

FUJITSU Software

Interstage AR Processing Server V1.0



Operator's Guide

B1WS-1106-01ENZ0(00)
January 2014

Preface

Purpose of this document

This document describes the tasks involved in operating and managing Interstage AR Processing Server.

Intended readers

This document is intended for users who will manage the operation of Interstage AR Processing Server, as well as users who will deploy business applications, manage data, or perform authoring during installation or on site.

Readers of this document are also assumed to have basic knowledge of:

- Smart devices
- Operating system that will be used with this product
- Interstage AR Processing Server

Structure of this document

This document is structured as follows:

[Chapter 1 Introduction](#)

Describes the knowledge required to operate Interstage AR Processing Server.

[Chapter 2 Deploying applications](#)

Describes how to deploy applications used with Interstage AR Processing Server.

[Chapter 3 Managing data during system installation](#)

Describes the data management tasks involved when installing Interstage AR Processing Server.

[Chapter 4 Managing data during system operation](#)

Describes the data management tasks involved when running Interstage AR Processing Server.

[Chapter 5 Operation management](#)

Describes the tasks required to manage the operation of Interstage AR Processing Server.

Abbreviations

This manual uses the following abbreviations for the operating systems:

Official name	Abbreviation	
Microsoft Windows Server 2012 Foundation	Windows Server 2012	Windows
Microsoft Windows Server 2012 Standard		
Microsoft Windows Server 2012 Datacenter		
Microsoft Windows Server 2008 R2 Standard	Windows Server 2008 R2	
Microsoft Windows Server 2008 R2 Enterprise		
Microsoft Windows Server 2008 R2 Datacenter		
Microsoft Windows Server 2008 R2 Foundation		
Red Hat Enterprise Linux 6 (for Intel 64)	Linux	

Notations

In this manual, text that must be replaced by the user is denoted in *italics With Mixed Case* (for example, *installDir*).

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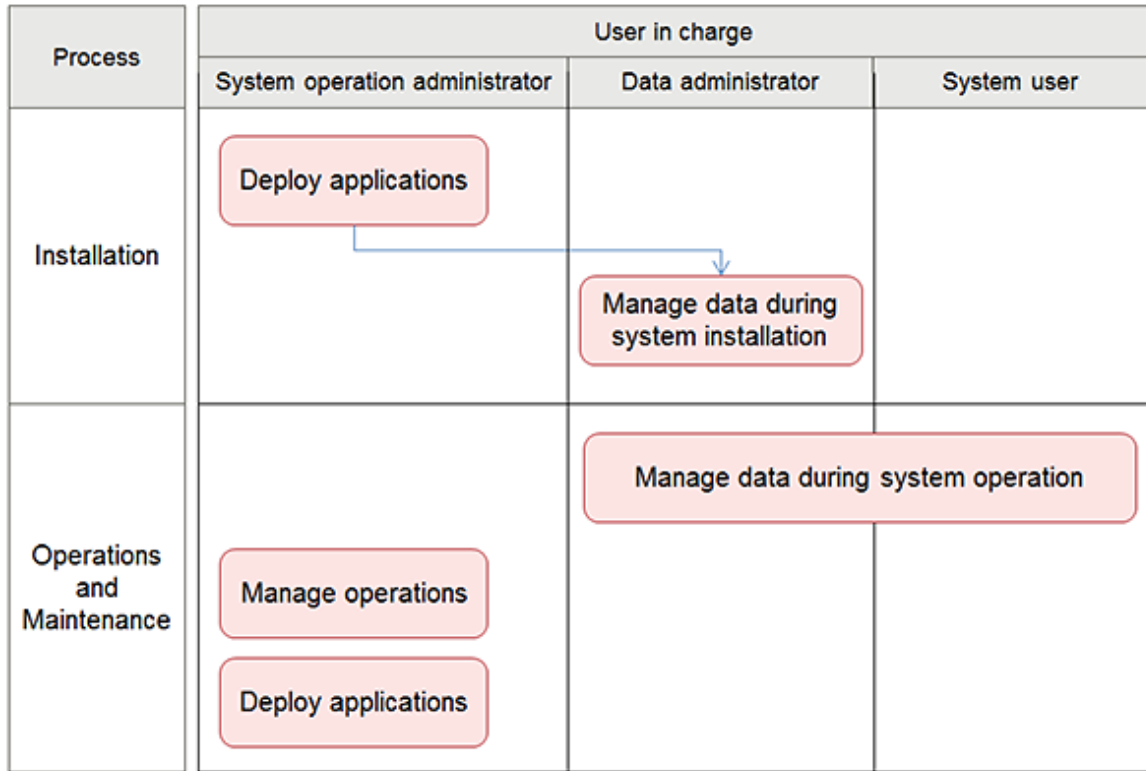
Chapter 1 Introduction

This chapter provides information required to operate and maintain systems that use Interstage AR Processing Server.

1.1 Workflow

The following diagram shows the relationship between each operational task and the person who performs that task, in the workflow of system operations that use Interstage AR Processing Server.

Figure 1.1 Task workflow and operator



Deploy applications

Deploy the developed application to the server or smart device.

Manage data during system installation

Retrieve AR markers used by the system, register scenarios and AR overlay definitions, and register files such as images that are used as AR overlay content.

Manage data during system operation

Manage data during system operations, such as editing and removing AR overlay definitions, retrieving AR markers, and managing files.

Manage operations

Starts, stops, backs up and restores the AR processing server, as well as modifying the AR processing server settings.

1.2 Operation and management scope

Interstage AR Processing Server supports the following server configurations:

- Model A: Small-scale entry model used in an intranet environment (all-in-one minimum configuration)
- Model B: Small-scale entry model used in an Internet environment (web servers deployed in DMZ)

- Model C: Medium- to large-scale, high reliability, high availability model used in an intranet environment (multiple-server configuration)
- Model D: Medium- to large-scale, high reliability, high availability model used in an Internet environment (in addition to above, web servers are deployed in DMZ)

The operation management features provided by Interstage AR Processing Server only support models A and B. If using a system configuration that integrates multiple chassis such as models C and D, use your existing operation management application.

1.3 AR markers

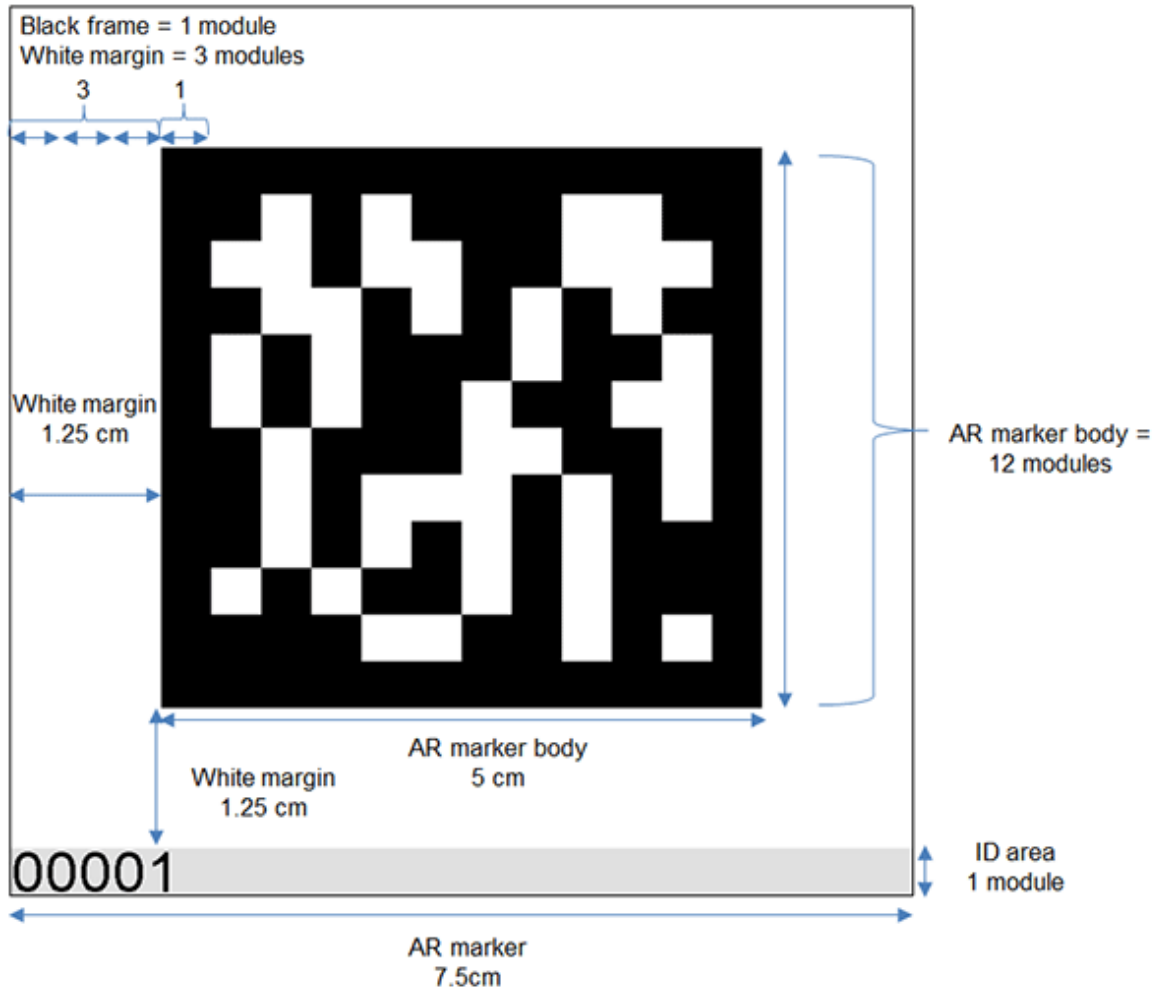
This section explains the AR markers provided by Interstage AR Processing Server.

Format

- AR marker configuration
 - A "module" is the smallest unit (black or white square) of an AR marker. An AR marker is composed of the marker body, which is enclosed by a black frame and white margin. The length of the black frame must be 1 module, while the white margin must be 3 modules long.
- AR marker type: Black and white 12 x 12 module-type AR marker
 - The AR marker body is composed of 12 modules x 12 modules. A module is composed of two colors: black and white.
- Valid ID range
 - 1 to 10000
- ID area
 - An area in the white margin, in which information such as the AR marker name can be freely entered for identification by system users and data administrators. The AR marker ID is entered automatically. It can be output if required.
- Download size
 - Without ID area: 882 pixels x 882 pixels
 - With ID area: 882 pixels x 931 pixels
- Recommended print size
 - Print the downloaded AR marker within the following range.
 - Total size of AR marker excluding ID area: 3.75 cm x 3.75 cm to 30.0 cm x 30.0 cm
- Illuminance level required for image recognition
 - 50 lx or more

- Number of AR markers that can be recognized simultaneously
Up to four (recommended)

Figure 1.2 Sample AR marker configuration



Point

- The AR marker recognition distance is in direct proportion to its size - the smaller the AR marker, the shorter its recognition distance.
- If an identical marker is recognized simultaneously, an unexpected operation may be performed.
- If five or more AR markers are recognized simultaneously, the operational load may increase.
- Illuminance of 50 lx is generally sufficient to clearly recognize the face and movement of a person 10 meters away. The brightness of a normally lit room is between 100 and 1000 lux.
- Of the 2 x 2 modules located at each of the four corners of the AR marker, the bottom-right corner is the only one to contain a white module.

