Oracle® Retail EFTLink

Framework Advanced Features Guide

Release 24.0.0
G17643-01
December 2024

Oracle Retail EFTLink Framework Advanced Features Guide, Release 24.0.0

G17643-01

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Oracle Retail EFTLink Framework Advanced Features Guide, Release 24.0.0

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Preface

The *Oracle Retail EFTLink Framework Advanced Features Guide* describes the advanced features of Oracle Retail EFTLink framework.

Audience

This Installation Guide is for the following audiences:

- System administrators and operations personnel
- Database administrators
- System analysts and programmers
- Integrators and implementation staff personnel

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Related Documents

For more information, see the following documents in the Oracle Retail EFTLink Release 24.0.0 documentation set:

- *Oracle Retail EFTLink Release Notes*
- *Oracle Retail EFTLink Core Configuration Guide*
- *Oracle Retail EFTLink Framework Installation and Configuration Guide*
- *Oracle Retail EFTLink Security Guide*
- *Oracle Retail EFTLink Rest API Guide*
- *Oracle Retail EFTLink Xstore Compatibility Guide*
- *Oracle Retail EFTLink Validated Partners Guide*
- *Oracle Retail EFTLink Validated OPI Partners Guide*

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Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

1 Introduction

After installing EFTLink (instructions can be found in the *Oracle Retail EFTLink Framework Installation and Configuration Guide*), you may want to use some of the advanced features of the Framework.

This guide consists of separate chapters for each feature of the Framework; go to the pertinent section for more information. The following cores are supported:

- Dynamic Configuration
- Multiple Cores

Miscellaneous Data Disclaimer

EFTLink along with some selected Cores, has the ability for additional data to be sent and received in a field called `<MiscellaneousData>`.

This can be used by System Implementers (SIs) and Payment Service Providers (PSPs) to pass additional data in the messages between Xstore and the Payment Providers, using custom code.

Typically, this is used to add directives which we can trigger different payment workflows. However, it can also be used to capture additional payment data for downstream processing for the Retailer's to use for reconciliation or financial purposes.

Under no circumstances should any PCI or potentially sensitive PII data be placed in this field. Oracle will not be responsible for any issues caused by integration changes made by SIs, Retailers and Payment Providers, that enable sensitive data to be added into this field.

2

Server Mode

This chapter describes the configuration of running EFTLink within Server mode.

EFTLink Server

EFTLink is usually deployed as a service application running on each POS and connecting to a single payment device. To support environments where the POS runs as a thin-client application with restricted local device access, or where the hardware has limited processing power or memory, EFTLink can be deployed in Store Server mode.

A single EFTLink application runs on a designated server system and all POSs connect to that one server. EFTLink manages the connections to multiple payment terminals and routes payment requests from each POS on to the relevant device.

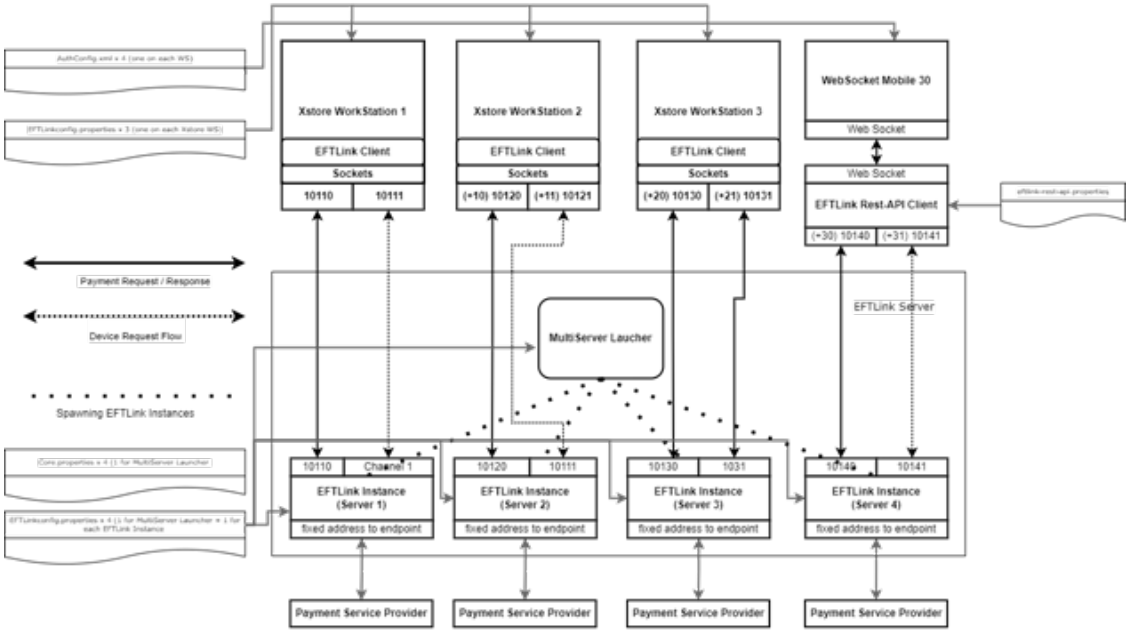
EFTLink Server has two distinct modes that offer different use cases. A static mapping where a 1-1 logical connection between POS and payment terminal is still used or for EFTLink to make a dynamic selection of payment terminal based on its availability and convenience. This is referred to as PED-pooling (PED - PIN entry Device).

- EFTLink Server - (static one-to-one)
- EFTLink Server - PEDPooling
- Configuring EFTLink Server

EFTLink Server - (static one-to-one)

An EFTLink server is essentially multiple instances of EFTLink running where each instance is communicating over its own TCP socket. This allows for a POS/register and the EFTLink instance to have a static 1-1 mapping where each EFTLink instance can communicate using one or more active cores to the corresponding PSP's.

