

# EV<sup>3</sup> Snap

**CommerceDriver™**

Quick-Start Guide for *Android™*

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## EVO CommerceDriver™

Adding EMV transaction processing to your POS system is easy with the pre-certified EVO CommerceDriver™ SDK. The pre-certified CommerceDriver™ SDK installs alongside your software application to add EMV transaction processing to your POS system. CommerceDriver™ facilitates all transactional communication with the EVO Payments International global processing platforms and approved hardware devices to isolate payment data and keep it separate from the software application.

CommerceDriver™ is designed to support multiple terminal manufacturers while retaining a common API. At startup, CommerceDriver™ detects the supported terminal manufacturer(s)/models for processing Authorize, Authorize & Capture, and Return transactions.

## How It Works

1. Create transaction data objects in your POS.
2. Pass the transaction data to CommerceDriver™.
3. CommerceDriver™ initiates terminal commands and gathers tender/EMV data to send to the EVO Snap\* Platform.
4. The EVO Snap\* Platform returns a response to CommerceDriver™ with receipt details.

## Version Details

- \* CommerceDriver™ - v2.29.0
- \* Supports EVO Snap\* v2.1.29 Platform calls
- \* Supported Terminals – Ingenico ICMP via Bluetooth, Ingenico iPP320/iPP350 (Ethernet), EVO ITM100 (Audio Jack), and EVO ITP200/ITP250

## Compatibility

- \* CommerceDriver™ Framework – Android API Level 17+ (4.2 JellyBean)

### Google Play Services

Google Play Services is required for Commerce Driver to work.

Check for Google Play Services in your application using [GoogleApiAvailability](#).

# Integration

## Add to Project

To use CommerceDriver™ in Android, you must first add CommerceDriver™ to your project:

```
dependencies {  
    implementation 'com.evosnap.android:commerce-driver:2.28.0'  
    // OR  
    // inspect pom.xml for additional dependencies  
    implementation project(path: 'path-to-commerce-driver')  
}
```

## Initialize Instance

```
CommerceDriver commerceDriver = new CommerceDriver("applicationProfileId", "serviceKey");
```

# Authentication

## First Login

Prior to using CommerceDriver™ in full, the user must do the following:

- \* For a first time login with a temporary password, use `CommerceDriver.changePassword(String, String, String)` method with the username, temporary password, and a new password.
- \* Then, use the `CommerceDriver.loginWithUsernameAndPassword(String, String)` with your new password.

## Subsequent Login

On the first and subsequent login without a temporary password, there are a few account related calls one should make to finish setting up the account:

- \* Check the password expiration with `CommerceDriver.getUserExpiration(String, String)`
- \* Check if the user has answered security questions with `CommerceDriver.getSecurityQuestions()`
- \* If security questions haven't been answered, get the list of available questions with `CommerceDriver.getAvailableSecurityQuestions()`
- \* Set up security questions with `CommerceDriver.updateSecurityQuestions(String, String, List<SecurityAnswer>)`

## Login

```
try {
    CommerceDriver commerceDriver = new CommerceDriver("applicationProfileId", "serviceKey");
    LoginResponse response = commerceDriver.loginWithUsernameAndPassword("username", "password");
    // Success
} catch (SnapSessionError e) {
    // Something went wrong
} catch (SnapApiError e) {
    // An API error occurred
    ApiResponse error = e.getResponse();
    // Look at the error to see what happened
} catch (SnapConnectionError e) {
    // A network problem occurred
} catch (SnapSyncAccountError e) {
    // A problem occurred when syncing your account
}
```

## Security Questions

After login, it is important to make sure that security questions have been answered.

Security questions are used to recover forgotten or lost passwords. It is still possible to recover a password if security questions are not set, however this process is longer and requires contacting a customer support representative.

### Check if Security Questions Have Been Answered

Use `CommerceDriver.getSecurityQuestions()` to get a list of questions that the user has answered.

