GE's HMI-SCADA for Android™

GETTING STARTED
WITH ANDROID DEVICES

May 2020

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doc@ge.com

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About This Guide

Thank you for taking the time to install and use the GE's HMI-SCADA for Android™ product on your Android device! This document describes how to use GE's HMI-SCADA for Android client on your Android devices.

GE's HMI-SCADA for Android client allows iFIX and CIMPLICITY applications customers to connect to their respective Webspace web servers from an Android client. By connecting through your Android device, you can view and interact remotely with iFIX and CIMPLICITY applications.

GE's HMI-SCADA for Android application has been tested with:

- CIMPLICITY 9.5 or greater

- FIX 5.9 or greater

Be aware that whenever an Android device is connected to a web server (via Webspace), one client license is consumed. The number of clients that can connect to your web server depends on license key.

It is recommended to use the HMI/SCADA Android App on an Android device with OS version of 7.xx or greater.

Running GE's HMI-SCADA for Android

In order to connect to a web server from GE's HMI-SCADA for Android (ProficySCADA), you must first add the connection. Tap the **Add Connection** button to enter the connection information as shown in the following figure.
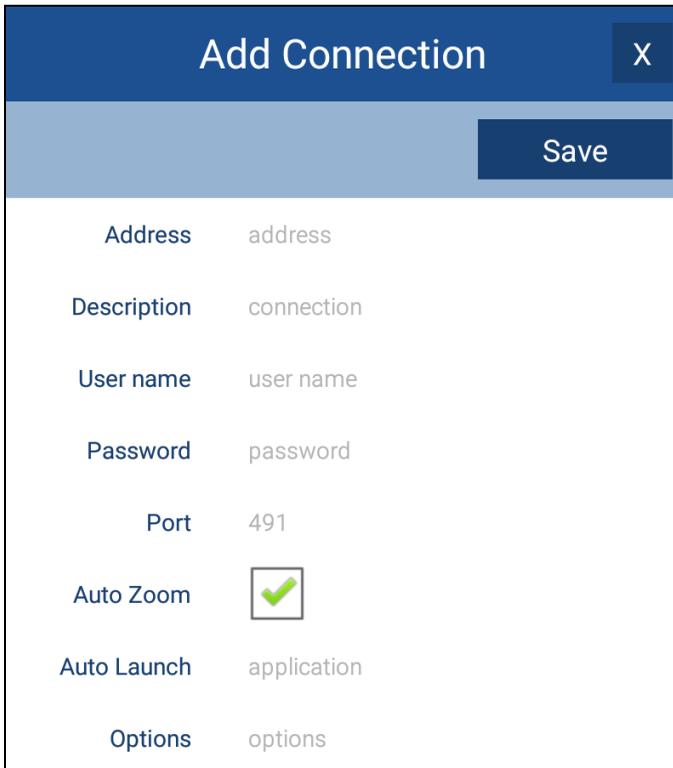
Add Connection	X
	Save
Address	address
Description	connection
User name	user name
Password	password
Port	491
Auto Zoom	✔
Auto Launch	application
Options	options

The **Add Connection** dialog box for connecting a host

To add a connection to a host

1. Tap the **Add Connection** button.
2. Type the address of the host in the **Address** box. For example, host.domain.com.
3. Type a name or description of the host in the **Description** box
4. Type your user name in the **User Name** box.
5. Type your password in the **Password** box.
6. Type the **Port** number on which the host is configured to accept connections. 491 is the default port.
7. Tap **Save**.

To open a connection

1. Tap the desired **connection** in the main window to open the **Connection** dialog box.
2. Tap the **Connect** button.

To edit a connection

1. Tap the desired **connection** in the main window to open the **Connection** dialog box.
2. Tap the **Edit** button.
3. Edit the connection properties, as desired.
4. Tap **Save**.

To delete a connection

1. Tap the desired **connection** in the main window to open the **Connection** dialog box.
2. Tap the **Edit** button.
3. Tap the **Delete** button.
4. Tap **Delete** in the confirmation dialog box.