Figure 2-1 EFTLink Server - static one-to-one



The diagram above shows EFTLink Server running 4 instances of EFTLink which bridges a POS to a dedicated PSP. This configuration can be achieved by following the below configuration steps.

Within the EFTLink installation directory (for example, c:\eftlink) you will need the following:

- EFTLink is started using class: `manito.eft.opi.server.MultiServerLauncher`
- Within the EFTLink installation directory 4 subfolders (Server<n>) are required and each folder will be used as a working directory for each instance.

  C:\eftlink\Server1

  C:\eftlink\Server2

  C:\eftlink\Server3

  C:\eftlink\Server4

The `EFTLinkConfig.properties` file within the root of the EFTLink Installation directory is used to spin up the required number of EFTLink Instances and to read-in the values specified within the`EFTLinkConfig.properties` file. To achieve a four-server configuration please ensure the property key **NumServers** value is set to “4”.

For example, NumServers = 4

Once you have customised the `EFTLinkConfig.properties` file that exists in the root of the EFTLink installation directory. It is necessary to copy this file to:

- The root of the "xstore" Installation folder or "xstoredata\xstore" folder (for v22 or greater) as this is needed by the EFTLink (client) API library that xstore Interfaces with to build the requests and parse the EFTLink responses.
- Each Server<n> folder. Once copied the file under the server<n> folder can be further modified for any specifics to that instance. For example, the active core being used such as EPSCore<n> property key.

An example (snippet) layout of how each configuration file would be is as follows:

Installation root and Xstore

(Not applicable for communication over websockets)

`EFTLinkConfig.properties`

ServerChannel0 = 10100

NumServers = 4

Xstore (ws1 – ws3)

`AuthConfig.xml`

```
<Host dtype="String">socket://
localhost:10100</Host>
<Parameter name="deviceCommChannel"
value="socket://localhost:10111"/>
<Parameter
name="additionalWorkstationHostsMap"
>
<param_value dtype="Map">
<MapEntry>
    <key dtype="Integer">1</key>
<!-- workstation id -->
     <value
dtype="EFTLinkCommunicationChannels"
>
      <Channel0
dtype="String">socket://
localhost:10110</Channel0>
      <Channel1
dtype="String">socket://
localhost:10111</Channel1>
   </value>
</MapEntry>
<MapEntry>
    <key dtype="Integer">2</key>
     <value
dtype="EFTLinkCommunicationChannels"
>
      <Channel0
dtype="String">socket://
localhost:10120</Channel0>
      <Channel1
dtype="String">socket://
localhost:10121</Channel1>
   </value>
</MapEntry>
<MapEntry>
     <key dtype="Integer">3</key>
      <value
dtype="EFTLinkCommunicationChannels"
>
       <Channel0
dtype="String">socket://
localhost:10130</Channel0>
       <Channel1
```

Server 3

`EFTLinkConfig.properties`

EPSCore0 = oracle.eftlink.opiretail.OPIRetailCore

LineDisplayEnabled=false

`opiretail.properties`

EPSAddress = 192.168.1.13

EPSPort = 8443

Server 4

`EFTLinkConfig.properties`

EPSCore0 = oracle.eftlink.opiretail.OPIRetailCore

EPSCore1 = oracle.eftlink.paypal.PayPalCore

LineDisplayEnabled=true

DelegateLineDisplay = true

LineDisplayDelegateList = 0

EwalletCore = 1

`EFTLink-rest-api.properties`

ServerChannel0 = 10100

NumServers = 1

Pos30 = 10140

PEDPoolEnabled = false

`opiretail.properties`

EPSAddress = 192.168.1.14

EPSPort = 8443

```
dtype="String">socket://
localhost:10131</Channel1>
   </value>
</MapEntry>
</param_value>
</Parameter>
```

Server 1

`EFTLinkConfig.properties`

EPSCore0 = oracle.eftlink.opiretail.OPIRetailCore

`opiretail.properties`

EPSAddress = 192.168.1.11

EPSPort = 8443

Server 2

`EFTLinkConfig.properties`

EPSCore0 = oracle.eftlink.opiretail.OPIRetailCore

`opiretail.properties`

EPSAddress = 192.168.1.12

EPSPort = 8443

The above example illustrates that each server can differ its configuration. For example, Server 1 and 2 only differ in terms of core properties file where both point to their respective providers endpoint address and port.

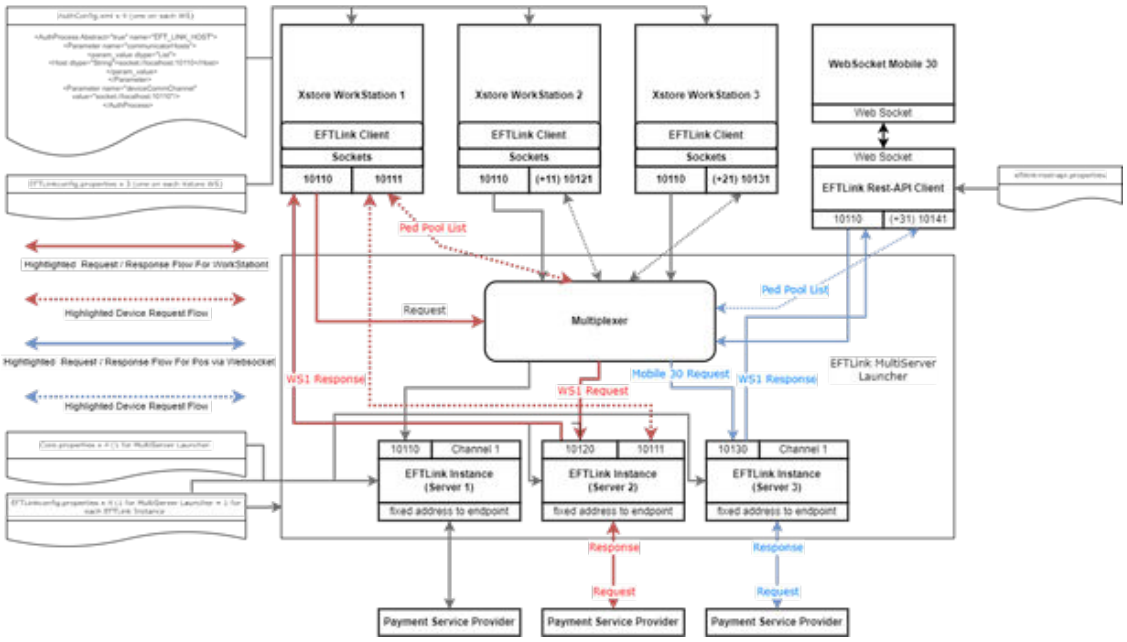
Server 3 will automatically block any sale state notifications reaching the opiretail core.

