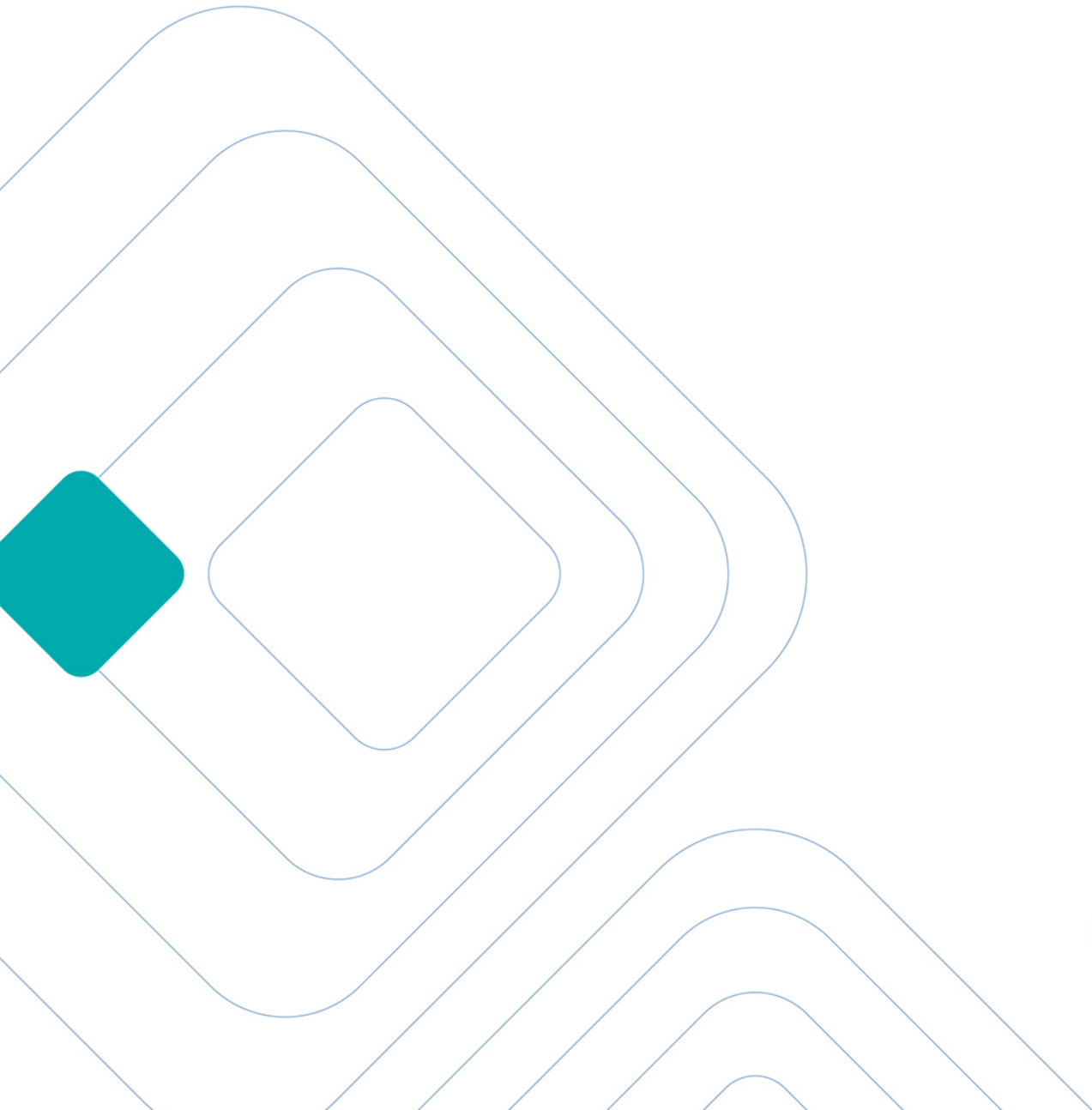# BlueDiamond™

Toolkit 2.2 User Manual

LenelS2 BlueDiamond™ 2.2 Toolkit 2.2 User Manual

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# Table of Contents

# Chapter 1 :   BlueDiamond Toolkit Overview

The BlueDiamond™ Toolkit app is a convenient way to commission and configure readers using Bluetooth® technology on your mobile device.

