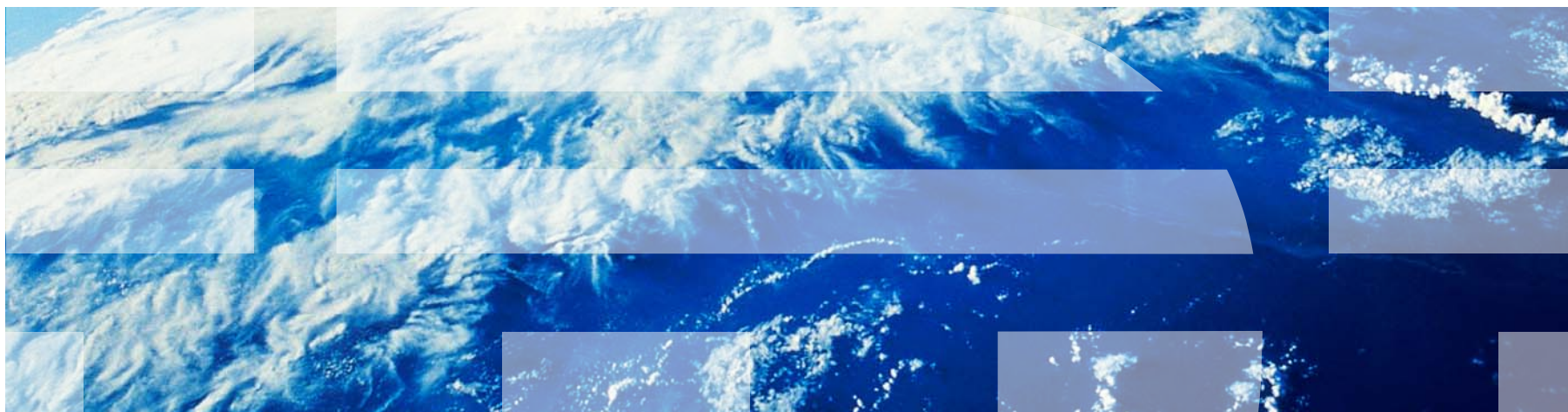


IBM Worklight V6.1.0 Getting Started

Adapter framework overview



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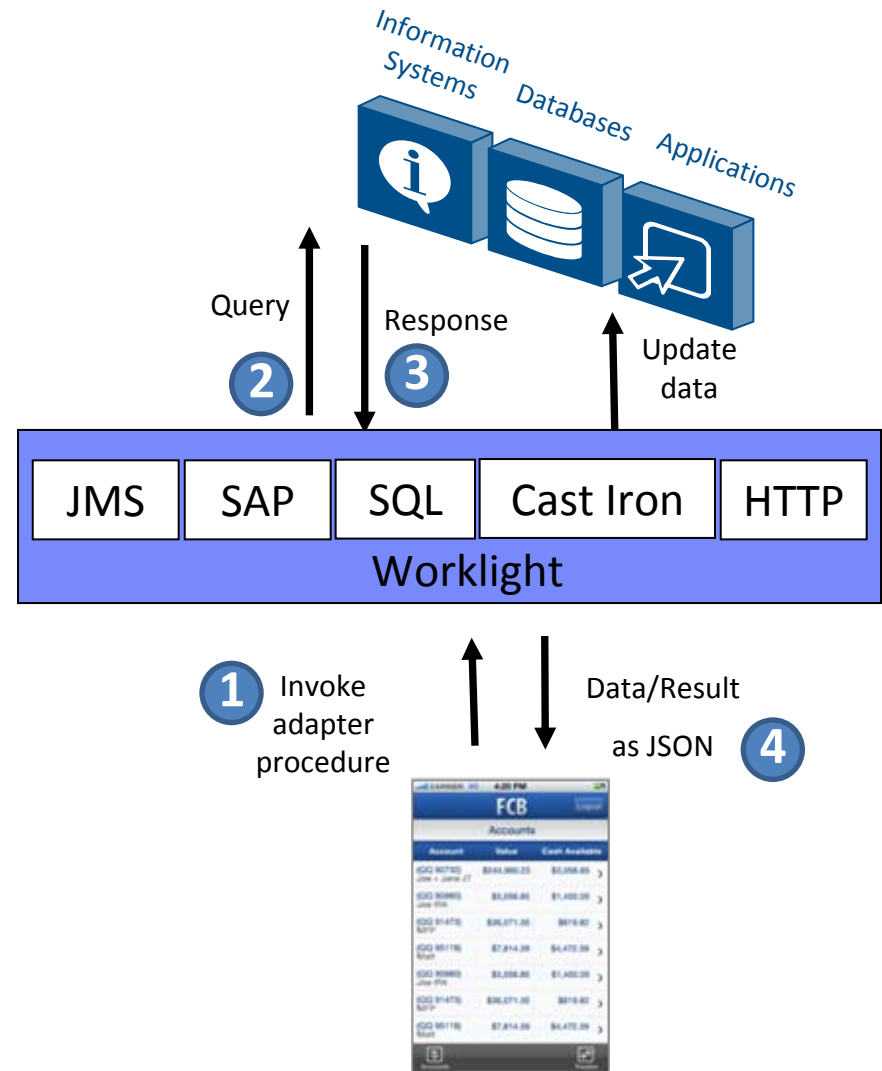
- See <http://www.ibm.com/ibm/us/en/>