Available Connection Options

There are several options available in the Connection dialog box. The following are the currently supported options:

- **Port Number:** While GE's HMI-SCADA for Android sessions use port number 491 by default, this setting allows you to use a different TCP/IP port to connect to your host. The GE's HMI-SCADA for Android host must be configured to accept connections on the specified port, and any firewalls must be configured to allow incoming connections on the specified port.

- **Auto Zoom:** Auto Zoom improves session usability by automatically zooming and panning into active windows, thereby making it easier to tap buttons and other user-interface elements in those windows. When a window is closed, the session will automatically zoom out to fit the newly active window. This is enabled by default, but can be disabled by toggling **Auto Zoom** off.

- **Auto Launch:** Auto Launch automatically launches the specified application when the session is launched, bypassing the Program Window. To connect to an iFIX Webspace Server, the name provided should be "iFIX". To connect to a CIMPLICITY server, the name should be "CimView," "CimLayout," or any shortcut name configured in Webspace server Admin Console on the Applications tab.

- **Options:** Use this field to supply additional optional parameters for the application specified in the Auto Launch field, using the –r command-line. For example, to specify a user screen:

  For iFIX:

  - -r IFIX /puserscreen.grf
    (if userscreen.grf is in the PICPATH)

  - -r IFIX /p"c:\Program Files (x86)\Proficy\Proficy iFIX\userscreen.grf"
    (to specify the full path)

  - -r IFIX /p"c:\Program Files (x86)\Proficy\Proficy iFIX\pic1.grf,c:\Program Files (x86)\Proficy\Proficy iFIX\tag1.tgd"

> *(if also including a tag group)*

For CIMPLICITY:

- -r CIMVIEW "c:\screens\userscreen.cim"

- -r CIMLAYOUT "c:\layouts\userlayout.cimlayout"

NOTES:

- *The Options command does not replace the Auto Launch option.*

- *Non-English characters are not allowed in the file name or path for iFIX or CIMPLICITY.*

Application View Toolbar

After connecting to a host, the Application View toolbar is displayed at the bottom of the app.

*The **Application View** toolbar*

- Tap the **Power** ⏻ icon on the left side of the toolbar to disconnect the client from the host.

- Tap the **Keyboard** ⌨ icon to open/close the onscreen keyboard.

- Tap the **Auto Zoom** ⛶ icon to enable/disable Auto zoom. When Auto Zoom is enabled, Webspace will automatically zoom and pan the view to the active application window.

- Tap the **Tasks** ⧉ icon on the right side of the toolbar to view a list of tasks currently running on the host. Tap an item in the list to activate the associated application. Right swipe an item to close the associated application.

Interacting with the Server

After a session is established, you interact with the host web server using several multi-touch gestures. These gestures allow you to interact naturally with applications running on the host, even though your Android device lacks a mouse and keyboard. The following are the common operations achievable using a mouse and keyboard, and a description of how to perform them using your client for Android.

Understanding the Host Canvas

When connecting to a host using GE's HMI-SCADA for Android, the image you see on the screen is essentially a canvas just like any other canvas on your Android device. You can pinch in and out to zoom in and out. To pan the view, press three fingers on the screen and drag your fingers across the screen.

Webspace uses a three-finger drag to pan the view (instead of the typical single-finger drag) so that single finger drag operations can be used to simulate left button drag operations in remote applications.

Clicking and Double-Clicking

In order to click or double-click a button or other user interface component from the host, simply tap or double-tap on the touchscreen. If the user interface component on the application is too small to hit accurately with your finger, you can temporarily zoom into it by pinching out.

Right-Clicking

In order to achieve a right-mouse click, perform a two-finger tap at the position where you would like the right-click to occur. The actual position of the right-click will be at the position of your left finger.
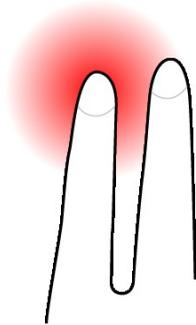
Right-clicking by tapping two fingers on the screen

Dragging

In order to drag the mouse over the application (for dragging windows, selecting text in a document, and so on), tap and hold at the area of the screen where you would like the drag operation to begin, and then begin dragging your finger across the screen. At this point, an on-screen indicator will appear indicating that a drag operation is in progress.