Recognition performance

This section describes the recognition performance when AR markers are used. Assumptions are as follows:

- Size of the AR marker body: 5.0 cm x 5.0 cm
- Image size per frame: 640 pixels x 480 pixels

- Brightness: 400 to 500 lx

Camera orientation	Recognition distance
Recognition distance (face-on)	400 to 1400 mm
Recognition distance (+-30 degree-orientation)	400 to 1000mm

Note

- These results were measured using a Fujitsu smartphone. Actual recognition performance will vary depending on the camera performance of the smart device used, as well as the usage environment and print quality of the AR marker. Accordingly, check in advance the recognition performance of the smart device that will be used.

1.4 Data management console

Data used by Interstage AR Processing Server can be managed from the data management console.

Point

A window size of 1024 x 728 pixels is assumed.

1.4.1 Login

Access the data management console in accordance with the environment used.

Log in using an account that can be authenticated by the operating system.

Example

- Model A with SSL encryption

```
https://arServerName:httpsListenerPortNumber/arsvdmc/
```

- Model A without SSL encryption

```
http://arServerName:httpListenerPortNumber/arsvdmc/
```

- Model B, C, or D with SSL encryption

```
https://webServerName:webServerHttpsPort/arsvdmc/
```

- Model B, C, or D without SSL encryption

```
http://webServerName:webServerHttpPort/arsvdmc/
```

Note

- If logging in to the data management console, do not use an account that contains spaces in the ID or password.
- If accessing from the server, the data management console can be called from the **Start** menu.
- When confirming access, adequately configure firewalls to suit the environment used.
- Register the website used to access the data management console as a trusted website in your browser security settings. Functionality to log in forcibly is also available.

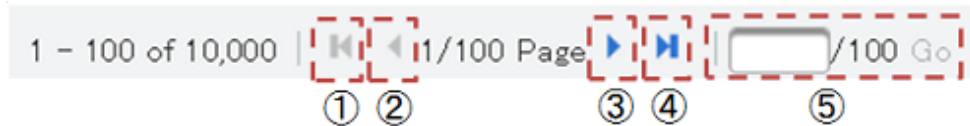
- If there is no activity for 30 minutes, the session will time out.
- However, the same user can log in forcibly even if another user is logged in.

1.4.2 Paging

The data management console displays data in table format. Each table for AR markers, scenarios, scenes, AR overlay definition data items, or files can comprise up to 100 items. Other kinds of tables can display up to 10 items.

The tables provide a paging feature.

Figure 1.3 Paging



1. First page
Navigates to the first page. Cannot be selected when the current page is the first page.
2. Previous page
Navigates to the previous page. Cannot be selected when the current page is the first page.
3. Next page
Navigates to the next page. Cannot be selected when the current page is the last page.
4. Last page
Navigates to the last page. Cannot be selected when the current page is the last page.
5. Page jump
Jumps to the page specified in the input box. Specify a page number within the available range in the input box. An error message will be displayed if any other value is entered.

1.4.3 Sorting

The data management console can be used to sort designated columns in various tables, in ascending or descending order. The order will depend on the column attributes:

- If the column attribute is a numeric value - Sorted by size.
- If the column attribute is a character - Sorted by character encoding order (Unicode code point).

Note

The following table items cannot be sorted:

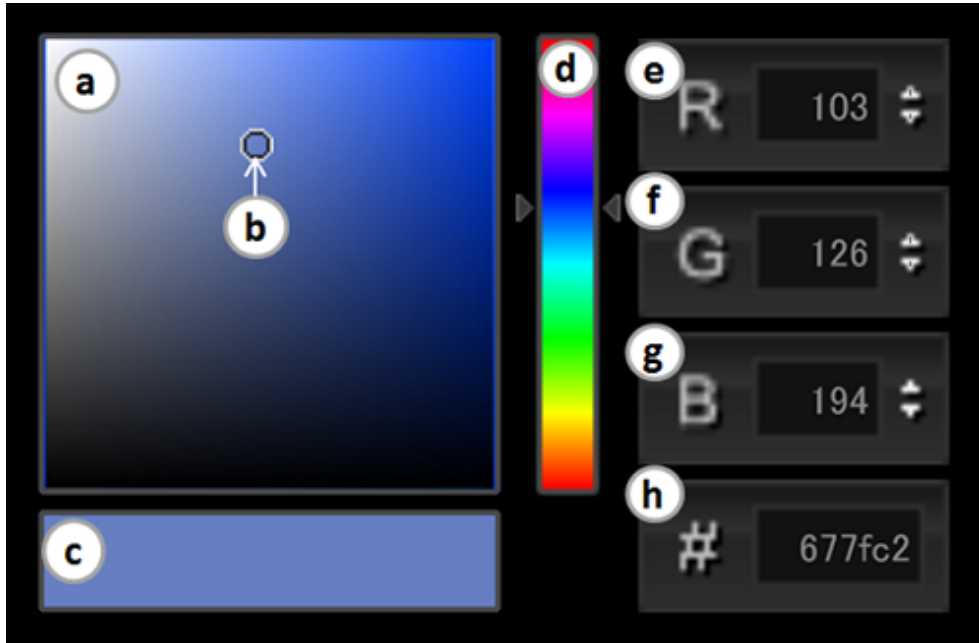
- Scenario management
 - Scenario list - Number of scenes and AR overlay definitions
 - Scene list - Number of AR overlay definitions
 - AR overlay definition list - Type
- Data management
 - AR overlay definition list - Type, scenario name, scene name
 - File list - Type
 - User-defined table list - Description

1.4.4 Color picker

Character colors or background colors can be specified using the color picker of the data management console. All numeric values can be linked to other color models and assigned accordingly.

To finish specifying colors, click anywhere outside the color picker.

Figure 1.4 Color picker example



- a. Color field
Field displaying the components of the selected color using gradation. Click or drag anywhere in this field to configure the chosen color as the "Selected color".
- b. Selection pointer
Tool that indicates the color selected in the color field.
- c. Selected color
Displays the color currently selected.
- d. Color slider
Tool that displays the hue of the selected color model using gradation. The selected color is then displayed in "Color field".
- e. R value
When the selected color is expressed using the RGB color model, an R value between 0 and 255 is displayed. Enter the numeric value directly in the box or use the spin box.
- f. G value
When the selected color is expressed using the RGB color model, a G value between 0 and 255 is displayed. Enter the numeric value directly in the box or use the spin box.
- g. B value
When the selected color is expressed using the RGB color model, a B value between 0 and 255 is displayed. Enter the numeric value directly in the box or use the spin box.
- h. RGB value
When the selected color is expressed using the RGB color model, an RGB value is displayed in hexadecimal format. This value can be changed by entering the numeric value directly in the box.

1.4.5 Files that can be registered

Files called by AR overlay content or by tap actions on the AR processing client can be registered on the server. Files that can be registered in the system using the data management console are shown below:

Table 1.1 List of file extensions that can be registered

MIME type	Extension
application/pdf	.pdf
application/msword	.doc
application/vnd.openxmlformats-officedocument.wordprocessingml.document	.docx
application/vnd.ms-excel	.xls
application/vnd.openxmlformats-officedocument.spreadsheetml.sheet	.xlsx
application/vnd.ms-powerpoint	.ppt
application/vnd.openxmlformats-officedocument.presentationml.presentation	.pptx
image/jpeg	.jpg .jpeg
image/png	.png
image/gif	.gif
video/3gpp	.3gp
video/mp4	.mp4
video/mpeg	.mpg .mpeg
video/quicktime	.mov
video/x-ms-wmv	.wmv

This section describes various limitations, such as the number of files that can be handled by Interstage AR Processing Server.

Table 1.2 Limitation list

Item	Details of limitation
File name	Up to 100 characters (including extension)
Recommended file size	5 MB

Note

- Files that can be used as AR overlay content are shown below.
 - image/jpeg or image/png
 - Size up to 1024 x 1024 pixels
- If a file that exceeds the recommended size is registered, then the application may end due to insufficient resources for memory or storage.
- If using a registered file on a smart device, ensure that the corresponding application has been installed on the smart device.
 - Example: Adobe Reader must be installed on the smart device to view PDF files.

1.4.6 Downloading with SSL encryption

If using the management console on Windows(R) Internet Explorer(R) 9 in an environment where SSL encryption is enabled, it may not be possible to download AR markers.

If this occurs, follow the procedure below to modify the settings in Windows(R) Internet Explorer(R) 9:

1. Start Windows(R) Internet Explorer(R) 9.
2. On the menu bar, click **Tools** and then **Internet Options**.
3. Select the **Advanced** tab and clear **Do not save encrypted pages to disk**.
4. Click **Apply**.
5. Restart Windows(R) Internet Explorer(R) 9.

