Automatically enabled when GSW ConnectBot Global settings Business Intelligence is set.

Action: When a keyboard is selected the event is generated.

EXAMPLE: KEYBOARD EVENT

When the device orientation is changed generate a BI Event.

Using the qwerty_portriat.xml keyboard, change device orientation to landscape.

The event will be generated and is shown in the events.txt file.

Events.txt

1100|100001|2021-07-13T16:42:36-04:00|2021-07-13T16:42:36-04:00|a219bc851148d444|192.168.1.168|com.gsw.connectbot|28010|qwerty_landscape.xml|||

In the first field of the events.txt file the message id of 1100, in the message field (in red) is the keyboard name qwerty_landscape.xml is shown.

GSW Host Events

GSW Host events provide data on the type of connection, host's nickname and URL. This data can be used to verify correct connections to host whether it be for troubleshooting or to see that user is on task.

Message ID Code	Description
1200	Host Launched, nickname is included as an event's parameter (this event is supported for all hosts)
1201	Connected to a TE host, host's URL and nickname are included as parameters
1202	Disconnected from a TE host, host's URL and nickname are included as parameters
1300	Web page loaded, host's nickname and base64-encoded URL are included as parameters
1301	Web request not allowed, host's nickname and base64-encoded URL of the request are included as parameters
1302	Top level URL not allowed, host's nickname and base64-encoded URL are included as parameters
1410	TE Scan tracking Enabled or Disabled
1600	Message sent by Dashalytics. Provides a unique code to allow Dashalytics to correlate the response with the original message. base64-encoded URL of the request are included as parameters
5000	GSW unified scanner interface receives scanned data from web session, base64-encoded URL of the request are included as parameters

Table 23: Host Events Message ID Codes

ID code: 1200 Host Launched

Description: This event indicates the host connection has been launched.

Data: Host connection launched provides Nickname and Host URL.

How to Enable: Automatically enabled when GSW ConnectBot Global settings Business Intelligence is set.

Action: Any time a host connection is launched.

Events.txt

1200|100001|2021-10-27T10:13:05-04:00|2021-10-27T10:13:05-04:00|17077c32f02fc330|192.168.1.174|com.gsw.connectbot|29012|GSW Whitelisting|||

ID code: 1201 Connected to a TE Host

Description: Connected to a TE host, host's URL and nickname are included as parameters

Data: Provide information on TE host connection.

How to Enable: Automatically enabled when GSW ConnectBot Global settings Business Intelligence is set.

Action: TE host connection is connected.

EXAMPLE: WHEN A HOST CONNECTION IS CONFIGURED FOR SSH OR TELNET AND CONNECTED

Events.txt

1201|100001|20211027T11:17:3404:00|20211027T11:17:3404:00|17077c32f02fc330|192.168.1.174|com.gsw.connectbot|29012|Truck Mount|rfuser@192.168.1.211||

In the field that appears green is the Host Nickname. In the field that appears red is the host's URL.

ID code: 1202 Disconnected from a TE Host

Description: Disconnected from a TE host, host's URL and nickname are included as parameters

Data: Provide information on TE host disconnection.

How to Enable: Automatically enabled when GSW ConnectBot Global settings Business Intelligence is set.

Action: TE host connection is disconnected.

EXAMPLE: WHEN A HOST CONNECTION IS CONFIGURED FOR SSH OR TELNET AND IT IS DISCONNECTED

Events.txt

1202|100001|20211027T11:17:3404:00|20211027T11:17:3404:00|17077c32f02fc330|192.168.1.174|com.gsw.connectbot|29012|Truck Mount|rfuser@192.168.1.211||

In the field that appears green is the Host Nickname. In the field that appears red is the host's URL.

ID code: 1300 Web Page Loaded

Description: web page loaded, host's nickname and base64-encoded URL are included as parameters

Data: Will show information for web host connection

How to Enable: Automatically enabled when GSW ConnectBot Global settings Business Intelligence is set.

Action: Web Host Connection is connected

EXAMPLE: WHEN A HOST CONNECTION CONFIGURED FOR HTTP OR HTTPS HAS MADE CONNECTION

Events.txt

1300|100001|2021-10-27T10:13:15-04:00|2021-10-27T10:13:15-04:00|17077c32f02fc330|192.168.1.174|com.gsw.connectbot|29012|GSW Whitelisting|aHR0cHM6Ly93d3cuZ2VvcmdpYXNvZnR3b3Jrcy5jb20vcGFydG5lcnM=||

In the field that appears green is the Host Nickname. In the field that appears red is the website, which is Base64-encoded. There are websites that allow strings to be decoded such as https://www.base64decode.org/.

ID code: 1301 Web Request Not Allowed

Description: web request not allowed, host's nickname and base64-encoded url of the request are included as parameters

Data: Will show information for web host connection

How to Enable: Automatically enabled when GSW ConnectBot Global settings Business Intelligence is set.

Action: Web Host Connection is not allowed

EXAMPLE: WHEN A HOST CONNECTION CONFIGURED FOR HTTP OR HTTPS ATTEMPTS TO ACCESS A WEB RESOURCE THAT IS NOT ADDED TO THE "URL ACCESS LIST".

Events.txt

1301|100001|2021-10-27T11:35:26-04:00|2021-10-27T11:35:26-04:00|17077c32f02fc330|192.168.1.174|com.gsw.connectbot|29012|GSW Whitelisting|aHR0cHM6Ly9jZG4uYW1wcHJvamVjdC5vcmcvdjAvYW1wLWFjY29yZGlvbi0wLjEuanM=||

In the field that appears green is the Host Nickname. In the field that appears red is the website is Base64-encoded. There are websites that allow strings to be decoded such as https://www.base64decode.org/.

ID code: 1302 Top Level URL's Not Allowed

Description: top level URL not allowed, host's nickname and base64-encoded url are included as parameters

Data: Will show information for web host connection

How to Enable: Automatically enabled when GSW ConnectBot Global settings Business Intelligence is set.

Action: Top Level URL is not allowed.

EXAMPLE: WHEN A HOST CONNECTION CONFIGURED FOR HTTP OR HTTPS ATTEMPTS TO ACCESS A WEB RESOURCE THAT IS NOT ADDED TO THE "ALLOW NAVIGATION LIST".

Events.txt

1302|100001|2021-10-27T10:13:16-04:00|2021-10-27T10:13:16-04:00|17077c32f02fc330|192.168.1.174|com.gsw.connectbot|29012|GSW Whitelisting|aHR0cHM6Ly93d3cuemVicmEuY29tL3VzL2VuLmh0bWw=||

In the field that appears green is the Host Nickname. In the field that appears red is the website is Base64-encoded. There are websites that allow strings to be decoded such as https://www.base64decode.org/.

ID code: 1400 Key Event from Telnet or SSH Connections

Description: Key events form Telnet or SSH connections are sent base64 encoded.

Data: Will show which physical or virtual keys are pressed within GSW ConnectBot

How to Enable: Enable “Log all keys” in the host list settings menu

Action: Pressing any keys in GSW ConnectBot

Events.txt

1400|100002|2022-08-29T12:10:46-04:00|2022-08-29T12:10:46-04:00|34.420863|-84.118439|21.05|46197cb7cbc6d8ee|192.168.1.134|com.gsw.connectbot|29112|eyJrZXlDb2RlIjozNCwiYWN0aW9uIjoxLCJkZXZpY2VJZCI6LTEsImRpc3BsYXlMYWJlbCI6NzAsImZsYWdzIjo2LCJwcmludGluZ0tleSI6dHJ1ZSwibWV0YVN0YXRlIjowLCJudW1iZXIiOjAsInNjYW5Db2RlIjowLCJ1bmljb2RlQ2hhciI6MTAyLCJzb3VyY2UiOjI1Nywia2V5Q29kZVRvU3RyaW5nIjoiS0VZQ09ERV9GIiwibW9kaWZpZXJzIjowfQ==|bG9jYWwgc2Nhbm5pbmc=||

https://www.base64decode.org/.

ID code: 1401 Scan Events from Telnet and SSH connections

Description: scan events form Telnet and SSH connections are sent base64 encoded.

Data: Will show scan data when scanner is initiated from physical keys or virtual keys.