Agenda

- **Adapters overview**
 - Benefits
 - Anatomy
- Adapter creation
- Adapter deployment
 - Testing adapter procedures
- Adapter structure
 - XML
 - JavaScript

Adapters overview

- An adapter is a transport layer that is used by IBM Worklight® to connect to various backend systems.
- Adapters are used to:
 - Retrieve information
 - Perform actions
- Adapters that are provided with the product:
 - SQL adapter
 - HTTP adapter (supports both REST and SOAP)
 - Cast Iron® adapter
 - JMS adapter
 - SAP Netweaver Gateway adapter



Adapters overview - Benefits

- **Universality**
 - Supports multiple integration technologies and backend information systems
- **Read-only and transactional capabilities**
 - Adapters support read-only and transactional access modes to backend systems
- **Fast development**
 - Use simple XML syntax and easily configured with JavaScript™ API
- **Security**
 - Use of flexible authentication facilities to create connections with backend systems
 - Adapters offer control over the identity of the connected user
- **Scalability**
 - Adapters reduce the number of transactions on backend systems by using cache to store retrieved backend data
- **Transparency**
 - Data that is retrieved from backend applications is exposed in a uniform manner regardless of the adapter type

Adapters overview - Anatomy

- Each Worklight adapter consists of:
 - An XML file, describing the connectivity options and listing the procedures that are exposed to the application or other adapters.
 - A JavaScript file, containing the implementation of procedures that are declared in the XML file.
 - Zero or more XSL files, containing a transformation scheme for retrieved raw XML data.
- Data that is retrieved by an adapter can be returned raw or preprocessed by the adapter itself. In both cases, it is presented to the application as a **JSON object**.

Adapters overview – Anatomy - procedures

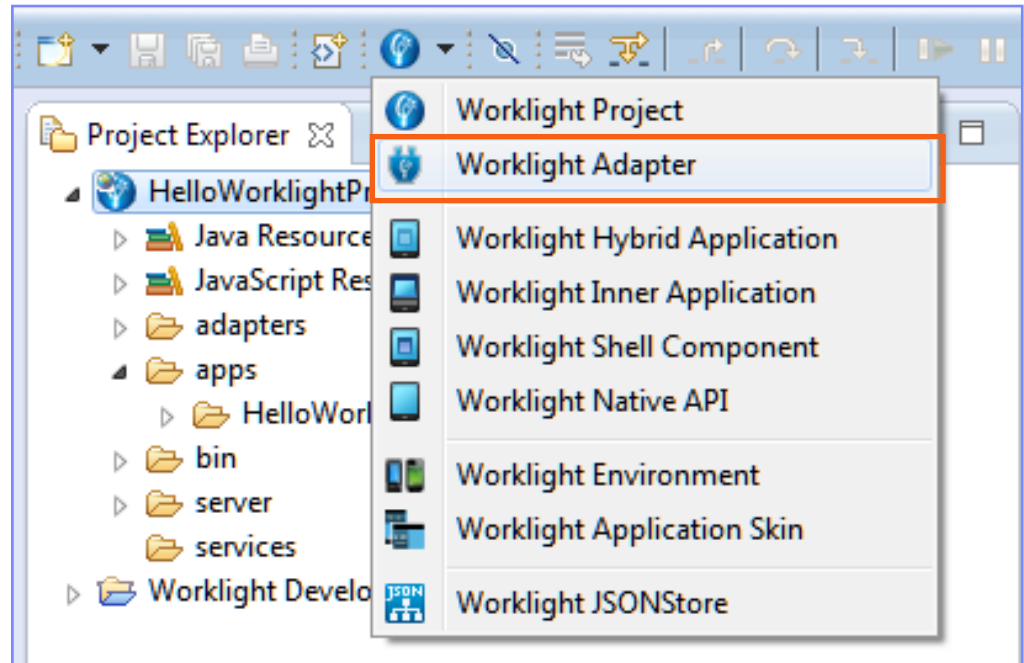
- Procedures provide adapter functions to the application.
- Procedures call backend services to retrieve data or to perform actions.
- Procedures are declared in XML and are implemented with server-side JavaScript.
- Using server-side JavaScript, a procedure can process the data before or after it calls the service.
- More filtering can be applied to retrieved data with simple XSLT.
- Usually, adapter procedures are implemented in JavaScript, but since an adapter is a server-side entity, it is possible to use Java snippets in the adapter code.

