

I) Licensing alpha vnc pro

Following the installation of the alpha vnc pro APK on the end-device, the operation of the application is initially limited to the basic VNC functions and to 10 minutes of operation. In order to unlock the complete functionality, the device needs to be licensed.

One license unlocks the functionality on ONE end-device. For the support of multiple devices, the equal number of licenses is required. All the required licenses are included in a unique license-key.

Following the purchase of a license-key, the downloadable license-files are delivered for the deployment:

- the license-key file (**avnc_license.key**) and
- the quick activation code (**quick_license_code.png**).

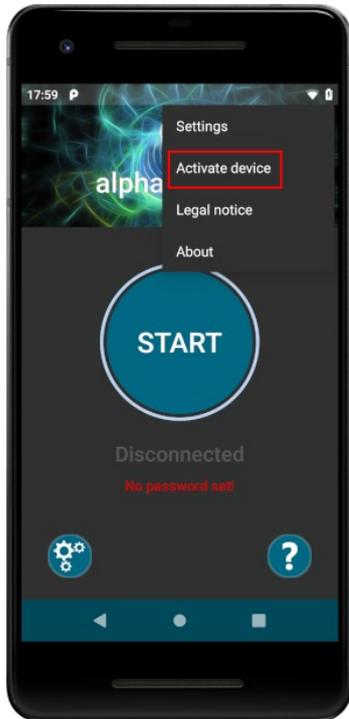
IMPORTANT:

The license-files are confidential and must be protected from unauthorised access. Please keep them in a safe place. In case they get tampered, you need to contact our support asap!

During the licensing process, the end-devices will be registered in our management server. An internet connection is necessary, so that they can reach it for their registration. In case that a firewall is blocking the connection, the address <https://www.abr-solutions.de/>* needs to be added in its "white list".

1. Importing the license-key file

You can license the end-device by importing the license-key file (`avnc_license.key`), as described below:



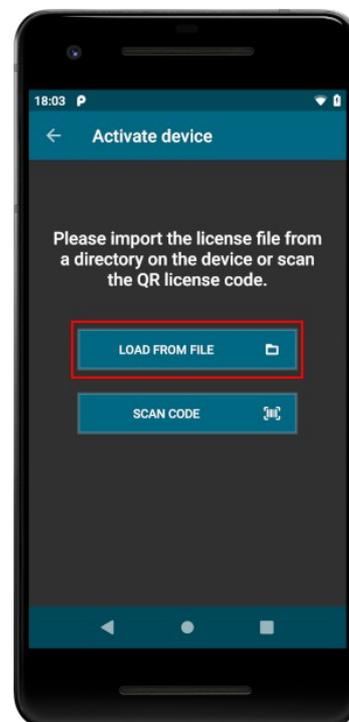
Step 1: Copy the license-key file to a location on the external accessible memory of the device (e.g. Download).

Step 2: Select the entry *Activate device* from the 3-dot application main menu.

Step 3: Click the button *Load from File*.

Step 4: Use the file manager to locate the alpha vnc license-key.

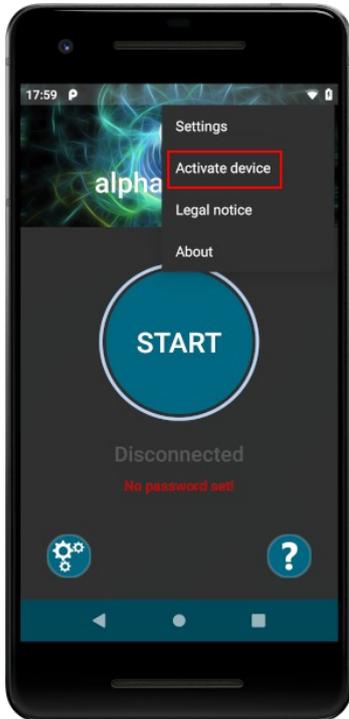
If your system does not provide a default file manager, you might need to install a 3rd-party tool that can handle files.



After importing the license-key file, the licensing process will start automatically. Once the process is completed, the license-key file will be deleted from the external accessible memory of the device.