How to Enable: Enable “Log all keys” in the host list settings menu (Must be from a supported device manufacturer for the data to be collected)

Action: Scanning barcodes in GSW ConnectBot

Events.txt

1401|100002|2022-08-29T12:09:46-04:00|2022-08-29T12:09:46-04:00|34.420860|-84.118415|18.94|46197cb7cbc6d8ee|192.168.1.134|com.gsw.connectbot|29112|eyJrZXlDb2RlIjowLCJhY3Rpb24iOjIsImNoYXJhY3RlcnMiOiIwNzA4NDcwMTI0NyIsImRldmljZUlkIjotMSwiZGlzcGxheUxhYmVsIjowLCJmbGFncyI6MCwicHJpbnRpbmdLZXkiOmZhbHNlLCJtZXRhU3RhdGUiOjAsIm51bWJlciI6MCwic2NhbkNvZGUiOjAsInVuaWNvZGVDaGFyIjowLCJzb3VyY2UiOjI1Nywia2V5Q29kZVRvU3RyaW5nIjoiS0VZQ09ERV9VTktOT1dOIiwibW9kaWZpZXJzIjowfQ==|bG9jYWwgc2Nhbm5pbmc=||

https://www.base64decode.org/.

ID code: 1402 Key Event from Web Connections

Description: Key events form web connections are sent base64 encoded.

Data: Will show which physical or virtual keys are pressed within GSW ConnectBot

How to Enable: Enable “Log all keys” in the host list settings menu

Action: Pressing any keys in GSW ConnectBot

Events.txt

1402|100002|2022-08-29T12:12:08-04:00|2022-08-29T12:12:08-04:00|34.420864|-84.118428|19.36|46197cb7cbc6d8ee|192.168.1.134|com.gsw.connectbot|29112|eyJrZXlDb2RlIjozNSwiYWN0aW9uIjoxLCJkZXZpY2VJZCI6LTEsImRpc3BsYXlMYWJlbCI6NzEsImZsYWdzIjo2LCJwcmludGluZ0tleSI6dHJ1ZSwibWV0YVN0YXRlIjowLCJudW1iZXIiOjAsInNjYW5Db2RlIjowLCJ1bmljb2RlQ2hhcnI6MTAzLCJzb3VyY2UiOjI1Nywia2V5Q29kZVRvU3RyaW5nIjoiS0VZQ09ERV9HIiwibW9kaWZpZXJzIjowfQ==|U2hpcHBpbmctV2Vi||

https://www.base64decode.org/.

ID code: 1410 TE Scan Tracking

Description: Event 1410 is generated when TE/SSH Host is launched

Data: Will report if host connection is tracking TE/SSH scans

How to Enable: Enable Track TE Scans in global settings menu

Events.txt

1410|100002|2023-02-27T14:14:38-05:00|2023-02-27T14:14:38-05:00|||| 9aa292d9bb346147|192.168.1.174 |com.gsw.connectbot |29139 |false |||

1410|100002|2023-02-27T14:14:38-05:05|2023-02-27T14:14:38-05:00|||| 9aa292d9bb346147|192.168.1.174 |com.gsw.connectbot |29139 |true |||

In the field that appears red will show true being TE tracking is enabled, false being TE tracking is disabled

ID code: 1411 Web Scan Tracking

Description: Event 1410 is generated when Web Host is launched

Data: Will report if host connection is tracking web scans

How to Enable: Enable Track Web Scans in global settings menu

Events.txt

1411|100002|2023-03-10T15:35:05-05:00|2023-03-10T15:35:06-05:00||||829279e9f338d7c6|192.168.1.160 |com.gsw.connectbot| 29139 |true|||

1411|100002|2023-03-10T15:37:33-05:00|2023-03-10T15:37:34-05:00||||829279e9f338d7c6|192.168.1.160|com.gsw.connectbot|29139 |false|||

In the field that appears red will show true being web scan tracking is enabled, false being web scan tracking is disabled

ID code: 5000 GSW Unified Scanner Interface Receives Scanned Data from Web Host

Description: Event 5000 is generated in web sessions when GSW unified scanner interface receives scanned data. The ‘message’ parameter is set to base64 encoded scan result.

Data: Will show information for GSW unified scanner, scanned data.

How to Enable: Automatically enabled when GSW ConnectBot Global settings Business Intelligence is set.

Action: Data is scanned with GSW unified scanner

EXAMPLE: WHEN USING GSW UNIFIED SCANNER IN WEB SESSION, SCANNED DATA WILL BE REPORTED

Events.txt

5000|100002|2022-08-29T12:08:52-04:00|2022-08-29T12:08:52-04:00|34.420869|-84.118430|20.99|46197cb7cbc6d8ee|192.168.1.134|com.gsw.connectbot|29112|eyJrZXlDb2RlIjowLCJhY3Rpb24iOjIsImNoYXJhY3RlcnMiOiIwNzA4NDcwMTI0NyIsImRldmljZUlkIjotMSwiZGlzcGxheUxhYmVsIjowLCJmbGFncyI6MCwicHJpbnRpbmdLZXkiOmZhbHNlLCJtZXRhU3RhdGUiOjAsIm51bWJlciI6MCwic2NhbkNvZGUiOjAsInVuaWNvZGVDaGFyIjowLCJzb3VyY2UiOjI1Nywia2V5Q29kZVRvU3RyaW5nIjoiS0VZQ09ERV9VTktOT1dOIiwibW9kaWZpZXJzIjowfQ==|aHR0cHM6Ly9nZW9yZ2Ihc29mdHdvcmtzLmluZm8=||

In the field that appears red is the data from the scan; it is Base64-encoded. There are websites that allow strings to be decoded such as https://www.base64decode.org/.

GSW ConnectBot Screen Recognition Events

GSW ConnectBot screen recognition events occur when a screen is recognized as per the screen recognition configuration. At this time Screen Recognition Events only occur with Telnet/SSH protocol.

Message ID Code	Description
1500	Screen Recognition- An event is generated when a configured screen is recognized

Table 24: Screen Recognition Events

Please see the screen recognition documentation to gain understanding on configuring this feature.

Message ID code: 1500 – Screen Recognition

Description: This event provides the screen recognized

Understanding the screen processing can provide the best insight on operation efficiency.

Data: Parameter 1 is the name of the Screen Recognized.

How to Enable:

Automatically enabled when GSW ConnectBot Global settings Business Intelligence is set.

Event happens when a screen defined in GSW ConnectBot's database is recognized.

For example, if a screen has a customized keyboard and defined in the GSW ConnectBot's database to be displayed on recognized screen and that screen was displayed on the ConnectBot you would see the following located in the events.txt

EXAMPLE SCREEN RECGONITION EVENT

A custom keyboard has been defined to display on a particular screen in the GSW ConnectBot database, when screen is launched event 1500 is generated.

Action: Launch screen that custom keyboard has been defined.

Events.txt

1500|100001|20211026T13:18:5104:00|20211026T13:18:5104:00|17077c32f02fc330|192.168.1.174|com.gsw.connectbot|29012|MFAChoice|||

The field in red “MFAChoice” is the name of the screen assigned in the screens table in the hosts.db on GSW LADS.

GSW ConnectBot General Events

GSW ConnectBot general events can be useful for a wide range of purposes.

Message ID Code	Description
2000	Battery Level has changed
2100	WI-FI Level has changed
3000	App Started
3001	App Stopped
3002	Activity Resumed
3003	Activity Destroyed
4000	Duplicate License Removed

Table 25: General Events

ID code: 2000 Battery Level

Description: This event provides the Battery charge level each time the level changes and also provides data if the battery is being charged. The range is from 1-100, where 100 is 100% charged.

Keep up with the battery levels of everyone. Observe when the battery is too low to complete the shift. How often does this happen, who does it happen? Notify people before it's too late.

Data: Battery charge level.

How to Enable:

Automatically enabled when GSW ConnectBot Global settings Business Intelligence is set.

Action: Any time the battery charge level changes.

EXAMPLE: BATTERY LEVEL

Events.txt

```
2000|100001|2021-07-19T13:23:17-04:00|2021-07-19T14:11:12-04:00|1c68ed2d6ed968d0|192.168.1.131|com.gsw.connectbot|28034|73|true||
2000|100001|2021-07-19T13:23:17-04:00|2021-07-19T14:11:12-04:00|1c68ed2d6ed968d0|192.168.1.131|com.gsw.connectbot|28034|70|false||
```

In the first field of the events.txt file the message id of 2000, in the Message field (in red) is the battery charge level 73 and 70. In the Message field (in green) *true* means device is being charged and *false* means the battery is discharging

ID code: 2100 WIFI Level

Description: This event provides the Wi-Fi level each time the level changes. The range is from 1-4, where 4 is 4 bars available.