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Adapter creation

- In Eclipse, click the Worklight icon located in the toolbar
- Select **Worklight Adapter**



Adapter creation – continued

- Select a Worklight project.
- Select an Adapter type.

New Worklight Adapter

Worklight Adapter
Create a new adapter.

Project name: HelloWorklightProject

Adapter type: [Dropdown]

Adapter name: [Dropdown]
 SQL Adapter
 HTTP Adapter
 Cast Iron Adapter
 SAP Netweaver Gateway Adapter
 JMS Adapter

Create procedures for offline

Retrieve JSON data with: [Text Box]

Add JSON data with: [Text Box]

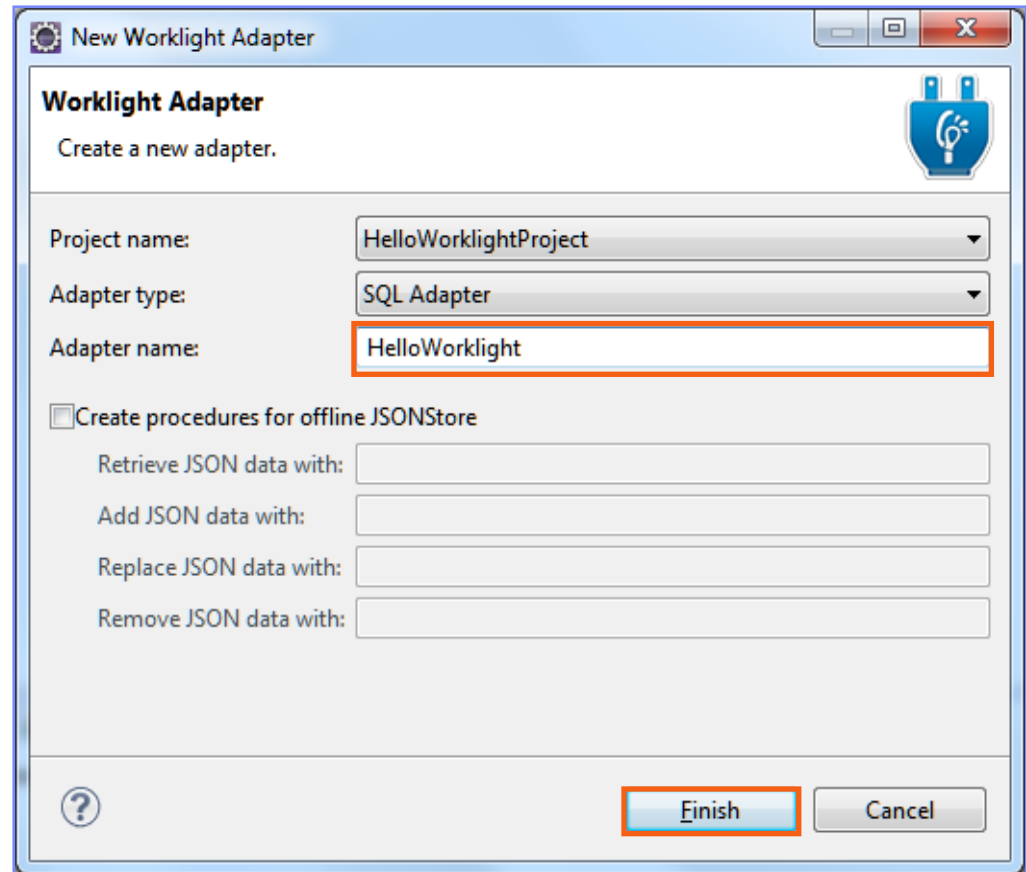
Replace JSON data with: [Text Box]

Remove JSON data with: [Text Box]

[?] [Finish] [Cancel]

Adapter creation – continued

- Select an Adapter type.
- Type an Adapter name.
 - Applications access the adapter with this name.
- Click **Finish**.