Hold your finger steady for a moment before you begin dragging it. Otherwise, the GE's HMI-SCADA for Android app will simply pan the host image, and dragging will not occur.

Scrolling

In order to easily scroll through a document, drag two fingers vertically. Dragging upwards scrolls down, while dragging downwards scrolls up. The further you go in each direction, the faster the scrolling.

Using the Touch Keyboard

The device's onscreen keyboard will generally open automatically whenever an application can receive text input. To open the onscreen keyboard, perform a three-

finger tap anywhere on the screen by simultaneously putting three fingers anywhere and immediately releasing them. The keyboard can be closed the same way. Another option is to bring up the on-screen toolbar and use the keyboard buttons on the toolbar. To expose the on-screen toolbar, press and hold a single finger anywhere on the screen. This will bring up the toolbar for several seconds until it is automatically hidden.

Special Keys Support

Your Android device client adds an extra row of keys to the top of the onscreen keyboard. This keyboard extension includes ctrl, shift, alt, tab, esc, home, end, insert, delete, up, down, left, right, function keys 1 through 12, and so on. For example, to copy and paste text, highlight the text and press the Ctrl + c button to copy it. Then press the Ctrl + v button to paste the text. To see all the special keys, scroll the keys on the right side of the top row by sliding a finger to the left and right over the keys.

Windows Keyboard Extension

NOTE: Tapping the shift key on the special keyboard and then tapping a character on the main onscreen keyboard does not produce an upper case character. To type upper case characters, use the up-arrow keys on the main onscreen keyboard

Application Settings

GE's HMI-SCADA for Android supports the following for app Settings:

- **Pin Toolbar:** When the Pin Toolbar option is set to ON, the toolbar will be displayed when your Android client is started.

- **Auto Connect:** When Auto Connect is ON, the client automatically connects to the last host the user accessed.

- **Auto Launch:** If an application is specified in the Auto Launch field, the client connects to the host and automatically starts the application, bypassing the Program Window. However, if an application name is entered in the Auto Launch option of a Favorite Host, that application will be launched upon connection, overriding the application's Auto Launch setting.

- **Allow Gateway Connections:** When Allow Gateway Connections is ON, the Add Connection dialog box displays an additional option that lets you create connections to gateways, in addition to connections to Webspace hosts.

- **Scale Resolution:** Resolution scaling improves client usability and reduces bandwidth on both the client and the host. It is enabled by default for all Webspace connections.

- **Reset App:** Resetting the application will remove all saved connections and settings.

To configure these options use the **Settings** option. The following dialog box appears.

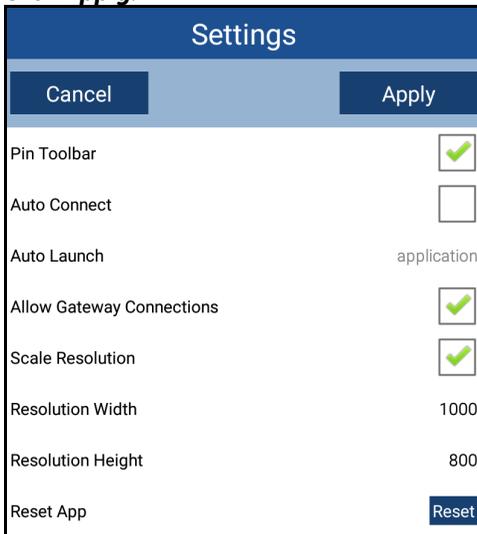| Settings	
Cancel	Apply
Pin Toolbar	✔
Auto Connect	✔
Auto Launch	application
Allow Gateway Connections	☐
Scale Resolution	✔
Resolution Width	width
Resolution Height	height
Reset App	Reset

Settings dialog box

Resolution Scaling

Resolution refers to the clarity of the text and images displayed on your screen. At higher resolutions, such as 1600 x 1200 pixels, items appear sharper. They also appear smaller so more items can fit on the screen. At lower resolutions, such as 800 x 600 pixels, fewer items fit on the screen, but they appear larger. On high-density Android devices, Webspace sessions are run at a resolution of half the width by half the height of the device. Resolution scaling improves client usability and reduces bandwidth on both the client and the host. It is enabled by default for all Webspace connections.