Keep up with the Wi-Fi levels of everyone. Observer when the levels are low in a certain area.

Data: WI-FI strength.

How to Enable:

Automatically enabled when GSW ConnectBot Global settings Business Intelligence is set.

Action: Any time the WI-FI level changes.

EXAMPLE: WI-FI LEVEL

Events.txt

2100|100001|20211026T14:41:4904:00|20211026T14:41:4904:00|17077c32f02fc330|192.168.1.174|com.gsw.connectbot|29011|4|true||

In the first field of the events.txt file the message id of 2100, in the Message field (in red) is the Wi-Fi level of 4. The “true” states active Wi-Fi connectivity.

ID code: 4000 Duplicate License Removed

Description: This event occurs when a duplicate license is removed from GSW ConnectBot. Occasionally, GSW LADS will issue duplicate licenses to a device. The 4000 event signifies the duplication was resolved.

Data: Android ID of the device that had duplicate licenses.

How to Enable:

Automatically enabled when GSW ConnectBot Global settings Business Intelligence is set.

Action: Any time a duplicate license is removed.

EXAMPLE: DUPLICATE LICENSE REMOVED

Events.txt

4000|100001|2022-01-27T10:43:53-05:00|2022-01-27T10:43:53-05:00|83820279141a7091|192.168.1.145|com.gsw.connectbot|29062|a219bc851148d444|||

In the first field of the events.txt file the message id of 4000, in the Message field (in red) is the android ID of the device that has the duplicate license.

Android Application States

As the user navigates through, out of and back into the app, events are generated that provide transitions information through different states in its lifecycle.

This information is useful for a variety of application usage data that may indicate the efficiency of application navigation to the operational efficiency of the user.

Understanding the Android Lifecycle Activity is helpful to know when the different events are generated and how they can provide useful information. For those interested in the technical details please visit [Understand the Activity Lifecycle | Android Developers] website.

Android Lifecycle Activity diagram

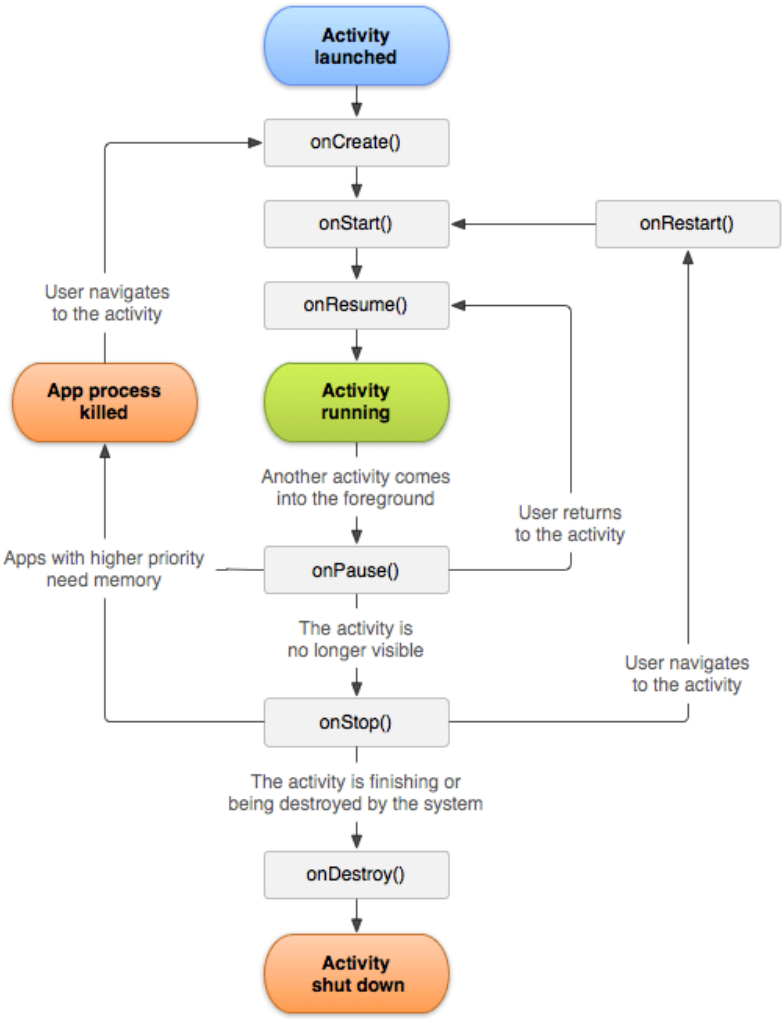


Figure 258: Android Lifecycle diagram[19]

[19] This diagram is found on Android Developer webpage - Understand the Activity Lifecycle | Android Developers

Message ID code: 3000 GSW ConnectBot application started

Description: This event is generated when the application activity enters the Started state.

When the activity becomes visible to the user, as the GSW ConnectBot prepares for the activity to enter the foreground and become interactive.

This state completes very quickly, and transitions to the Resumed state; or the OnStop state if it becomes hidden.

Data: GSW ConnectBot Activity that started.

How to Enable:

Automatically enabled when GSW ConnectBot Global settings Business Intelligence is set.

Action: When GSW ConnectBot application activity is started.

EXAMPLE: EVENTS.TXT ACTIVITY STARTED

3000|100001|2021-07-19T12:18:35-04:00|2021-07-19T12:18:35-04:00|32806dfa695f1d44|192.168.1.174|com.gsw.connectbot|28036|com.gsw.connectbot|||

In the first field of the events.txt file the message id of 3000, in the message field (in red) is the GSW ConnectBot Activity that Started.

Message ID code: 3002 GSW ConnectBot Activity Resumed

Description: This event is generated when the application activity enters the Resumed state.

When the activity comes to the foreground and ready to start interacting with the user, the Resumed event is generated.

The GSW ConnectBot will stay in this state until something happens to take focus away from the app. Examples include but not limited to the user navigating to another activity or the device screen turns off.

Data: GSW ConnectBot Activity that resumed.

Examples include items such as (but not limited to):

- GSWHostListActivity
- DownloadConfigFromGSWServerActivity
- ConsoleActivity
- WebActivity
- UpdateFromGSWServerActivity

How to Enable:

Automatically enabled when GSW ConnectBot Global settings Business Intelligence is set.

Action: When GSW ConnectBot has been idle and user interacts you will receive activity resumed event.

EXAMPLE – EVENTS.TXT - ACTIVITY RESUMED

3002|100001|2021-07-19T12:28:56-04:00|2021-07-19T12:28:56-04:00|32806dfa695f1d44|192.168.1.174|com.gsw.connectbot|28036|ConsoleActivity|||

In the first field of the events.txt file the message id of 3002, in the message field (in red) is the GSW ConnectBot Activity that resumed.

Message ID code: 3003 GSW ConnecBot Activity Destroyed

Description: This event is generated when the application activity enters the Destroyed state.

When the activity is closed by the user, the Destroyed event is generated.

Data: GSW ConnectBot Activity that Destroyed.

How to Enable:

Automatically enabled when GSW ConnectBot Global settings Business Intelligence is set.

Action: When GSW ConnectBot activity is closed by the user.

EXAMPLE – EVENTS.TXT - ACTIVITY DESTROYED

3003|100002|2022-07-21T16:53:12-04:00|2022-07-21T16:53:12-04:00||||32806dfa695f1d44|192.168.1.217|com.gsw.connectbot|29103|LicenseFromGSWServerActivity|||

In the first field of the events.txt file the message id of 3003, in the message field (in red) is the GSW ConnectBot Activity that resumed.

GSW LADS Events

Events generated by the GSW LADS have the Message ID codes:

Message ID Code	Description
100000	Message License Count info
100001	Message license obtained
100002	Message license released
100100	Device Telemetry Data variables change
100101	LADS instance ID (When GSW LADS Service is started or restarted)

Table 26: GSW LADS Events/Message ID Codes

ID code: 100000 Message License Count info

Description: This event provides updated license count information.

GSW LADS maintains GSW ConnectBot license count and reports license count information.