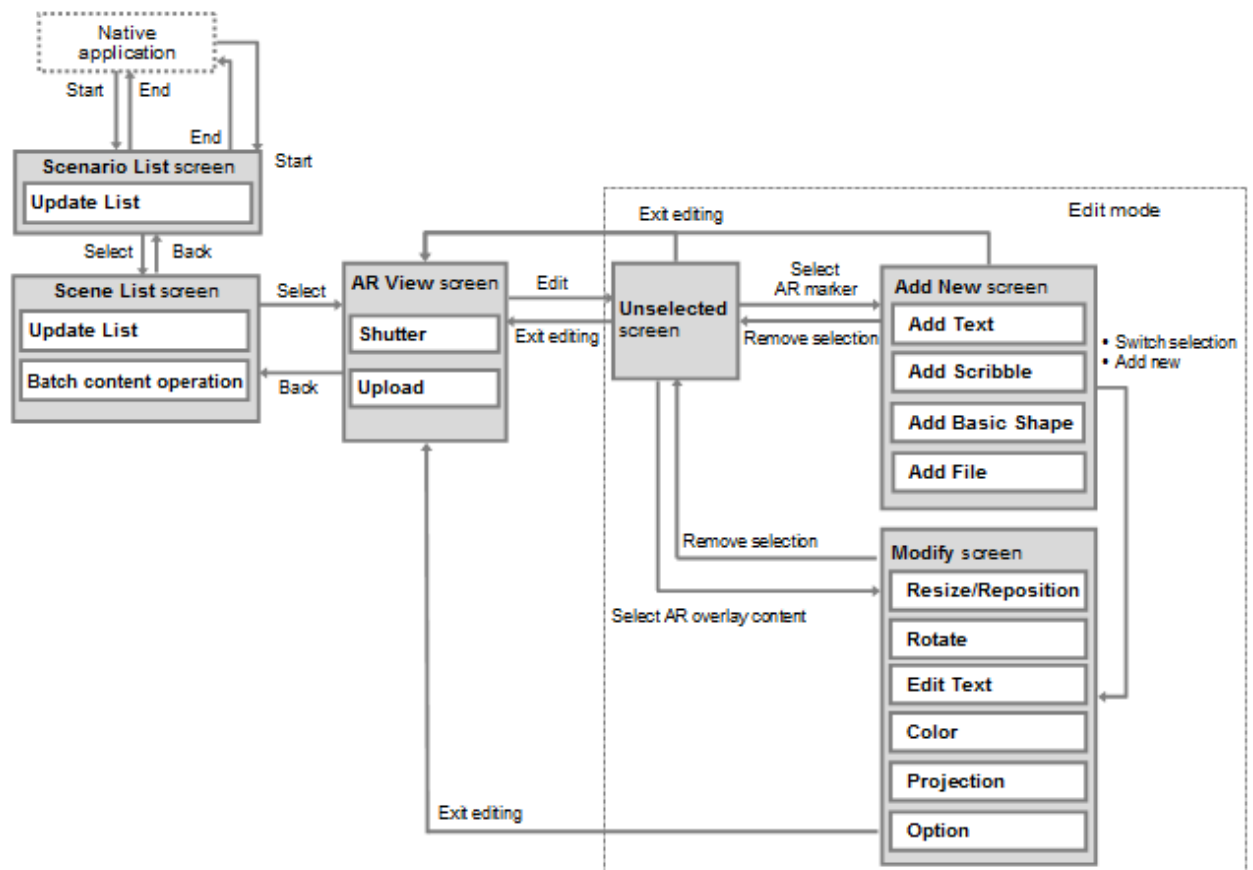
1.5 Client authoring tool

This section provides an overview of the client authoring tool provided by Interstage AR Processing Server.

1.5.1 Client authoring tool screen redirection

The following kinds of screen redirection can be performed using the client authoring tool provided by Interstage AR Processing Server.

Figure 1.5 Client authoring tool screen redirection (Android example)



- **Scenario List** screen
Displays a list of scenarios. Select the target scenario.
- **Scene List** screen
Displays a list of scenes defined for the scenario selected on the **Scenario List** screen. Select the target scene.
- AR view screen
Recognizes the AR marker and checks the status of the current AR overlay definition.
If **AR authoring** is selected, tap the **Edit** icon to navigate to Edit Mode.

- **Unselected** screen
The default screen when in Edit Mode. Navigates to the **Add New** screen when an AR marker is selected, or to the **Modify** screen when an AR overlay content item is selected.
- **Add New**
For adding AR overlay content such as text, scribble, shapes, or files. This screen navigates to the **Modify** screen after adding content, or when an existing AR overlay content item is tapped.
- **Modify**
Modifies the selected AR overlay content item. Items that can be modified vary depending on the type of AR overlay content.

1.5.2 Menu bar and action bar

The client authoring tool provided by Interstage AR Processing Server displays the two bars shown below while in operation.

Figure 1.6 Example display showing "Add New" on a tablet

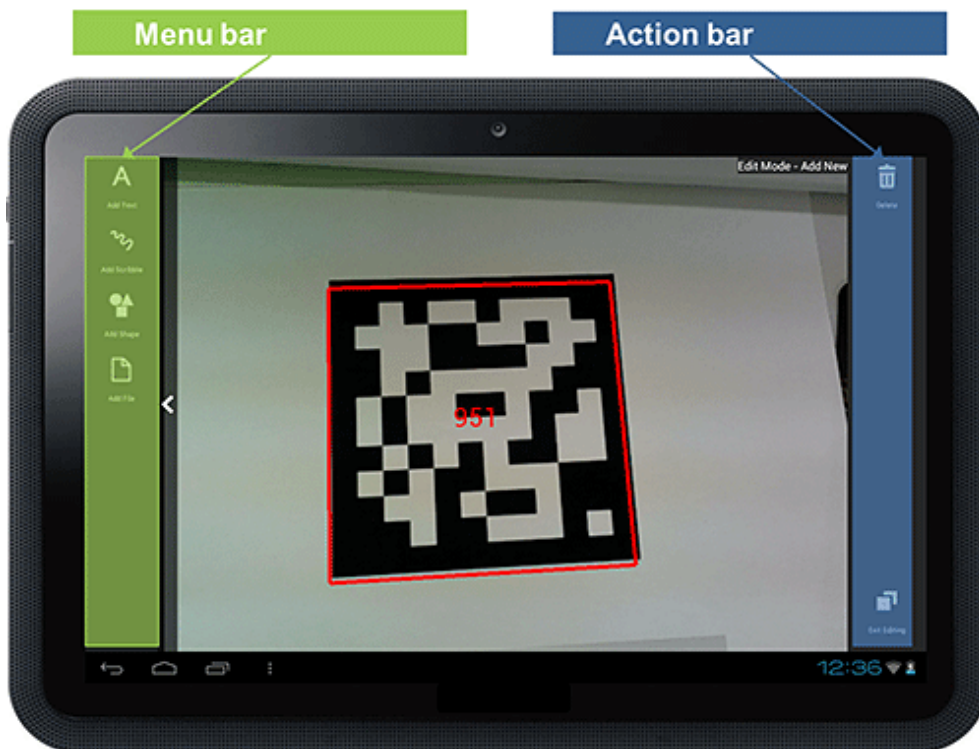


Table 1.3 Bar list

Bar	Description
Menu bar	<p>Presents the menu that corresponds to the screen.</p> <ul style="list-style-type: none"> - Scenario List screen <ul style="list-style-type: none"> - Update List - Updates the scenario list. - Scene List screen <ul style="list-style-type: none"> - Update List - Updates the scene list. - Add New screen <ul style="list-style-type: none"> - Add Text - Creates AR overlay content from text. - Add Scribble - Creates AR overlay content from memos that are scribbled using features such as Pen and Eraser.

Bar	Description
	<ul style="list-style-type: none"> - Add Shape - Creates AR overlay content from shape provided by the client authoring tool. - Add File - Creates AR overlay content from photographed images or images on a smart device. - Modify screen <ul style="list-style-type: none"> - Resize/Reposition - Resize and/or repositions the selected AR overlay content item. - Rotate - Rotates the selected AR overlay content item. - Edit Text (displayed only in Android) - Edits text (applicable only if the selected AR content is 'text'). - Color - Modifies the color of the select AR overlay content item (applicable only if the selected AR content is 'text' or 'scribble'). - Option - Modifies assorted information. - Projection - Modifies projection - 2D or 3D can be selected.
Action bar	<p>Confirms or cancels operations for AR overlay content, such as upload, removal, or camera photography.</p> <ul style="list-style-type: none"> - Scenario List screen <ul style="list-style-type: none"> - Exit - Exits the client authoring tool. - Scene List screen <ul style="list-style-type: none"> - Back - Returns to the Scenario List screen. - AR view screen <ul style="list-style-type: none"> - Back to Scene Selection - Returns to the Scene List screen. - Shutter - Saves a snapshot of an image captured by the camera. AR overlay content is not included in the saved image. - Edit - Navigates to Edit Mode if an AR marker has been detected. - Upload (displayed only when Server Data Authoring is selected) - Uploads data from the smart device to the server. - Unselected screen and Add New screen <ul style="list-style-type: none"> - Delete - Exit Editing - Cancel (displayed only when Scribble or Shape is selected in the Add menu) - Add New screen and Modify screen <ul style="list-style-type: none"> - Delete - Add New - Exit Editing

 **Point**

- Usually, menu bars (such as that of the **Modify** screen) are visible. However, the user can hide them by swiping it to the outside edge of their smart device, in order to display a larger usable screen area.
- If the menu bar is hidden, it is automatically displayed again when the menus are toggled, such as when the user selects an AR marker and additional menus are displayed.

1.5.3 Server connection mode and standalone mode

Since overlaying is sometimes performed in an offline environment, the smart authoring feature provided by Interstage AR Processing Server allows either server connection mode or standalone mode to be selected.

Server connection mode

This mode is selected automatically if the client authoring tool is started when the smart device is online. In this mode, the user can update the scenario list, and upload or download AR overlay definitions and resources.

Standalone mode

This mode is selected automatically if the client authoring tool is started when the smart device is offline. Work, such as displaying or editing, can only be performed on scenarios for which the AR overlay definitions and resources have been downloaded in advance.

If authoring is performed in standalone mode, the user must later upload data to the server when in server connection mode.



.....
The volume of resources that can be downloaded at once will depend on the available internal storage of the smart device.
.....

1.6 Overlay application settings

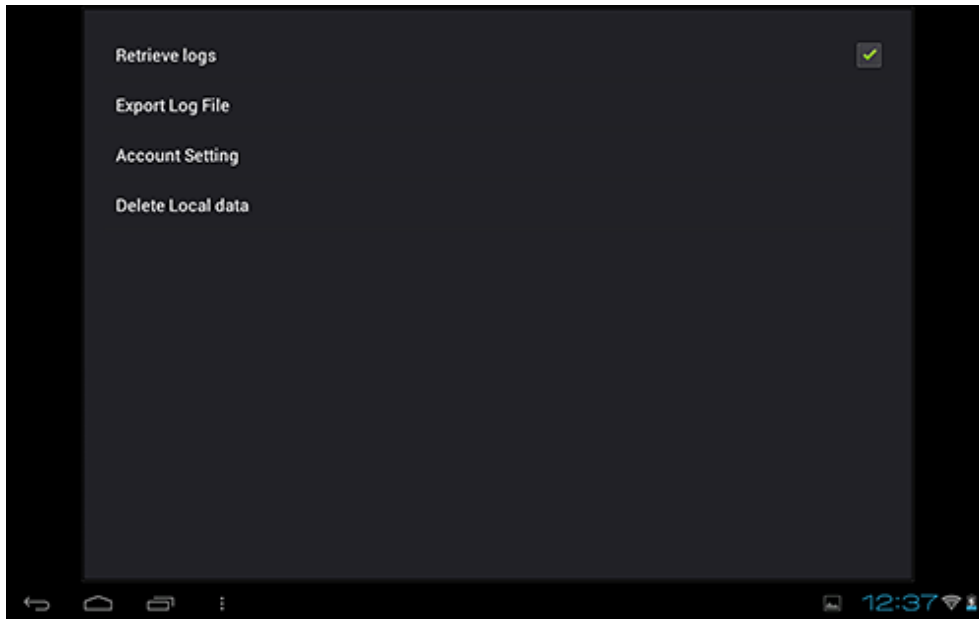
This section explains the **Settings** screen used for the client authoring tool provided by Interstage AR Processing Server, and for overlay applications.

