



Quick Start for Cloud

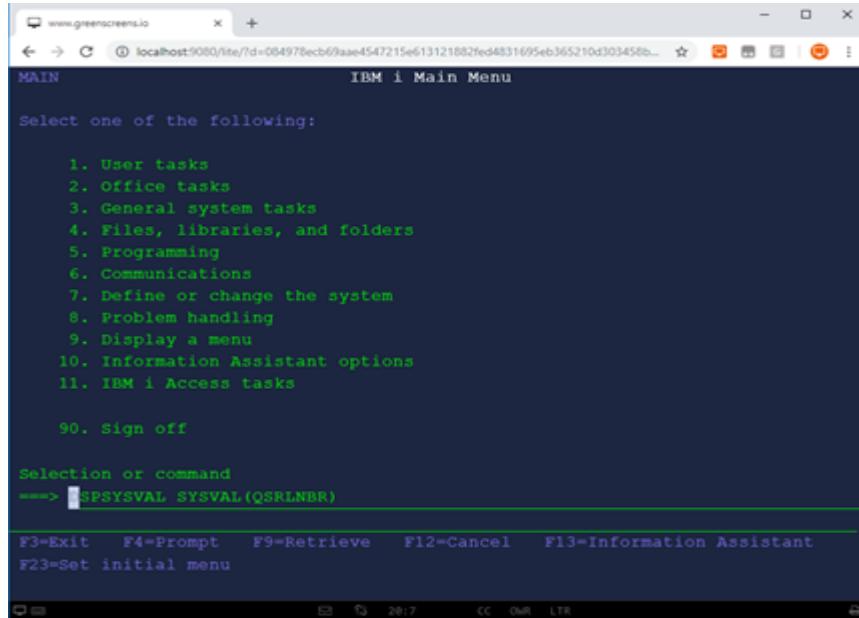
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Requesting license

Green Screens Terminal use IBM I licensing API to validate licensed servers for use with or product. In order to get demo or production license key, IBM system serial number is required.

License can be provided with DSPSYSVAL SYSVAL(QSRLNBR).



www.greenscreens.io

MAIN IBM i Main Menu

Select one of the following:

- 1. User tasks
- 2. Office tasks
- 3. General system tasks
- 4. Files, libraries, and folders
- 5. Programming
- 6. Communications
- 7. Define or change the system
- 8. Problem handling
- 9. Display a menu
- 10. Information Assistant options
- 11. IBM i Access tasks

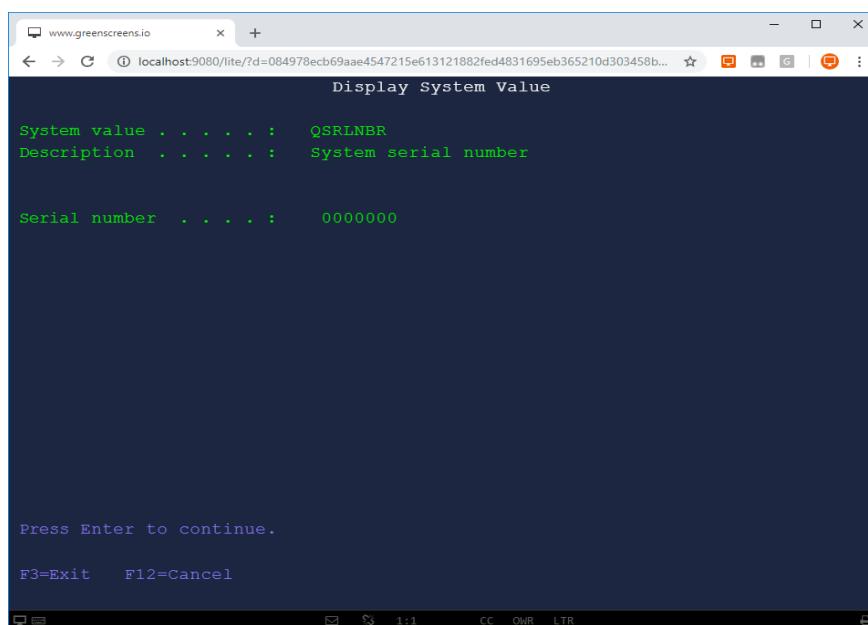
90. Sign off

Selection or command

====> DSPSYSVAL SYSVAL(QSRLNBR)

F3=Exit F4=Prompt F9=Retrieve F12=Cancel F13=Information Assistant
F23=Set initial menu

Please, send us serial number as shown on the screen below so we can generate a license key.



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Display System Value

System value : QSRLNBR
Description : System serial number

Serial number : 0000000

Press Enter to continue.

F3=Exit F12=Cancel

Open <https://cloud.greenscreens.ltd> and go to the License registration page to request 45-days demo license key.

Prerequisites

Green Screens Terminal Service VM – cloud virtual image is a preinstalled Linux based image optimized for cloud usage by various cloud providers.

Network ports:

Browser to web terminal:

- Direct access to Green Screens server: 80, 443, 8080, 8443 (default 8080, 8443)

Web server to IBM I :

- 5250 telnet ports: 23 or 992 if SSL is used
- Other required service ports (DDM service)

Service	as-svrmapping	drda	as-central	as-file	as-rmtcmd	as-signon	as-db	as-netprt
Port	449	446	8470	8473	8475	8476	8471	8474
TLS Port	-	448	9470	9473	9475	9476	9471	9474

Source: <https://javadoc.midrange.com/ports.php>

DDM can be started with **STRTCPSVR *DDM** from command line.

DRDA service can be started automatically by using the **CHGDDMTCPA AUTOSTART(*YES)** command.

IBM I Admin user

Green Screens Terminal Proxy Service use DDM service and QSECOFR level user for automatic OUTQ and printer writer's creation.

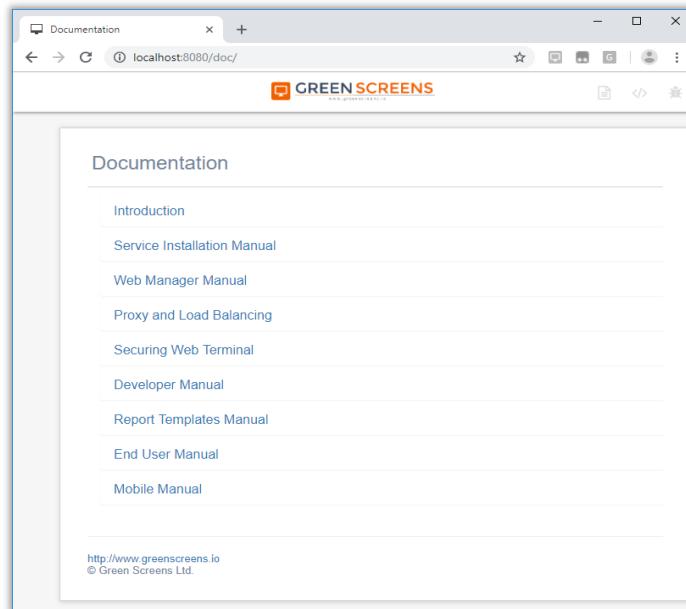
QSECOFR level user is required to install product definition and license key to the IBM I system into GRNSCREENS library.