## New in this release

**Custom Configuration for Readers**

Customers can add their own specific reader configuration using the BlueDiamond Toolkit app commissioning process. Customer's configuration file is downloaded from the Cloud.

**Usability Updates for 'Decommissioning' a BlueDiamond Reader**

Users can decommission a reader without selecting inventory owner and reader name as unassigned. Installers will now benefit from a streamlined process to adding readers back into inventory (Decommissioning).

**Added context-sensitive help**

Context-sensitive help is functional information provided to the app user based on the current state of the application. Context-sensitive help topics contain GIFs that visually assist in understanding specific BlueDiamond Toolkit functionalities.

# Chapter 2 :   Install and Authorize BlueDiamond Toolkit

The BlueDiamond Toolkit app requires a mobile phone number and verification code (preferred method Use mobile phone number to authorize) or an authorization code and PIN (Use authorization code from email to authorize) for operation. Cellular network or Wi-Fi coverage is required to authorize, upload activity data, and download credentials from the BlueDiamond credential server. The BlueDiamond Toolkit is supported by Android or iOS devices (such as phones and tablets). To use the BlueDiamond Toolkit app with your device, you need to download the the app from Google Play Store (Android) or App Store (iOS) depending on the operating system used on your device.

To install the BlueDiamond Toolkit app go to:

Get BlueDiamond Toolkit

To get authorization for the BlueDiamond Toolkit app go to:

Get Authorization

## Get BlueDiamond Toolkit

Install the BlueDiamond Toolkit app from the Apple App Store (iOS devices) or Google Play Store (Android devices).

**Note**: You will need authorization details from your administrator to use the app after installation (see Get Authorization).

1. Go to App Store (iOS devices) or Play Store (Android devices) on your device.
2. Search for the BlueDiamond Toolkit app.
3. Tap **Install** to install the app.
4. Open the app.

Go to Get Authorization.

## Get Authorization

**Note**: The BlueDiamond Toolkit app must be authorized to use Bluetooth on your mobile device

After installing the app (see Get BlueDiamond Toolkit), two options for authorization are displayed:

- **Verifying using phone number** (**Note**: Preferred Cloud login method) - If you have received a notification about your credential but did not receive the authorization code, use your mobile phone number for authorization. Go to Use mobile phone number to authorize.
- **Use my authorization code** - If you use legacy email authorization, send an email to your administrator to get access to the BlueDiamond Toolkit application. After administrator's approval, a host URL, authorization code, and installer PIN will be emailed to you. Go to Use authorization code from email to authorize.

## Use mobile phone number to authorize (in the Cloud)

You have not received an email with an authorization code, but were notified about your credential.

1. Select the country code and enter the mobile phone number registered in the Cloud. Tap the **Continue** button.
2. Enter the six-digit verification code received in SMS and email.

3. Enter the email address that is registered in the cloud.
4. Tap the **Login** button.
5. If needed, tap **OK** on the **Turn on Bluetooth®** pop-up.

## Use authorization code from email to authorize

In an email, you received a URL, an authorization code and a PIN to activate your credential.

1. Enter the URL provided by the administrator. **Note**: URL should not contain "https:"
2. Enter the 26-digit authorization code provided by the administrator.
3. Enter the four-digit PIN provided by the administrator.
4. Tap the  **Sign in** button.
5. If needed, tap **OK** on the **Turn on Bluetooth®** pop-up.

Go to Get Started with BlueDiamond Toolkit to start commissioning readers.

# Chapter 3 :   Get Started with BlueDiamond Toolkit

## Commission Readers

Readers must be commissioned (**Install** option in the app) to function on a specific site. Commissioning is a method of assigning a "friendly name" to a reader, making it available for use with BlueDiamond mobile credentials.

**Note**: The BlueDiamond Toolkit app must be authorized to use Bluetooth on your mobile device.

**Note**: **Power Output** and **Advertising Period** values are default settings. Changing these values impacts the performance of the device. For instance, if the **Power Output** value is set too low, the Bluetooth may not connect and the door does not open. Contact your administrator before changing these default settings.