Data: License Count Information

How to Enable:

This event is generated by GSW LADS and is always enabled.

Action: Will occur when a license is retrieved or returned to GSW LADS via GSW ConnectBot or GSW License Manager Tool.

EXAMPLE: LICENSE COUNT INFO

Events.txt

100000|100001|2022-01-28T13:41:51Z|2022-01-28T13:41:51Z|0000000000000000|LISADESKTOP|com.gsw.lads|141003|7|10||

The example event above shows GSW LADS is licensed with 10 GSW ConnectBots (Green). And 7 GSW ConnectBot licenses are available (Red).

ID code: 100001 Message License Obtained

Description: This event shows when a license has been obtained from GSW LADS by GSW ConnectBot and provides android ID of device.

Data: Licenses obtained from GSW LADS and shows android ID of device that obtained license.

How to Enable:

This event is generated by GSW LADS and is always enabled.

Action: Will occur when a license is obtained from GSW LADS via GSW ConnectBot.

EXAMPLE: LICENSE OBTAINED

Events.txt

100001|100001|2022-01-31T15:10:58Z|2022-01-31T15:10:58Z|0000000000000000|LISADESKTOP|com.gsw.lads|141003|7|10|0bb5d1420f03d535|

The example event above shows GSW LADS has issued a license to device with android ID 0bb5d1420f03d535 (red).

ID code: 100002 Message License Released

Description: This event shows when a license has been returned to GSW LADS and released from GSW ConnectBot and provides android ID of device.

Data: License returned to GSW LADS and show android ID of device that returned license

How to Enable:

This event is generated by GSW LADS and is always enabled.

Action: Will occur when a license is returned to GSW LADS from GSW ConnectBot.

EXAMPLE: LICENSE RETURNED

Events.txt

100002|100001|2022-01-24T15:47:06Z|2022-01-24T15:47:06Z|0000000000000000|LISADESKTOP|com.gsw.lads|141003|9|10|53306b4e381d2327|

The example event above shows GSW ConnectBot with android ID 53306b4e381d2327(red) has returned its license to GSW LADS

ID code: 100100 Message Device Telemetry Data variable change

Description: When any Device Telemetry Data variables change, this event is generated.

Data: .xml file where telemetry data variable change occurred

How to Enable:

This event is generated by GSW LADS and is always enabled.

Action: Will occur when any device telemetry data is changed

EXAMPLE: DEVICE TELEMETRY DATA VARIABLE CHANGE

Events.txt

100100|100001|2022-01-21T14:16:44Z|2022-01-21T14:16:44Z|0000000000000000|LISADESKTOP|com.gsw.lads|141003|829279e9f338d7c6.xml|||

The example event above shows GSW LADS reported .xml (red) file where telemetry data was changed.

ID code: 100101 GSW LADS Instance ID

Description: When GSW Licensing and Deployment Server is started.

Data: .xml file where telemetry data variable change occurred

How to Enable:

This event is generated by GSW LADS and is always enabled.

Action: When GSW Licensing and Deployment Server service is started.

EXAMPLE: GSW LADS INSTANCE ID

Events.txt

100101|100001|2022-07-21T20:52:54Z|2022-07-21T20:52:54Z|0000000000000000|LADSSRV|com.gsw.lads|141011|16CA6696-188B-3D06-492D-7C2DE4B39ABB|||

The example event above shows GSW LADS reported that GSW LADS has been started.

PowerShell eventHandler.ps1

GSW ConnectBot provides a very powerful way to collect and process event information. A PowerShell

To enable the EventHandler method of processing events, simply place the PowerShell script in the (GSW LADS installation folder)-> `datastore`.
It must have the exact name: `eventHandler.ps1`

Similar to the Events.txt format, eventHandler.ps1 is passed the parameters below for each event.

```
param(
[string]$messageID,
[string]$messageVersion,
[string]$createTime,
[string]$sendTime,
[string]$androidID,
[string]$clientIP,
[string]$appName,
[string]$appVersion,
[string]$message,
[string]$param1,
[string]$param2,
[string]$param3
)
```

Table 27: eventHandler.ps1 function parameters

Zebra Link-OS Printing

Georgia SoftWorks ConnectBot supports discovery and printing with Zebra's one-of-a-kind enterprise Link-OS printers. Setting up Zebra Link-OS printers is fast and easy.

Telnet/SSH Connections

The Zebra Link-OS printer must be discovered and selected for each Host connection.

Discover Zebra Link-OS printer

To configure a Zebra Link-OS printer for Telent and SSH connections:

1. Tap on the 3-dot menu in the top right of the host list screen
2. Tap on "Link OS Printers" at the top of the menu. See Figure 259
3. Select the connection type supported by your printer to initiate discovery: BT (Bluetooth), BTLE (Bluetooth Low Energy), or TCP (Wi-Fi). This example uses BT (Blue Tooth) See Figure 260

After Discovery is initiated[20], GSW ConnectBot will search for available printers, tap on the discovered printer to select it. See Figure 261. If one is not found, then either the printer is not configured for discovery(pairing) OR use the (+) icon in the bottom right to manually add the printer. See section

[20] Discovery is very fast, a matter of seconds. If 15-20 seconds have elapsed, no printer was found.

4. Add Link-OS Printer

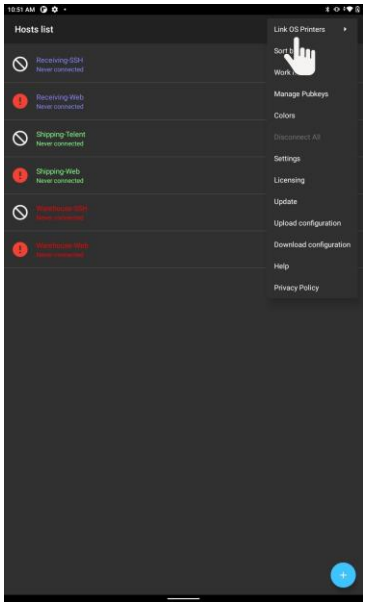


Figure 259: Select Link-OS Printers

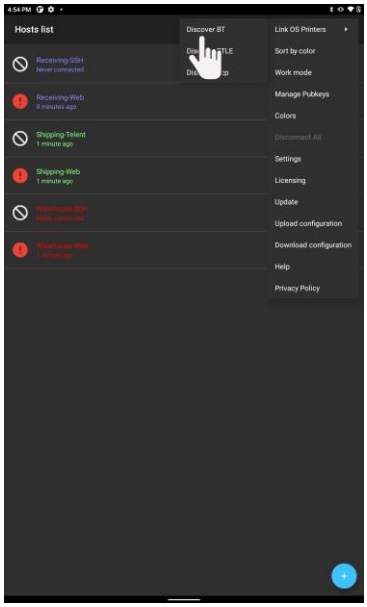


Figure 260: Select Printer Connection Technology.

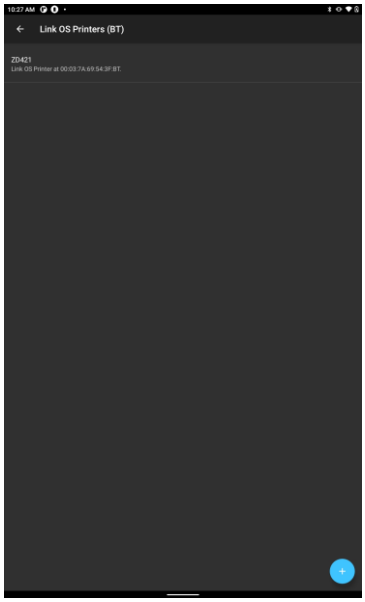
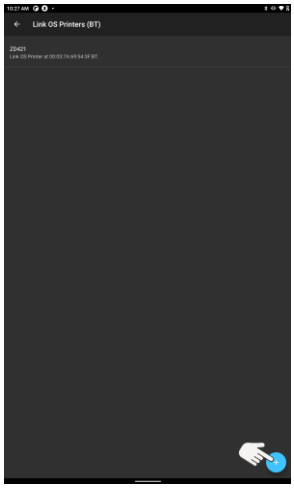


Figure 261: Printer found. Select Printer

To use the discovered Zebra Link-OS printer set section “Use Link-OS Printer.” (Page 196)