2. Scanning the quick licensing code

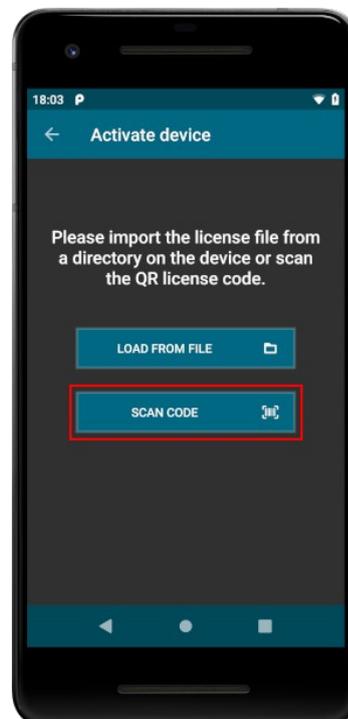
If the device has a back camera, you can activate the license, by scanning the quick activation code (`quick_license_code.png`):



Step 1: Select the entry *Activate device* from the 3-dot application main menu.

Step 2: Click the button *Scan Code*. This will open the camera of the device.

Step 3: Center the quick licensing code in the quadratic sector.



When the code is scanned successfully, the licensing will start automatically.

II) Mass deployment

In large enterprise environments, especially in combination with Mobile Device Management systems, alpha vnc supports the auto-licensing & configuration of multiple devices with a license-key.

1. Auto-licensing for mass deployment

Step 1: Install alpha vnc pro APK on every device. The application directory is thereby created.

Step 2 (optional): Create a plain text configuration file with the name **avnc.conf**, in order to set the parameters of the application (see subsection "2. Auto-configuration for mass deployment").

Step 3: Locate the application directory

Android/data/de.abr.android.avnc.pro/files/

in the internal or external shared storage of the device.

Step 4: Insert the license-key file **avnc_license.key** together with the configuration file **avnc.conf** (if created in Step 2) in the application directory.

If both files are found in the application directory on start of the application, the device will be activated automatically, applying all parameters provided in the configuration file. If no configuration file is found, the parameters will be set to their default values.

The license-key file will be deleted once the device has been successfully activated.

Please, note that if your system does not provide a default file manager, you might need to install a 3rd-party tool that can handle files.

2. Auto-configuration for mass deployment

The application parameters can be configured by placing the configuration file **avnc.conf** in the same external application directory with the license-key file during or after the auto-licensing. The application will thereby apply all parameters provided in the file on START.

The configuration file will be deleted automatically, once the process is completed and all parameters have been applied successfully.

The configuration file is a simple text file, created by the user, with the name **avnc.conf**. The parameters must be declared in the form: **KEY=VALUE**. Every parameter statement must be a single line.

The following parameters can be used:

Parameter name	Description	Values	Default
SCALE_FACTOR	Scale percentage of the device screen	Integer between 1...100	50
SESSION_NAME	Define device name, to display in the VNC viewer	Text of max. 16 characters	Android
SESSION_PW	Define session password (will be saved encrypted)	Text of max 16 characters	∅
SESSION_PORT	Local port on which the VNC server will listen	Port number	5901
DEFAULT_REVERSE_HOST	Define default address value to display in the host field of the reverse connection dialog	Hostname* or IP-V4 address	∅
DEFAULT_REVERSE_PORT	Default port number that will be displayed in the port field of the reverse connection dialog	Port number	5500
mobile_data_warning	Show a warning if the device is connected on mobile internet when the vnc server starts	Boolean	TRUE
SHOW_KEYBOARD_WARNING	Show the keyboard warning (ONLY prior to Android 7)	Boolean	FALSE (prior to Android7: TRUE)
AUTO_START**	Auto-start the service when the device starts	Boolean	FALSE
RESTART_ON_IP_CHANGE	Restart the service after connection loss	Boolean	TRUE
AUTO_START_MOBINT	Auto-start the service, even when only a mobile internet connection is available and no wireless LAN	Boolean	FALSE
WAKE_UP	Wake up the device when a client connects	Boolean	TRUE
STAY_AWAKE			TRUE
UNLOCK_SCREEN	Unlock the screen of the device whenever a client connects	Boolean	FALSE
OVERLAY_CLICKABLE	Enable logo overlay clickability	Boolean	TRUE
OVERLAY_ICON_X	Define horizontal overlay position	Integer >0	Center
OVERLAY_ICON_Y	Define vertical overlay position	Integer >0	Top
VIEW_ONLY	Screen inputs are deactivated	Boolean	FALSE
NOTIF_START_STOP	Send status notifications (start/stop) to the abr-cloud console	Boolean	TRUE
ALLOW_CONSOLE_CONNECT	Allow remote connections from the abr-cloud console	Boolean	TRUE
CONSOLE_DEVICE_NAME	Device name as it will appear in the abr-cloud console	Text of max 64 characters	Android
REQUIRE_USER_FEEDBACK	Require the end-user permission to connect from the abr-cloud console	Boolean	TRUE
ENCRYPT_SESSION	Use encryption for the abr-cloud console connection	Boolean	TRUE