1. From the Home screen, tap **Install**.
2. While holding the mobile device, move within 18 in (0.5 m) of the BlueDiamond reader. The BlueDiamond app discovers the nearest reader.
   **Note**: If multiple readers are available, the reader with the strongest signal displays on top of the list.
3. Tap the reader you want to commission.
4. In the **Unassigned** tab, select the reader name you want to assign this reader. Only unassigned readers are available for commissioning/installing.
5. Set the **Power output** using the slider. When you increase the power output of the reader, the mobile device discovers the reader from a greater distance.
   **Note**: 100% is the default power output.
6. **Note**: You can select a name of a previously assigned reader (by using the assigned/unassigned filtering option). This removes the association to the previously assigned reader.
7. Set the **Advertising Period** using the slider. When you decrease the advertising period of the reader, the reader increases its ability to be discovered by the mobile device.
   **Note**: 32 ms is a default advertising period, unless you are commissioning a battery-powered wireless reader (default is 1024 ms).
8. Select **Battery-powered Reader** check box when commissioning wireless readers. This enables 1024 ms for the advertising period.
9. Select the **iBeacon** check box to add iBeacon values. Enter **UUID**, **Minor**, and **Major** values.
10. Tap **Install**. **Note**: With the user configuration (AVC file) applied to the reader, the commissioning process may take up to 30 seconds to complete.

Go to Update Readers to update and manage commissioned readers.

## Update Readers

**Note**: The BlueDiamond Toolkit app must be authorized to use Bluetooth on your mobile device.

The Update functionality allows you to scan and update readers that you have already commissioned. You can modify the reader's settings and verify its firmware. You can re-assign a reader with a different name (see To update a reader). By tapping the **Uninstall** button you can automatically de-provision a reader to the generic inventory (see To uninstall a reader). This makes it possible to uninstall a reader without needing to define its owner and name as unassigned. **Note**: Installed reader's settings reset to default values after being moved to the generic inventory.

| Definition of terms | |
| --- | --- |
| Commissioned | Readers must be commissioned to work at a specific site. To do this install a reader using BlueDiamond Toolkit. |
| Re-assign | Readers can be re-assigned a new name and owner at a specific site. |
| Uninstall | Readers are uninstalled (to a generic inventory) without needing to be defined as unassigned. Readers' settings reset to default values after being moved to the generic inventory. |
| De-provision | Readers are moved to the generic inventory and can be commissioned again to a new owner. |

## To update a reader

1. From the Home screen, tap **Update**. A list of assigned readers displays.
2. Tap the reader you want to update.
3. If needed, modify the reader name.
   **Note**: You can select a name of a previously assigned reader (by using the assigned/unassigned filtering option). This removes the association to the previously assigned reader.
4. Tap the **Settings** drop-down to modify the settings.
5. Modify the settings, see Commission Readers for more information.
6. Tap **Apply Changes** to update the reader.

When you enable **Auto Refresh**, the BlueDiamond Toolkit app continuously scans for nearby readers. When **Auto Refresh** is disabled, the BlueDiamond Toolkit app scans for a short period of time and turns off the scan when at least one nearby reader is found. **Note**: When **Auto Refresh** is enabled, the pull-to-refresh touchscreen gesture does not work. For **Auto Refresh** scan settings, go to Scan Frequency.

The **Sort** option categorizes readers using three sorting preferences:

- Signal Strength – Sorts readers from the nearest to the farthest.
- Device Name – Sorts readers in alphabetical order.
- Serial Number – Sorts readers in ascending numerical order.

## To uninstall a reader

1. From the Home screen, tap **Update**. A list of assigned readers displays.
2. Tap the reader you want to uninstall.
3. Tap the **Uninstall** button at the bottom of the **Update** screen.
4. The uninstall procedure begins and the reader is moved to the generic inventory. **Note**: This reader's settings reset to default values after being moved to the generic inventory.

# Configure Readers

To configure a BlueDiamond reader, you need to apply configuration files to the selected reader in range. You can use the default files included with the BlueDiamond Toolkit or import configuration files from another source. The default configuration files contain pre-determined default settings, while the imported files can be configured to contain specific settings required by your organization.