Accessing service

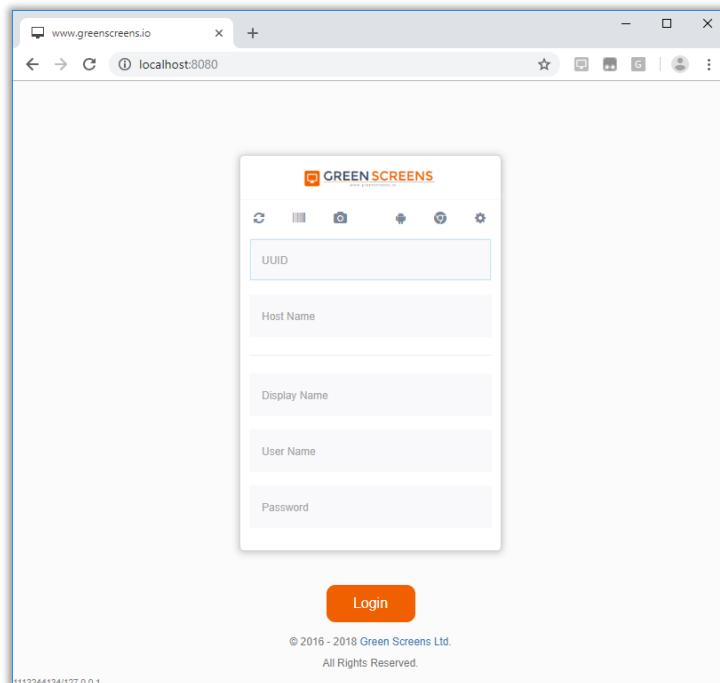
Web access should be available ~1min. after service is started for the first time.

NOTE: IP_ADDRESS should be replaced with real IP provided by your cloud provider.

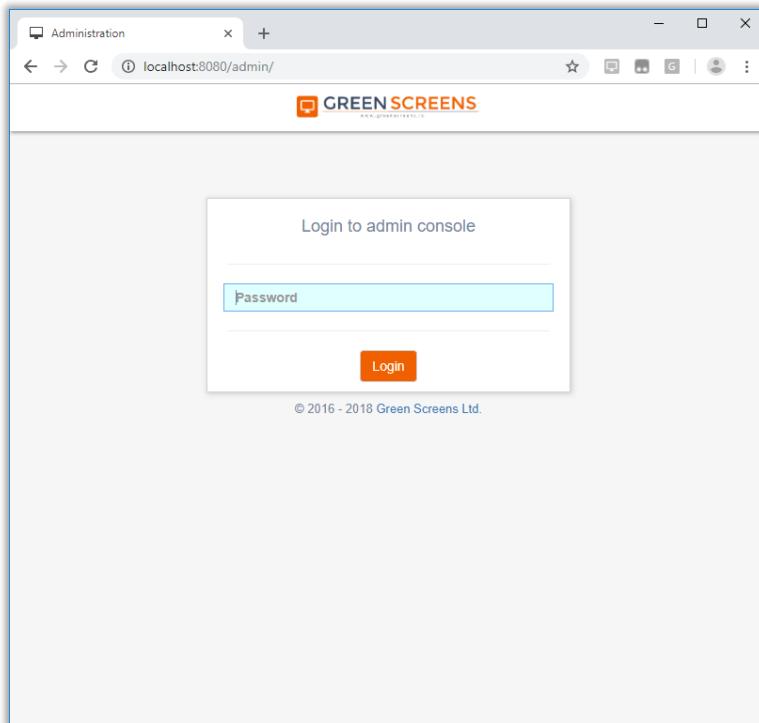
To access documentation pages open http://IP_ADDRESS/doc in the browser.



To access main user page open http://IP_ADDRESS in the browser.

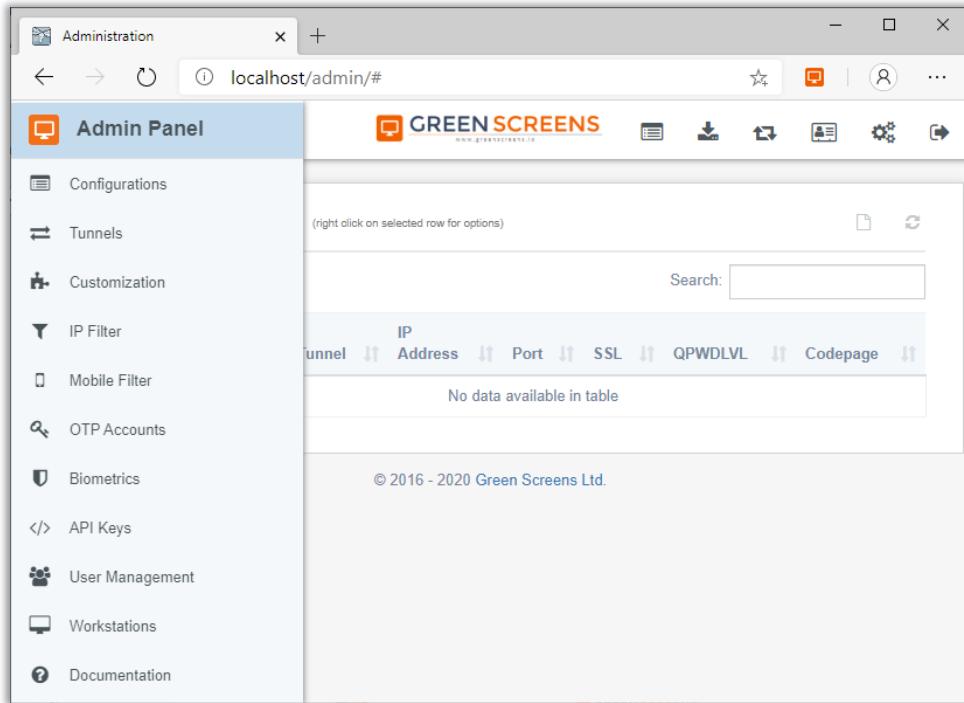


To access admin page open http://IP_ADDRESS/admin in the browser. (default password is **admin**)