You can change the resolution width and height to best fit your device in the **Settings** dialog box. You can adjust the resolution to make text and objects appear larger on your screen, or adjust it to make text and objects appear smaller so you have more space on your screen.

To change the resolution

1. Click the **Settings** icon in the lower right corner of the Connection view.
2. Type the desired width resolution in the **Resolution Width** box.
3. Type the desired height resolution in the **Resolution Height** box.
4. *Click **Apply**.*

Settings	
Cancel	Apply
Pin Toolbar	✔
Auto Connect	☐
Auto Launch	application
Allow Gateway Connections	✔
Scale Resolution	✔
Resolution Width	1000
Resolution Height	800
Reset App	Reset

Settings dialog box

If only a width or a height is specified, Webspace will automatically calculate the missing value, based on the device's aspect ratio.

NOTE: Resolution scaling is not supported on Android devices with low or medium display density value. The **Scale Resolution** option will not appear in the Settings dialog box, and Webspace sessions will always run at the full resolution of the device.
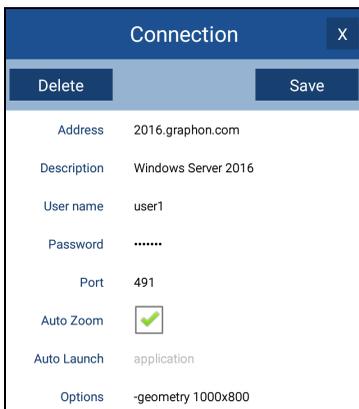
Resolution scaling can be disabled through the Settings dialog box. When resolution scaling is disabled, Webspace sessions will run at the full resolution of the client device.

To disable resolution scaling

1. Click the **Settings** icon in the lower right corner of the Connection view.
2. In the Settings dialog box, click the check box next to **Scale Resolution** to disable it.
3. Click **Apply**.

When adding or editing a connection, you can specify a resolution that will only apply to that connection. This will override the resolution specified in the **Settings** dialog box.

In the **Add Connection** or **Connection** dialog boxes, type **–geometry** followed by the desired *width x height* (in pixels) in the **Options** box. For example, -geometry 1000x800 or –geometry 1136x640
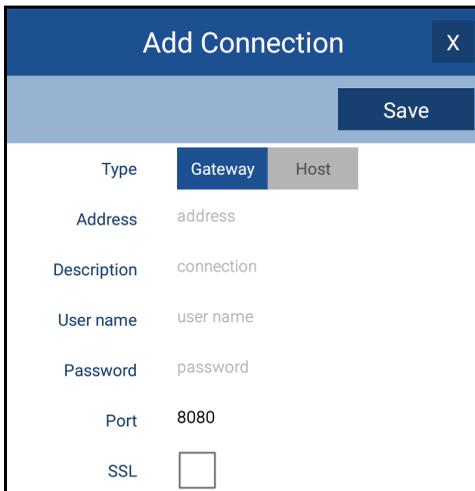

Connection *dialog box*

Gateway Support

When the **Allow Gateway Connections** option is enabled, you can add connections to gateways, as well as connections to Webspace hosts.

To add a connection to a gateway

1. Tap the **Add Connection** button.
2. Tap the **Gateway** button.
3. Type the address of the gateway in the **Address** box. For example, gateway.domain.com.
4. Type the name of the gateway in the **Description** box.
5. Type your user name in the **User Name** box.
6. Type your password in the **Password** box.
7. Type the **Port** number on which the gateway is configured to accept connections. 8080 is the default port.
8. If the gateway uses HTTPS, check the **SSL** box. If the gateway uses HTTP, SSL should not be enabled.
9. Click **Save**.

Add Connection to a gateway dialog box

Printing

Webspace supports printing from Android devices.