Add Link-OS Printer

To add a Link-OS printer Select the (+) icon in the bottom right



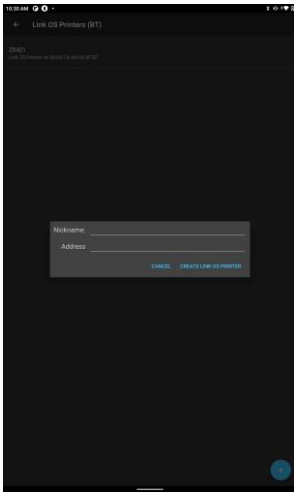


Figure 262: Add a Blue Tooth Link-OS printer

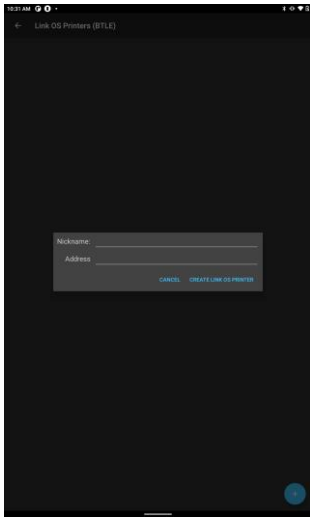


Figure 263: Add a Blue Tooth Low Energy (BTLE) Link-OS printer

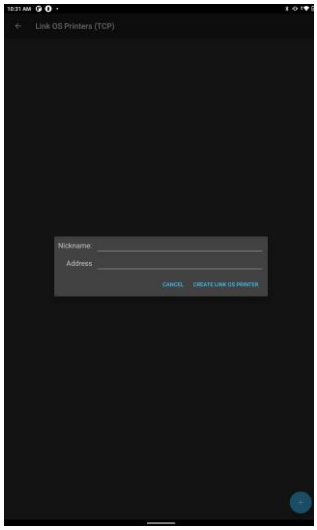


Figure 264: Add a TCP Link-OS Printer

For Blue Tooth (BT) and Blue Tooth Low Energy (BTLE) enter a Nickname for the printer. Usually, it should be an easy name to identify the printer.

Enter the MAC address of the printer.

For TCP printer, enter a Nickname for the printer. Usually, it should be an easy name to identify the printer.

Also enter the TCP/IP of the printer.

Use Link-OS Printer

1. Once a printer is connected(discovered), return to the host list screen.
2. At the host list menu, long press on the connection that requires Link-OS printing and tap “Edit Host”. See Figure 265
3. Scroll down and tap on “Use Passthrough Printer”
4. Select the desired printer from the displayed menu. See Figure 267

If the desired printer is not displayed – see section Discover Zebra Link-OS printer

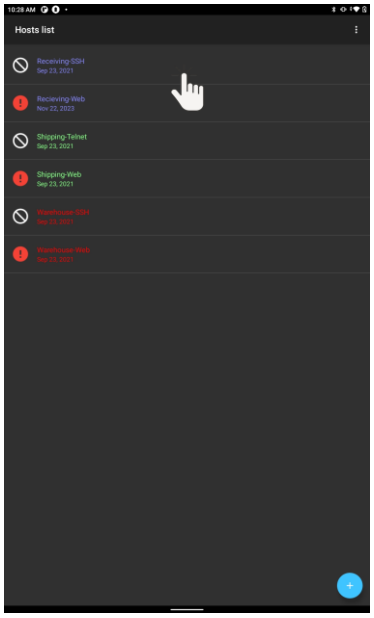


Figure 265: Long Press Host to get to Edit settings

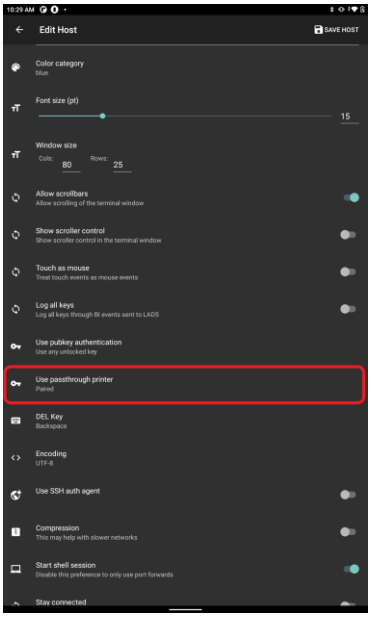


Figure 266: Scroll down to "Use passthrough printer"

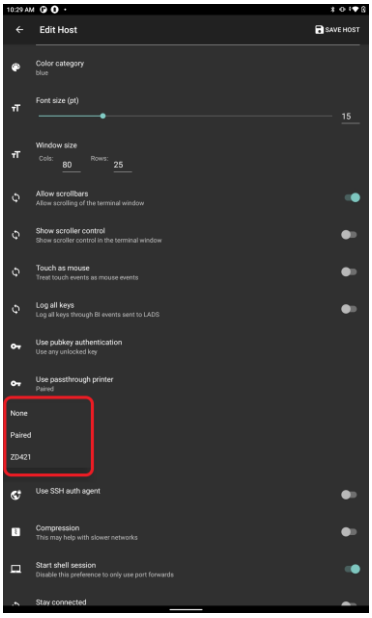
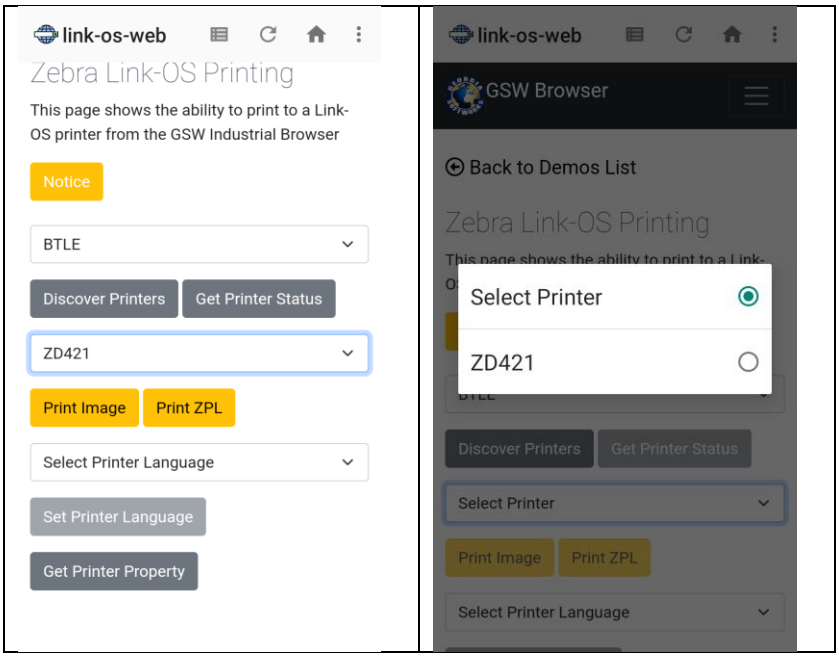


Figure 267: Select Link-OS printer

GSW Enterprise Browser.

Cordova is an easy way to get Zebra Link-OS printing operational from a web application.

Visit the demo page (https://www.georgiasoftworks.info/cordova/demos/link-os.php) from GSW ConnectBot with Cordova Enabled in the host settings.



1. Select the connection type
2. Tap “Discover Printers”
3. Select the printer from the drop-down menu
4. Test print an image or ZPL

The JavaScript used to create the example is provided at the bottom of the demo page This code can be added into an existing web-application, or injected via GSW ConnectBot JavaScript Injection

Screen Recognition / Custom Keyboard association

GSW ConnectBot has the capability to recognize screens based on their unique screen content. This provides data that can be used for associating custom keyboards, optimized for particular screens[21]. Additionally, screen recognition can be used to gather information for use in our Business Intelligence (BI) feature (see page 164).

GSW ConnectBot uses an SQLite database that can be used to switch to a custom keyboard when a pattern of characters on the screen is recognized. Custom keyboards can present a specific keyboard that addresses the inputs of each individual screen.

The ability to present only the options that the user needs in a more user-friendly format increases usability and reduces input errors.