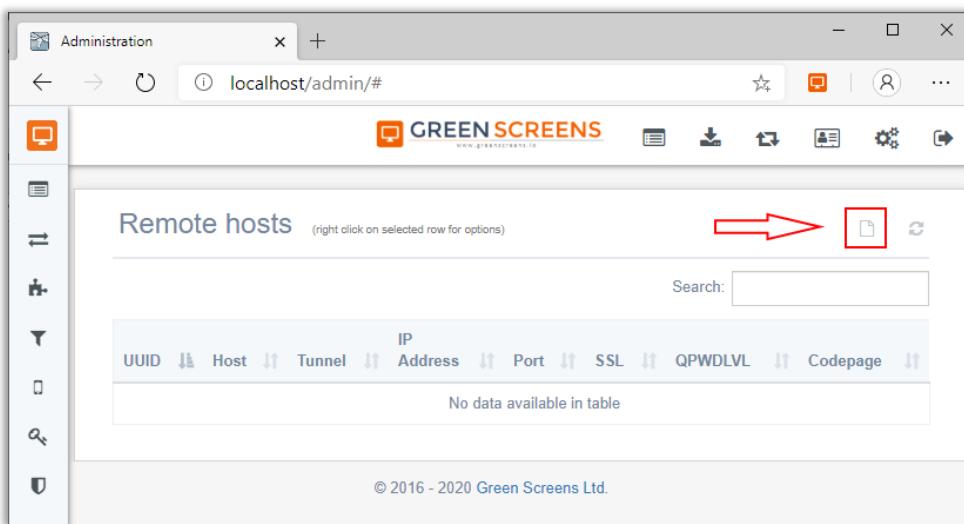


IBM I connection setup

After log-in to the admin page, select **Configurations** from left tab



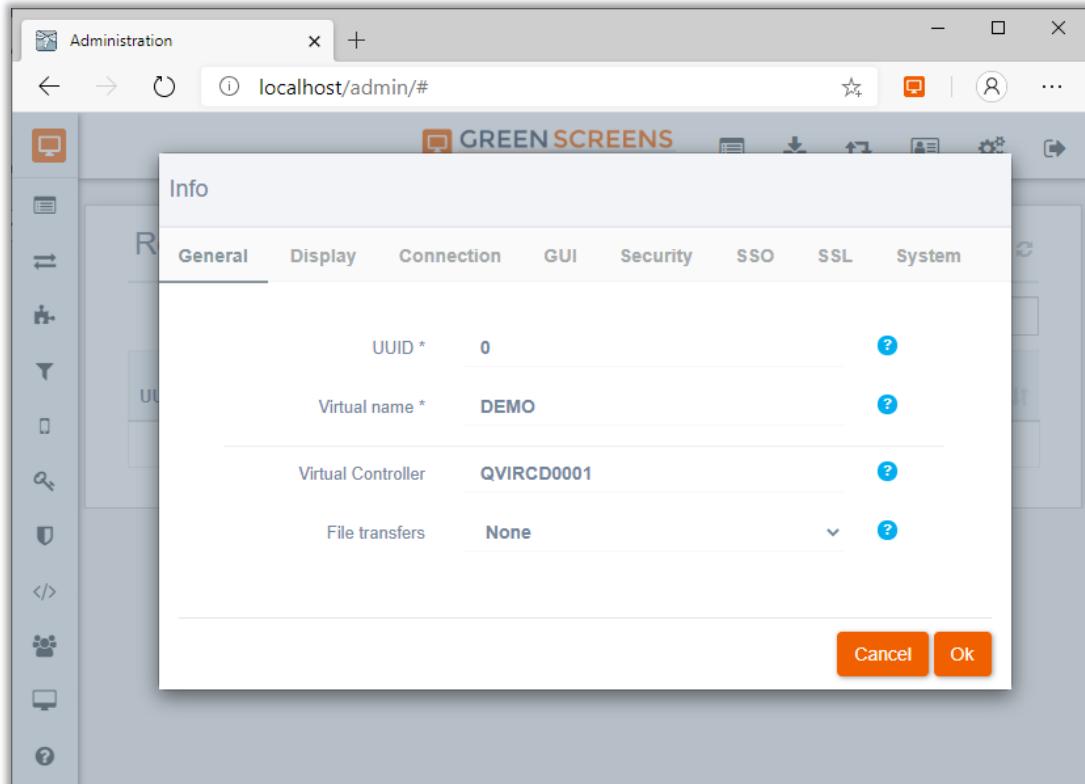
Select **Add New Server** (marked red box) and follow next screens how to setup IBM I server.



Host configuration screen will open with multiple tabs. Be sure to fill all required fields.

UUID and Host are Virtual Server Group and Virtual Host Name. One group can have multiple host configurations. UUID and Host name are used in login page instead of server IP address or domain name.

Virtual controller is required for auto device creation. Used only when automatic printer writer creation is enabled.

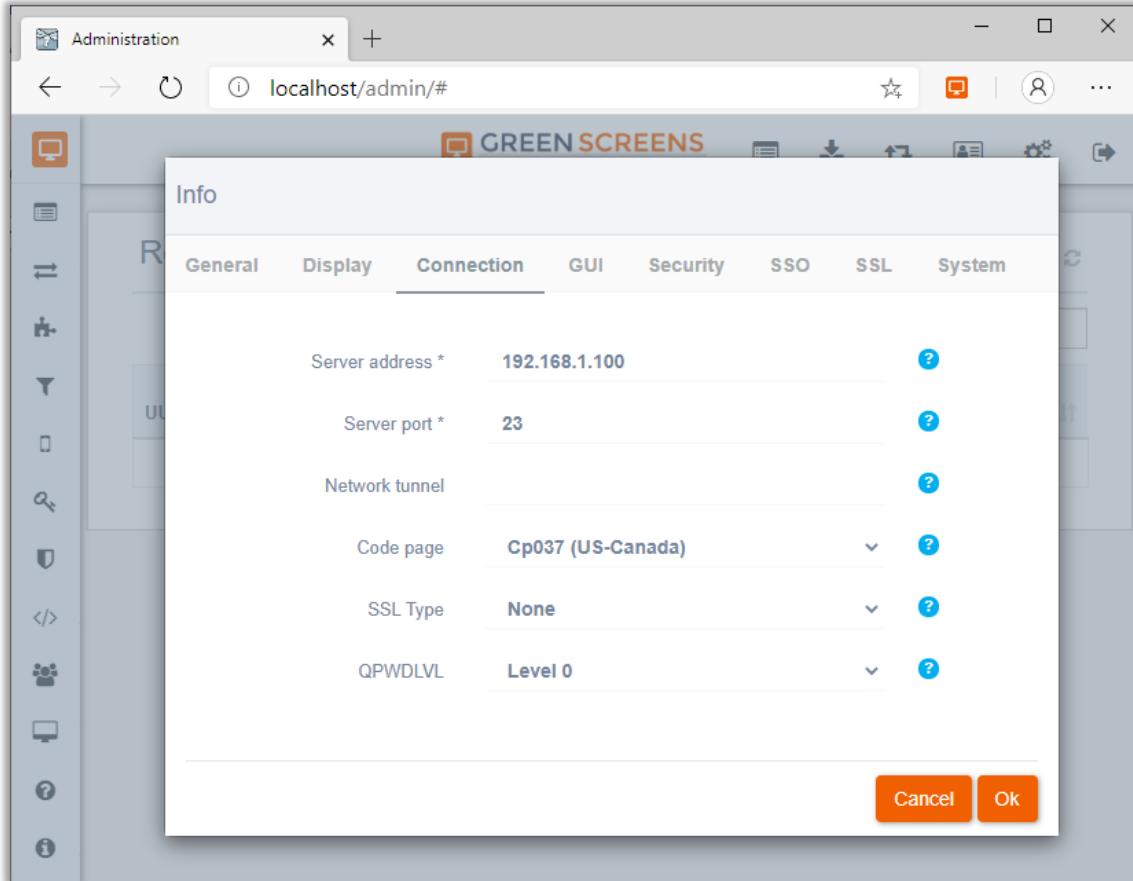


Open **Connection** tab and enter your server IP address, 5250 telnet port (default is 23).