1.6.1 Start

Follow the procedure below to call the **Settings** screen from the client authoring tool (for overlay applications developed by a system developer, check with the developer directly):

- Client authoring tool (Android)
In the list of smart device applications, tap the **InterstageAR Authoring** icon to start the client authoring tool. In the status bar, tap the menu icon, and then select **Settings**.
- Sample application tool (Android)
In the list of smart device applications, tap the **InterstageAR Dev** icon to start the application. In the status bar, tap the menu icon, and then select **Settings**.
- Client application tool (iOS)
In the list of smart device applications, tap the **InterstageAR Authoring** icon to start the application. From the displayed menu, select **Settings**.
- Sample application tool (iOS)
In the list of smart device applications, tap the **InterstageAR Dev** icon to start the application. From the displayed menu, select **Settings**.

Figure 1.7 Sample Settings screen



1.6.2 Retrieve logs

The user can specify whether to retrieve logs using the native application. To retrieve logs from the smart device, ensure that the check box is selected.

1.6.3 Export log

The user can export smart device logs (refer to [4.20 Manage logs](#) for details).

1.6.4 Account settings

Configure the account for the server the native application will connect to (refer to "Setup" in the *Installation Guide* for details on how to add, edit, or remove accounts).

AR processing server

Enter the account information for the AR processing server.

- URL: Server URL
- ID: Basic authentication ID
- Password: Basic authentication password

Note

- Only one AR processing server can be configured.
- The AR processing server account settings can be configured from the JavaScript API (`setServerInfo`) and from the native application **Settings** menu. Settings values are common to both, and these values are applied to both the overlay application and to client authoring.

Other servers

Enter the account information for the non-AR processing server.

- URL: Server URL
- ID: Basic authentication ID

- Password: Basic authentication password

Note

- Up to ten other servers can be configured.
 - If the AR overlay definition image files or tap actions reference the external resources of a non-AR server, and the server being referenced uses basic authentication, then the server URL and ID/password settings noted in "Other servers" will be required.
 - If account settings are changed, data that was stored locally before the modification will be deleted.
-

1.6.5 Delete local data

Data such as resources stored in the native application can be deleted (refer to [4.21 Delete resources](#) for details).

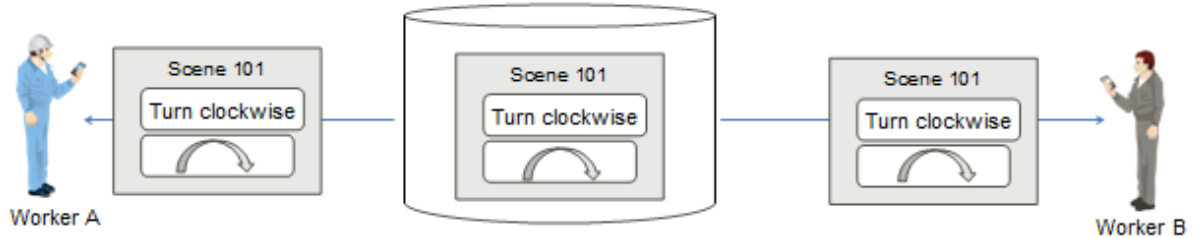
1.7 Uploading

If an AR overlay definition is added, edited, or deleted using client authoring or server authoring in Interstage AR Processing Server, this information will be uploaded for each individual AR overlay definition. This enables the time required for uploading to be kept to a minimum, even when a large volume of AR overlay definitions is associated with a scenario or scene.

Example

Figure 1.8 If Worker B makes no changes to an AR overlay definition that was deleted by Worker A

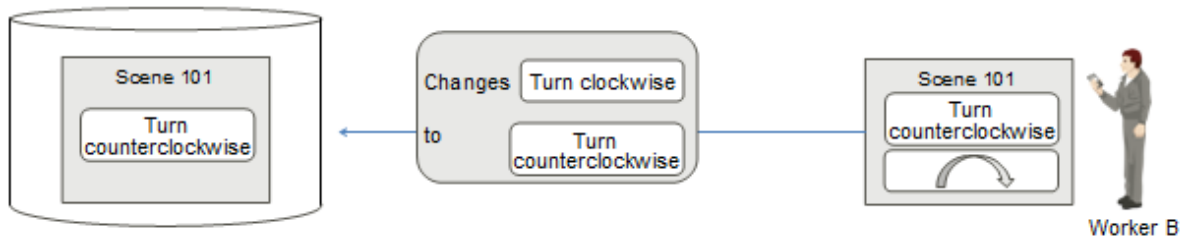
1: Workers A and B download scene 101 at the same time



2: Worker A removes an AR overlay definition and uploads this information



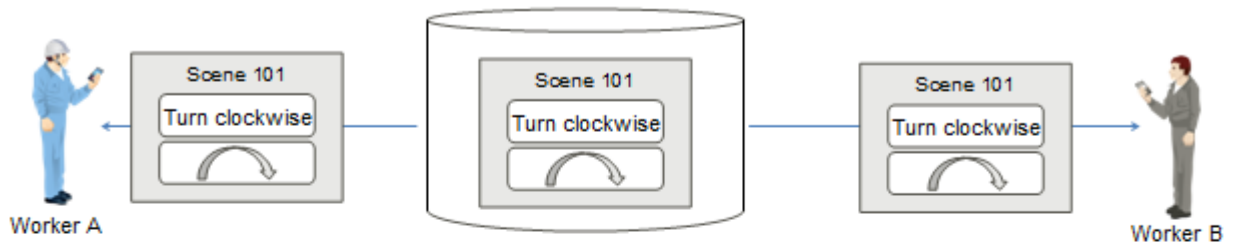
3: Worker B modifies an AR overlay definition and uploads this information



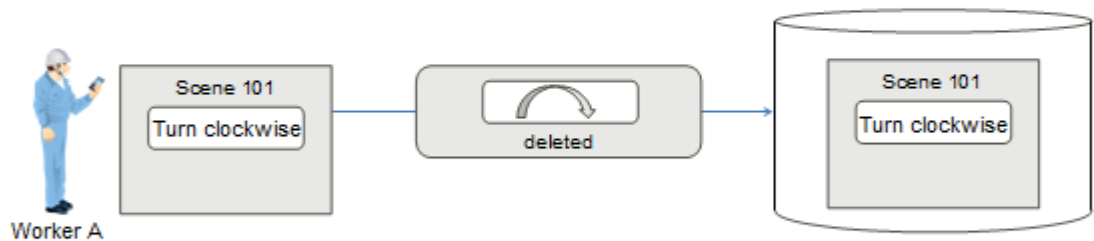
1. Worker A and Worker B download the same scene from the AR processing server at the same time.
2. If Worker A deletes an AR overlay definition, the deleted information will be uploaded to the AR processing server.
3. If Worker B updates a separate AR overlay definition, only the updated AR overlay definition information will be uploaded to the AR processing server.

Figure 1.9 If Worker B makes changes to an AR overlay definition that was deleted by Worker A

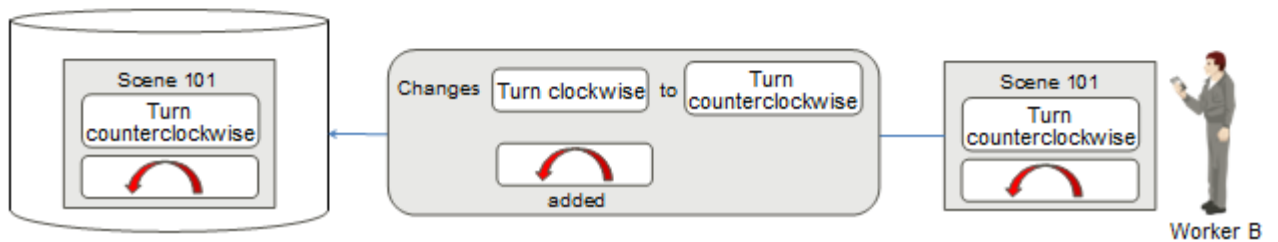
1: Workers A and B download scene 101 at the same time



2: Worker A removes an AR overlay definition and uploads this information



3: Worker B modifies an AR overlay definition and uploads this information



1. Worker A and Worker B download the same scene from the AR processing server at the same time.
2. If Worker A deletes an AR overlay definition, the deleted information will be uploaded to the AR processing server.
3. If Worker B updates an AR overlay definition, the updated AR overlay definition information will be uploaded to the AR processing server. If the previous AR overlay definition no longer exists on the AR processing server, the updated AR overlay definition will be added.

1.8 Projection

Interstage AR Processing Server provides 2D and 3D projection modes:

- 2D
 - Projects a parallel view from a point to an object.
 - Defined AR overlay content is displayed in its actual size, regardless of distance from the point of sight.
 - AR overlay content can be rotated only in the z-axis direction.
- 3D
 - Projects an object using perspective so that it resembles the size and appearance of the actual object when viewed by the worker.
 - Same-sized objects will be rendered larger if closer to the point of sight, or smaller if further away.
 - AR overlay content can be rotated in the x-, y-, or z-axis directions.

 Note

- If using client authoring, the scale information will be reset whenever the projection is switched.
- If a scale value that exceeds the display limits of the smart device is configured, the scale information may be reset when overlaying is performed. If this occurs, reconfigure the scale using suitable information.
- If AR overlay content with transparent background is superimposed, then its bottom part will be overwritten by the camera image.

Chapter 2 Deploying applications

This chapter describes how to deploy the following types of applications used with Interstage AR Processing Server:

- Web application
- Native application
- System integration application

2.1 Deploying/undeploying the web application

Deploy to Interstage AR Processing Server the overlay application developed as a web application (.war) (refer to the *Developer's Guide* for details on how to develop overlay applications).

The arsvadmin command provided by Interstage AR Processing Server is stored in the following directory:



`installDir\bin\`



`/opt/FJSVar/bin/`



Point

The arsvadmin command has the following elements:

- Options
Specify by prefixing the keyword with two hyphens (for example, --name).
- Operands
String at the end of an argument, used to specify data such as the name of the object to be operated on.