New Worklight Adapter

Worklight Adapter
Create a new adapter.

Project name: HelloWorklightProject

Adapter type: SQL Adapter

Adapter name: HelloWorklight

Create procedures for offline JSONStore

Retrieve JSON data with:

Add JSON data with:

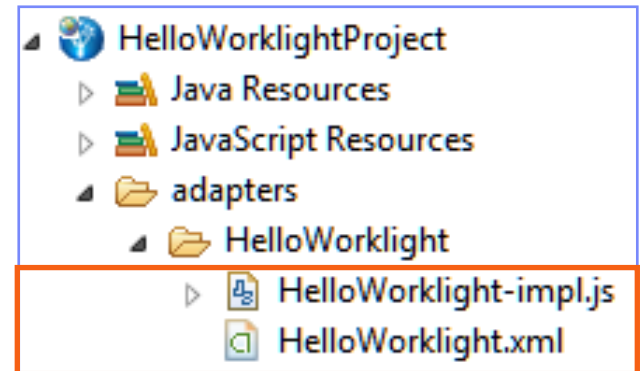
Replace JSON data with:

Remove JSON data with:

Adapter creation – continued

The result:

- XML files, which declare procedures and connection properties.
- A JavaScript file, which defines procedures and the adapter logic.

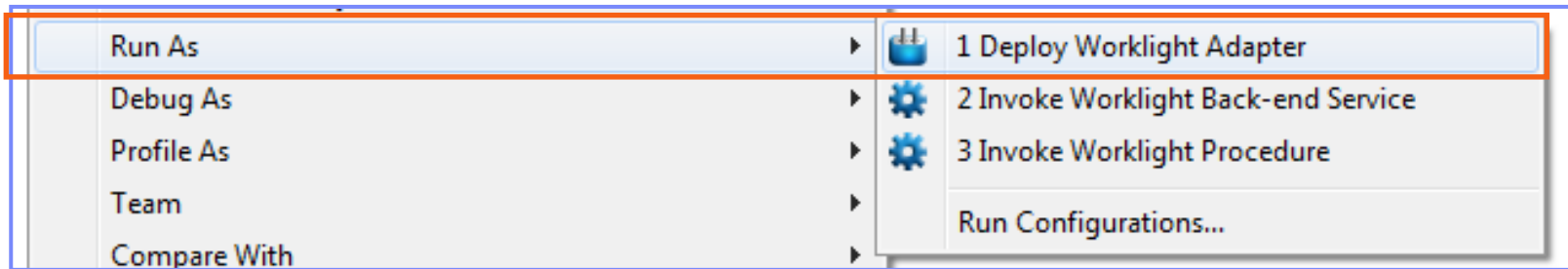


Agenda

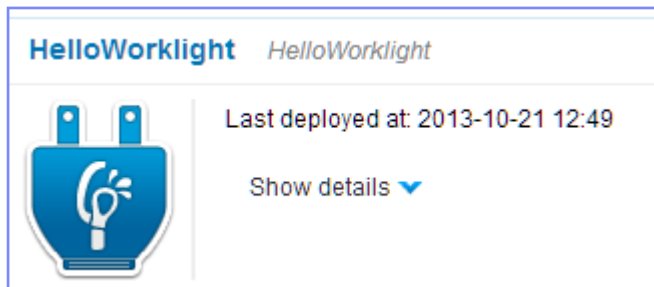
- Adapters overview
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Adapter deployment

- Select an adapter to deploy.
- Right-click the adapter and select **Run As > Deploy Worklight Adapter**.

