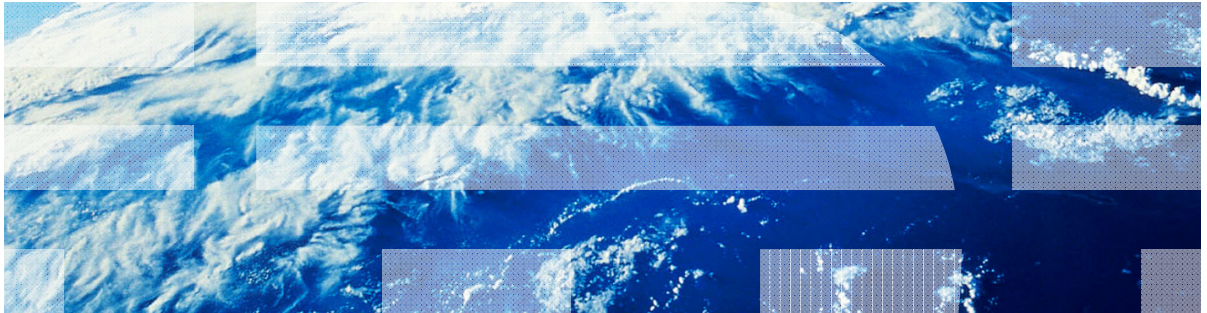


# ***IBM Worklight V5.0.5 Getting Started***

## **Module 6 – Invoking Adapter Procedures**



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## Agenda

- Invoking a procedure from the client application
  - The **invocationData** object - passing data to the server
  - The **options** object
- Invocation Result
- Exercise

## *Invoking a procedure from the application*

- Worklight® applications can adapt procedures to communicate with any data source without being subjected to same-origin constraints.
- The first step to invoke an adapter procedure is to create an **invocationData** object:

```
var invocationData = {  
    adapter : 'RSSReader',  
    procedure : 'getFeedsFiltered',  
    parameters : [param1, param2, param3]  
};
```

## Invoking a procedure from the application

**WL.Client.invokeProcedure** (**invocationData**, options)

- The **invocationData** object is used to provide invocation configuration and procedure parameters.
- It consists of a JSON block of properties.

```
var invocationData = {  
  adapter : 'RSSReader',  
  procedure : 'getFeedsFiltered',  
  parameters : [param1, param2, param3]  
};
```

## Invoking a procedure from the application

**WL.Client.invokeProcedure** (**invocationData**, options)

- The **invocationData** object is used to provide invocation configuration and procedure parameters.
- It consists of a JSON block of parameters:

**adapter** (mandatory)

A string that contains the name of the adapter as specified in the adapter <wl:adapter> element

```
var invocationData = {  
  adapter : 'RSSReader',  
  procedure : 'getFeedsFiltered',  
  parameters : [param1, param2, param3]  
};
```

## Invoking a procedure from the application

**WL.Client.invokeProcedure** (**invocationData**, options)

- The **invocationData** object is used for configuration and procedure parameters.
- It consists of a JSON block of parameters.

**procedure** (mandatory)  
Procedure name as defined  
in the XML file

```
var invocationData = {  
  adapter : 'RSSReader',  
  procedure : 'getFeedsFiltered',  
  parameters : [param1, param2, param3]  
};
```

## Invoking a Procedure From the Application

**WL.Client.invokeProcedure** (**invocationData**, options)

- The **invocationData** object is used for configuration and procedure parameters.
- It consists of a JSON block of parameters.

### parameters (mandatory)

An array of parameters passed to the back-end JavaScript procedure. Leave empty if no parameters are required.

```
var invocationData = {  
    adapter : 'RSSReader',  
    procedure : 'getFeedsFiltered',  
    parameters : [param1, param2, param3]  
};
```



## Agenda

- Invoking a procedure from the client application
  - The **invocationData** object - passing data to the server
  - The **options** object
- Invocation Result
- Exercise

## *Invoking a procedure from the application*

- The second step is to define failure and success behaviors in the **options** object.

```
var options = {  
    onSuccess : loadFeedsSuccess,  
    onFailure : loadFeedsFailure,  
    invocationContext: {}  
};
```

## The Options Object

**WL.Client.invokeProcedure** (invocationData, options)

- The Options object should be passed for all asynchronous calls to the Worklight Server.

```
var options = {  
  onSuccess : loadFeedsSuccess,  
  onFailure : loadFeedsFailure,  
  invocationContext: {}  
}
```