2.1.1 Deploying

The web application can be deployed using "arsvadmin deploy".

Command format:

```
arsvadmin deploy [--contextroot contextRoot] [--name componentName] [--libraries jarFile[,jarFile]...] filePath
```

Options

Option	Mandatory?	Description
--contextroot <i>contextRoot</i>	No	Specifies the context root. If omitted, the value specified for <i>filePath</i> (without the extension) will be used.
--name <i>componentName</i>	No	Specifies the application name. If omitted, the value specified for <i>filePath</i> (without the extension) will be used. Note the following about the application name: <ul style="list-style-type: none">- It must be up to 50 characters long, and the following characters are allowed:<ul style="list-style-type: none">- Alphanumeric characters and the following symbols: hyphen (-), underscore (_), period (.), semicolon (;).- It can start with an underscore '_' or an alphanumeric character, but it cannot start with "arsv" (upper or lower case).

Option	Mandatory?	Description
<code>--libraries jarFile[,jarFile]...</code>	No	<p>Specifies the library (JAR file) referenced by the application, using an absolute path.</p> <p>Separate files using a comma (,).</p> <p>Note the following about the JAR files:</p> <ul style="list-style-type: none"> - Do not specify the following: <ul style="list-style-type: none"> - Double-byte characters - Trailing whitespace characters (such as spaces or tabs) - Store the libraries in a location that does not include a comma in the path component, otherwise the comma might be treated as a path separator, and deployment might fail.

Operands

Operand	Mandatory?	Description
<code>filePath</code>	Yes	Specifies the full name of the file to be deployed.

Note

Notes on executing multiple operations

Multiple deploy/undeploy operations cannot be performed simultaneously - if a new deploy/undeploy operation is performed before the preceding one ends, then the new operation will be placed on standby until the end of the preceding one.

If already deployed

If an application with the same name has already been deployed, undeploy once before deploying.

Example

To deploy the web application `C:\sample.war` to a server running Windows:

1. Execute the command below:

```
> arsvadmin deploy C:\sample.war
```

2. Ensure that the following message is output:

```
Command deploy executed successfully.
```

2.1.2 Undeploying

The web application can be undeployed using "arsvadmin undeploy".

1. Execute the command below:

```
> arsvadmin undeploy applicationName
```

2. Ensure that the following message is output:

```
Command undeploy executed successfully.
```




Notes on executing multiple operations

Multiple deploy/undeploy operations cannot be performed simultaneously - if a new deploy/undeploy operation is performed before the preceding one ends, then the new operation will be placed on standby until the end of the preceding one.

2.2 Deploying the native application

Deploy to the smart device the native application that was developed or the client authoring tool (refer to "Setup" in the *Installation Guide* for details on how to set up the deployed application).

2.2.1 Installing the Android version

When deploying to a smart device, select a deployment method that is suited to the style of business and user.



The example below installs the application on the smart device by connecting to a PC via USB. The USB connection method varies between smart devices. Refer to the smart device manual for details.

1. Download the native application to the PC.
 2. Select **Applications from unknown source** on the smart device, to allow installation of the application obtained via USB.
 - Android 3.2
On the **Settings** screen, tap **Applications**, and then select **Unknown sources**.
 - Android 4.x (4.0/4.1)
On the **Settings** screen, tap **Security**, and then select **Unknown sources**.
 3. Connect the smart device to the PC using a USB cable.
If the PC does not recognize the driver, then install it.
 4. On the smart device status bar, select and mount **USB connected**.
 5. Copy the native application from the PC to the mounted smart device.
 6. On the PC taskbar, select **Safely remove hardware and eject media** and release the mounted device.
 7. On the smart device:
 1. Start the application with the file manager feature and select the native application. If there is no application with a file manager feature, then install one.
 2. The installation window will be displayed. Start the installation.
 3. Upon completion, on the **Settings** screen, **Security** menu, clear **Unknown sources**.
-

2.2.2 Installing the iOS version

The executable file for the client authoring tool (iOS) is not offered as a product, because Apple Inc. does not permit distribution of executable files. To execute the client authoring tool on iOS, the client company must enter into a contract with Apple Inc. and build the client authoring tool before it can be used.

Refer to the *Developer's Guide* for details on how to build the client authoring tool.

2.3 Deploying the system integration application

Deploy to the application server the packaged external system integration application (refer to the manual for your application server for details on how to deploy the application).

If you create the external system integration application in any format other than a web application, follow the appropriate procedure to enable the external system integration application to be used.

Chapter 3 Managing data during system installation

Various tasks must be performed when installing a system in Interstage AR Processing Server. These include preparing the AR markers, scenarios, scenes, and AR overlay definition data types, as well as registering the files that will be used as AR overlay content and registering the AR overlay definitions by authoring.

This chapter explains these installation tasks.

Point

The following must be carefully considered in order to complete registration tasks smoothly:

- Range of the AR markers to be used
- Position of the AR marker in the target location
- Details of the AR overlay content
- Position of the AR overlay content with respect to the AR marker
- Size of the AR overlay content

3.1 Workflow

This section describes the workflow of basic tasks when installing Interstage AR Processing Server.

1. Assign AR markers (required)
Assign and print the AR markers.
2. Register files (required)
Register the files to be used as AR overlay content.
3. Create user-defined tables (optional)
Create user-defined tables that can store and edit the data that will be used by the overlay application, as required by the business.
4. Create scenarios and scenes (required)
Create scenarios and scenes to suit the needs of the business.
5. Authoring (required)
Use authoring to register AR overlay definitions.

3.2 Assign AR markers

In order to actually be used, the AR marker first must be assigned by the system (based on the designed requirement definition) from the data management console provided by Interstage AR Processing Server, and then printed.

Attributes of AR marker types are shown below:

Table 3.1 AR marker type attributes

Attribute	Description	Notes
AR marker ID	Number identifying the AR marker.	Automatically assigned by the system.
AR marker name	Name of the AR marker.	Value can be up to 30 characters long.
Alias	Alias of the AR marker.	Value can be up to 30 characters long.
Location	Site where the AR marker is installed.	Value can be up to 30 characters long.
State	Select from the following: - Used	Select the state to suit the situation.

Attribute	Description	Notes
	- Unused	
Download datetime	Download datetime.	Automatically assigned by the system.
Description	Description or memo entered by the user.	Value can be up to 256 characters long.

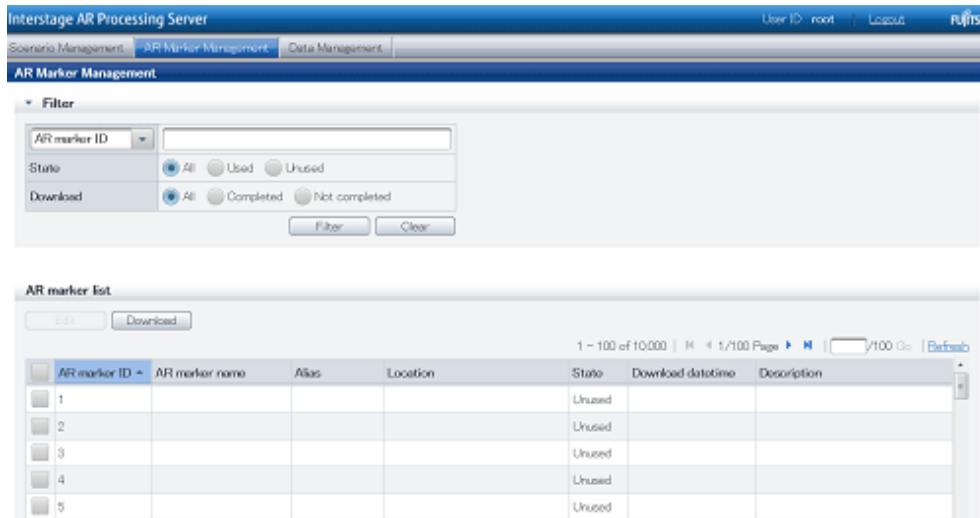
Follow the procedure below to assign an AR marker:

1. Search for the relevant AR marker using the data management console.
2. Modify the AR marker information.
3. Download the AR marker.
4. Print the downloaded AR marker.

3.2.1 Search for AR markers

Select the AR marker to be used.

Figure 3.1 AR marker list window



1. From the data management console, select **AR Marker Management**.
2. Search for the AR marker to be edited in **AR Marker Management**:
 - Search for markers by filtering
 - Search for an exact match (case-sensitive) using the attributes **AR marker ID**, **AR marker name**, **Alias**, or **Location** (leaving the field empty causes all results to be displayed).
 - For the **State** attribute, the user can filter their search by selecting **All**, **Used**, or **Unused**.
 - For the **Download** attribute, the user can filter their search by selecting **All**, **Completed**, or **Not completed**.
 - Search by page number redirection
100 AR markers are listed per page. This enables the user to move up or down a particular page to locate a specific AR marker.

3.2.2 Edit AR marker information

Using the data management console, edit the AR marker data.

Figure 3.2 Edit AR marker information dialog box

AR marker ID	1
AR marker name	<input type="text"/>
Alias	<input type="text"/>
Location	<input type="text"/>
State	Unused ▾
Description	<input type="text"/>

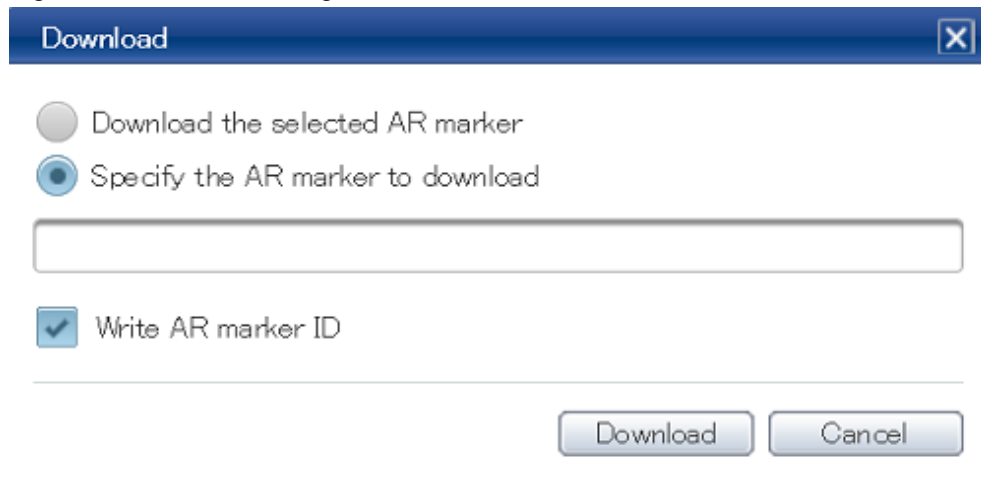
OK Cancel

1. From the data management console, select **AR Marker Management**.
2. In the **AR marker list**, select the check box of the AR marker to be edited, and then click **Edit**.
3. In the **Edit AR marker information** dialog box, modify the data below:
 - **AR marker name**
If required, enter a name to enable the data administrator to distinguish the AR marker (up to 30 characters).
 - **Alias**
If required, alias information can be entered (up to 30 characters) to allow external systems to identify an AR marker.
 - **Location**
If required, the marker location can be entered (up to 30 characters).
 - **State**
Change to **Used**.
 - **Description**
If required, enter a memo or description using up to 256 characters.
4. Click **OK**.