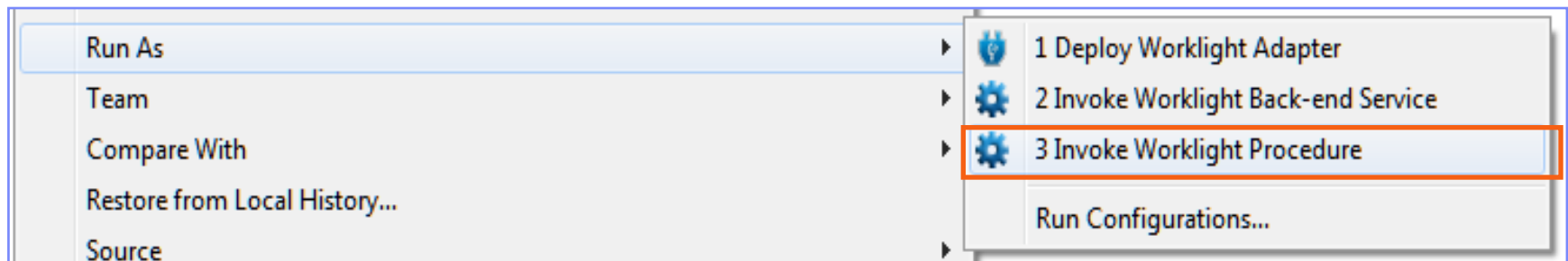


- Worklight Studio archives the adapter code and deploys it to the Worklight Server.
- You can see the deployed adapter in Worklight Console:



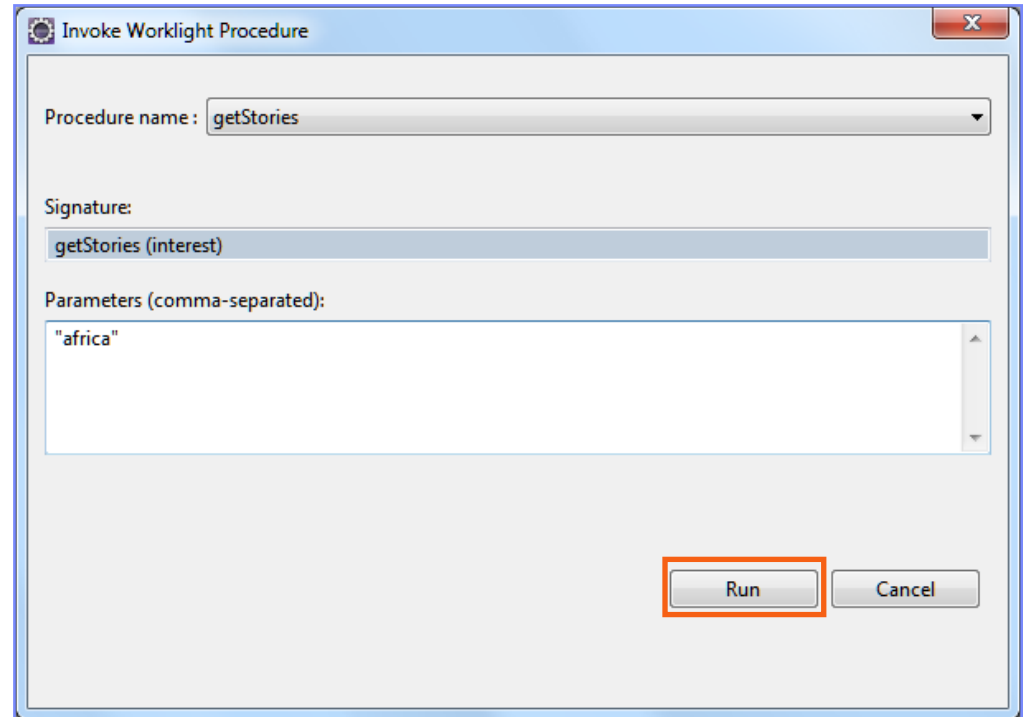
Adapter deployment – testing adapter procedures

- Use Worklight Studio to test the adapter procedures.
- To run a procedure test, choose **Invoke Worklight Procedure** from the **Run As** menu.



Adapter deployment – testing adapter procedures - continued

- Select the procedure that you want to test.
- Enter comma-separated procedure parameters.
- Click **Run**.



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Adapter structure - XML

```
<wl:adapter name="HelloWorklight">
```

```
  <displayName />
```

```
  <description />
```

```
  <connectivity>
```

```
    <connectionPolicy>
```

```
    <loadConstraints>
```

```
  </connectivity>
```

```
  <procedure />
```

```
  <procedure />
```

```
  ...
```

```
</wl:adapter>
```

The adapter name is a required attribute.