To print a document

1. While running, print a document as you normally would.
2. Select **Preview PDF**, then click the **Print** button. This will convert the document to a .pdf.
3. When the .pdf opens, tap the **Share** button on the Android device's toolbar.
4. Tap the **Print** button.

Logging

The Webspace app synchronizes its log files with the host. Log files from the Webspace app are stored in the \Program Files\Proficy\Proficy Webspace\Log\ folder on the host.

The names of log files include the name of the user, the address of the host, and the date and time the Webspace app was started.

Maintaining the Same Application Session

The Android OS only allows a maximum setting of 30 minutes (default is 1 minute) before the display goes to sleep. This triggers a disconnect in the GE's HMI-SCADA for Android app. To allow the user to regain the Webspace session when this happens, do the following:

- **Session Shutdown:** On the Webspace web server host machine, open the Webspace Administration tool. In the Tools menu, select Host, and click Options. Select the Session Shutdown Tab. Set the 'Disconnected sessions terminate field to After, and then set it to X minutes, where X can be up to 525600 minutes (which is 365 days).

- **Auto Connect:** When Auto Connect is ON, the client automatically connects to the last host the user accessed. To configure this option inside the GE's HMI-SCADA for Android app (ProficySCADA), use the Settings icon at the top right of the host list screen, and select the Auto Connect check box.

Tips for CIMPLICITY and iFIX

Be aware of the following tips when working with GE's HMI-SCADA for Android application on your Android device:

- Network usage can vary considerably based on the amount of data being displayed and updated in your screens/pictures. Be sure to take this into consideration when building or displaying your screens/pictures.

- Exporting files from your HMI/SCADA application will only give you access to your web server and its mapped drives.

- When zooming, be sure to make accurate clicks.

Best Practices

Be aware of the following best practices when working with GE's HMI-SCADA for Android application on your Android device:

- Minimize keyboard input.

- Use large buttons.

- Use care with data entry objects, especially sliders.

- Run your application with the Auto Zoom enabled to allow for easier navigation.

- Become familiar with using two fingers for zooming in/out (especially if auto zoom is deactivated). Many pop-up screens and menus (for instance, right-click menus) are very difficult to read/use unless they are zoomed in.

- Use large buttons to help with key pad navigation.

- Use Buttons and Ramps instead of Sliders for ease of use.

- Lock your device to ensure you do not inadvertently invoke control elements while your Android device is in your briefcase, backpack, and so on, and to prevent unauthorized access.

- Be sure to use a long (strong) password to protect your device, as opposed to the simple password option.

Known Issues

CIMPLICITY Webspace Session Disconnects

When an Android session is connected to the supported CIMPLICITY Webspace Server, you may see a session disconnect after few minutes and then a reconnection attempt. This issue is seen frequently on devices with an Android version lower than 7.xx and less than 4GB memory.

It is recommended to use an Android device with OS version of 7.xx or greater. On occasion, you may still experience this issue on devices with 7.xx or higher.

The workaround to avoid this issue is as follows:

1. In the Proficy Webspace Server admin console, set the 'Disconnected sessions terminate' as After 5 minutes:
   • On the Webspace Server, open the Proficy Webspace Admin Console.
   • From main menu , select Tools, and then click Host Options.
   • On the Session Shutdown tab, look for 'Disconnected sessions terminate' field, and enable the option After, and set value as 5 minutes.

2. In the Android App connection dialog box, for Options enter the parameters: -mx 16 -qt 1:
   • Open Android App and tap the desired connection in the main window to open the Connection dialog box.
   • Tap the Edit button.
   • In Options field enter: -mx 16 -qt 1
   • Tap Save.

   This will set SessionMaxColorDepth: from 32 to 16, and QuantizeSwitch: from 0 to 1.

   The SessionMaxColorDepth change reduces the color depth of sessions on the host from 32 to 16 bits-per-pixel. The QuantizeSwitch change enables a lossy

bitmap compression algorithm. These settings can impact the quality of display, the client will be 16-bit color and images will be limited to 256 colors.