3.2.3 Download AR markers

Download the AR markers as image files.

Figure 3.3 Download dialog box



To download, select one of the following methods:

Download by selecting a check box

1. From the data management console, select **AR Marker Management**.
2. In the **AR marker list**, select the check box of the AR marker to be downloaded.
3. Click **Download**.
4. In the **Download** dialog box, ensure that **Download the selected AR marker** is selected.
5. If adding an AR marker ID area, then select **Write AR marker ID**.
6. Click **Download**.

Download by specifying the marker ID

1. From the data management console, select **AR Marker Management**.
2. Click **Download**.
3. In the **Download** dialog box, select **Specify the AR marker ID to download**.
4. Specify the AR marker ID in the input field using up to 256 characters - the formats below can be used:
 - For a single ID - *number*
 - For a range of IDs - [*startNumber-endNumber*]
 - For multiple IDs - *number,number*



Example

For example, to download IDs 1 to 3, and 5:

Enter [1-3,5]

5. If specifying an AR marker ID area, then select **Write AR marker ID**.
6. Click **Download**.



Note

Up to 1,000 AR markers can be downloaded at once.

3.2.4 Print AR markers

Print the downloaded AR markers. Printing can be performed using your regular printer.

Point

- Select paper and ink for printing the AR markers, taking into account whether the environment where they will be installed requires waterproof or luminescent properties.
 - Your regular image editing software can be used to change the AR marker size or to add input such as IDs.
 - If changing the size, ensure that an aspect ratio of 1:1 is maintained.
-

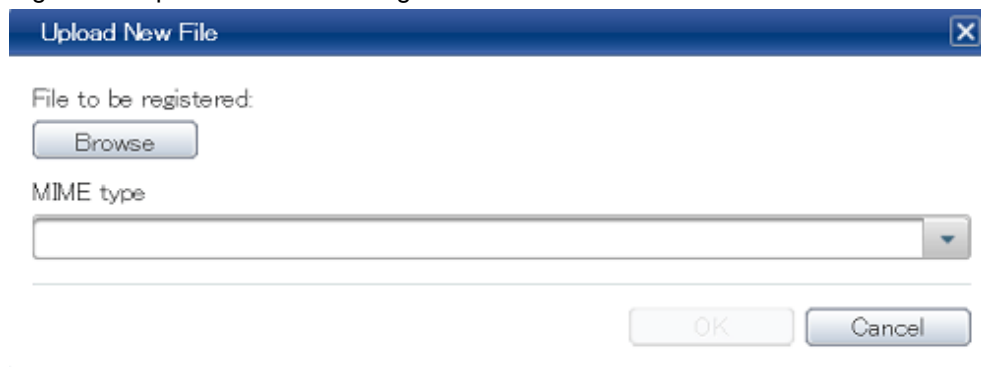
Note

- Actual AR marker recognition performance will vary depending on the camera performance of the smart device used, as well as the usage environment and print quality of the AR marker. Accordingly, check in advance the recognition performance of the smart device that will be used.
 - Recognition performance may decrease if the AR marker is printed with a glossy finish.
 - With the exception of the ID area, absolutely no additions must be made to the marker body or margins, such as with a pen, which could cause changes to the color or glossiness. Such changes could cause decreased recognition performance of the AR marker, or it could be recognized incorrectly or not at all.
 - Ensure as much as possible that operations do not cause the body or margins of the AR marker to become dirty. If a marker is known to have decreased recognition performance because it is dirty, clean or replace it immediately.
-

3.3 Register files

This section describes how to register files on the server, such as image files used in AR overlay content.

Figure 3.4 Upload New File dialog box



The screenshot shows a dialog box titled "Upload New File". It contains a "Browse" button for selecting a file, a "MIME type" dropdown menu, and "OK" and "Cancel" buttons at the bottom.

Follow the procedure below to register a file:

1. Access the data management console.
2. Select the **Data Management** tab, and then select **File**.
3. On the **File Management** window, select **Add**.
4. In **Upload New File**, click **Browse**, and then select the file to be registered.
5. Select the MIME type from the list.
6. Click **OK**.

A registered file's MIME type is determined by the MIME type specified during registration, not by the file extension. Note that if an incorrect MIME type is selected, it will be handled as that MIME type, regardless of file extension. If registering again, first delete the incorrectly registered file and then register the file again.

Example

.....

If a file named "123.jpg" is registered as the MIME type **video/mp4**, it will be handled as a video file.

.....

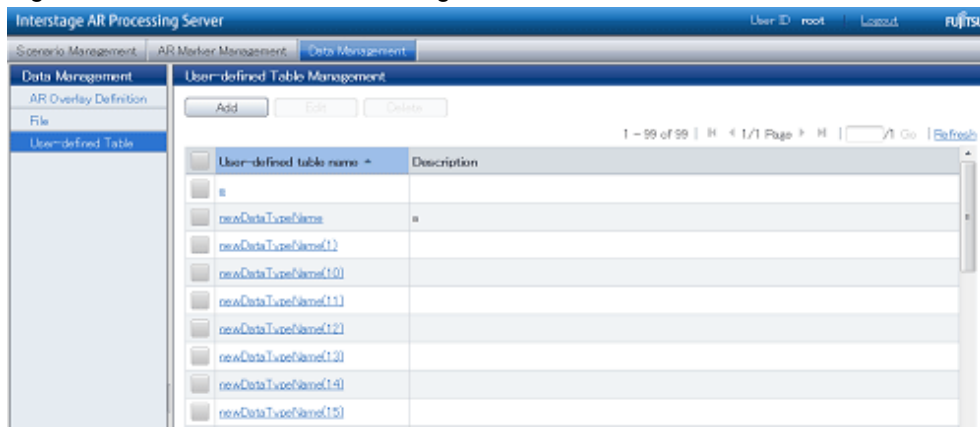
Note

- A link to the registered file will be pasted in the file ID. The behavior when the link destination is referenced will depend on the file type and the settings of the browser used.
 - If registering a file, the datetime of the start of registration will be configured as the "Registration datetime", while the datetime of completion of registration will be configured as the "Update datetime". This means that "Registration datetime" will differ from "Update datetime" if registration took a few moments to complete (due to slow communications, for example).
-

3.4 Create user-defined tables

User-defined tables store business data for overlay applications. They can be created, designed, referenced, and edited by the user as required.

Figure 3.5 User-defined Table Management window



Point

- The client authoring feature cannot be used with information in user-defined tables created by the user.
 - Up to 100 tables can be created.
 - Up to 30 columns can be added per table.
-

Using the data management console, create a user-defined table:

1. Access the data management console.
2. Select the **Data Management** tab, and then select **User-defined Table**.

3. From the **User-defined Table Management** window, select **Add** and enter the values below:

- **User-defined table name**

Enter the name of the user-defined table using up to 30 characters.



The following table names are used by the product, and cannot be used for user-defined tables:

- arscn_scenario
- arsen_scene
- armk_fjarmarker
- arpoiarmk_default

- **Description**

Enter a description for the user-defined table using up to 256 characters.

4. Click **Add**, and then create the required attributes.

- **Attribute name**

Enter the name of the attribute using up to 30 characters.

- **Data type**

The following types can be used for attributes created using **Add**:

- LONG type
- STRING type
- FLOAT type

- **Display order**

Enter an appropriate value to change the display order of an added attribute.

- **Description**

If required, enter a memo or description using up to 256 characters.

5. Click **OK**.

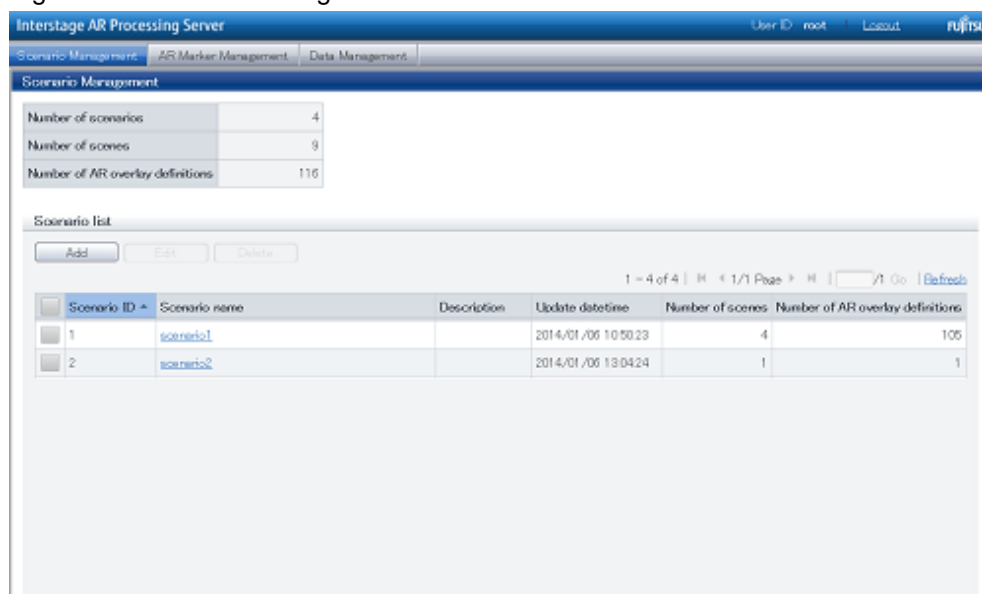
6. From the **User-defined Table Management** window, select the name of the user-defined table that was created.

7. Click **Add**, and enter the required data in the **Add Data** dialog box.

3.5 Register scenarios and scenes

Using the data management console, register the scenarios and scenes as per requirement definitions.

Figure 3.6 Scenario Management window



3.5.1 Attributes

The attributes of scenarios and scenes are listed below:

Table 3.2 Scenario attributes

Attribute	Description	Notes
Scenario ID	ID of the scenario.	Integer value: 1 to 999
Scenario name	Name of the scenario.	Max. length: 30 characters
Description	Description of the scenario.	Max. length: 256 characters
Update datetime	Datetime the scenario was updated.	Automatically assigned.
Number of scenes	Number of scenes in the scenario.	Automatically assigned.
Number of AR overlay definitions	Number of AR overlay definitions associated with the scenario.	Automatically assigned.