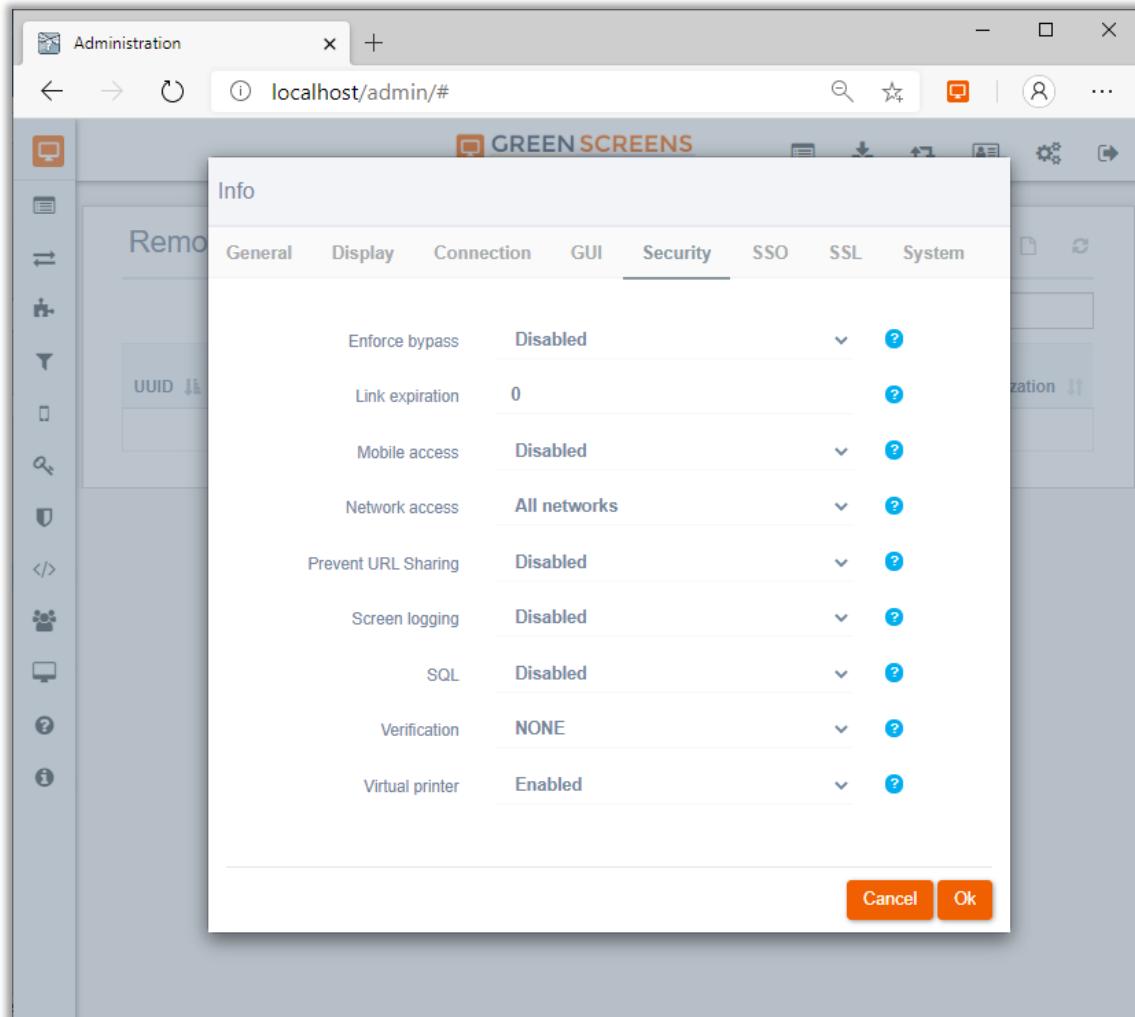
QPWDLEVEL must be the same as set on IBM I for autosign-on to function properly and if enabled by IBM I system.

Do not forget to select proper code page for your country.

NOTE: QPWDLEVEL can be set to N/A. In that case passwords for auto sign-on are sent unencrypted. This feature is enabled for systems where QPWDLVL and bypass signon-on are not supported.



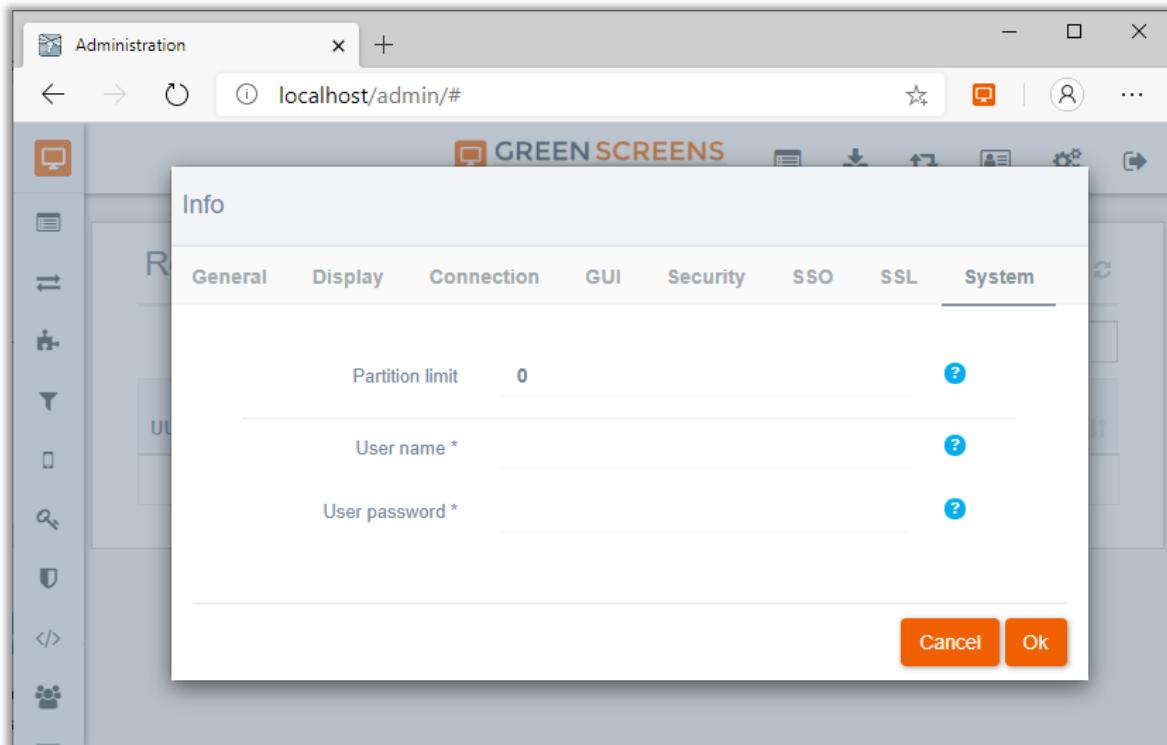
On **Security** tab set **Mobile access** to enabled. Setup shown on this screen is with all advanced security measures off.



Open **System** tab and enter system user. System user on this screen must have administrative level to be able to create printer writers, display devices etc.

