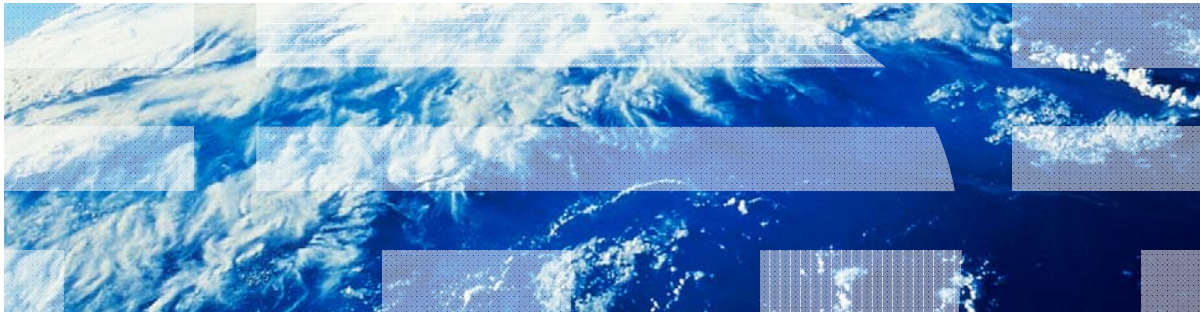


IBM Worklight V6.0.0 Getting Started

Adapter framework overview



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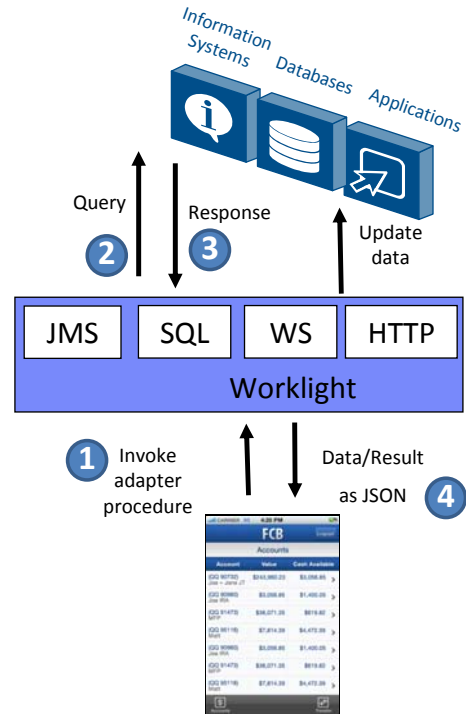
- See <http://www.ibm.com/ibm/us/en/>

Agenda

- **Adapters overview**
- Creating an adapter
- Deploying an adapter
- Adapter structure

Adapters overview

- An adapter is a transport layer that is used by the IBM Worklight® Platform to connect to various back-end 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



Benefits

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

Adapter anatomy

- Each IBM 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.

Adapter anatomy: procedures

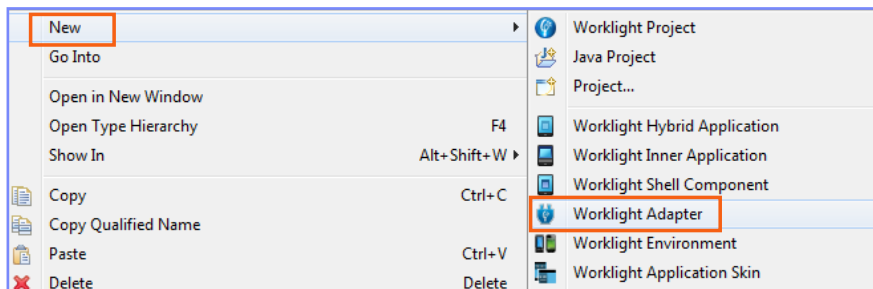
- Procedures provide adapter functions to the application.
- Procedures call back-end services to retrieve data or to perform actions.
- Procedures are declared in XML and are implemented with server-side JavaScript.
- Using server-side JavaScript, a procedure can process the data before or after it 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.

Agenda

- Adapters overview
- **Creating an adapter**
- Deploying an adapter
- Adapter structure

Creating an adapter

- Right-click the Worklight Project node
- Select New -> Worklight Adapter



Creating an adapter

- Select a Worklight project
- Select an Adapter type

New Worklight Adapter

Worklight Adapter
Create a new adapter.

Project name: test1Proj

Adapter type:

Adapter name:
SQL Adapter
HTTP Adapter
Cast Iron Adapter
JMS Adapter

Create procedures for offline

Retrieve JSON data with:

Add JSON data with:

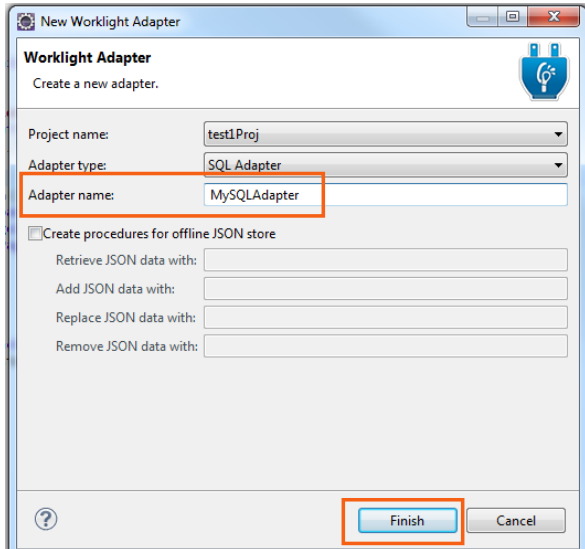
Replace JSON data with:

Remove JSON data with:

Finish Cancel

Creating an adapter

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



The screenshot shows a dialog box titled "New Worklight Adapter". The main heading is "Worklight Adapter" with the instruction "Create a new adapter." and a Worklight logo. The dialog contains the following fields and options:

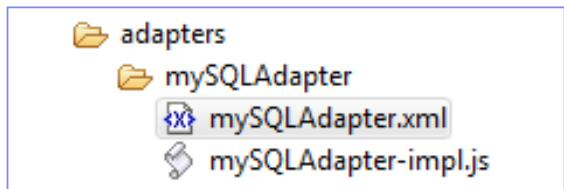
- Project name:** test1Proj
- Adapter type:** SQL Adapter
- Adapter name:** MySQLAdapter
- Create procedures for offline JSON store
- Retrieve JSON data with: [text field]
- Add JSON data with: [text field]
- Replace JSON data with: [text field]
- Remove JSON data with: [text field]

At the bottom right, there are two buttons: "Finish" and "Cancel". The "Finish" button is highlighted with a red box.

Creating an adapter

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

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

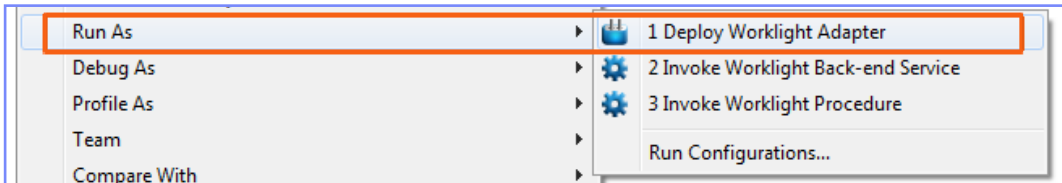


Agenda

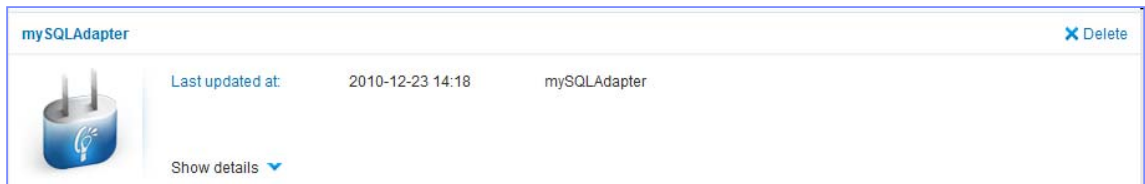
- Adapters overview
- Creating an adapter
- Deploying an adapter
- The adapter structure

Adapter deployment

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

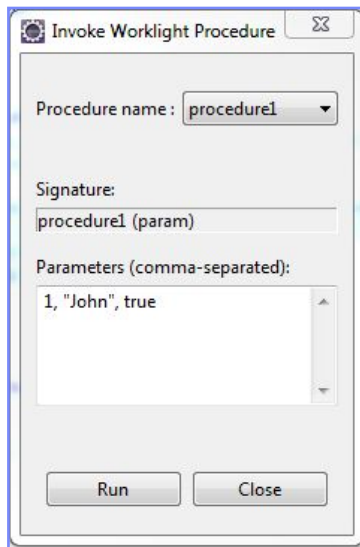


- Worklight Studio archives the adapter code and deploys it onto the Worklight Server
- You can see the deployed adapter in the Worklight Console



Testing the adapter procedures

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



Agenda

- Adapters overview
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Reviewing the adapter structure: XML

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

```
  <displayName />
```

```
  <description />
```

```
  <connectivity>
```

```
    <connectionPolicy>
```

```
    <loadConstraints>
```

```
  </connectivity>
```

```
  <procedure />
```

```
  <procedure />
```

```
  .....
```

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

The adapter Name is a required attribute.

Reviewing the adapter structure: XML

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

```
<displayName />
```

```
<description />
```

```
<connectivity>
```

```
    <connectionPolicy>
```

```
    <loadConstraints>
```

```
</connectivity>
```

```
<procedure />
```

```
<procedure />
```

```
.....
```

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

Optional: Name is displayed in the Worklight Console

Reviewing the adapter structure: XML

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

Optional: Additional information is displayed in the Worklight Console

Reviewing the adapter structure: XML

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

Reviewing the adapter structure: XML

```
<wl:adapter name="mySQLAdapter" >  
  <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.

Reviewing the adapter structure: JavaScript

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

```
17 <procedure name="procedure1"/>  
18 <procedure name="procedure2"/>
```

XML File

```
8 var procedure1Statement =  
9 WL.Server.createSQLStatement("select COLUMN1, COLUMN2 from TABLE1 where COLUMN3 = ?");  
10 function procedure1(param) {  
11     return WL.Server.invokeSQLStatement({  
12         preparedStatement : procedure1Statement,  
13         parameters : [param]  
14     });  
15 }
```

JS File

Check yourself questions

- A Worklight adapter is used to:
 - Adapt the application to various environments; iOS, Android, and so on.
 - 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
 - Multiple XML files with adapter settings, multiple JS files with adapter implementation
 - Multiple XML files with adapter settings, single JS file with adapter implementation

Check yourself questions

- A Worklight adapter is used to:
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