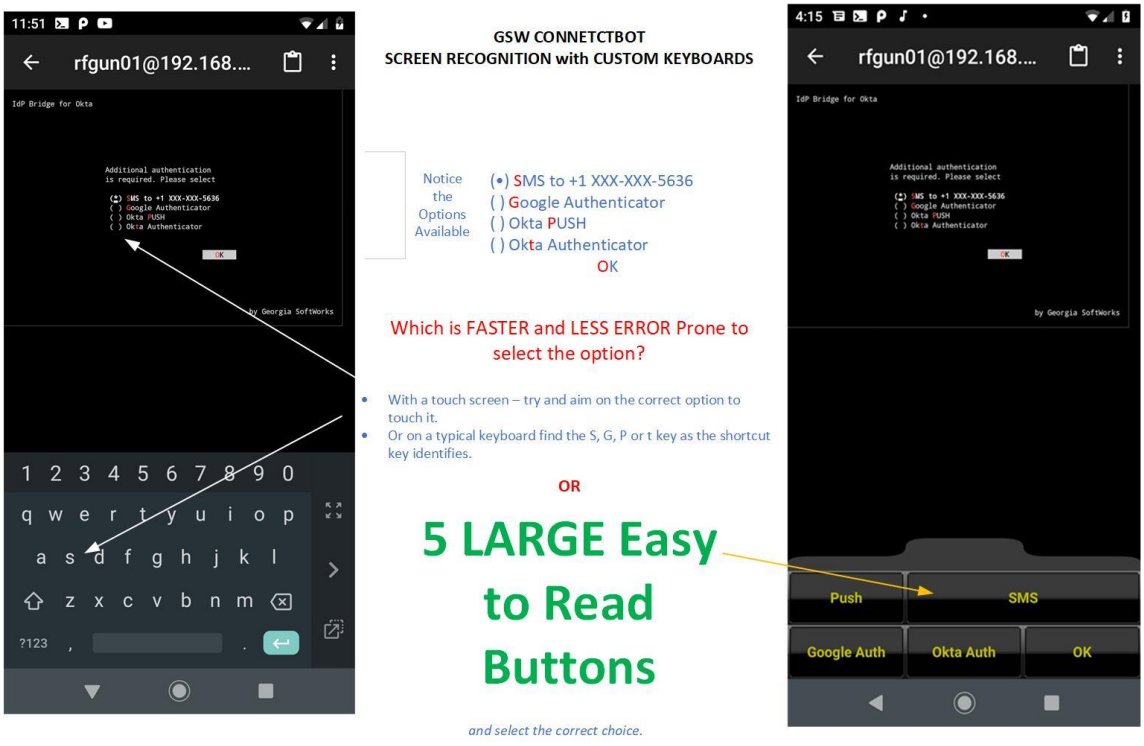


Figure 268: Screen Recognition/Custom Keyboards

Many ERP applications (warehouse, logistics, manufacturing, etc.), consist of a set of screens with strictly defined input of just a few options. GSW Screen Recognition has the ability to identify these screens. Custom Keyboards as well as Business Intelligence build on this capability.

[21] Current Screen Recognition events are only processed by Telnet/SSH.

A lightweight version of screen recognition is text recognition, which is used in GSW ConnectBot Auto Response fields as well. See page 48.

Understanding Screen Recognition

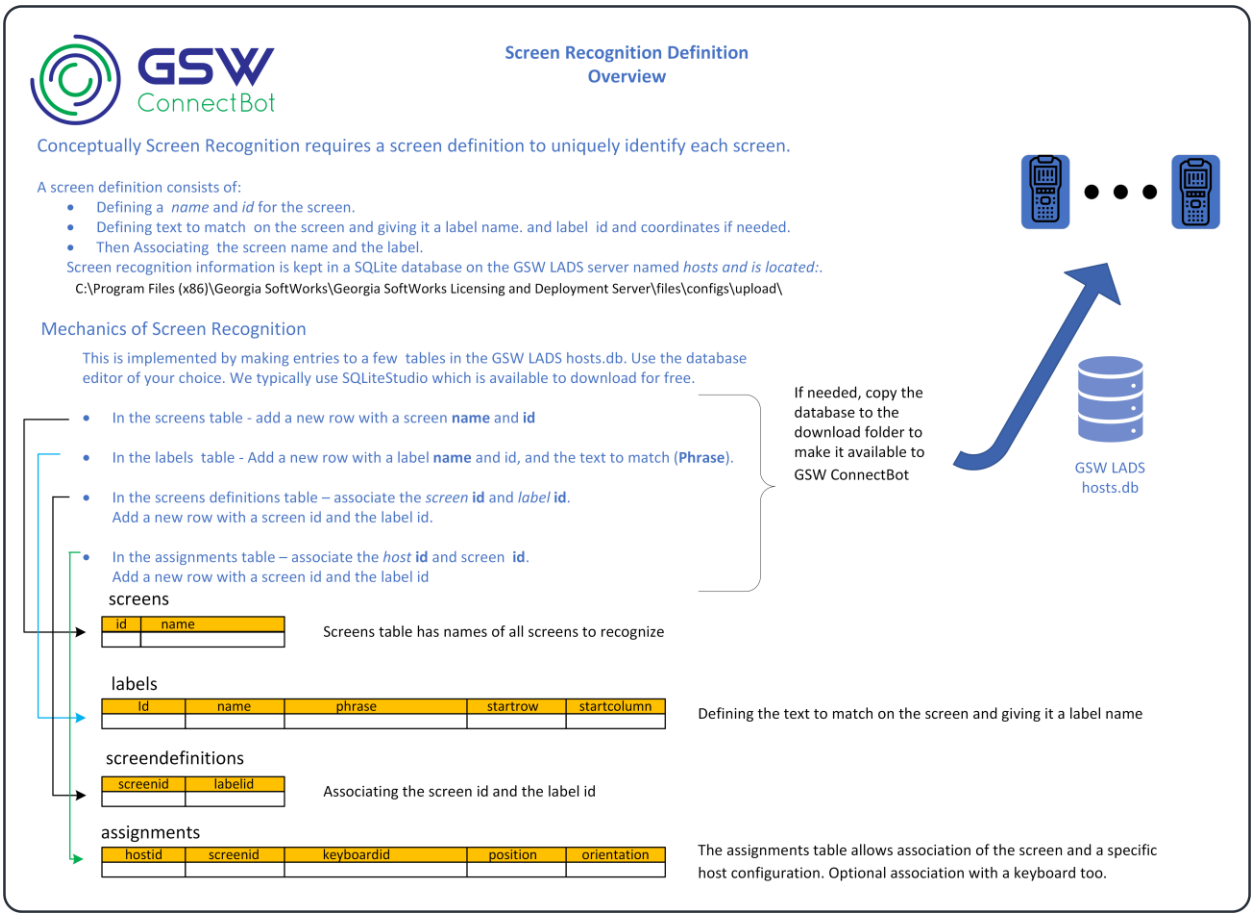


Figure 269: Screen Recognition Fundamentals

GSW LADS Database

Soon the specification for the GSW LADS Database will be published. Until that time, please contact GSW Tech Support for assistance with screen recognition and keyboard association.

Custom GSW Keyboards

An incredible way to reduce errors and increase productivity is to have custom keyboards for the most common tasks. Custom keyboards can be designed with specific keys, rows, sizes, skins etc. All aspects of the keyboard can match the requirements of your environment. From hacker's keyboards to keyboards specific to the manufacturing floor's application, custom keyboards make input easier and increase accuracy.

For example, if you often need just the number 0-9 Cancel and OK buttons, you can have a custom keyboard built with just those keys. The keys can be larger than normal accommodating large hands in difficult environments (like freezers) and making it quicker to find the number you are looking for.

For example, in the display below a numeric passcode is needed.