Server 4 configuration harnesses the EFTLink rest-api service to interpret the websocket requests from the POS along with adding in an additional core to reroute any EWallet requests to core 1. Any sale state notifications coming in will only be forwarded to core 0.

EFTLink Server - PEDPooling

Many-to-many mapping between POS and payment system/terminal. Each POS is allocated a fixed pair of sockets (channel 0/1) that connect to a multiplexer/switch. The multiplexer implements rules and/or uses interactive dialogs with the POS operator to determine which EFTLink instance to pass the request on to.

Figure 2-2 EFTLink Server - PEDPool Remote Mode



The diagram above shows EFTLink Server running 3 instances of EFTLink which are serving four clients. Three of the clients are communicating directly by TCP sockets whereas the fourth client is using websockets so requires the EFTLink Rest-api-client to interpret the requests into EFTLink.

An example (Snippet) layout of how each configuration file would be as follows:

EFTLink Installation root and Xstore (Not applicable for communication over websockets) `EFTLinkConfig.properties` *ServerChannel0 = 10100* *PEDPoolEnabled = true* *PEDPoolOneCatchAllChannel0 = true* *NumServers = 3* *server1.description = EFT1* *server2.description = EFT2* *server3.description = EFT3* *NumClients = 4* *pos1.description = Desktop POS 1* *pos2.description = Desktop POS 2* *pos3.description = Desktop POS 3* *pos30.description = Tablet POS 31* *pos1.subpool = EFT1, EFT2, EFT3, EFT4* *pos2.subpool = EFT1, EFT2, EFT3, EFT4* *pos3.subpool = EFT1, EFT2, EFT3, EFT4* *pos30.subpool = EFT1, EFT2, EFT3, EFT4* **Xstore (ws 1 - ws3)** `AuthConfig.xml` *<Host dtype="String">socket://localhost:10110</ Host>* **Server 1** `EFTLinkConfig.properties` *EPSCore0 = oracle.eftlink.opiretail.OPIRetailCore* `opiretail.properties` *EPSAddress = 192.168.1.11* *EPSPort = 8443* **Server 2** `EFTLinkConfig.properties` *EPSCore0 = oracle.eftlink.opiretail.OPIRetailCore* `opiretail.properties` *EPSAddress = 192.168.1.12* *EPSPort = 8443*
Server 3 `EFTLinkConfig.properties` *EPSCore0 = oracle.eftlink.opiretail.OPIRetailCore* *LineDisplayEnabled=false* `opiretail.properties` *EPSAddress = 192.168.1.13* *EPSPort = 8443* **Server 4** `EFTLinkConfig.properties` *EPSCore0 = oracle.eftlink.opiretail.OPIRetailCore* *EPSCore1 = oracle.eftlink.paypal.PayPalCore* *LineDisplayEnabled=true* *DelegateLineDisplay = true* *LineDisplayDelegateList = 0* *EwalletCore = 1* *EFTLink-rest-api.properties* *ServerChannel0 = 10100* *NumServers = 3* *pos1= 10110* *pos2 = 10120* *pos3 = 10130* *pos30 = 10140* *PEDPoolEnabled = true* `opiretail.properties` *EPSAddress = 192.168.1.14* *EPSPort = 8443*

Configuration of EFTLink Server (static) or PEDPooling (dynamic)

As a base, EFTLink should first be installed using the standard installation procedure. Please refer to the *Oracle Retail EFTLink Framework Installation and Configuration Guide* located on OHC and refer to the chapters “Runnable Installer/Upgrader Jar” or “Manual Installation” and Post Installation Steps before continuing. Now perform the additional steps:

Enabling Server

EFTLink Server requires a different starting class: *manito.eft.opi.server.MultiServerLauncher*

Please follow the step below to activate this class.

Use a text editor to edit EFTLink folder/wrapper/conf/eftlink.conf.

Replace: *wrapper.app.parameter.1=manito.eft.opi.server.OPIServer*

With: *wrapper.app.parameter.1=manito.eft.opi.server.MultiServerLauncher*

This can be done by commenting out all *wrapper.app.parameter.1* and license details for *manito.eft.opi.server.OPIServer* and uncomment all license details for *manito.eft.opi.server.MultiServerLauncher*.

EFTLink - Server (static one-to-one)

Using the *Oracle Retail EFTLink Framework Installation and Configuration Guide* whereby the choice of the installation type was “server” then some of the configuration should have been completed automaticall. However, further configuration is still required.

Please confirm that there is a correct number of Server<n> folder created and the `eftlinkconfig.properties` file and the core properties file exist and configured to your needs.

You can assign a friendly name/description to each EFTLink instance so that it is easier to trace through the logs. To do this please edit the `eftlinkconfig.properties` within the EFTLink installation root.