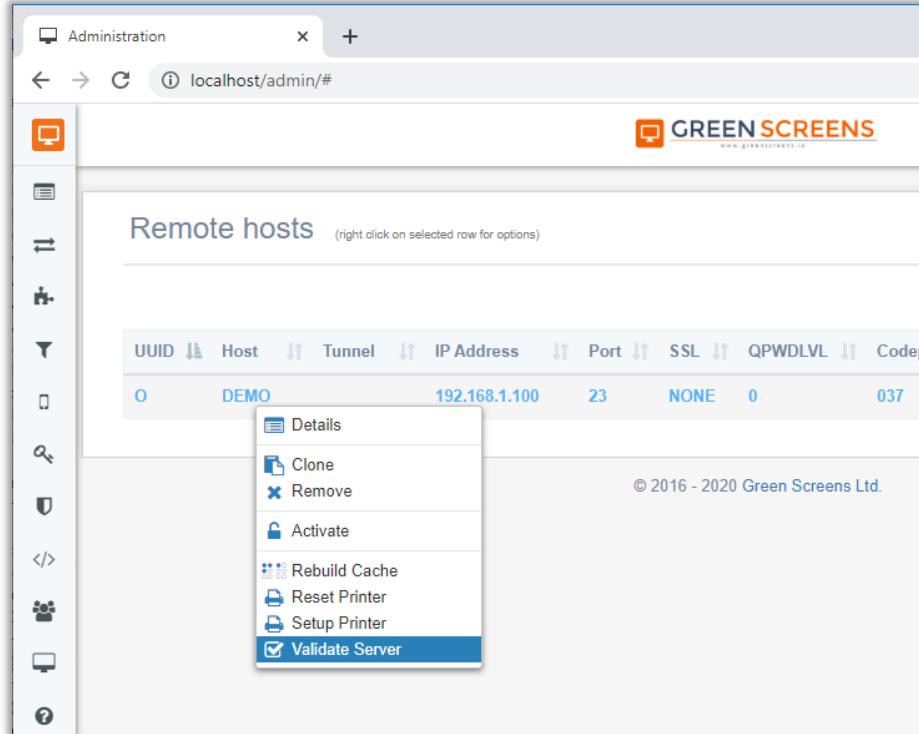
Partition limit should be used only when license is split among multiple partitions.

For more information, please refer to the Service Installation manual.



Validating Host Configuration

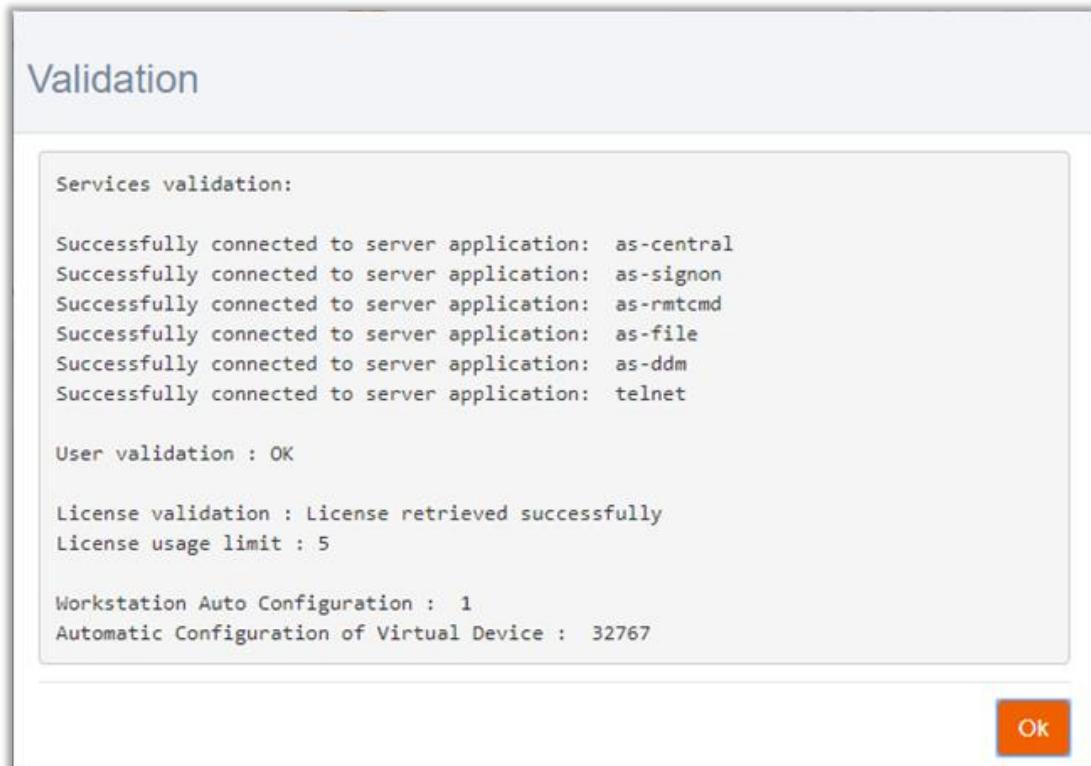
After configuration is created, use Validate Server to check if all required prerequisites are meet. This test will show which of required elements are missing.



The screenshot shows the Green Screens Administration interface. The main window displays a table of 'Remote hosts' with the following columns: UUID, Host, Tunnel, IP Address, Port, SSL, QPWDLVL, and Codepage. A single row is selected for the host 'DEMO' with the IP address 192.168.1.100. A context menu is open over this row, listing several options: Details, Clone, Remove, Activate, Rebuild Cache, Reset Printer, Setup Printer, and Validate Server. The 'Validate Server' option is highlighted with a blue background. The interface has a sidebar with various icons and a footer with the copyright notice '© 2016 - 2020 Green Screens Ltd.'

Validation result is shown inside dialog.

NOTE: If license is not installed yet it will be noted in the report. After license installation, validate again to check if license can be retrieved properly.



Installing License

Product definition and license key must be installed to the IBM I server for product to be used. Installation will transfer small SAVF to the IBM I and restore into GRNSCREENS library. SAVF contains product definition required for license validation and a few message files.

License can be installed in two ways:

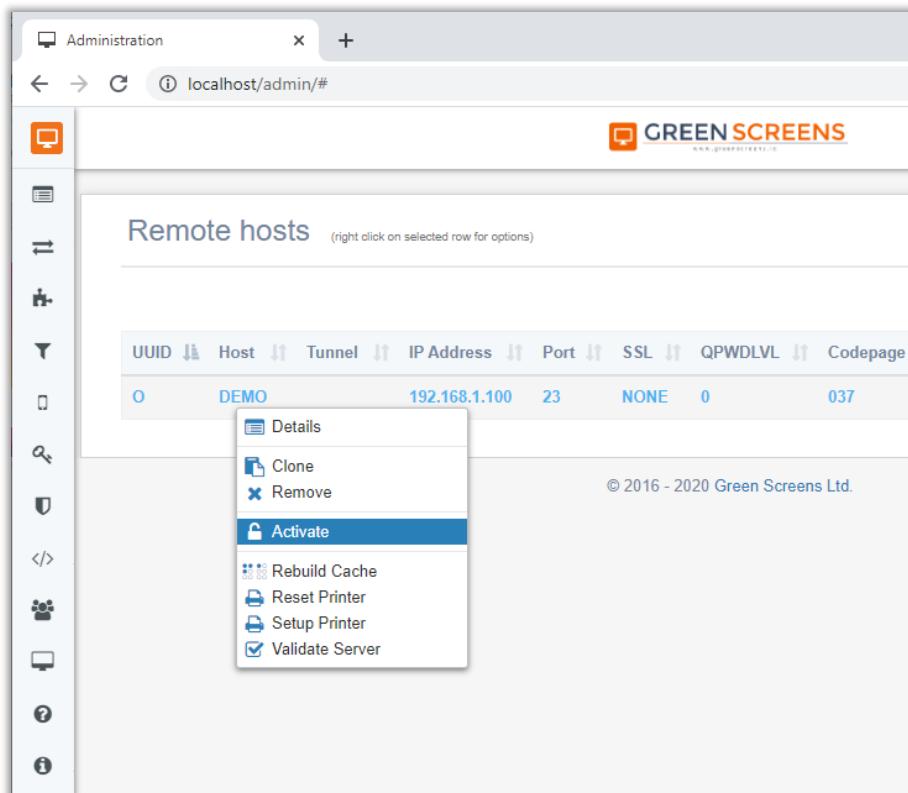
- Through web admin console
- With install.exe program on MS Windows platform