The function to be invoked on successful completion of the asynchronous call

The **response** typically contains the following properties:

- **invocationContext**: The **invocationContext** object which was originally passed in the options object, or undefined if no **invocationContext** object was passed
- **status**: The HTTP response status
- **invocationResult**: An object that contains the data returned by the invoked procedure, and additional information about the procedure invocation

## The Options Object

**WL.Client.invokeProcedure** (invocationData, options)

- The Options object should be passed for all asynchronous calls to the Worklight Server

```
var options = {  
  onSuccess : loadFeedsSuccess,  
  onFailure : loadFeedsFailure,  
  invocationContext: {}  
};
```

### The function to be invoked on failure

Includes both server-side errors, and client-side (such as server connection failure or timed out calls). The **response** typically contains the following properties:

- **invocationContext**
- **errorCode**: An error code string. All error codes that can be returned are defined as constants in the WL.ErrorCode object in worklight.js.
- **errorMessage**: This message is for developer use only, and is not displayed to the user. It is not translated to the user's language.
- **status**: The HTTP response status.

## The Options object

**WL.Client.invokeProcedure** (invocationData, options)

- The Options object should be passed for all asynchronous calls to the Worklight Server.

```
var options = {  
  onSuccess : loadFeedsSuccess,  
  onFailure : loadFeedsFailure,  
  invocationContext: {}  
};
```

**Optional parameter. An object that is returned to the success and failure handlers**

The **invocationContext** object is used to preserve the context of the calling asynchronous service upon return from the service.

## Invoking a procedure from the client application

- Bringing everything together

```
function loadFeeds(){  
  var invocationData = {  
    adapter : 'RSSReader',  
    procedure : 'getFeedsFiltered',  
    parameters : []  
  };
```

```
  WL.Client.invokeProcedure(invocationData,{  
    onSuccess : loadFeedsSuccess,  
    onFailure : loadFeedsFailure,  
  });  
}
```

```
function loadFeedsSuccess(result){  
  WL.Logger.debug("Feed retrieve success");  
}
```

```
function loadFeedsFailure(result){  
  WL.Logger.error("Feed retrieve failure");  
}
```

1. Invocation data
2. Invoking the procedure
3. Setting the success/failure handlers
4. Success handler
5. Failure handler

## Agenda

- Invoking a procedure from the client application
  - The **invocationData** object - passing data to the server
  - The **options** object
- **Invocation Result**
- Exercise

## Invocation result

- A JSON object that contains the data and additional information about the procedure invocation is returned.
- The Object is returned to a corresponding success/failure handler.

```
Items
  [ Object { pubDate="Sun. 26 Dec 2010 08:14:00 EDT",
    title="Stereoscopic copy-paste...third dimension (video)",
    link="http://www.engadget.com...at-clone-tool-into-the/" },
  Object { pubDate="Sun. 26 Dec 2010 05:38:00 EDT", title="Fisker
    raises Karma plu...back into consideration",
    link="http://www.engadget.com...price-to-95-900-brings/" },
  Object { pubDate="Sun. 26 Dec 2010 02:18:00 EDT", title="New
    solar machine could... for you future vehicle",
    link="http://www.engadget.com...-fuel-food-for-you-fut/" },
  more... ]

errors      [ ]
info        [ ]
isSuccessful true
responseID  "23"
warnings    [ ]
```



## Invocation Result

```

+ Items
    [ Object { pubDate="Sun, 26 Dec 2010 08:14:00 EDT",
      title="stereoscopic copy-paste...third dimension (video)",
      link="http://www.engadget.com...at-clone-tool-into-the/" },
    Object { pubDate="Sun, 26 Dec 2010 05:38:00 EDT", title="Riskier
      raises Karma plu...back into consideration",
      link="http://www.engadget.com...price-to-95-900-brings/" },
    Object { pubDate="Sun, 26 Dec 2010 02:18:00 EDT", title="New
      solar machine could... for you future vehicle",
      link="http://www.engadget.com...-fuel-food-for-you-fut/" }, 37
  more... ]
errors      [ ]
info        [ ]
isSuccessful true
responseID  "23"
warnings    [ ]

```

The *isSuccessful* property is set to:

- **true** if the procedure invocation succeeded (even if no data was retrieved)
- **false** otherwise