For the number servers specified (“NumServers”) ensure there is a server<n>.description key and that the value set is your preferred descriptive choice.

For example,

NumServers = 4

server1.description = EFT Server 1

server2.description = EFT Server 2

server3.description = EFT Server 3

server4.description = EFT Server 4

It is necessary to now copy the `eftlinkconfig.properties` file held within eftlink installation root to Xstore so they are identical. Please refer to figure 2-2 example configuration for further information.

EFTLink - Server – PEDPool (dynamic)

> **Note:**
>
> It is important to point out that the EFTLink PED pooling functionality is restricted by Core compatibility. Therefore please check the core guide documentation. Also note the following restrictions:
>
> PED pooling out of the box is only applicable within the <*CardServiceRequest*> context, that is, this is when the actual payment is initiated and finalized.
>
> <*SaleStateNotification*> are supported in limited capacity and only when a server instance is marked "*" as a dedicated default to a POS through the *pos<ws Id>.subpool* list
>
> `<DeviceRequest>` from release 24 is now also supported when running in pedpooling mode. However, this needs to be enabled in the `eftlinkconfig.properties` file by setting the property key `DeviceRequestInPedPoolModeEnabled` to true. In addition to enabling this, it is also important that customization has been done within the POS so that it listens on channel 1 for any interim device requests initiated from EFTLink.

Using the *Oracle Retail EFTLink Framework Installation and Configuration Guide* whereby the choice of the installation type was "Server + PedPooling" then some of the configuration would have been completed automatically. However, further information is required.

Please confirm that there is a correct number of Server<n> folder created and the `eftlinkconfig.properties` file and the core properties file exist and configured to your needs.

In PED Pooling mode it is mandatory that you can assign a friendly name/description to each EFTLink instance as this is the text that will be display to the operator upon the pool list.

For the number servers specified ("NumServers") ensure there is a "server<n>.description" key and that each value is set to your preferred descriptive choice.

To do this please edit the `eftlinkconfig.properties` within the EFTLink installation root.

For example,

NumServers = 4

server1.description = Menswear Suits - Terminal 1

server2.description = Menswear Suits - Terminal 2

server3.description = Menswear Suits - Terminal 3

server4.description = Menswear Suits - Terminal 4

When PED pooling has been enabled, the system uses the standard channel 1 display messages to present each POS operator with a list of available payment terminals. By default, the list will include all available terminals, but this can be confusing in a large store, so there is an option to limit each POS to a subset of the full list to show just the terminals in one department. The subset is defined using the descriptive names from EFTLink Instance Set Up and specified as a comma-separated list. A default association can be set by prefixing the descriptive name with '*'. If that payment terminal is available, it will be automatically used without any operator prompting.

For example,

*pos1.subpool = *Menswear Suits - Terminal 1, Menswear Suits - Terminal 3, Menswear Suits - Terminal 4*

*pos2.subpool = *Menswear Suits - Terminal 2, Menswear Suits - Terminal 3, Menswear Suits - Terminal 4*

pos3.subpool = Menswear Suits - Terminal 3, Menswear Suits - Terminal 4

…

pos10.subpool = Menswear Suits - Terminal 3, Menswear Suits - Terminal 4

POS Client Set Up

For the number of Clients (“NumClients”) specified in the `eftlinkconfig.properties` file ensure that you have a pos<n>.description key and that its value is set to your preferred descriptive choice. These are the names that will be shown in the EFTLink log to ease tracking/debugging.

To do this please edit`eftlinkconfig.properties` within the EFTLink installation root.

For example,

NumClients = 10

pos1.description = Menswear-suits – register 1

pos2.description = Menswear-suits – register 2

…

pos10.description = Menswear-suits – register 10

Each POS must use a unique pair of ports for its connection to EFTLink. These do not need to be further defined within`eftlinkconfig.properties` but the ports numbers and EFTLink Server system IP must be set on each POS. The numbering system is based on EFTLink base address (default 10100, configurable by the ServerChannel0 property) plus 10 x the POS number. Two sequential ports are needed, one for each of channel 0 and 1.

For example,

POS1 - ServerChannel0 = 10110, ServerChannel1 = 10111

POS2 - ServerChannel0 = 10120, ServerChannel1 = 10121

POS3 - ServerChannel0 = 10130, ServerChannel1 = 10131

...

POS9 - ServerChannel0 = 10190, ServerChannel1 = 10191

POS10 - ServerChannel0 = 10200, ServerChannel1 = 10201

If this range of ports is not available, the base number can be changed via the ServerChannel0 setting. All POSs must then be changed to match.

Log4J2 Setup

The Log4j2.xml logging configuration file as standard is delivered configured for Single server mode. Alterations are required to the log4j2.xml file to ensure logging is performed per pos,

and per server. To enable full logging, modify the standard log4j2file by performing the following steps:

1. Alter the <Properties> section, adding in the correct number of servers, and pos, ensuring each has a unique name and filename.
2. In the <Appenders> section, enable the RollingRandomAccessFile entries for each server/pos by removing the comment start <!-- and comment end --> for the marked MultiServerLauncher/PedPooling section.
3. Adjust the number of the RollingRandomAccessFile entries in the <Appenders> section by adding the relevant number of server{x}_log and pos{x}_log sections. Ensure each of these maps to the correct filename (defined in point 1) and adjust the filepattern to use the relevant server folder / server filename. The number of server{x}_log and pos{x}_log entries in the <Appenders> section should match the number of server{x}_log and pos{x}_log entries in the <Properties> section.
4. Also in the <Appenders> section, enable the Async entries for each server/pos by removing the comment start <!-- and comment end --> for the marked MultiServerLauncher/PedPooling section.
5. Adjust the number of the Async entries in the <Appenders> section by adding the relevant number of server{x}_log and pos{x}_log sections. Ensure each of these maps to the correct server{x}_log or pos{x}_log (defined in point 3).
6. In the <Loggers> section, enable the Logger entries for each multifile.server{x}/ multifile.pos{x} by removing the comment start <!-- and comment end --> for the marked MultiServerLauncher/PedPooling section.
7. Adjust the number of the Logger entries in the <Loggers> section by adding the relevant number of multi-file.server{x} and multifile.pos{x} sections. Ensure each of these maps to the correct async_server{x}_log or async_pos{x}_log (defined in point 5).