Table 3.3 Scene attributes

Attribute	Description	Notes
Scene ID	ID of the scene.	Integer value: 1 to 99999
Scene name	Name of the scene.	Max. length: 30 characters
Update datetime	Datetime the scene was updated.	Automatically assigned.
Number of AR overlay definitions	Number of AR overlay definitions associated with the scene.	Automatically assigned.

3.5.2 Register scenarios

Using the data management console, enter the scenario data:

1. Access the data management console.

2. Select the **Scenario Management** tab.
3. Click **Add**.
4. In the **Add Scenario** dialog box, enter the information below:
 - **Scenario ID**
Enter an integer between 1 and 999 (the value cannot be already allocated to another scenario ID).
 - **Scenario name**
Enter the name of the scenario using up to 30 characters.
 - **Description**
Enter the description of the scenario using up to 256 characters.
5. Click **OK**.

Note

Up to 100 scenarios can be created for a single system.

3.5.3 Register scenes

Using the data management console, enter the scene data:

1. Access the data management console.
2. Select the **Scenario Management** tab.
3. From the **Scenario list**, select the name of the scenario that the scenes will be added to.
4. In the scenario details window's **Scene list**, click **Add**.
5. In the **Add Scene** dialog box, enter the information below:
 - **Scene ID**
Enter an integer between 1 and 99999 (the value cannot be already allocated to another scene in the same scenario).
 - **Scene name**
Enter the name of the scene using up to 30 characters.
 - **Description**
Enter the description of the scene using up to 256 characters.
6. Click **OK**.

Note

Up to 100 scenes can be created for a single scenario.

3.6 Authoring

Use server authoring or client authoring to create and associate AR overlay definitions with scenes.

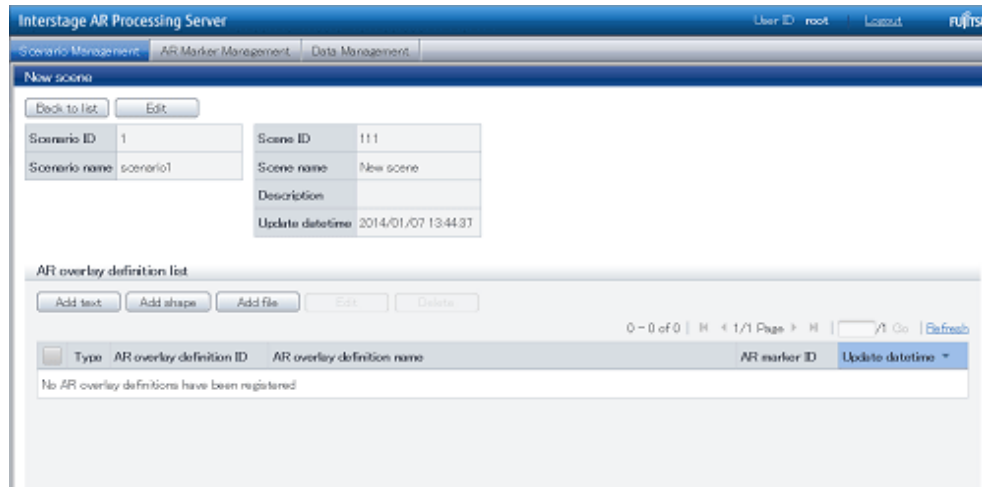
Note

- Up to 100 AR overlay definitions can be added to a single scene.
- Data created using server authoring can be edited using client authoring.

3.6.1 Server authoring

The server authoring procedure is as follows:

Figure 3.7 AR overlay definition list



1. Access the data management console.
 2. Select the **Scenario Management** tab.
 3. From the **Scenario list**, select the scenario name.
 4. From the **Scene list**, select the scene name.
 5. From the **AR overlay definition list**, select the type of AR overlay content to be added.
- Available content types are as follows:

- **Add text**
- **Add shape**
- **Add file**

Add text

Follow the procedure below to add text information:

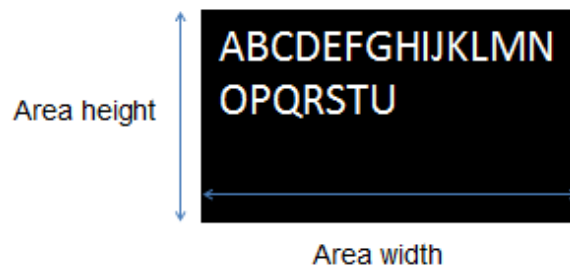
1. Enter the basic information, and then click **Next**.
 - **AR overlay definition name (optional)**
Enter the name of the AR overlay definition using between 0 and 30 characters.
 - **AR marker ID**
Enter the ID of the marker for the overlay. The default ID number is "1".
 - **Scenario ID**
The selected scenario ID will be displayed.
 - **Scenario name**
The selected scenario name will be displayed.
 - **Scene ID**
The selected scene ID will be displayed.
 - **Scene name**
The selected scene name will be displayed.
2. Enter the text information, and then click **Next**.
 - **Text (required)**
Enter up to 256 characters for the text to be overlaid.

- **Font size** (required)
Specify an integer between 10 and 750 pt for the font size. The default is 40 pt.
- **Font color** (required)
Select the text color using the color picker, and specify the transparency by entering an integer between 0 and 255 in the input field.
- **Background color** (required)
Select the background color using the color picker, and specify the transparency by entering an integer between 0 and 255 in the input field.
- **Word wrap** (required)
Select whether to wrap text information.
- **Area height** (required when **Word wrap** is selected)
If **Word wrap** is selected, specify a numeric value between 10 and 1024 pixels for the area height.
- **Area width** (required when **Word wrap** is selected)
If **Word wrap** is selected, specify a numeric value between 10 and 1024 pixels for the area width.

Figure 3.8 Font color: #FFFFFF; background color: #000000; Word wrap: this example shows text rendering when Word wrap is not selected



Figure 3.9 Font color: #FFFFFF; background color: #000000; Word wrap: this example shows text rendering when Word wrap is selected



Note

If text rendering requires a width greater than 1024 pixels (for long text, for example) but **Word wrap** has not been specified, only the text up to 1024 pixels will be rendered, and the remaining text may not be visible.

If entering text that requires a width greater than 1024 pixels, select **Yes** to wrap AR text content. Then, set the height, width, and font size for the area, and adjust to ensure that all the text is displayed.

The calculation formula is shown below. Note that the displayed size may vary according to the character type (such as whether it is a number or a symbol), so the result might not match this formula.

- Area height = $fontSize \times 4 / 3 \times numberOfRowsToBeDisplayed$ [pixels]
- Area width = $fontSize \times numberOfCharsToDisplayPerRow$ [pixels]

3. Enter the position information, and then click **Next**.

- **Projection type**
Select 2D or 3D according to the content.
- **Translation**
Enter the coordinate of the position to display the AR overlay content, using a numeric value between -32 and +32, using the AR marker as a basis. Up to three decimal places can be specified (values with more

than 3 decimal places will be rounded to three decimal places).
l=size of the AR marker body

- **Rotation**

Enter a value between -360 and +360 for the rotation angle of the AR overlay content. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).

- **Scale**

Enter a value between 0.1 and 32 for the scaling factor of the AR overlay content. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).

4. If required, click **Use tap action**, configure settings for the URL or script, and then click **OK**. The specified URL or JavaScript will be called when the AR overlay content is tapped.

- **URL**

Enter the URL of the file to be called by the tap action using up to 256 characters.

- **Script**

Enter the JavaScript method and arguments to be called by the tap action using up to 256 characters.

Add shape

Follow the procedure below to add a shape:

1. Enter the basic information, and then click **Next**.

Modify the ID and AR overlay definition name of the AR marker.

- **AR overlay definition name**

Enter the name of the AR overlay definition using between 0 and 30 characters.

- **AR marker ID**

Enter the ID of the marker for the overlay. The default ID number is "1".

- **Scenario ID**

The selected scenario ID will be displayed.

- **Scenario name**

The selected scenario name will be displayed.

- **Scene ID**

The selected scene ID will be displayed.

- **Scene name**

The selected scene name will be displayed.

2. From the list, select the shape, and then click **Next**.
3. Enter the position information, and then click **Next**.

- **Projection type**

Select 2D or 3D according to the content.

- **Translation**

Enter the coordinate of the position to display the AR overlay content, using an integer between -32 and +32, using the AR marker as a basis. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).

l=size of the AR marker body

- **Rotation**

Enter an integer between -360 and +360 for the rotation angle of the AR overlay content. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).

- **Scale**

Enter an integer between 0.1 and 32 for the scaling factor of the AR overlay content. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).

4. If required, click **Use tap action**, configure settings for the URL or script, and then click **OK**. The specified URL or JavaScript will be called when the AR overlay content is tapped.

- **URL**
Enter the URL of the file to be called by the tap action using up to 256 characters.
- **Script**
Enter the JavaScript method and arguments to be called by the tap action using up to 256 characters.

Add file

Follow the procedure below to add a file:



- Files that can be used as AR overlay content are shown below:

- image/jpeg or image/png
- Size up to 1024 x 1024 pixels

1. Enter the basic information, and then click **Next**.

Modify the ID and AR overlay definition name of the AR marker.

- **AR overlay definition name**
Enter the name of the AR overlay definition using between 0 and 30 characters.
- **AR marker ID**
Enter the ID of the marker for the overlay. The default ID number is "1".
- **Scenario ID**
The selected scenario ID will be displayed.
- **Scenario name**
The selected scenario name will be displayed.
- **Scene ID**
The selected scene ID will be displayed.
- **Scene name**
The selected scene name will be displayed.

2. Enter the file URL, and then click **Next**.

Confirm the file URL from the file that was registered at **Data Management, File**.

3. Enter the position information, and then click **Next**.

- **Projection type**
Select 2D or 3D according to the content.
- **Translation**
Enter the coordinate of the position to display the AR overlay content, using an integer between -32 and +32, using the AR marker as a basis. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).
1=size of the AR marker frame
- **Rotation**
Enter an integer between -360 and +360 for the rotation angle of the AR overlay content. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).
- **Scale**
Enter an integer between 0.1 and 32 for the scaling factor of the AR overlay content. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).

4. If required, click **Use tap action**, configure settings for the URL or script, and then click **OK**. The specified URL or JavaScript will be called when the AR overlay content is tapped.
 - **URL**
Enter the URL of the file to be called by the tap action using up to 256 characters.
 - **Script**
Enter the JavaScript method and arguments to be called by the tap action using up to 256 characters.