## Invocation Result

```

+ Items      [ Object { pubDate="Sun, 26 Dec 2010 08:14:00 EDT",
              title="stereoscopic copy-paste...third dimension (video)",
              link="http://www.engadget.com...at-clone-tool-into-the/" },
              Object { pubDate="Sun, 26 Dec 2010 05:38:00 EDT", title="Risker
              raises Karma plu...back into consideration",
              link="http://www.engadget.com...price-to-95-900-brings/" },
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              solar machine could... for you future vehicle",
              link="http://www.engadget.com...-fuel-food-for-you-fut/" }, 37
              more... ]
errors       [ ]
info         [ ]
isSuccessful true
responseID   "23"
warnings     [ ]

```

### Records

An array of records retrieved from the back-end system. Each array entry is an object that contains the fields of the single record. If the procedure call returns no records, an empty array is returned. If not specified otherwise in the XSL file, default property name is *recordSet*.

## Invocation Result

|                     |   |
|---------------------|---|
| <b>Items</b>        | <pre>[ Object { pubDate="Sun, 26 Dec 2010 08:14:00 EDT", title="stereoscopic copy-paste...third dimension (video)", link="http://www.engadget.com...at-clone-tool-into-the/" }, Object { pubDate="Sun, 26 Dec 2010 05:38:00 EDT", title="Riskier raises Karma plu...back into consideration", link="http://www.engadget.com...price-to-95-900-brings/" }, Object { pubDate="Sun, 26 Dec 2010 02:18:00 EDT", title="New solar machine could... for you future vehicle", link="http://www.engadget.com...-fuel-food-for-you-fut/" }, 37 more... ]</pre> |
| <b>errors</b>       | [ ]   |
| <b>info</b>         | [ ]   |
| <b>isSuccessful</b> | true  |
| <b>responseID</b>   | "23"  |
| <b>warnings</b>     | [ ]   |

### Error/Warn/Info Messages

Optional arrays of strings that contain messages. If no messages are provided, these objects are NULL.

## Invocation result

```
function loadFeedsSuccess(result) {
    WL.Logger.debug("Feed retrieve success");
    if (result.invocationResult.Items.length>0) this.displayFeeds(result.invocationResult.Items);
}
```



Items

```
[ Object { pubDate="Sun, 26 Dec 2010 08:14:00 EDT", title="stereoscopic
copy-paste...third dimension (video)", link="http://www.engadget.com...at-
clone-tool-into-the/" }, Object { pubDate="Sun, 26 Dec 2010 05:38:00 EDT",
title="Fisker raises Karma plu...back into consideration",
link="http://www.engadget.com...price-to-95-900-brings/" }, Object { pubDate="Sun,
26 Dec 2010 02:18:00 EDT", title="New solar machine could... for you future
vehicle", link="http://www.engadget.com...fuel-food-for-you-fut/" }, 37 more... ]
0 Object { pubDate="Sun, 26 Dec 2010 08:14:00 EDT", title="stereoscopic
copy-paste...third dimension (video)", link="http://www.engadget.com...at-
clone-tool-into-the/" }
1 Object { pubDate="Sun, 26 Dec 2010 05:38:00 EDT", title="Fisker raises Karma
plu...back into consideration", link="http://www.engadget.com...price-
to-95-900-brings/" }
2 Object { pubDate="Sun, 26 Dec 2010 02:18:00 EDT", title="New solar machine
could... for you future vehicle", link="http://www.engadget.com...fuel-
food-for-you-fut/" }
3 Object { pubDate="Sat, 25 Dec 2010 23:59:00 EDT", title="Nikon patent app
detail.... videographers rejoice", link="http://www.engadget.com...and-
electronic-zoom-v/" }
4 Object { pubDate="Sat, 25 Dec 2010 22:33:00 EDT", title="Sanyo Eneloop Pedal Juice
battery pack preview", link="http://www.engadget.com...e-battery-
pack-preview/" }
```

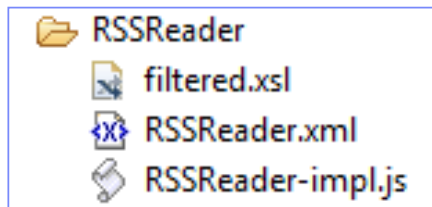
## Agenda

- Invoking a procedure from the client application
  - The **invocationData** object - passing data to the server
  - The **options** object
- Invocation Result
- Exercise