Once fully configured, each pos request will write to a file in the main EFTLlink log folder named pos{x}.log. In addition, each server folder will contain its own log file showing server processing of the request - log files for each server will be in the path server{x}/log/ server{x}.log.

Xstore Set Up

As noted above, each POS must use a unique pair of ports for its connection to EFTLink. Also, the POS is configured to access a remote EFTLink rather than a local one.

There are two different ways that Xstore can be set up to use with EFTLink in Server Mode.

- One to One Port Mapping (applies to both Xstore and Xstore Mobile)
- One to Many Port Mapping (applies to both Xstore and Xstore Mobile)

All configurations illustrated below are part of the `Xstore AuthConfig.xml`configuration file.

One to One Port Mapping

(Static Server Mode)

This is where there is one Xstore or Xstore Mobile client served from the Jetty instance. It will divert all requests to a single port pairing that is managed inside the EFTLink Server instance. If another POS client is configured to use the same port pairing, it will potentially be blocked out until the port pair becomes free. In this mode, EFTLink Server will allow a single device to use many PEDs through the PED pooling functionality. EFTLink Server does not support load balancing of requests through one port pair so this configuration is not recommended if there are many Xstore mobile clients in the store solution.

If this configuration is suitable then the Xstore Mobile configuration is identical to the standard Xstore configuration. The 'communicatorHosts' parameter is used to set the channel 0 URL and 'deviceCommChannel' is used to set the channel 1 URL, as illustrated below. In this configuration when Xstore or Xstore Mobile starts an authorization request EFTLink will process the authorization request in the expected way, or if PED pooling is enabled, it will send a list of available PEDs for an associate to choose. Once the associate has chosen a PED, the authorization will proceed in the expected way.

```
<AuthProcess name="EFT_LINK_HOST" Abstract="true">
    <Parameter name="communicatorHosts">
      <param_value dtype="List">
        <Host dtype="String">socket://localhost:10100;timeout=1000</Host>
      </param_value>
    </Parameter>
    <Parameter name="deviceCommChannel" value="socket://localhost:10101" />
...
...
    <Parameter name="additionalWorkstationHostsMap">
      <param_value dtype="Map">
        <MapEntry>
          <key dtype="Integer">1</key> <!-- workstation id -->
          <value dtype="EFTLinkCommunicationChannels">
            <Channel0 dtype="String">socket://localhost:10110</Channel0>
            <Channel1 dtype="String">socket://localhost:10111</Channel1>
          </value>
        </MapEntry>
       <MapEntry>
          <key dtype="Integer">2</key> <!-- workstation id -->
          <value dtype="EFTLinkCommunicationChannels">
            <Channel0 dtype="String">socket://localhost:10120</Channel0>
            <Channel1 dtype="String">socket://localhost:10121</Channel1>
          </value>
        </MapEntry>
      </param_value>
    </Parameter>
  </AuthProcess>
```

One to Many Port Mapping

(PED Pooling)

In order to setup Xstore this way, the `EFTLinkConfig.properties` in the main folder in EFTLink (for example, C:\eftlink) should be copied in the working directory of Xstore or Xstore mobile (for example, C:\xstore or C:\xstoremobile). The list of POS, should be the same as in the EFTLink server side.

pos1.description = POS 1

pos2.description = POS 2

pos3.description = POS 3

The additional WorkstationHostsMap parameter is not needed anymore. If the default channel zero is used (for example, ServerChannel0 = 10100), then make sure to update the port in the Host section of the communicatorHosts to 10110. If ServerChannel0 is different, simply add 10 to it. Then deviceCommChannel's port is plus 1 of the Host's port.

```
<AuthProcess name="EFT_LINK_HOST" Abstract="true">
    <Parameter name="communicatorHosts">
      <param_value dtype="List">
        <Host dtype="String">socket://localhost:10110;timeout=1000</Host>
      </param_value>
```

```
    </Parameter>
    <Parameter name="deviceCommChannel" value="socket://localhost:10111" />
...
...
  </AuthProcess>
```

Included with EFTLink is an additional file `EFTLinkConfig_XStore_Mobile.properties`. This is a sample file demonstrating the required settings for the file `EFTLinkConfig.properties` on the POS.

This file should be copied over to the POS Client as `EFTLinkConfig.properties`.

3
Dynamic Configuration

This chapter describes the concept and the configuration of running EFTLink Dynamic Cores.

Dynamic configuration is controlled via the EFTLinkConfig.properties setting **DynamicConfiguration** (true by default) and can either be set to true or false.