If the user has not answered a sufficient number of security questions, (e.g. 3), then they should be prompted to answer security questions.

```
try {
    SecurityQuestionsResponse response = CommerceDriver.getSecurityQuestions();
    List<SecurityQuestion> questions = response.getQuestions();
    if (questions.size() >= RECOMMENDED_SECURITY_QUESTIONS_ANSWERED) {
        // user has answered an appropriate number of security questions
    } else {
        // user should be prompted to answer security questions
    }
} catch (SnapConnectionError e) {
    // a connection error occurred, maybe the network is down or similar
} catch (SnapApiError e) {
    // an api error occurred, maybe the user credentials were invalid
}
```

### Get Available Questions to Answer

If the user needs to answer questions, the list of questions can be retrieved via `CommerceDriver.getAvailableSecurityQuestions()`:

```
try {
    SecurityQuestionsResponse response = CommerceDriver.getAvailableSecurityQuestions();
    List<SecurityQuestion> questions = response.getQuestions();
    if (questions.isEmpty()) {
        // something went wrong on the platform
    } else {
```

```
        // offer the security questions to the user to answer
    }
} catch (SnapConnectionError e) {
    // a connection error occurred, maybe the network is down or similar
} catch (SnapApiError e) {
    // an api error occurred, maybe the user credentials were invalid
}
```

## Answer Security Questions

Once the user has selected security questions and answers, then

`CommerceDriver.updateSecurityQuestions(String, String, List<SecurityAnswer>)` can be called to update:

```
try {
    List<SecurityAnswer> answers = // create a list of answered security questions for password retrieval
    UpdateSecurityQuestionsResponse response = CommerceDriver.updateSecurityQuestions("some_user", "some_password", answers);
    // security questions have been answered if no exception is thrown
} catch (SnapConnectionError e) {
    // a connection error occurred, maybe the network is down or similar
} catch (SnapApiError e) {
    // an api error occurred, maybe the user credentials were invalid
}
```

## Password Expiring Soon

The user password expiration should be checked at each login. The password can be changed at any time, but if the password is expiring relatively soon, then follow these steps:

- \* Offer the user to change the password via `CommerceDriver.changePassword(String, String, String)`.
- \* Logout with `CommerceDriver.logout()`.
- \* Re-login with `CommerceDriver.login(String, String)` using the changed password.

# Terminal Setup

## Add a Terminal

Use `CommerceDriver.addTerminal(Terminal)` to add a terminal. If the terminal was added successfully, the method will return `true`. Terminals are identified with an `id`, so each time a new terminal is added, it must have a unique id or the `CommerceDriver.addTerminal(Terminal)` will return `false`.

`Terminal` objects are created using separate terminal libraries.

Multiple terminals may be added.

```
boolean added = commerceDriver.addTerminal(aTerminal);
if (added) {
    // success
} else {
    // failure - a terminal with the given id may have already been added
}
```

## Initialize The Terminal

Initialization is required prior to using a terminal. After adding a terminal with

`CommerceDriver.addTerminal(Terminal)` a call to

`CommerceDriver.initializeTerminal(InitializeTerminalRequest)` should be made to initialize the terminal.

No other requests to the terminal can be made if the initialization call is not made:

```
commerceDriver.initializeTerminal(myInitializeTerminalRequest);
```

## Selecting Terminals

Use `CommerceDriver.selectTerminal(String)` to select a terminal after it has been added. If multiple terminals were added with `CommerceDriver.addTerminal(Terminal)` then this method is how one would change terminals.

## Using Terminals

Requests to terminals have a listener as part of the request to receive the results of the request. See below for available requests to the terminal:

### Check the Battery

If a terminal has a battery, then the `CommerceDriver.checkBatteryStatus(CheckBatteryRequest)` may be called to check the battery level.

### Check the Connectivity

To check if a connection can be made to the terminal, use the

`CommerceDriver.checkTerminalConnection(CheckConnectionRequest)` method.

### Printing

`CommerceDriver.printJob(PrintJobRequest)` can be used to print a transaction receipt or similar. Not all terminals support printing.

### Cancelling

Terminal requests may be flagged for cancellation with `CommerceDriver.cancelRequest()`. The request and the current state of the request will dictate if a cancellation is honored.

## Shutting Down

To safely close a terminal connection and instance, a call to `CommerceDriver.shutdownTerminal(ShutdownTerminalRequest)` should be made. If the request succeeds, then the terminal should no longer be used, and the terminal should be removed from CommerceDriver™ via `CommerceDriver.removeTerminalById(String)`.

# Transaction Processing

Two transaction sets can be processed using CommerceDriver™.

1. Terminal Required Transactions
  - \* Authorize
  - \* Authorize and Capture
  - \* Return Unlinked
2. No Terminal Required Transactions
  - \* Undo
  - \* Capture
  - \* Return by ID

## Transaction Setup

Setting up the `TransactionRequestBuilder` correctly is required for a transaction via terminal to start. Transaction data can be set using the `TransactionRequestBuilder` and an event listener must be implemented to respond to various events that may occur during the course of a transaction.