For the default configuration file properties and descriptions, see Default configuration files properties

**Note**: The BlueDiamond Toolkit app must be authorized to use Bluetooth on your mobile device.

## Configure using default files

**Note**: Supported files formats are .avc and .avf. A total of 10 default configuration files are available by default in the app (6 AVC and 4 AVF).

1. Hold the device close to the reader (within 18 inches or 50 cm).
2. From the Home screen, tap **Configure**. A list of assigned and unassigned readers is displayed.
3. Tap the reader you want to configure.
4. Tap the **Default Files** tab.
5. Two types of default files are available:

| File Type | Description |
| --- | --- |
| Configuration Files (.avc) | Configuration files apply a new configuration to a reader. You can configure functionality, such as reader LED activity, frequency mode, reader tone, and other settings. |
| Formatter Files (.avf) | Formatter files translate data from the card/broker into data the reader can understand. |

6. Select the configuration file you want to apply to the reader. For the default configuration file properties and descriptions see, Default configuration file properties.
7. A confirmation pop-up message is displayed. Tap **Apply**.
8. A configuration progress screen is displayed, displaying connection and configuration information.
9. Tap the **Retry** button if an error occurred during the connection or configuration.
10. After configuration has been completed, tap the **Done** button.

## Configure using imported files

**Note**: Supported files formats are .avc, .avf, and .avi. A total of 30 configuration files can be imported into the app (10 of each file type). Maximum imported configuration file size is 1 KB (for each file). Files expire after 24 hours.

1. Hold the device close to the reader (within 18 inches or 50 cm).
2. From the Home screen, tap **Configure**. A list of assigned and unassigned readers displays.
3. Tap the reader you want to configure.
4. Tap the **Imported Files** tab.
5. Tap the **Add** button and select the files you want to import. You can select a single file or multiple files. You can only import three types of files (.avc, .avf, and .avi).
6. An **Import Completed** screen appears. It displays the imported files and the files that failed to import.
   **Note**: After you have imported a maximum of 10 files of each type (.avc, .avf, and .avi), the **Add** button disappears.

7. Tap the **Imported Files** tab.
8. Select the imported file you want to apply to the reader.
9. A confirmation pop-up message is displayed. Tap **Apply**.
10. A configuration progress screen is displayed, displaying connection and configuration information.
11. Tap the **Retry** button if an error occurred during the connection or configuration.
12. After configuration has been completed, tap the **Done** button.

## To delete imported files

1. Tap the **Imported Files** tab.
2. Swipe the file you want to delete.
3. Tap the trash icon.
4. A confirmation pop-up message is displayed. Tap **Delete**.

## Default configuration files properties

**Note**: When a new configuration is applied, three beeps are emitted from the BlueDiamond reader as a confirmation.

### SF/2F 2-State (TREADER)

2-state Supervised F/2F output, Standard Proximity reading, and CSN enabled for High Frequency. Tamper enabled. Buzzer and LED controlled over F/2F.

### SF/2F 4-State

4-state Supervised F/2F output, Standard Proximity reading, and CSN enabled for High Frequency. Tamper enabled. Buzzer and LED controlled over F/2F.

**In this configuration the BlueDiamond reader accepts the following credentials**

| Credential | Output |
|---|---|
| BlueDiamond Mobile | Encoded Wiegand payload |
| MIFARE Classic | 32-bit CSN converted to 12-digit Mag output |
| MIFARE DESFire | 56-bit CSN converted to 12-digit Mag output |
| HID iCLASS | 64-bit CSN converted to 16-digit Mag output |
| HID Proximity | Encoded Wiegand payload |
| GE ProxLite | 12-digit Mag output |

**Note:** This mode is intended for use with legacy Casi systems requiring readers to communicate over supervised F2F protocol.

## OSDP Default

OSDP output, Standard Proximity, iCLASS, and LenelS2 DESFire EV2 reading. Tamper enabled. Buzzer and LED controlled via OSDP.