* If available via DNS

** Only available for mass-configuration posterior Android11. Prior to Android11, available via undocumented functions (contact info@abr-solutions.de). The "Accessibility" service must be enabled before (see III) Enable "Accessibility".

III) Enable “Accessibility”

Following deployment, you will be able to control the screen of every licensed end-device via an input utility (e.g. mouse, keyboard etc.), only when the “Accessibility” service is enabled. If the service is not enabled, then the application can operate in “View only” mode and no inputs will be accepted from a remote utility.

- Enable “Accessibility” (general process): On most Android devices, the application will ask you to activate the Accessibility, once started. If not, then you can find it in the Settings of the device and activate it manually for alpha vnc pro.

IMPORTANT: On some Android versions, such as Android 13, this is a “restricted function” and the standard process to enable Accessibility may not apply!

- Enable “Accessibility” on Android 13:

Step 1: Go to the “Apps” menu of the device Settings,

Step 2: locate and select alpha vnc pro,

Step 3: tip on the 3-dot menu on the top right corner of the screen and select “Enable restricted functions”,

Step 4: repeat the general process to enable “Accessibility”.

The whole process may differ as per manufacturer. If a device does not provide such options, please contact the device manufacturer.

IV) Unlicense (unregister) a device

For special device management operations, e.g. before a factory reset / replacing the end-devices, it is possible to “release” licenses from a license-key by unregistering the equal number of devices. The released licenses can be reactivated, after the operation is completed.

In the *Settings* (3-dot menu) of the application, select the entry *Unregister device*. The device will be unregistered and one license will be “released” from the license-key. In order to reactivate it on the same or another device, you need to follow the normal licensing process.

Please, note that one device can be unregistered up to 10 times! If this threshold is reached, you need to contact our support.

If you wish to release the license from a device that is lost / destroyed, you need to permanently *Delete* it in the abr Remote Console. In case that you have no access to the Service, please contact our support.

V) Connectivity to the alpha vnc API

The alpha vnc pro v-2.0 APK is connectable to the *alpha vnc API* Service, which can be used to integrate the functionality of alpha vnc into the own application. For the implementation, we deliver an API project containing the necessary interfaces, as well as an API-Key for the initialization.

```
package com.example.android.alphavnc.demo;

import android.content.ComponentName;

public class MainActivity extends AppCompatActivity {

    private static final String API_KEY = "INSERT_API_KEY_HERE";
    private static final int TXT_MSG = 1;
    private static final int BTN_MSG = 2;

    private AlphaVncService vncService;
    private boolean mConnected;
    private boolean mServerRunning;

    private InternalHandler handler;

    private ServiceConnection vncServiceConnection = new ServiceConnection() {
        @Override
        public void onServiceConnected(ComponentName name, IBinder service) {
            mConnected = true;
            vncService = AlphaVncService.Stub.asInterface(service);
            initializeVnc();
        }

        @Override
        public void onServiceDisconnected(ComponentName name) {
            mConnected = false;
            handler.sendMessage(handler.obtainMessage(BTN_MSG, 0, 0, "Start"));
        }
    };

    InitializationCallbacks initCallbacks = new InitializationCallbacks.Stub() {
        @Override
        public void onInitialized() {
            startVncServer();
        }

        @Override
        public void onInitializationError(String errorMessage) {
            handler.sendMessage(handler.obtainMessage(TXT_MSG, 0, 0, "Failed to initialize: " + errorMessage));
        }
    }
}
```