## Starting a Transaction

Transactions can be started using one of the following:

1. `CommerceDriver.authorizeTransaction(TransactionRequestBuilder)`
2. `CommerceDriver.authorizeAndCaptureTransaction(TransactionRequestBuilder)`
3. `CommerceDriver.returnTransactionUnlinked(TransactionRequestBuilder)`

## Transaction Requests

The `TransactionRequestBuilder` is the object that is created and used by CommerceDriver™ to start a transaction request with a terminal.

If a terminal has been added and selected, then a `TransactionRequestBuilder` can be created and used to call one of the following methods in CommerceDriver™:

Method	Description
<code>CommerceDriver.authorizeTransaction(TransactionRequestBuilder)</code>	Starts an <b>Authorize</b> transaction. A <b>Capture</b> should follow if the transaction is approved.
<code>CommerceDriver.authorizeAndCaptureTransaction(TransactionRequestBuilder)</code>	Starts an <b>Authorize and Capture</b> transaction.
<code>CommerceDriver.returnTransactionUnlinked(TransactionRequestBuilder)</code>	Starts a <b>Return Unlinked</b> transaction

## Transaction Examples

### Authorize & Capture

```
try {
    PosRequestBuilder builder = PosRequestBuilder.newAuthorizeAndCaptureRequest()
    builder.setAmount(10.00);
    builder.setTransactionDateTime(new Date());
    builder.setTransactionEventListener(myTransactionEventListener);

    commerceDriver.startTerminalTransaction(builder.build());
    // Listen for callbacks!
} catch (SnapValidationError e) {
    // Commerce Driver didn't like something with the transaction!
} catch (SnapTerminalError e) {
    // The terminal didn't like something with the transaction!
} catch (SnapSessionError e) {
    // Your session might be expired! Time to log in again!
}
```

### Authorize & Capture (Credit \$10)

```
PosRequestBuilder builder = PosRequestBuilder.newAuthorizeAndCaptureRequest()
builder.setAmount(10.00);
builder.setTransactionDateTime(new Date());
builder.setTransactionEventListener(myTransactionEventListener);

commerceDriver.startTerminalTransaction(builder.build());
```

### Authorize & Capture (Credit \$20 + \$5 Tip = \$25 Total)

```
PosRequestBuilder builder = PosRequestBuilder.newAuthorizeAndCaptureRequest()
builder.setAmount(20.00);
builder.setTipAmount(5.00);
builder.setTransactionDateTime(new Date());
builder.setTransactionEventListener(myTransactionEventListener);

commerceDriver.startTerminalTransaction(builder.build());
```

### Authorize & Capture (Debit \$100 + \$20 cash back = \$120 Total)

```
PosRequestBuilder builder = PosRequestBuilder.newAuthorizeAndCaptureRequest ()
builder.setAmount (100.00);
builder.setCashBackAmount (20.00);
builder.debit ();
builder.setTransactionDateTime (new Date ());
builder.setTransactionEventListener (myTransactionEventListener);

commerceDriver.startTerminalTransaction (builder.build ());
```

### Return Unlinked \$10

```
PosRequestBuilder builder = PosRequestBuilder.newReturnUnlinkedRequest ()
builder.setAmount (10.00);
builder.setTransactionDateTime (new Date ());
builder.setTransactionEventListener (myTransactionEventListener);

commerceDriver.startTerminalTransaction (builder.build ());
```

### Authorize Transaction (Credit \$20, Capture at a later time)

```
PosRequestBuilder builder = PosRequestBuilder.newAuthorizeRequest ()
builder.setAmount (20.00);
builder.setTransactionDateTime (new Date ());
builder.setTransactionEventListener (myTransactionEventListener);

commerceDriver.startTerminalTransaction (builder.build ());

// terminal performs transaction, later perform the capture
BankCardCapturePro capture = new BankCardCapturePro ();
capture.setAmount (25.00); // original amount was 20, adding 5 tip = 25
capture.setTipAmount (5.00);
capture.setTransactionId (theTransactionIdReturnedFromTheOriginalAuthorize)
commerceDriver.captureTransaction (capture);
```

## Transaction Data

For the initial implementation, there are only a few pieces of transaction data that should be set:

Method	Description
<code>TransactionRequestBuilder.setAmount (double)</code>	Sets the total transaction amount (including tax, cash back, etc.)
<code>TransactionRequestBuilder.setCustomerPresent (CustomerPresent)</code>	Sets the customer presence – most cases will be <code>CustomerPresent.Present</code>
<code>TransactionRequestBuilder.setProcessAsCredit ()</code>	Sets the processing type to “Credit”
<code>TransactionRequestBuilder.setProcessAsDebit ()</code>	Sets the processing type to “Debit”
<code>TransactionRequestBuilder.setEmployeeId (String)</code>	Sets the Employee ID using the POS for the transaction

<code>TransactionRequestBuilder.setOrderNumber(String)</code>	Sets the Order ID for the transaction
<code>TransactionRequestBuilder.setLaneId(String)</code>	Sets the Lane ID for the transaction
<code>TransactionRequestBuilder.setReference(String)</code>	Sets the reference for the transaction
<code>TransactionRequestBuilder.setTransactionDateTime(Date)</code>	Sets the transaction date -  <b>Note:</b> in most cases, date can be passed as <code>newDate( )</code>
<code>TransactionRequestBuilder.setTransactionEventListener(TransactionEventListener)</code>	Sets the Event Listener. More information about Events can be found in the <b>Event</b> section below.

## Events

The `TransactionEventListener` is the observer that must set on a `TransactionRequestBuilder` to properly execute a transaction via a terminal. The methods are called on the UI thread unless the `TransactionRequestBuilder.setHandler(Handler)` is called.

Below are the methods that are called on the `TransactionEventListener`:

Method	Description	Recommended Action
<code>TransactionEventListener.onRequestSignatureConfirmation(ConfirmSignatureRequest)</code>	Called if a signature should be collected and confirmed by the POS	Display a signature dialog and collect signature.
<code>TransactionEventListener.onRequestFinalConfirmation(FinalConfirmationRequest)</code>	Called if a final confirmation must be made by the POS, as opposed to the terminal	Display a final confirmation dialog with the amount.
<code>TransactionEventListener.onRequestApplicationSelection(ApplicationSelectionRequest)</code>	Called if application selection must be made by the POS, as opposed to the terminal	Display an application selection dialog.

<code>TransactionEventListener.onRequestConfirmCardRemoved(ConfirmCardRemovedRequest)</code>	Called if the POS should ensure a card has been removed from the terminal	None required
<code>TransactionEventListener.onTransactionNotification(TransactionNotification)</code>	Called when an event occurs during a transaction	None required
<code>TransactionEventListener.onCardRead(CardReadData)</code>	Called when card data is read, (e.g. – masked PAN, card type)	None required
<code>TransactionEventListener.onRequestApDupeOverride(ApDupeOverrideRequest)</code>	Called when a transaction is a duplicate and the POS can override to allow the duplicate transaction to finish processing	None required
<code>TransactionEventListener.onTransactionCompleted(TransactionCompletedData)</code>	Called when a transaction is completed, (e.g. – approved, declined, cancelled, error, etc.)	Display a dialog with the result and receipt options, (e.g. – email, print, etc.)
<code>TransactionEventListener.onRequestCVV(RequestCVVHandler)</code>	Called when a transaction requires a CVV	Collect the CVV

## Unsuccessful Calls

When executing “terminal” methods, or calls to login, security related calls, etc., it is possible that an error can occur.

### Common Exception Reasons

Exceptions can typically occur for the following reasons:

- \* `SnapConnectionError` is thrown when a network call fails
- \* `SnapSessionError` is thrown when a session is expired or invalid and/or a login is required
- \* `SnapApiError` thrown when the platform responds with an API Error
  - `SnapApiError.getErrorResponse()` may provide the error response along with an error code

## Common API Error Codes

If a `SnapApiError` is thrown, `SnapApiError.getErrorResponse()` may return an `ApiResponse` containing error details. `ApiResponse.getErrorId()` can return a numeric code indicating the reason for the API Error.

Below are common API Errors when performing any of the calls listed above:

Error ID	Definition	Resolution
406	User credentials invalid	Use valid credentials when calling <code>CommerceDriver.login(String, String)</code>
5001	Password change required	Change password using <code>CommerceDriver.changePassword(String, String, String)</code>
5002	Account locked – too many invalid logins	Contact your Solutions Engineer
5003	Account locked – Administrative Lock	Contact Snap* Customer Support
5004	Account locked – Password is Expired	Change password using <code>CommerceDriver.changePassword(String, String, String)</code>

## Reference Information

For additional information, please visit the EVO Snap\* Support site at <http://www.evosnap.com/support/> or contact your EVO Technical Support representative.