**In OSDP default configuration the BlueDiamond reader accepts the following credentials**

| Credential | Output |
| --- | --- |
| BlueDiamond Mobile | Encoded Wiegand payload |
| BlueDiamond DESFire | Encoded Wiegand payload |
| HID iCLASS | Encoded Wiegand payload |
| HID Proximity | Encoded Wiegand payload |
| GE ProxLite | 4002 Wiegand format |
| AWID Proximity | Encoded Wiegand payload |

## OSDP CSN

OSDP output, Standard Proximity reading, and CSN enabled for High Frequency. Tamper enabled. Buzzer and LED controlled via OSDP.

**In OSDP CSN configuration the BlueDiamond reader accepts the following credentials**

| Credential | Output |
| --- | --- |
| BlueDiamond Mobile | Encoded Wiegand payload |
| MIFARE Classic | 32-bit CSN |
| MIFARE DESFire | 56-bit CSN |
| HID iCLASS | 64-bit CSN converted to 5502 Wiegand format |
| HID Proximity | Encoded Wiegand payload |

| Credential | Output |
|---|---|
| GE ProxLite | 4002 Wiegand format |
| AWID Proximity | Encoded Wiegand payload |

## Wiegand Default

Wiegand output, Standard Proximity, iCLASS, and LenelS2 DESFire EV2 reading. Tamper enabled.

**In Wiegand default configuration the BlueDiamond reader accepts the following credentials**

| Credential | Output |
|---|---|
| BlueDiamond Mobile | Encoded Wiegand payload |
| BlueDiamond DESFire | Encoded Wiegand payload |
| HID iCLASS | Encoded Wiegand payload |
| HID Proximity | Encoded Wiegand payload |
| GE ProxLite | 4002 Wiegand format |
| AWID Proximity | Encoded Wiegand payload |

## Wiegand CSN

Wiegand output, Standard Proximity reading, and CSN enabled for High Frequency. Tamper enabled. Buzzer and LED controlled via OSDP.

**In Wiegand CSN configuration the BlueDiamond reader accepts the following credentials**

| Credential | Output |
|---|---|
| BlueDiamond Mobile | Encoded Wiegand payload |
| MIFARE Classic | 32-bit CSN |
| MIFARE DESFire | 56-bit CSN |

| Credential | Output |
| --- | --- |
| HID iCLASS | 64-bit CSN converted to 5502 Wiegand format |
| HID Proximity | Encoded Wiegand payload |
| GE ProxLite | 4002 Wiegand format |
| AWID Proximity | Encoded Wiegand payload |

## Scan Readers

The Scan for readers functionality allows you to scan for all commissioned readers that are nearby. The scan is able to discover uninstalled readers and unknown readers.

**Note**: The BlueDiamond Toolkit app must be authorized to use Bluetooth on your mobile device.

1. From the Home screen, tap **Scan**. A list of all discovered readers is displayed.
   **Note**: Mobile-ready readers without a license are displayed in the toolkit as Unknown. Mobile-ready readers without a license can still be scanned but cannot be commissioned unless a metering license has been enabled.
2. Tap  to re-scan for readers.
3. Tap  to return to the Home screen.

## Synchronize with Server

The **Sync with server** functionality makes it possible to download new key authorizations, receive new information from the server, and upload any modifications and activity to the server. The **Sync with server** can be performed at any time.

1. From the Home screen, tap **Sync with server**.
2. A confirmation message "Sync is Successful" is displayed when the synchronization has been completed.

## Update Settings

1. Tap  in the upper-left corner of the app to enter the side menu.
2. Tap **Settings** to access the settings options of the BlueDiamond Toolkit app.
3. Select the specific settings you need to modify:
   - Sensitivity
   - Scan Frequency
4. Tap **Toolkit** to return to the Home screen.

## Sensitivity

In the sensitivity settings, you can increase the sensitivity of the readers to detect mobile devices from further away. When you set sensitivity to 100%, mobile devices detect the readers from the farthest distance.

1. Tap ▤ in the upper-left corner of the app to enter the side menu.
2. Tap **Settings** to access the settings options of the BlueDiamond Toolkit app.
3. Use the slider to set the **Sensitivity** (0 to 100%).
4. Tap **Toolkit** to return to the Home screen.

## Scan Frequency

How often the app scans for new readers when **Auto Refresh** is enabled (see Update Readers). You can set the frequency of scanning from 1 to 5 seconds. The default scan frequency is 1 second.