This allows a POS to override the configuration of EFTLink and any active core that would normally receive their instruction from their respective properties files. This is achieved by the POS sending through an Administrative Service request. There are five sub types of Administrative Service request, these are detailed in the table below:

Table 3-1 Administration Request Sub Types

Setting	Description	Notes
Capability	For any initialized core, a capability request can be sent to check whether that core supports the transaction types.	Supported Transaction type that can be checked are Manual PAN, Loyalty, Reversal, and Cancellation requests.
GetConfig	For any initialized core, this request can be sent to retrieve the current configuration settings for an active core.	Can be useful in conjunction with **Uninitialise** request. For example, **Initialise** are core, gather configuration, **Uninitialise** and then **Initialise** core again with new setting sent within the **Initialise** request.
Initialise	This request must declare the EPSCore(s) that are to be initialized. If no EPSCore is declared, then EFTLink will revert to the `EftlinkConfig.properties` file held in the installation root for its configuration. If no properties are declared within the service request that declares which EPSCores(s) are initialized then EFTLink will revert to defaults.	An **Initialise** request must be sent before a logon request. If an **Initialise** request is sent specifying an EPSCore, then EftlinkConfig.properties is not used and all properties that deviate from defaults setting must come from within the request. Any properties specified inside an EPSCore element is targeted to that core only whereas any properties specified outside are used for all specified cores declared in the service request. Core properties are read in from their respective property files. However, any properties specified within this request will take precedence.
Shutdown	Instructs EFTLink to shut down.	Please note that this terminates EFTLink and therefore EFTLink will not be able to acknowledge nor respond back to the request.

Table 3-1 (Cont.) Administration Request Sub Types

Setting	Description	Notes
Uninitialise	Closes all Initialise cores.	If a core is initialized, then the core configuration is static. If core needs reconfiguring, then this is possible by sending an **Uninitialise** request followed by an **Initialise** request which declares the new configuration changes.

Figure 3-1 EFTLink and Core Initialized through the reading in of Property Files followed by Capability Request

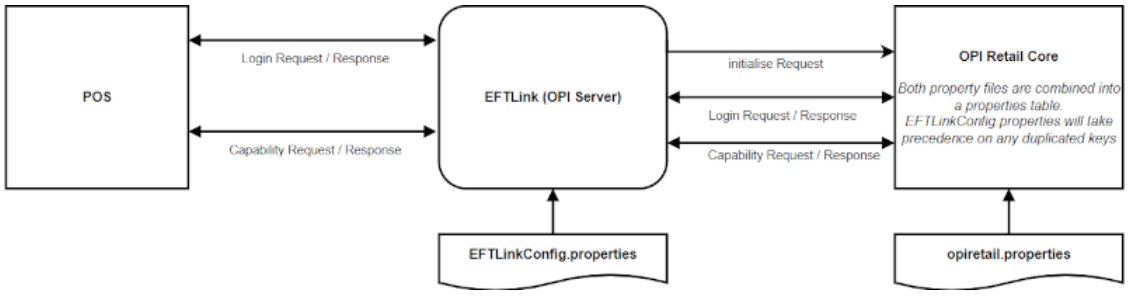
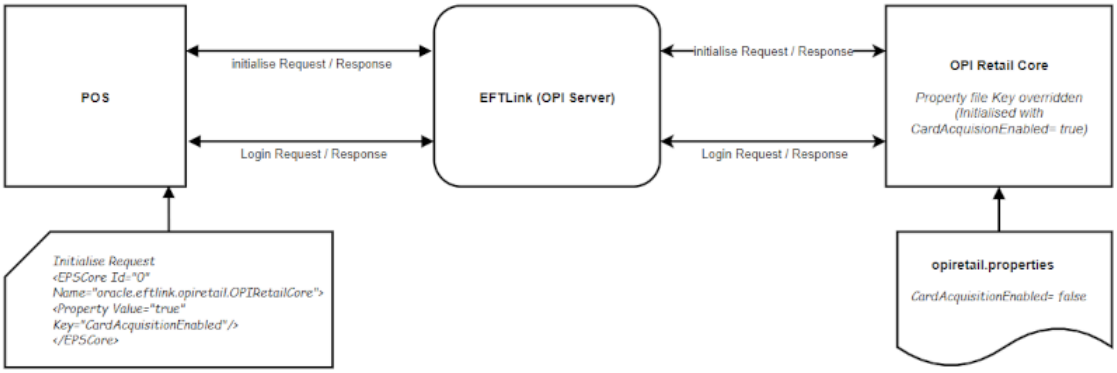


Figure 3-2 EFTLink and Core initialized via POS initialise Server Request



Example Administrative Service Requests and Responses

Capability

Capability Request

```
<?xml version="1.0" encoding="UTF-8"?>
<ServiceRequest RequestID="2" WorkstationID="Workstation: 10100"
ApplicationSender="EFTLink Load Tester" RequestType="Administration"
RequestSubType="Capability">
  <PrivateData>
    <Property Key="Cancellation"/>
    <Property Key="Reversal"/>
    <Property Key="ManualPAN"/>
    <Property Key="Loyalty"/>
  </PrivateData>
  <POSdata LanguageCode="en">
    <POSTimeStamp>2021-08-19T14:03:52</POSTimeStamp>
  </POSdata>
</ServiceRequest>
```

Capability Response (single active core)

```
<?xml version="1.0" encoding="UTF-8"?>
<ServiceResponse RequestID="2" WorkstationID="Workstation: 10100"
OverallResult="Success" ApplicationSender="EFTLink Load Tester"
RequestType="Administration" RequestSubType="Capability">
  <PrivateData>
      <Property Value="false" Key="Loyalty"/>
      <Property Value="true" Key="Reversal"/>
      <Property Value="false" Key="ManualPAN"/>
      <Property Value="true" Key="Cancellation"/>
  </PrivateData>
</ServiceResponse>
```

Capability Response (multiple active core)

```
<?xml version="1.0" encoding="UTF-8"?>
<ServiceResponse RequestID="2" WorkstationID="Workstation: 10100"
OverallResult="Success" ApplicationSender="EFTLink Load Tester"
RequestType="Administration" RequestSubType="Capability">
  <PrivateData>
    <Core0 CoreName="oracle.eftlink.opiretail.OPIRetailCore">
      <Property Value="true" Key="Reversal"/>
      <Property Value="true" Key="Cancellation"/>
      <Property Value="false" Key="Loyalty"/>
      <Property Value="false" Key="ManualPAN"/>
    </Core0>
    <Core1 CoreName="oracle.eftlink.opiretail.OPIRetailCore">
      <Property Value="false" Key="Loyalty"/>
      <Property Value="true" Key="Reversal"/>
      <Property Value="false" Key="ManualPAN"/>
      <Property Value="true" Key="Cancellation"/>
    </Core1>
```

```
  </PrivateData>
</ServiceResponse>
```