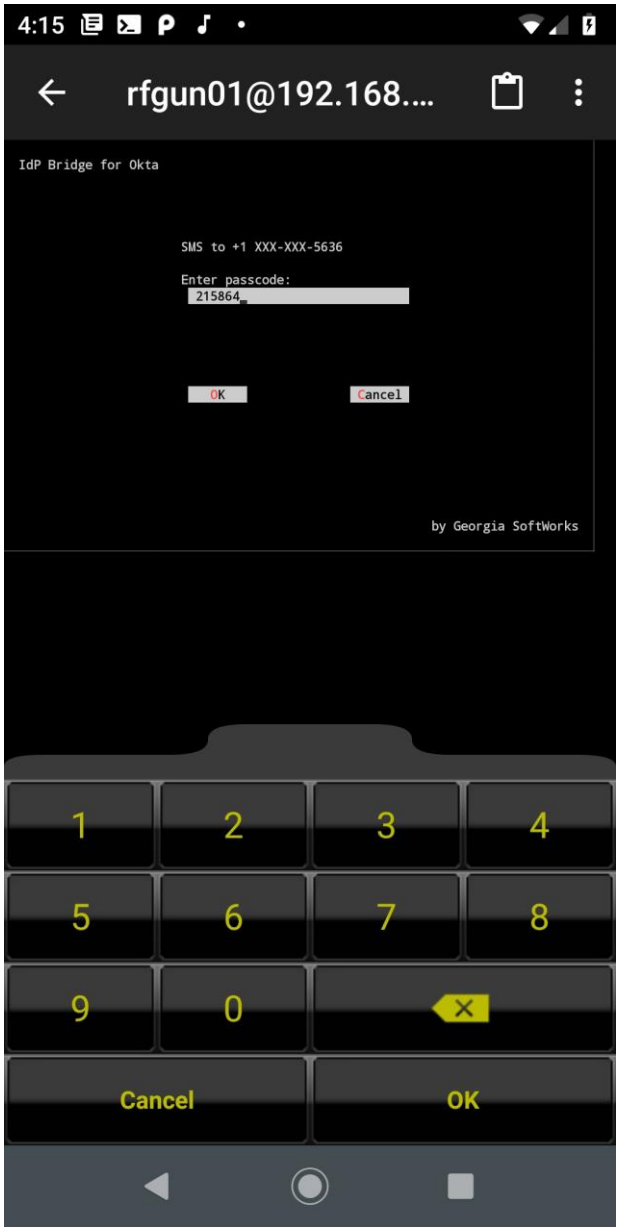


Figure 270: Numeric Only Keys - Custom Keyboard

Numeric Data entry is needed.

Larger than normal Numeric keys and ONLY the keys needed. 0-9, Cancel and OK.

This is another example where there are five choices in an option group selection.

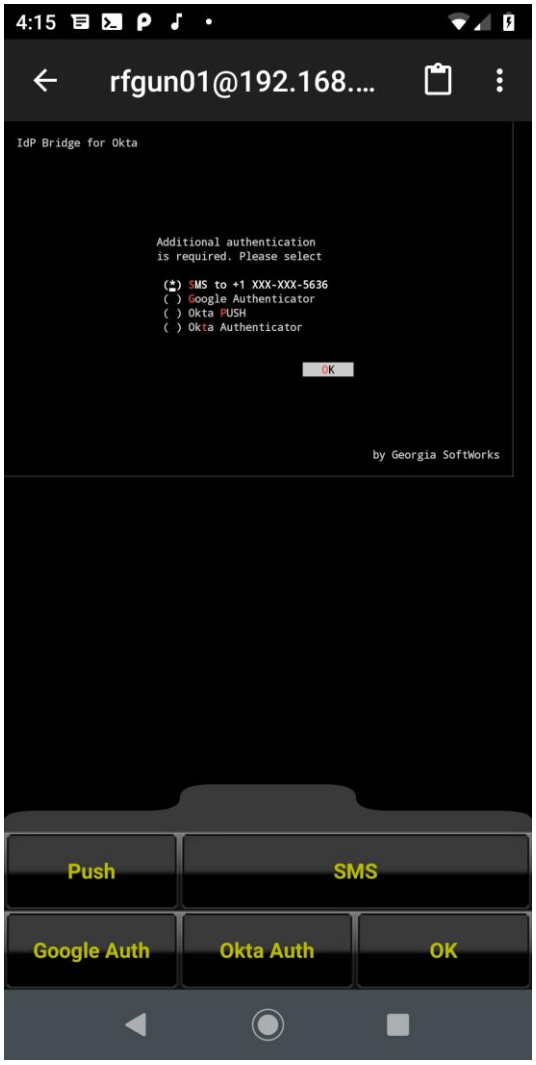


Figure 271: Five Key Only - Custom Keyboard

The option from the option group to the left can be selected much quicker by having only the keys necessary.

Only 5 keys are needed to accommodate the option group above.

If you are motivated regarding making your operations as efficient as possible, GSW can help you create Keyboards that are optimized for the screen and automatically associate it with the screen when displayed.

Please contact GSW about creating custom keyboards for your environment. GSW and some advanced resellers can create custom keyboards at an affordable fee basis, that will allow your team to be more productive and make less errors.

Keyboards are a part of the configuration that GSW ConnectBot downloads from GSW LADS. In `%gsw_lads_root%\files\configs\download`, there is a `keyboards` directory in each of the configurations. By default, the keyboards directory contains GSW keyboards (*.xml files) in both

portrait and landscape for qwerty, special keys and symbols. Each time GSW ConnectBot downloads a configuration from GSW LADS, keyboard xml files are transferred between GSW ConnectBot and GSW LADS.

The `keyboards` directory can also contain custom keyboards. Custom keyboards must follow the *GSW Keyboard XML Properties* specification, which closely follows the Android keyboard specification. Examples are the included default keyboards. **Note: Do not modify the default keyboards!** Make a copy of the existing keyboards, rename and edit. A custom keyboard should have both `_portrait` and `_landscape` versions. The file naming convention is: [description]_[landscape|portrait].xml . Example: `qwerty_landscape.xml` and `qwerty_portrait.xml` .

GSW Standard Keyboards

Georgia SoftWorks includes GSW Standard Keyboards that are preferred by many due to:

- Ease of viewing
- Handle to move keyboard
- Ability to anchor keyboard
- On/Off indicators
- Quick swapping keyboards and skins
- User controlled keyboard transparency

Below is some of the legend of special keys on the GSW Keyboards.

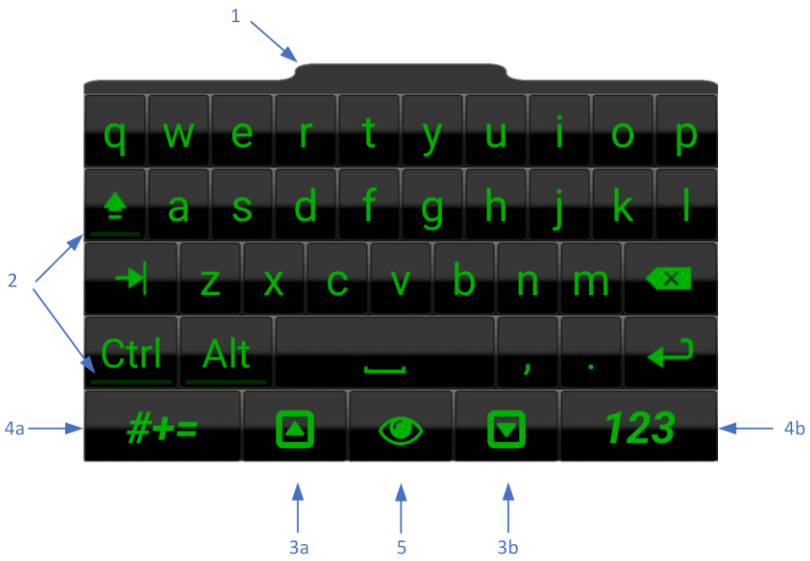


Figure 272: GSW Keyboard Special Key Definition

1. Keyboard handle. Press handle and move keyboard to desired location.
2. These are on/off indicators for sticky keys.
3. You can control the opacity/transparency of the keyboard. Often is it useful to be able to see the background of the screen through the keyboard as shown in Figure 275.
   a. Keyboard opacity – up key (can also swipe up) – Increases GSW keyboard opacity. (Decreases keyboard transparency) Shown in Figure 273 and Figure 274.
   b. Keyboard opacity – down key (can also swipe down) – Decreases GSW Keyboard opacity. (Increases keyboard transparency) Shown in Figure 274.

Figure 273: Opacity Control on default alpha keyboard

Figure 274: Swipe up to increase opacity/Swipe down to decrease opacity

Figure 275: Transparency increased to see background through keyboard

4. a. Switches to the special character keyboard.
   b. Switches to Special Key/Numeric keyboard.
   Can also swipe on the keyboard to left and right to switch between keyboards.
5. Change the keyboards skin to the next one in the circular buffer of available skins

GSW ConnectBot comes with three default portrait keyboards and three landscape keyboards.

- QWERTY
- SYMBOLS
- SPECIAL KEYS / NUMERIC

They are shown below – first in portrait mode and following in landscape.