Install license - Web Admin

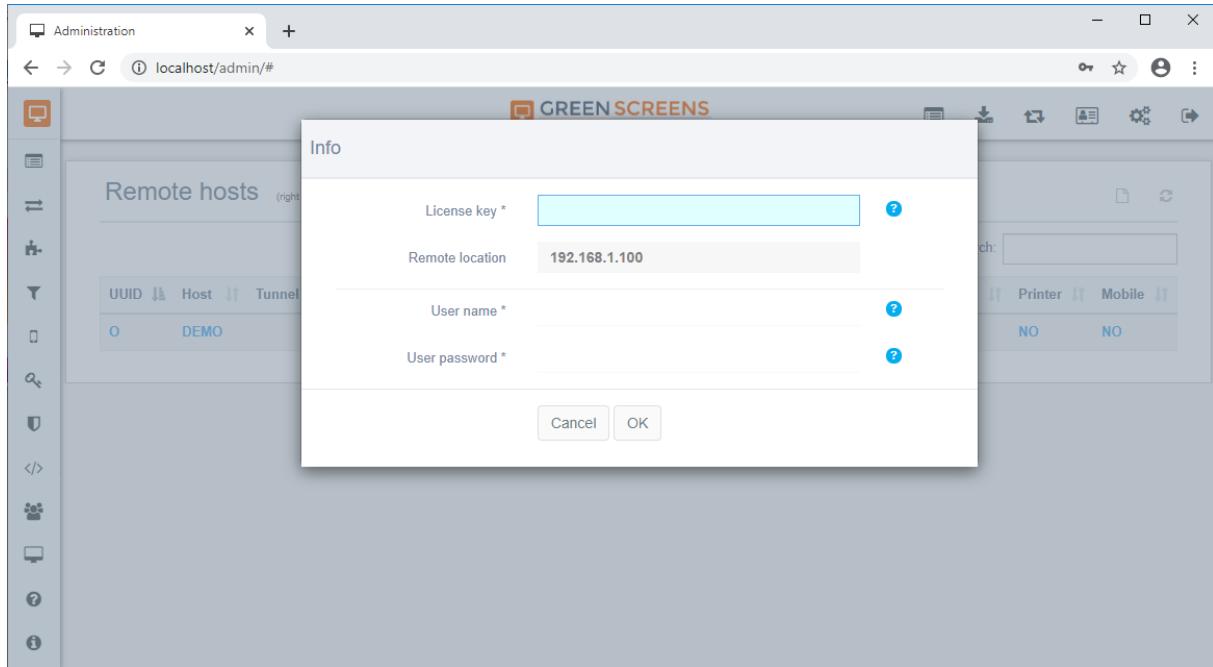
To add license through web admin console, follow steps below.

Click host configuration to select (light blue color) and then right click to open context menu.

Select **Activate** option.



Enter activation key, QSECOFR level user and password, then press **OK**. Installation procedure will create GRNSCREENS library and register license key. Upon install, status report will show up.



Install license – MS Windows Install

Web based license installation from cloud might be blocked by firewalls or other security settings. Alternative approach is to install license from local network where IBM I system is installed with the help of MS Windows Licensing Tool.

Download and install License Tool [Green-Screens-License-win-x64.exe](#) (click to open). Upon installation, open shortcut created on desktop. Installation folder will open where one can find **license.properties** file and **license.exe** tool.

Open “**license.properties**” in text editor as notepad.exe and follow instructions inside to add IBM I network address, QSECOFR level user, password and license key. Save and then execute license.exe. After program finishes successfully, 2 files will be created: log and license key report.

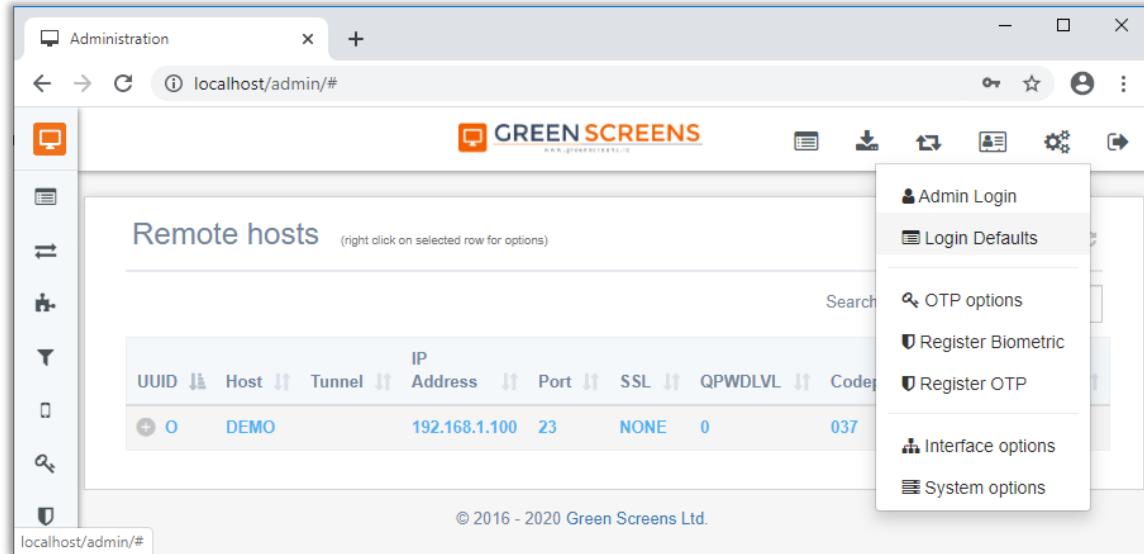
Switch back to the web admin console and try to verify configuration. Report will show if license is properly installed.

Alternatively, one can check license key with WRKLICINF PRDID(0GRNSCR) on command line.