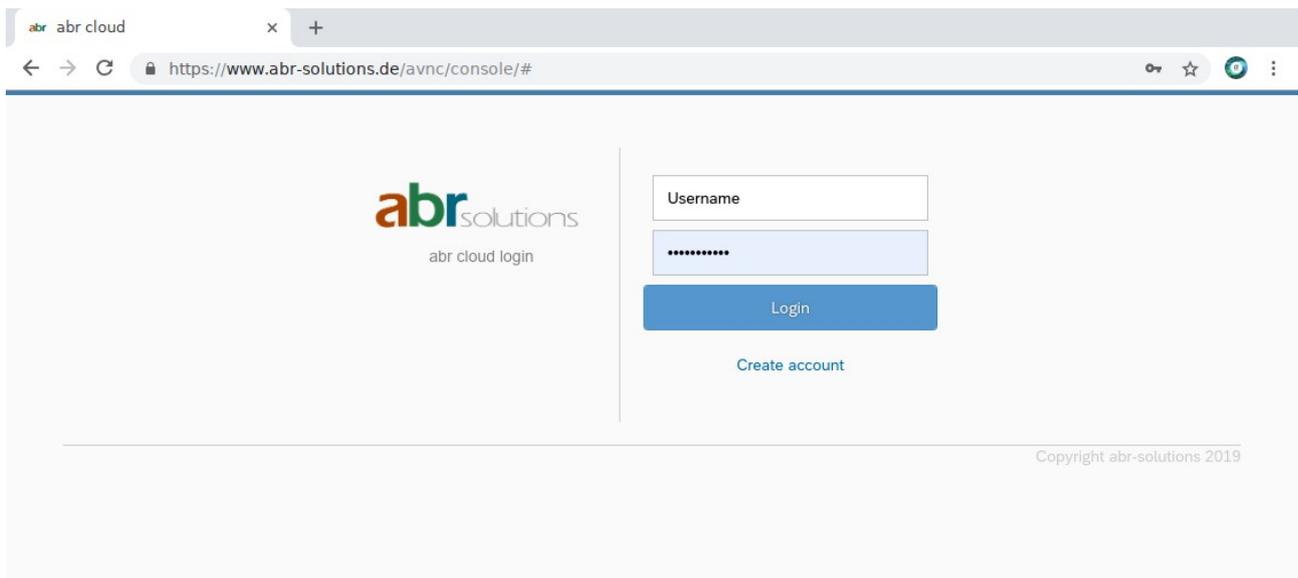
If you need to know more, contact info@abr-solutions.de.

VI) Connectivity to the abr Cloud

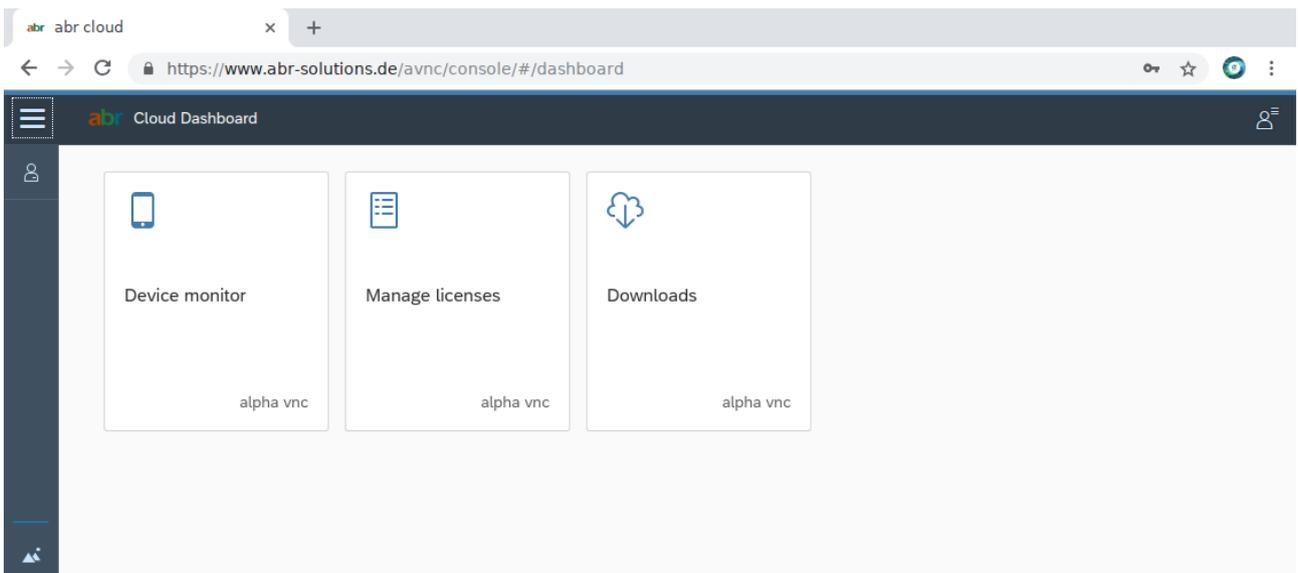
The alpha vnc pro v-2.0 APK is connectable to the abr Remote Console, enabling license management, device monitoring and simultaneous remote sessions via browser.