Adapter structure – XML - continued

```
<wl:adapter name="HelloWorklight">  
  <displayName />  
  <description />  
  <connectivity>  
    <connectionPolicy>  
    <loadConstraints>  
  </connectivity>  
  <procedure />  
  <procedure />  
  ...  
</wl:adapter>
```

Optional: The name that is displayed in Worklight Console

Adapter structure – XML - continued

```
<wl:adapter name="HelloWorklight">  
  <displayName />  
  <description />  
  <connectivity>  
    <connectionPolicy>  
    <loadConstraints>  
  </connectivity>  
  <procedure />  
  <procedure />  
  .....  
</wl:adapter>
```

Optional: Additional information that is displayed in Worklight Console

Adapter structure – XML - continued

```
<wl:adapter name="HelloWorklight">
  <displayName />
  <description />
  <connectivity>
    <connectionPolicy>
    <loadConstraints>
  </connectivity>
  <procedure />
  <procedure />
  ...
</wl:adapter>
```

Connectivity

- Defines the connection properties and load constraints of the back-end system
- When the back-end system requires user authentication, this element defines how user credentials are obtained

Adapter structure – XML - continued

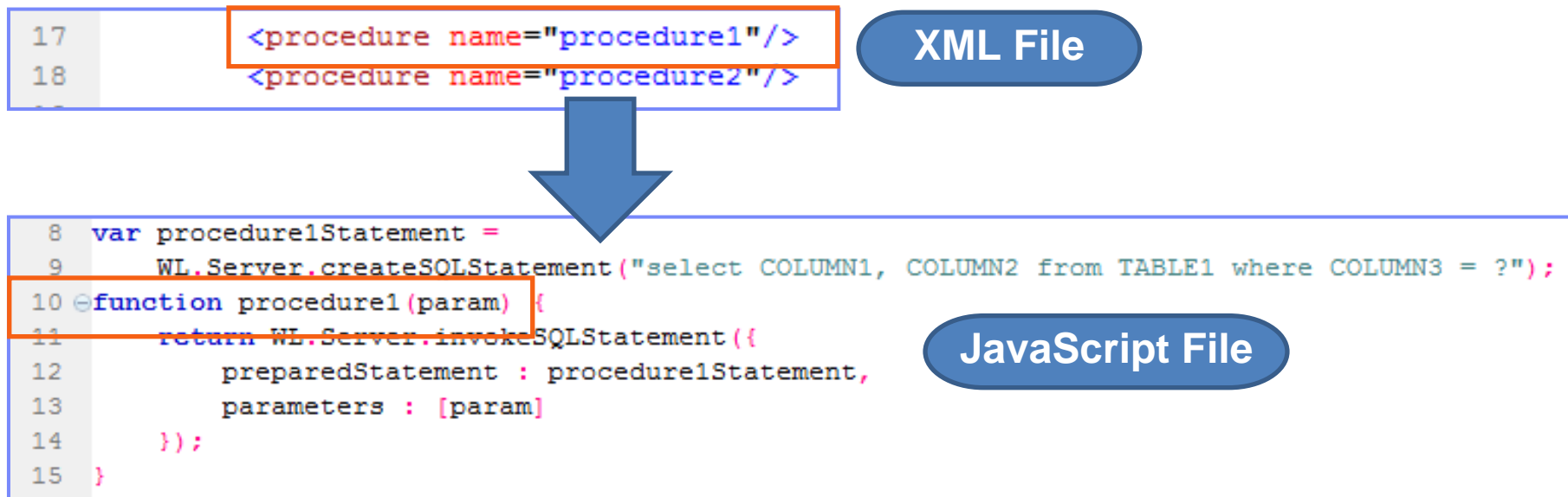
```
<wl:adapter name="HelloWorklight">  
  <displayName />  
  <description />  
  <connectivity>  
    <connectionPolicy>  
    <loadConstraints>  
  </connectivity>  
  <procedure />  
  <procedure />  
  ...  
</wl:adapter>
```

Procedures

Declare a service for accessing a back-end application. One entry for each adapter procedure.

Adapter structure – JavaScript

- Each procedure declared in the adapter XML file must have a corresponding function in the JavaScript file.
- WL.Server API defines a procedure logic in JavaScript.



Check yourself questions

- A Worklight adapter is used to:
 - Adapt the application to various environments such as iOS or Android.
 - Connect to various back-end systems.
 - Make sure that client application works directly with a corporate back-end system.
 - Make sure that client application is not running on a JailBroken or Rooted device.
- What type of adapter is not provided by Worklight?
 - SQL adapter to connect to SQL-based servers.
 - HTTP adapter to communicate with web-based services.
 - Cast Iron adapter.
 - SIP adapter for VoIP communications.
- Each Worklight adapter consists of:
 - Single XML file with adapter settings, single JS file with adapter implementation.
 - Single XML file with adapter settings, multiple JS files with adapter implementation.
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