Default Settings

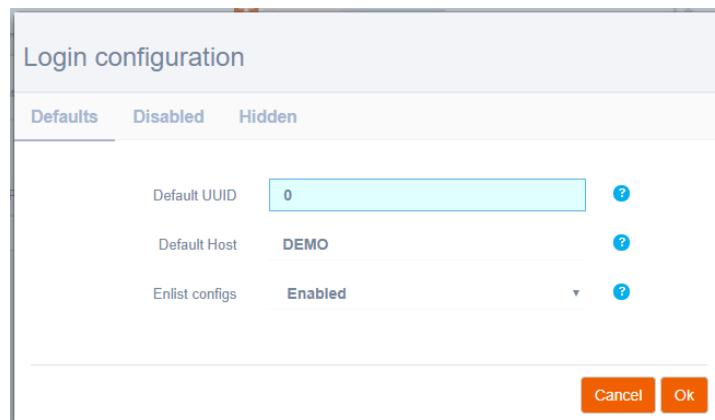
Server Group (UUID) is mandatory option. If it is used across all configured hosts, it can be set to default value and optionally can be hidden from the user.

Open **Login Options** to change default values.

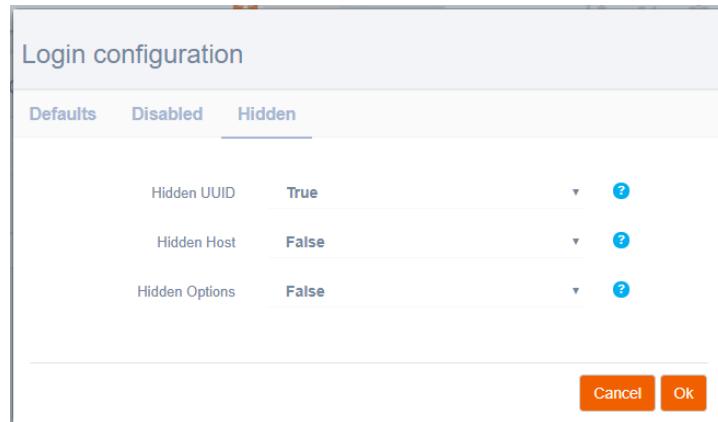


The screenshot shows the Green Screens Administration interface. On the left, there's a sidebar with icons for Administration, Remote hosts, Hosts, Tunnels, and Firewall. The main area is titled 'Remote hosts' and shows a table with one row: 'DEMO' with IP '192.168.1.100', Port '23', and QPWDLVL '0'. A context menu is open on the 'DEMO' row, listing options: Admin Login, Login Defaults (which is highlighted in blue), OTP options, Register Biometric, Register OTP, Interface options, and System options.

Set default and hidden values to be used on main login page.



The screenshot shows the 'Login configuration' dialog box. It has tabs for 'Defaults', 'Disabled', and 'Hidden'. The 'Defaults' tab is selected. It contains three fields: 'Default UUID' with value '0', 'Default Host' with value 'DEMO', and 'Enlist configs' with value 'Enabled'. At the bottom are 'Cancel' and 'OK' buttons.



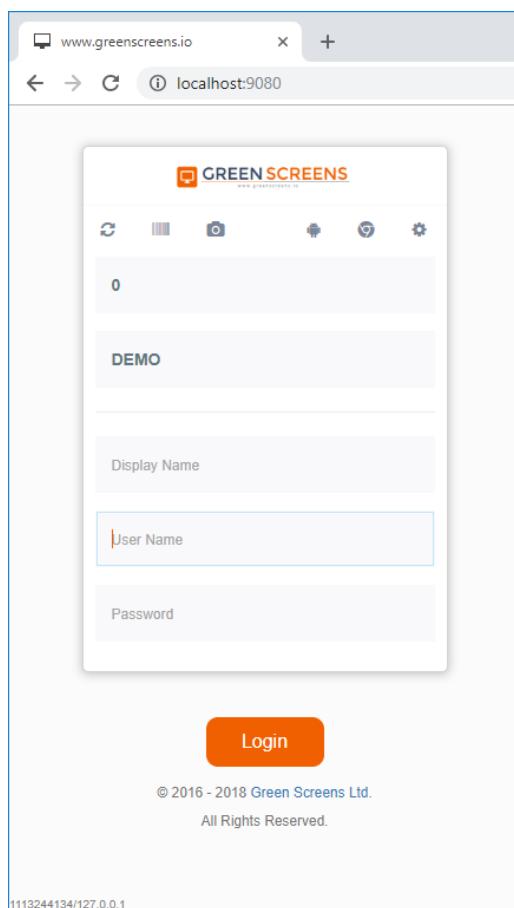
Starting Web Terminal

Application is ready for use after IBM I system is added in administration console and license is registered on the IBM I system.

Open default Green Screens server URL to get terminal login screen. Mandatory values are UUID (if it is not hidden) and host name (if it is not hidden).

Other optional values are Display Device Name and Username & Password for bypass sign-on.

NOTE: Browser extension can be used to save multiple configs locally and reuse them later. For more info, please refer to **End User Manual**.



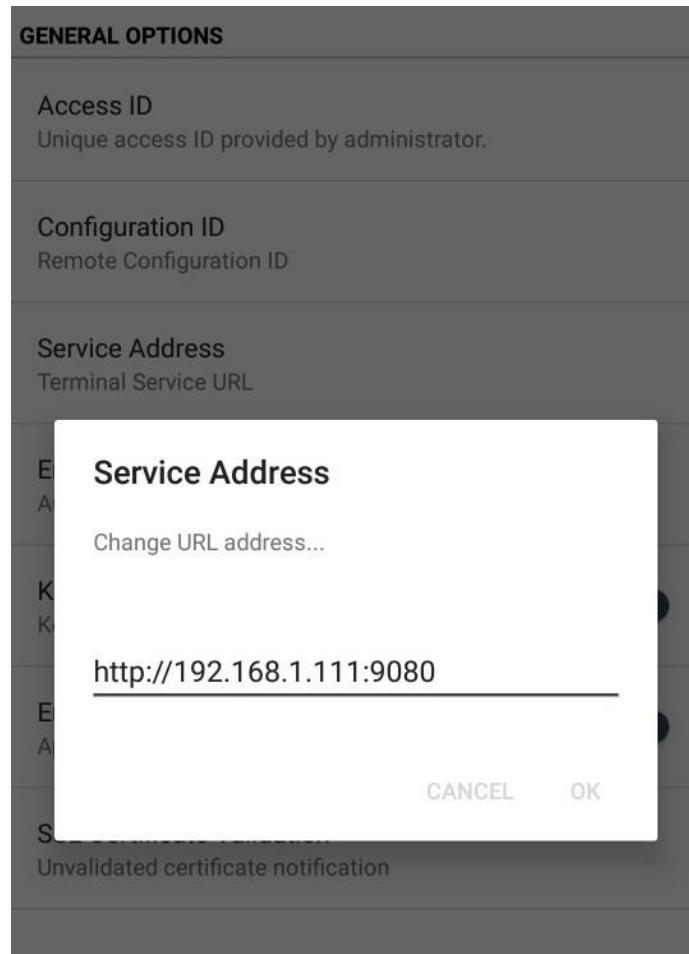
Using Mobile Application

Our mobile application is **not a classic terminal client**. It connects to the IBM I through Green Screens Terminal Service. This approach enables better performance, modernization, network stability, security and access control.

Install mobile application from Android Store on your mobile device.