Register your license-key at cloud.abr-solutions.de and test the Service for 30 days. Every license-key encloses 30 days of Cloud Service, by default. Following evaluation, feel free to opt for a [subscription plan](#).

- *abr Remote Console: Login page*



- *abr Remote Console: Dashboard*



1. Device setup

On START of the application, the device will appear online in the list of the *Device monitor* tile and allow incoming connections. The displayed *Device ID* is a random number, generated for its identification. It is NOT the *DeviceID* from the manufacturer. We do NOT store this information!

There are 2 ways to configure the device connectivity to the abr Cloud:

a) under the main menu (3-dot) of the application: go to the *Settings* and select the entry *Remote Console*:

- i. *Console device name* (Android): give a custom name to the end-device. Otherwise it will be displayed as "Android".
- ii. *Send start stop notification** (activated by default): the device reports its online status to the abr Cloud, on START of the application. If you do not wish this information to be transmitted, please deactivate this option before START!
- iii. *Allow cloud connection* (activated by default): the application allows incoming connections from the abr Cloud. If you do not wish this, please deactivate this option before START!
- iv. *Require user feedback* (activated by default): the end-user will be asked to allow every attempted connection from the abr Cloud. If you do not wish to be asked again, you can deactivate it. Be aware of the potential risks, before deactivating this option!
- v. *Use encrypted connection* (activated by default): all connections will be TLS encrypted. Be aware of the potential risks, before deactivating this option!

b) in the configuration file (`avnc.conf`) for mass deployment (see subsection (II) 2.), you can define the following values:

- i. `CONSOLE_DEVICE_NAME` (default: `Android`): give a custom name to the end-device. Otherwise it will be displayed as "Android".
- ii. `NOTIF_START_STOP*` (default: `TRUE`): the device reports its online status to the abr Cloud, on START of the application. If you do not wish this information to be transmitted, please set `NOTIF_START_STOP=FALSE` before START!
- iii. `ALLOW_CONSOLE_CONNECT` (default: `TRUE`): the application allows incoming connections from the abr Cloud. If you do not wish this, please set `ALLOW_CONSOLE_CONNECT=FALSE` before START!
- iv. `REQUIRE_USER_FEEDBACK` (default: `TRUE`): the end-user will be asked to allow every attempted connection from the abr Cloud. If you do not wish to be asked again, set `REQUIRE_USER_FEEDBACK=FALSE`. Be aware of the potential risks, before deactivating this option!
- v. `ENCRYPT_SESSION` (default: `TRUE`): all connections will be TLS encrypted. Be aware of the potential risks, before deactivating this option!

* If you define a *Console device name* (`CONSOLE_DEVICE_NAME`) while *Send start stop notification* (`NOTIF_START_STOP`) is deactivated, this will NOT be transmitted to the Remote console and thus will not be displayed in the list under the *Device monitor* tile! In order to transmit the new device name, you need to reactivate the Cloud connectivity.

2. Network setup

For the connection to the abr Cloud, the network that the device is attached needs to allow the following connections:

- *https* connection (outgoing) to www.abr-solutions.de/*
- *https* connection (outgoing) to abrcloud.de/*

For more information, contact info@abr-solutions.de .