GetConfig

GetConfig Request

```
<?xml version="1.0" encoding="UTF-8"?>
<ServiceRequest RequestID="3" WorkstationID="Workstation: 10100"
ApplicationSender="EFTLink Load Tester" RequestType="Administration"
RequestSubType="GetConfig">
  <POSdata LanguageCode="en">
    <POSTimeStamp>2021-08-19T14:03:53</POSTimeStamp>
  </POSdata>
</ServiceRequest>
```

GetConfig Response (single active core)

```
<?xml version="1.0" encoding="UTF-8"?>
<ServiceResponce RequestID="3" WorkstationID="Workstation: 10100"
ApplicationSender="EFTLink Load Tester" RequestType="Administration"
RequestSubType="GetConfig">
  <PrivateData>
 …
      <Property Value="false" Key="QuickChipEnabled"/>
 …
  </PrivateData>
</ServiceResponse>
```

GetConfig Response (multiple active cores)

```
<?xml version="1.0" encoding="UTF-8"?>
<ServiceResponse RequestID="3" WorkstationID="Workstation: 10100"
ApplicationSender="EFTLink Load Tester" RequestType="Administration"
RequestSubType="GetConfig">
  <PrivateData>
 …
      <Property Value="false" Key="QuickChipEnabled"/>
 …
    </Core0>
    <Core1 CoreName="oracle.eftlink.opiretail.OPIRetailCore">
      …
    </Core1>
 </PrivateData>
</ServiceResponse>
```

Initialise

Initialise Request

```
<?xml version="1.0" encoding="UTF-8"?>
<ServiceRequest RequestID="1" WorkstationID="Workstation: 10100"
ApplicationSender="EFTLink Load Tester" RequestType="Administration"
RequestSubType="Initialise">
  <PrivateData>
    <Property Value="20" Key="InvalidCorePromptTimeout"/>
    <Property Value="true" Key="DynamicConfiguration"/>
    <EPSCore Id="0" Name="oracle.eftlink.opiretail.OPIRetailCore">
      <Property Value="false" Key="LineDisplayEnabled"/>
      <Property Value="true" Key="CardAcquisitionEnabled"/>
    </EPSCore>
  </PrivateData>
  <POSdata LanguageCode="en">
    <POSTimeStamp>2021-08-20T13:17:02</POSTimeStamp>
  </POSdata>
</ServiceRequest>
```

Initialise Response

```
<?xml version="1.0" encoding="UTF-8"?>
<ServiceResponse RequestID="1" WorkstationID="Workstation: 10100"
ApplicationSender="EFTLink Load Tester" RequestType="Administration"
RequestSubType="Initialise">
  <PrivateData>
    <Property Value="20" Key="InvalidCorePromptTimeout"/>
    <Property Value="true" Key="DynamicConfiguration"/>
    <EPSCore Id="0" Name="oracle.eftlink.opiretail.OPIRetailCore">
      <Property Value="false" Key="LineDisplayEnabled"/>
      <Property Value="true" Key="CardAcquisitionEnabled"/>
    </EPSCore>
  </PrivateData>
  <POSdata LanguageCode="en">
    <POSTimeStamp>2021-08-20T13:17:02</POSTimeStamp>
  </POSdata>
</ServiceResponse>
```

Shutdown

Shutdown Request

```
<?xml version="1.0" encoding="UTF-8"?>
<ServiceRequest RequestID="5" WorkstationID="Workstation: 10100"
ApplicationSender="EFTLink Load Tester" RequestType="Administration"
RequestSubType="Shutdown">
  <POSdata LanguageCode="en">
    <POSTimeStamp>2021-08-20T13:18:01</POSTimeStamp>
  </POSdata>
</ServiceRequest>
```

Shutdown Response

EFTLink doesn't send a response to a shutdown request because it is shutdown.

Uninitialise

Uninitialise Request

```
<?xml version="1.0" encoding="UTF-8"?>
<ServiceRequest RequestID="4" WorkstationID="Workstation: 10100"
ApplicationSender="EFTLink Load Tester" RequestType="Administration"
RequestSubType="Uninitialise">
  <POSdata LanguageCode="en">
    <POSTimeStamp>2021-08-20T13:17:23</POSTimeStamp>
  </POSdata>
</ServiceRequest>
```

Uninitialise Response

```
<?xml version="1.0" encoding="UTF-8"?>
<ServiceResponse RequestID="4" WorkstationID="Workstation: 10100"
OverallResult="Success" ApplicationSender="EFTLink Load Tester"
RequestType="Administration" RequestSubType="Uninitialise"/>
```