<https://play.google.com/store/apps/details?id=io.greenscreens.terminal>

After installing, first step is to set access point address through (Green Screens Terminal Service) through which mobile app will connect to the IBM I server. Go to **Settings -> General Options** and enter URL address for Green Screens Terminal Server.



After saving service address, return to the main screen and add host configuration by clicking orange plus button. Fill the same data as on web version. Save it. Your configuration is ready to be used.

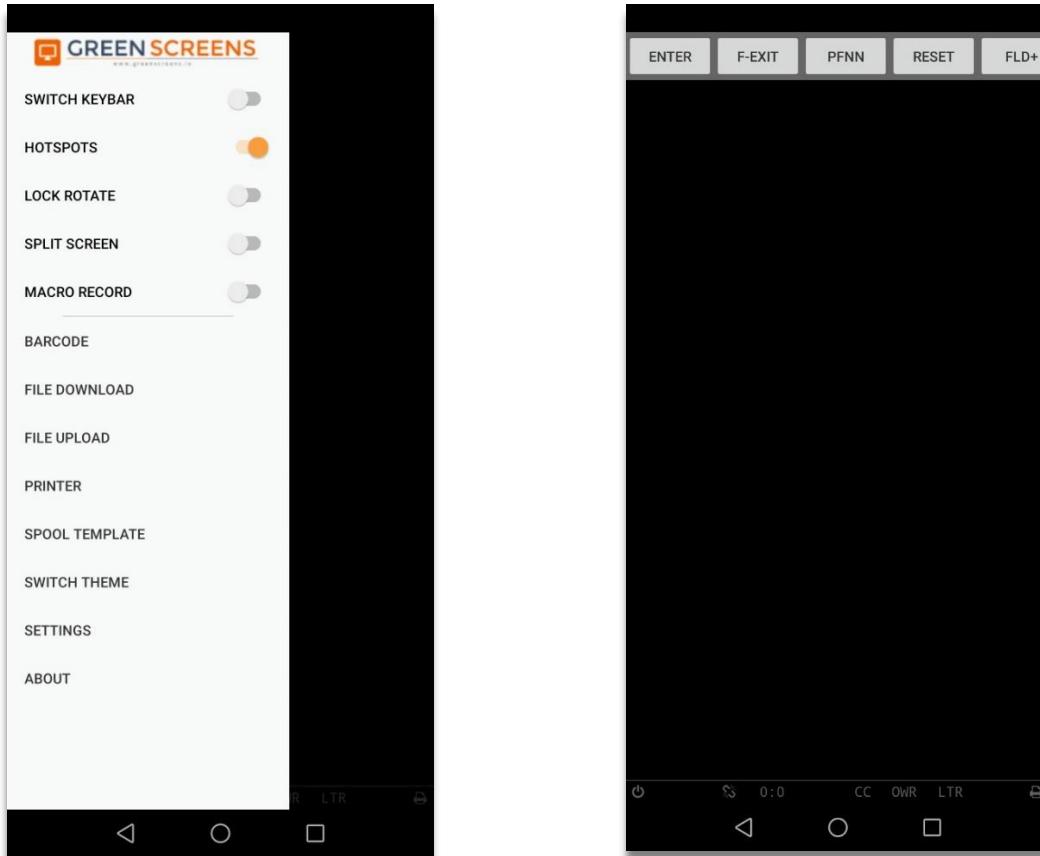
Mobile Application Keyboard

Android does not have full keyboard layout as standard computer. Some keys are missing which are important for 5250 terminals. Mostly those are Fn keys, Field Exit, Reset, Page Up/Down. Because of that shortcoming we implemented custom virtual keyboard with 5250 required keys. Still, some users want to use default Android keyboard and being able to work with 5250 terminal. Thus, we enabled couple of options for user best preference.

1. Use standard keyboard with 5250 keybar
2. Use standard keyboard with switched enter key
3. Use application provided virtual keyboard.
4. Use USB/ Bluetooth attached keyboard or docking pad

Enable keybar

When in terminal session, slide in from the right edge of the screen to open sidebar menu. Enable “Switch Keybar” option to show 5250 keybar on top in portrait or on the left side in landscape mode.

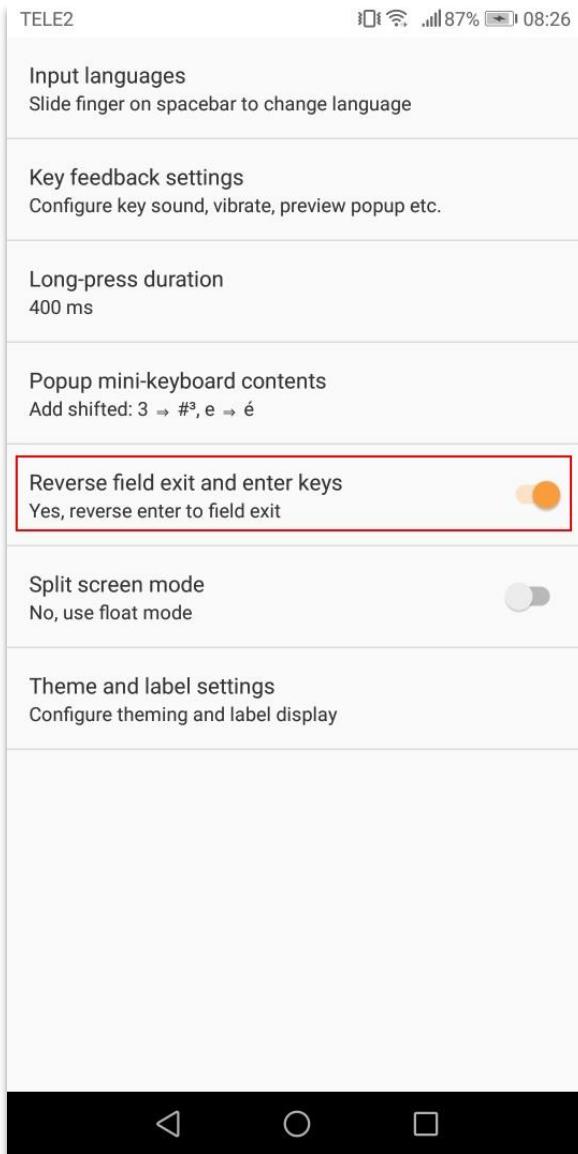


Switch Enter key

By default, “Enter” key behaves as “Field Exit” 5250 function. To switch it to 5250 “Enter” function, go to Keyboard Settings and enable “Reverse Field Exit and Enter”.

To use Enter and Field Exit on standard Android keyboard, use Enter or Shift + Enter key combinations.

NOTE: On some Android virtual keyboard this feature might not work correctly. It is highly recommended to use our Virtual keyboard or Android system Virtual Keyboard without keypad with 5250 keys.



Enable 5250 virtual keyboard

With our mobile application comes 5250 virtual keyboard which must be enabled by Android to be used. Go to **Keyboard Settings** -> **Manage Keyboards** and enable **5250 Terminal Keyboard**.

NOTE: In Android, there is no keyboard per application. If 5250 virtual keyboard will be used only for terminal app, switching between different keyboards are mandatory. Depending on Android, on some devices it is long press on space bar, on some devices there will be keyboard icon in bottom right corner.