Portrait Keyboard Images	Keyboard	Skin
 Figure 276: Qwerty keyboard – Black-Green skin	Qwerty keyboard	Black Green Skin
 Figure 277: Special Keys keyboard – Stone Skin	Special Keys keyboard	Stone Skin

 Figure 278: Numeric keyboard - Stone skin	Numeric keyboard	Stone Skin
 Figure 279: Telephone Keyboard – Black-Green (GSW Browser Only)	Telephone keyboard (GSW Web Browser Only)	Black Green Skin

The GSW ConnectBot Landscape Keyboards are placed to the right edge of the screen making it easier to see the rest of the screen.

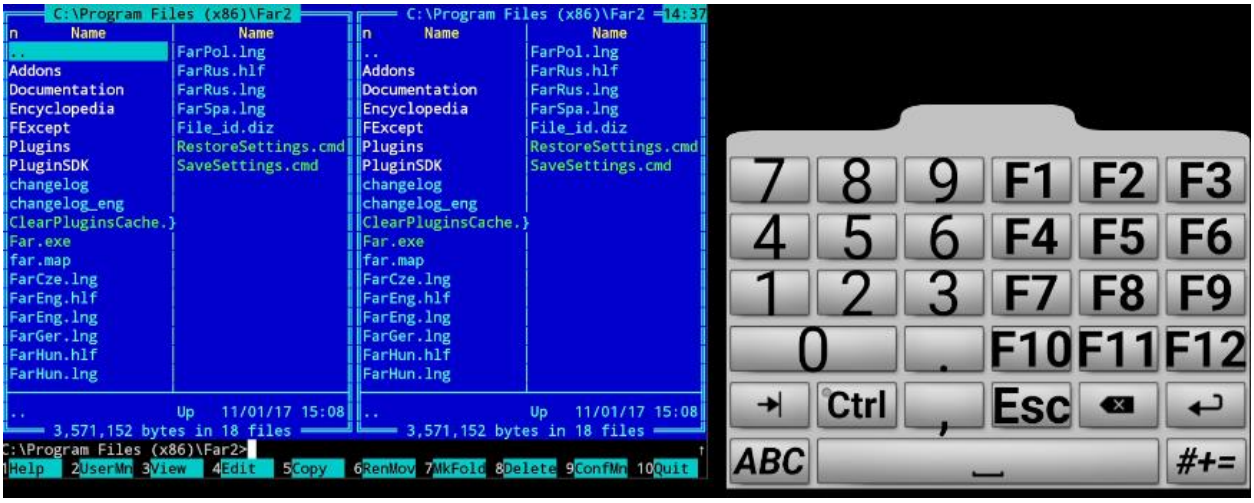


Figure 280: Landscape Symbols/Numeric Keyboard Anchored to Right Edge

Landscape Keyboard Images	Keyboard	Skin
 Figure 281: Landscape – Alpha Numeric keyboard – Yellow – Black skin	Alpha Numeric keyboard. Note: Name says Qwerty but is not a qwerty	Yellow Black Skin
 Figure 282: Landscape Special Keys keyboard - Stone Skin	Special Keys keyboard	Stone Skin

 Figure 283: Landscape Numeric - Stone Skin	Numeric keyboard	Stone Skin

Below is a variety of the GSW Keyboards and skins so you can get an idea of flexibility of keyboard looks available.

Keyboard Image	Keyboard	Skin
 Figure 284: QWERTY keyboard – Vista Sky Blue skin	Qwerty keyboard	Vista Sky Blue
 Figure 285: QWERTY keyboard – Black Green Skin	Qwerty keyboard	Vista Black Green

 Figure 286: QWERTY keyboard - Black White skin	Qwerty keyboard	Vista Black White
 Figure 287: QWERTY keyboard - Black Yellow skin	Qwerty keyboard	Vista Black Yellow

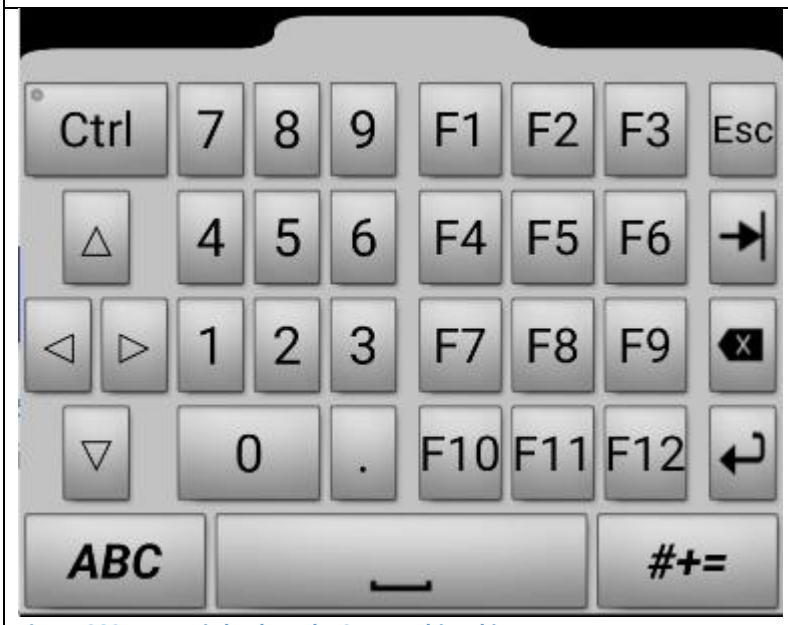
 Figure 288: QWERTY keyboard – Vista Sangria skin	Qwerty keyboard	Vista Sangria
 Figure 289: Numeric keyboard – Stone White skin	Numeric Keyboard	Stone White

 Figure 290: QWERTY keyboard – Vista Amber skin	Qwerty keyboard	Vista Amber
 Figure 291: QWERTY keyboard – Vista Green skin	Qwerty keyboard	Vista Green

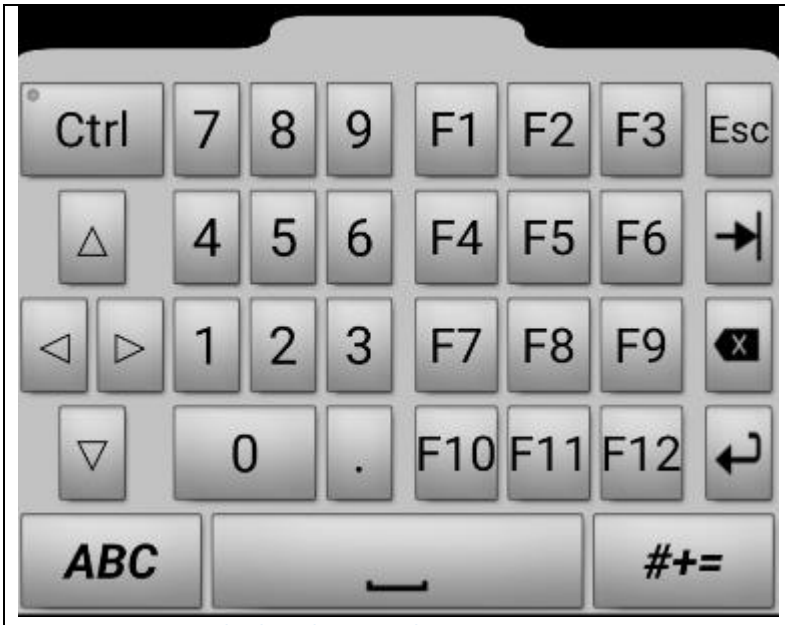
 Figure 292: Numeric keyboard – Stone skin	Numeric Keyboard	Stone Skin
 Figure 293: QWERTY keyboard – Android Green skin	Qwerty keyboard	Android Green

 Figure 294: QWERTY keyboard – Plum Crazy skin	Qwerty keyboard	Plum Crazy
 Figure 295: Qwerty keyboard – White Stone skin	Qwerty keyboard	White Stone

Technical Support

When you have a question, please not hesitate to contact GSW using the preferred support method – the GSW Support Ticket system.

Georgia SoftWorks ticket system (http://www.georgiasoftworks.com/support_ost/index.php)

If you are unable to use our ticket system, below is our telephone number.

Call +1 706.265.1018. EST, M-F 8:00 a.m. to 5:30 p.m. and have your Product ID ready.