**SLING RESOURCE MERGER**

**Purpose**

The Sling Resource Merger provides services to access and merge resources. It provides diff (differencing) mechanisms for both:

* [**Overlays**](https://helpx.adobe.com/experience-manager/6-3/sites/developing/using/overlays.html) of resources using the [configured search paths](https://helpx.adobe.com/experience-manager/6-3/sites/developing/using/overlays.html#ConfiguringtheSearchPaths).
* **Overrides** of component dialogs for the touch-optimized UI (**cq:dialog**), using the resource type hierarchy (by means of the property **sling:resourceSuperType**).

With the Sling Resource Merger, the overlay/override resources and/or properties are merged with the original resources/properties:

* The content of the customized definition has a higher priority than that of the original (i.e. it *overlays*or*overrides* it).
* Where necessary, [properties](https://helpx.adobe.com/experience-manager/6-3/sites/developing/using/sling-resource-merger.html#Properties) defined in the customization, indicate how content merged from the original is to be used.

**Caution:**

The Sling Resource Merger and related methods can only be used with [Granite](https://helpx.adobe.com/experience-manager/6-3/sites/developing/using/reference-materials/granite-ui/api/index.html). This also means that it is only appropriate for the touch-optimized UI; in particular overrides defined in this manner are only applicable for the touch-optimized dialog of a component.

Overlays/overrides for other areas (including other aspects of a touch-optimized component or the classic UI) involve copying the appropriate node and structure from the original to where the customization will be defined.

**Goals for AEM**

The goals for using the Sling Resource Merger in AEM are to:

* ensure that customization changes are not made in **/libs**.
* reduce the structure that is replicated from **/libs**.  
  When using the Sling Resource Merger it is not recommended to copy the entire structure from **/libs** as this would result in too much information being held in the customization (usually **/apps**). Duplicating information unnecessarily increases the chance of problems when the system in upgraded in any way.

**Note:**

Overrides are not dependent on the search paths, they use the property **sling:resourceSuperType** to make the connection.

However, overrides are often defined under **/apps**, as best practice in AEM is to define customizations under **/apps**; this is because you must not change anything under **/libs**.

**Caution:**

You ***must*** not change anything in the **/libs** path.

This is because the content of **/libs** is overwritten the next time you upgrade your instance (and may well be overwritten when you apply either a hotfix or feature pack).

The recommended method for configuration and other changes is:

1. Recreate the required item (i.e. as it exists in **/libs**) under **/apps**
2. Make any changes within **/apps**

**Properties**

The resource merger provides the following properties:

* **sling:hideProperties** (**String** or **String[]**)  
  Specifies the property, or list of properties, to hide.  
  The wildcard **\*** hides all.
* **sling:hideResource** (**Boolean**)  
  Indicates whether the resources should be completely hidden, including its children.
* **sling:hideChildren** (**String** or **String[]**)  
  Contains the child node, or list of child nodes, to hide. The properties of the node will be maintained.  
  The wildcard **\*** hides all.
* **sling:orderBefore** (**String**)  
  Contains the name of the sibling node that the current node should be positioned in front of.

These properties affect how the corresponding/original resources/properties (from **/libs**) are used by the overlay/override (often in **/apps**).

**Creating the Structure**

To create an overlay or override you need to recreate the original node, with the equivalent structure, under the destination (usually **/apps**). For example:

* Overlay
  + The definition of the navigation entry for the Sites console, as shown in the rail is defined at:  
    **/libs/cq/core/content/nav/sites/jcr:title**
  + To overlay this, create the following node:  
    **/apps/cq/core/content/nav/sites**  
    Then update the property **jcr:title** as required.
* Override
  + The definition of the touch-optimized dialog for the Texts console, is defined at:  
    **/libs/foundation/components/text/cq:dialog**
  + To override this, create the following node - for example:  
    **/apps/the-project/components/text/cq:dialog**

To create either of these you only need to recreate the skeleton structure. To simplify the recreation of the structure all intermediatry nodes can be of type **nt:unstructured** (they do not have to reflect the original node type; for example, in **/libs**).

So in the above overlay example, the following nodes are needed:

|  |  |
| --- | --- |
| **1**  **2**  **3**  **4**  **5**  **6** | **/apps**  **/cq**  **/core**  **/content**  **/nav**  **/sites** |

**Note:**

When using the Sling Resource Merger (i.e. when dealing with the touch-optimized UI) it is not recommended to copy the entire structure from **/libs** as it would result in too much information being held in **/apps**. This can cause problems when the system in upgraded in any way.