1. Tap ▤ in the upper-left corner of the app to enter the side menu.
2. Tap **Settings** to access the settings options of the BlueDiamond Toolkit app.
3. Use the slider to set the **Scan Frequency** (from 1 to 5 seconds). The default scan frequency is 1 second.
4. Tap **Toolkit** to return to the Home screen.

## About BlueDiamond Toolkit App

1. Tap ▤ in the upper-left corner of the app to enter the side menu.
2. Tap **About** to display the version number and legal information for the BlueDiamond Toolkit app.

## Get Help

1. Tap ▤ in the upper-left corner of the app to enter the side menu.
2. Tap **Help** to access the online help for the BlueDiamond Toolkit app.

## Context-sensitive Help

1. Tap ⑦ in the upper-right corner to display context-sensitive help based on the current state of the application.
2. Tap links to the main help topics to get more detailed information on specific functionality.

## Reauthorize Mobile Device

To reauthorize a mobile device without uninstalling the BlueDiamond Toolkit app, use the **Reauthorize** functionality.

**Note**: The BlueDiamond Toolkit app must be authorized to use Bluetooth on your mobile device.

1. Tap ▤ in the upper-left corner of the app to enter the side menu. You can also use the **Sign Out** option in the side menu and tap the **Reauthorize** link.
2. Tap **Reauthorize** to reauthorize your installed BlueDiamond Toolkit app.

3. **Login Options** screen displays two authorization options:
   - **Verify using phone number** (**Note**: Preferred Cloud login method) - If you use your mobile phone number for authorization, go to Reauthorize using mobile phone number.
   - **Use my authorization code** - If you use legacy email authorization, send an email to your administrator to get access to the BlueDiamond Toolkit app. After administrator's approval, a host URL, authorization code, and the installer PIN will be emailed to you. Go to Reauthorize using authorization code from email.

## Reauthorize using mobile phone number (in the Cloud)

You have not received an email with authorization code, but were notified about your credential.

1. Select the country code and enter the mobile phone number registered in the cloud. Tap the **Continue** button.
2. Enter the six-digit verification code received in SMS or email.
3. Enter the email address that is registered in the cloud.
4. Tap the **Login** button.
5. If needed, tap **OK** on the **Turn on Bluetooth®** pop-up.

## Reauthorize using authorization code from email

In an email, you received a URL, authorization code and a PIN to activate your credential.

1. Enter the URL provided by the administrator. **Note**: URL should not contain "https:"
2. Enter the 26-digit authorization code provided by the administrator.
3. Enter the four-digit PIN provided by the administrator.
4. Tap the **Sign in** button.
5. If needed, tap **OK** on the **Turn on Bluetooth®** pop-up.

# Sign Out

1. Tap ▤ in the upper-left corner of the app to enter the side menu.
2. Tap **Sign Out** to sign out from the BlueDiamond Toolkit app.

**Note**: You can use the Sign Out option to reauthorize a mobile device. Tap **Sign Out** and then tap the **Reauthorize** link to open the reauthorization procedure (see Reauthorize Mobile Device).

# Chapter 4 :   Troubleshooting the BlueDiamond Toolkit

This section provides information on possible error messages.

| If you see this | It means | Try this |
| --- | --- | --- |
| **Sync Errors** | | |
| Authorization code has changed in the server. Contact your administrator. | BlueDiamond Toolkit is not authorized on credentials sever with previous authorization code. | Re-login with a valid URL, authorization code and PIN. |
| PIN has changed in the server. Contact your administrator. | BlueDiamond Toolkit is not authorized on credentials sever with previous PIN. | Re-login with a valid URL, authorization code, and PIN. |
| Key has been disabled. Re-enable and retry the sync. | Key has been disabled by your administrator. | Contact your administrator. |
| **Login Errors** | | |
| PIN or Authorization Code is invalid. | BlueDiamond Toolkit is not authorized on credentials sever with the entered authorization code/PIN. | Verify that the entered authorization code/PIN is correct and re-login with valid authorization code and PIN. |
| URL is invalid. | BlueDiamond Toolkit is not authorized on credentials sever with the entered URL. | Verify that the URL points to the correct location, correct the URL and re-login. |
| **Scan Errors** | | |
| No nearby readers found, refresh the list. | You are far away from the reader or sensitivity is set to very low under Settings. | Move closer to the reader or increase sensitivity in Settings. |
| Bluetooth is not authorized. Go to Settings to allow the app to access Bluetooth. | BlueDiamond Toolkit requires Bluetooth access to scan BlueDiamond Readers and Bluetooth access is disabled for BlueDiamond Toolkit app. | Go to Settings -> Enable Bluetooth access |