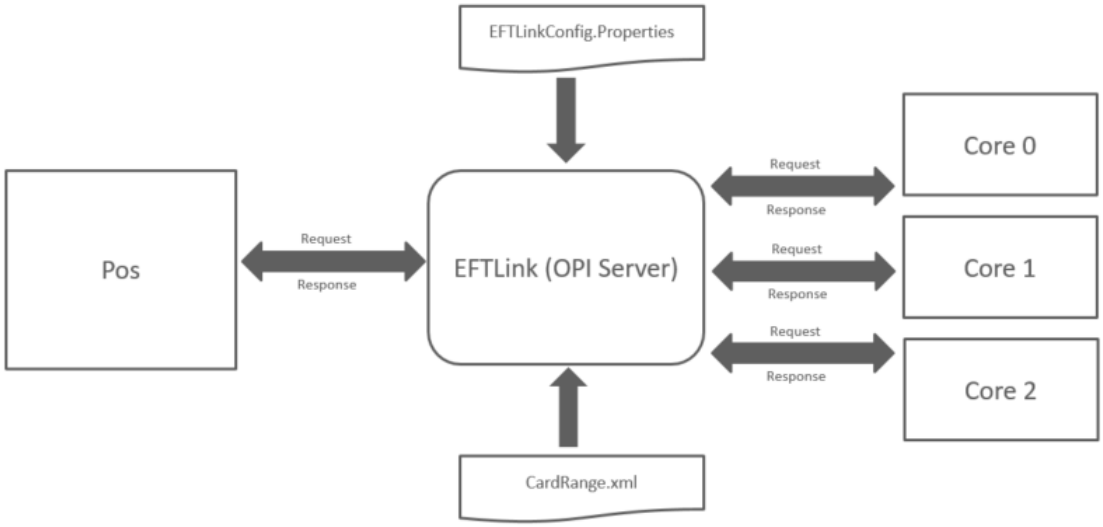
4
Multiple Cores

This chapter describes the concept and procedures of setting up EFTLink using Multiple Cores.

EFTLink can be configured to use multiple cores for the purpose of redirecting requests based on:

- Line Display
- Request Type
- CardRange.xml
- Referrals

Figure 4-1 Multiple Cores



Line Display

Sale State Notification requests can either be disabled altogether or be forwarded to either one core or a delegated list of cores.

Preselected Cores

Preselected cores are configurable within the `eftlinkconfig.properties` file. You can configure EFTLink to forward requests to a particular core based upon EWallet, GiftCard (Card Service Request), or a Custom Form (Device Request).

CardRange.xml

EFTLink always checks the cardrange.xml before determining which core is selected for handling the card Service Request.

The cardrange.xml offers EFTLink the ability to redirect card service requests to preselected cores base on the *card pan or card type.

*As the POS is not subject to sending an EMV PAN due to PCI regulations. Card PAN is only applicable with non-PCI transactions (Gift card or Ewallet).

Referrals

EFTLink supports a referral feature whereby a core can request that another core handles the request on its behalf.

By default, EFTLink sets the main core (core 0) for referrals however this is configurable via `EFTLinkConfig.Properties`.

The cardrange.xml can also be used to redirect the referral to any active core.

A referral could be based upon a feature not supported ***or***, it could be based upon a particular failed response / error code.

The core requesting the referral is in control and is responsible for the transaction response back to the POS.

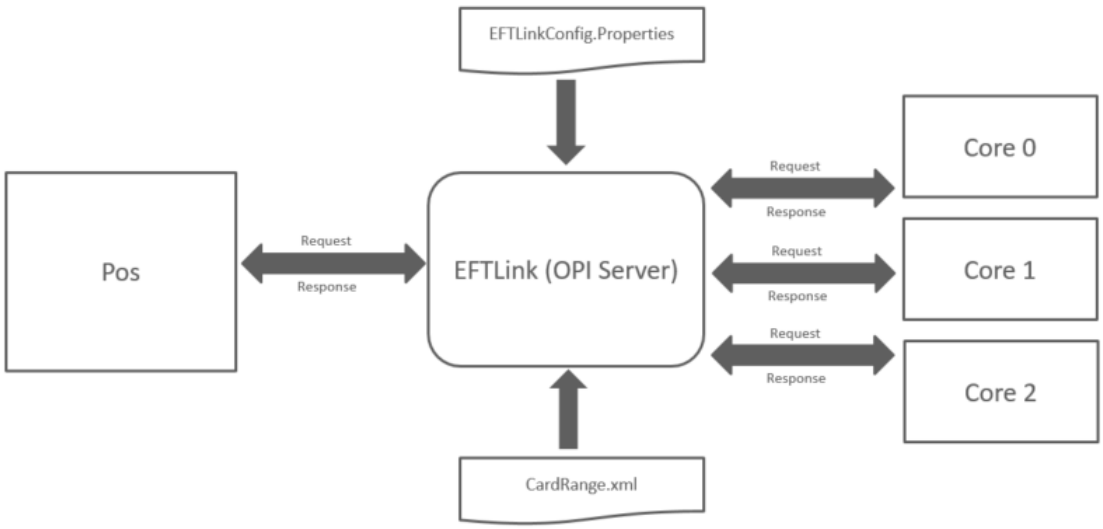
*This feature is not supported by Oracle's Strategic cores. However, it is possible to support the referral feature in an overlay.

EFTLink Multiple Core Feature

EFTLink can be configured to use multiple cores for the purpose of redirecting requests based on:

- Line display
- Request Type
- Cardrange.xml
- Referrals

Figure 4-2 Multiple Cores



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A referral could be based upon a feature not supported ***or***, it could be based upon a particular failed response / error code.

The core requesting the referral is in control and is responsible for the transaction response back to the POS.

Multiple Iterations of the Same Core

It is possible to have two or more iterations of a core. For example, if you had two different endpoints that dealt with specific tender types. Ewallet tenders went to one endpoint whereas standard CC/Debit tenders went to a different endpoint.

Such configuration requires two separate `opiretail.properties` file. To accomplish this:

1. Within the `EFTLinkConfig.properties` file Core<x> property, you will need to specify the relative working folder for each core.

   For example:

   ```
   EPSCore0 = oracle.eftlink.opiretail.OPIRetailCore WorkingFolder:./OPICore1

   EPSCore1 = oracle.eftlink.opiretail.OPIRetailCore WorkingFolder:./OPICore2
   ```

2. In the EFTLink installation folder, create the declared sub folders and place the tailored `opiretail.properties` into their own subfolder.