**Use Cases**

These, in conjunction with standard functionality, enable you to:

* **Add a property**

The property does not exist in the **/libs** definition, but is required in the **/apps** overlay/override.

* 1. Create the corresponding node within **/apps**
  2. Create the new property on this node
* **Redefine a property (not auto-created properties)**

The property is defined in **/libs**, but a new value is required in the **/apps** overlay/override.

* 1. Create the corresponding node within **/apps**
  2. Create the matching property on this node (under /**apps**)  
     + The property will have a priority based on the Sling Resource Resolver configuration.
     + Changing the property type is supported.  
       If you use a property type different to the one used in **/libs**, then the property type you define will be used.

**Note:**

Changing the property type is supported.

* **Redefine an auto-created property**

By default, auto-created properties (such as **jcr:primaryType**) are not subject to an overlay/override to ensure that the node type currently under **/libs** is respected. To impose an overlay/override you have to recreate the node in **/apps**, explicitly hide the property and redefine it:

* 1. Create the corresponding node under **/apps** with the desired **jcr:primaryType**
  2. Create the property **sling:hideProperties** on that node, with the value set to that of the auto-created property; for example, **jcr:primaryType**  
     This property, defined under **/apps**, will now take priority over the one defined under **/libs**
* **Redefine a node and its children**

The node and its children are defined in **/libs**, but a new configuration is required in the **/apps** overlay/override.

* 1. Combine the actions of:
     + Hide children of a node (keeping the properties of the node)
     + Redefine the property/properties
* **Hide a property**

The property is defined in **/libs**, but not required in the **/apps** overlay/override.

* 1. Create the corresponding node within **/apps**
  2. Create a property **sling:hideProperties** of type **String** or **String[]**. Use this specify the properties to be hidden/ignored. Wildcards can also be used. For example:  
     + **\***
     + **["\*"]**
     + **jcr:title**
     + **["jcr:title", "jcr:description"]**
* **Hide a node and its children**

The node and its children are defined in **/libs**, but not required in the **/apps** overlay/override.

* 1. Create the corresponding node under /apps
  2. Create a property **sling:hideResource**  
     + type: **Boolean**
     + value:  **true**
* **Hide children of a node (while keeping the properties of the node)**

The node, its properties and its children are defined in **/libs**. The node and its properties are required in the **/apps**overlay/override, but some or all of the child nodes are not required in the **/apps** overlay/override.

* 1. Create the corresponding node under **/apps**
  2. Create the property **sling:hideChildren**:
     + type: **String[]**
     + value: a list of the child nodes (as defined in **/libs**) to hide/ignore

The wildcard \* can be used to hid/ignore all child nodes.

* **Reorder nodes**

The node and its siblings are defined in **/libs**. A new position is required so the node is recreated in the **/apps**overlay/override, where the new position is defined in reference to the appropriate sibling node in **/libs**.

* 1. Use the **sling:orderBefore** property:  
     + Create the corresponding node under **/apps**
     + Create the property **sling:orderBefore**:  
       This specifies the node (as in **/libs**) that the current node should be positioned before:  
       - type: **String**
       - value: **<*before-SiblingName*>**

**Invoking the Sling Resource Merger from your code**

The Sling Resource Merger includes two custom resource providers - one for overlays and another for overrides. Each of these can be can invoked within your code by using a mount point:

**Note:**

When accessing your resource it is recommended to use the appropriate mount point.

This ensures that the Sling Resource Merger is invoked and the fully merged resource returned (reducing the structure that needs to be replicated from **/libs**).

* Overlay:
  + purpose: merge resources based on their search path
  + mount point:**/mnt/overlay**
  + usage:**mount point + relative path**
  + example:
    - **getResource('/mnt/overlay' + '<*relative-path-to-resource*>');**
* Override:
  + purpose: merge resources based on their super type
  + mount point:**/mnt/overide**
  + usage:**mount point + absolute path**
  + example:
    - **getResource('/mnt/override' + '<*absolute-path-to-resource*>');**

**Example of Usage**

Some examples are covered:

* Overlay:
  + [Customizing the Consoles (touch-optimized UI)](https://helpx.adobe.com/experience-manager/6-3/sites/developing/using/customizing-consoles-touch.html)
  + [Customizing Page Authoring (touch-optimized UI)](https://helpx.adobe.com/experience-manager/6-3/sites/developing/using/customizing-page-authoring-touch.html)
* Override:
  + [Configuring your Page Properties](https://helpx.adobe.com/experience-manager/6-3/sites/developing/using/page-properties-views.html#ConfiguringyourPageProperties)