| | | |
|---|---|---|
| BlueDiamond Toolkit would like to use Bluetooth for new connections. | Bluetooth is turned off under the phone settings. | Go to Settings -> Bluetooth -> Allow New connections |
| Scanning too frequently, try scanning nearby readers later (Android only). | Attempted scanning multiple times. | Wait until the time displayed on screen and try scanning again. |
| **Reader Settings Errors** | | |
| Make sure the reader is nearby and powered. | BlueDiamond Reader is powered off or you are far away from the reader. | Check the state of the reader, turn on the reader if it is powered off. Move closer to the reader or increase the sensitivity in Settings. |
| A high advertising frequency can drain the battery life. Would you like to change to use 1024 ms instead of your current setting? | Advertising period is not set to 1024 ms for battery powered reader. | Tap the Optimize button to set the advertising period to 1024 ms. |
| A high advertising frequency needs more time to find a reader. Would you like to change frequency to 32 ms instead of your current setting? | Advertising period is not set to 32ms for non-battery powered reader. | Tap the Optimize button to set the advertising period to 32 ms. |
| It is recommended that you increase your power output to ensure mobile devices can see this reader. Would you like to change power output to 100%? | Power output is set at less than 25%. | Tap the Optimize button to set the power output to 100%. |
| Advertising period must be 32 ms when iBeacon is selected. | Advertising period is not set to 32 ms when iBeacon option is selected. | Set the advertising period to 32 ms. |
| **Install/Update Errors** | | |
| Check your Internet connection and try again. | If you are connected to the Internet and you get this error. | Verify that you have a working Internet connection and try the operation again. |
| Syncing is in progress. Wait and try again. | Key-related data is getting synced with server. | Wait and try the installation again. |

| | | |
|---|---|---|
| Make sure Bluetooth is on and try again. | If Bluetooth is turned off on your device, you see this error. | Turn on Bluetooth on your device. If the problem persists, restart the mobile device. |
| Reader installed successfully. Error while saving reader settings. Try again. | Reader should have been installed successfully, however the settings modified during commissioning are not updated in the server. | Check if the reader is installed successfully. If yes, modify the settings of the reader from the Update workflow. |
| **Firmware Update Errors** | | |
| No Firmware set loaded. | Firmware set is not found on the credentials server. | Contact the administrator to update the firmware set. |
| **License Errors** | | |
| Licenses are required. Contact the administrator to purchase licenses and sync to install readers. | License metering is not enabled for the owner. | Contact the administrator to enable metering for the owner. |
| Inventory Transfer is restricted between Device Inventory Owners. | Cannot transfer a reader from one inventory owner to another inventory owner. | Change the owner to non-inventory owner and retry the operation. |
| All licenses have been consumed. Contact the administrator to purchase licenses and sync to install readers. | Licenses are exhausted for the owner. | Contact the administrator to purchase licenses. |
| Unable to get license counts for this owner. Refresh and try again. | Technical error in retrieving the license count. | Tap the Refresh button to perform the operation again. |
| **Test Open Errors** | | |
| Make sure the reader is nearby and powered. | Reader is powered off. | Check the state of the reader, turn on the reader if it is powered off. Move closer to the reader or increase the sensitivity in Settings. |

| Auto-logout Errors | | |
| --- | --- | --- |
| Your session has logged out due to inactivity (60 minutes), login again. | BlueDiamond Toolkit is idle for more than 60 minutes. | Enter the PIN again to resume your activity. |

# Chapter 5 :  Uninstall BlueDiamond Toolkit

To remove the BlueDiamond Toolkit app from your device:

1. Go to the BlueDiamond Toolkit app icon on your device.
2. Tap and hold the icon.
3. Tap Uninstall.