## Exercise

### Displaying the Engadget Feed

- The application uses the HTTP Adapter created in module 5.2
- You can use the **Worklight Client API Basics** (Module 4) as a reference



## Exercise

### Displaying the Engadget Feed

- The purpose of the **RSSReader** adapter is to have a **getFeedsFiltered** procedure
- The **getFeedsFiltered** procedure returns a record set called **Items** with the following fields:
  - **title**
  - **link**
  - **pubDate**

## Exercise

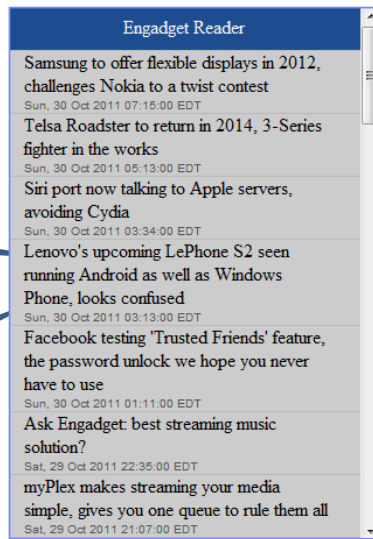
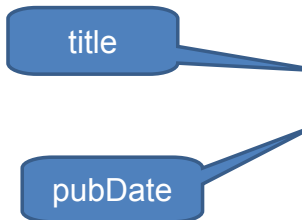
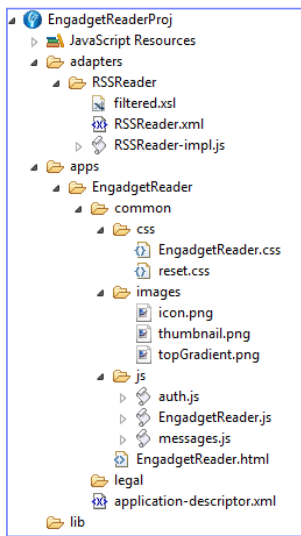
### Displaying the Engadget Feed

- By using the **WL.Client.invokeProcedure** API, invoke the **getFeedsFiltered** procedure
- Use **Firebug** or a similar tool to inspect the request and the JSON response structure
- Parse the returned **Items** records and display them in your application
- Each item requires a title and a publication date



## Exercise

- The sample for this training module can be found on the Getting Started page of the IBM Worklight documentation website at <http://www.ibm.com/mobile-docs>.



## Check yourself questions

- The invocationData object should contain following properties:
  - "adapter" – mandatory, "procedure" – mandatory, "parameters" – mandatory
  - "adapter" – mandatory, "procedure" – mandatory, "parameters" – optional
  - "adapter" – mandatory, "procedure" – optional, "parameters" – optional
  - "adapter" – optional, "procedure" – optional, "parameters" – optional
- Assuming that it is not overridden manually, the isSuccessful property of the procedure invocation results true if:
  - The Worklight server is not accessible
  - The Back-end system that adapter tries to connect to is not accessible
  - Internet is not available on a mobile device
  - The specified procedure does not exist in the adapter
- How can the developer declare what to do when a response from Worklight adapter is received ?
  - The developer is not required to declare it, the client side framework code does everything automatically
  - By specifying the callback function names in adapter XML file
  - By specifying the callback function names in onSuccess and onFailure properties of an options object
  - By adding the callback function names as invocation parameters

## Check yourself questions

- The invocationData object should contain following properties
  - "adapter" – mandatory, "procedure" – mandatory, "parameters" – mandatory
  - "adapter" – mandatory, "procedure" – mandatory, "parameters" - optional
  - "adapter" – mandatory, "procedure" – optional, "parameters" - optional
  - "adapter" – optional, "procedure" – optional, "parameters" - optional
- Assuming that it is not overridden manually, the isSuccessful property of the procedure invocation results true if:
  - The worklight server is not accessible
  - The back-end system that the adapter tries to connect to is not accessible
  - Internet is not available on a mobile device
  - The specified procedure does not exist in the adapter
- How can developer declare what to do when a response from Worklight adapter is received
  - The developer is not required to declare it, client side framework code does everything automatically
  - By specifying the callback function names in adapter XML file
  - By specifying the callback function names in onSuccess and onFailure properties of an options object
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