3.6.2 Client authoring (Android)

Follow the procedure below to perform client authoring using a smart device (Android):

1. Start the client authoring tool.
2. From the scenario selection screen, select the scenario.
3. From the scene selection screen, select the scene.
4. On the **Add New** screen, register the AR overlay definition.
5. If required, revise the registered AR overlay definition using the client authoring **Modify** screen.
6. Upload the registered AR overlay definition to the AR processing server.

Point

- Before using the client authoring tool, ensure that the tool has been set up, and that the scenarios and scenes have been registered using the data management console.
 - The following tasks must be performed before authoring can be used in an offline environment:
 1. Start the client authoring tool in an online environment.
 2. Select the scenario and scene, and download the data.
 3. Quit the client authoring tool, and move to the location where authoring will be performed.
 - The following tasks must be performed before files such as images can be called as AR overlay content or by tap actions.
 1. Using a third-party software, create images that meet the criteria below:
 - MIME type
jpeg
png
 - Size
Maximum: 1024 pixels x 1024 pixels
If a file that exceeds the maximum size is specified, the overlay will not be displayed.
 2. Store the created file in:
internalStorage/Android/data/packageName/files/authoring
 - For client authoring, the package name is:
com.fujitsu.interstage.ar.mobileclient.android.authoring.app
 - If the package name is changed, specify the package name of the current application.
 - The directory *internalStorage/Android/data/packageName/files/authoring* is created when using the client authoring tool in **Edit Mode**, and one or more photos are taken by tapping the **Shutter** icon.
 - Each directory can store up to 30 files. Store additional files in separate directories.
 - In **Edit Mode**, select **Exit Editing**, and then in the dialog box, click **Save and exit** to save authoring data as local data. Data will not be saved if the user redirects to a different screen using the **HOME** button or power button on the device while the data is in an unsaved state. Data should be saved frequently during editing.
-

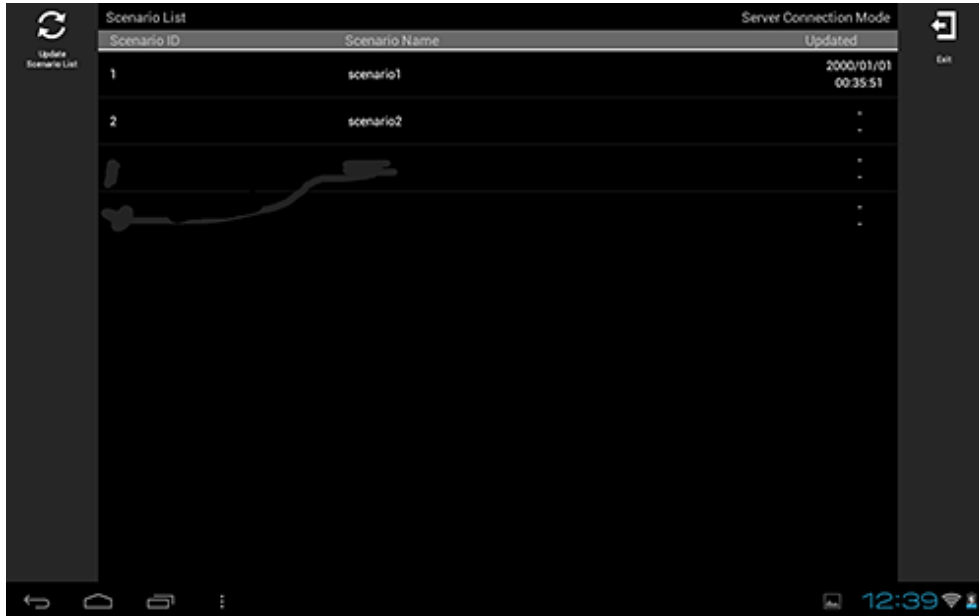
3.6.2.1 Start the client authoring tool

To start the client authoring tool provided by Interstage AR Processing Server, tap **Interstage AR Authoring** in the list of applications on your smart device.

3.6.2.2 Select scenario

From the displayed **Scenario List**, tap the scenario to be selected.

Figure 3.10 Scenario List



Point

If required, perform the tasks below.

Update Scenario List

Update the displayed **Scenario List** to the latest information:

1. Tap the **Update Scenario List** icon.
2. The **Download** dialog box will be displayed, with the latest scenario information.

3.6.2.3 Select scene

Follow the procedure below to select the scene to be selected.

Figure 3.11 Scene List screen



1. From the displayed **Scene List**, tap the scene to be edited.
2. Select either **Server Data Authoring** or **Local Data Authoring** to suit your circumstances. **Server Data Authoring** can only be selected when in server connection mode.

Point

If required, perform the tasks below.

Update Scene List

Update the displayed **Scene List** to the latest information:

1. Tap the **Update Scene List** icon.
2. The **Download** dialog box will be displayed.
3. The latest scene information will be displayed in the list.

Batch content operation

Perform batch operations on scenes registered in the scenario:

1. Tap the **Batch** icon.
2. In the **Batch** dialog box, select **Download scene data by batch** to download data from the server, or **Upload scene data by batch** to upload data.
Note batch downloads discard data saved locally and overwrite it with data saved to the AR processing server. If you do not want data to be overwritten, ensure that uploads are performed first.

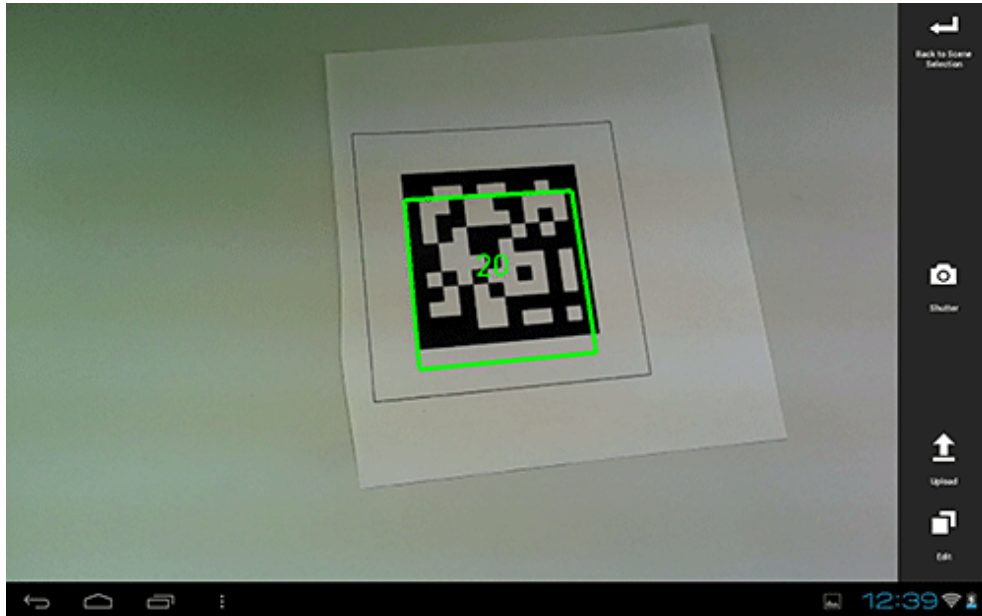
3.6.2.4 Navigate to Edit Mode

Follow the procedure below to select the AR marker to be registered in the AR overlay definition:

1. In the AR view screen, point the camera to the AR marker.

2. Tap the **Edit** icon that is displayed in the action bar after the AR marker has been recognized.

Figure 3.12 AR view screen



Point

In the AR view screen, tap the **Shutter** icon to take a photo of the image currently captured by the camera.

- Images captured by the camera are stored in:
internalStorage/Android/data/packageName/files/authoring/Pictures
- For client authoring, the package name is:
com.fujitsu.interstage.ar.mobileclient.android.authoring.app
- If the package name is changed, specify the package name of the current application.
- AR overlay content is not included in the saved image.

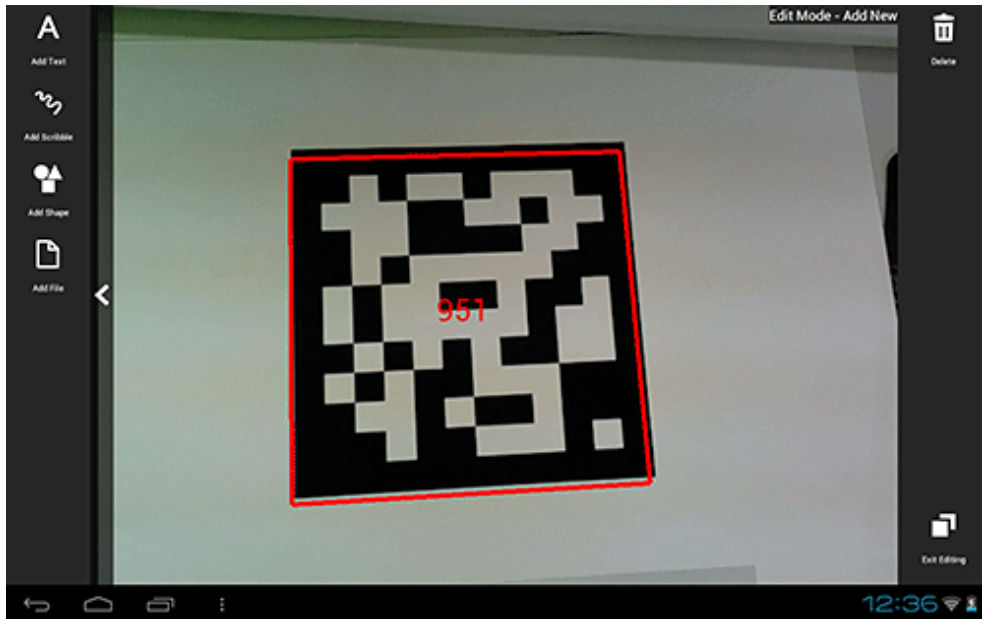
3.6.2.5 Register the AR overlay definition

Follow the procedure below to register the AR overlay definition associated with the selected AR marker:

1. In **Edit Mode**, select the AR marker.
2. From the menu bar, select one of the icons below, according to the type of AR overlay content to be added:
 - **Add Text**
 - **Add Scribble**
 - **Add Shape**

- **Add File**

Figure 3.13 Edit Mode > Add New screen



Add Text

Follow the procedure below to add text information:

1. In the menu bar, tap the **Add Text** icon.
2. In the **Add Text** dialog box, enter the information below:
 - **Contents**
Enter the text to be registered using up to 256 characters.
3. Click **Add** to add the text information to the AR marker and navigate to the **Modify** screen.

 **Note**

If text rendering requires a width greater than 1024 pixels (for long text, for example) but **Word wrap** has not been specified, only the text up to 1024 pixels will be rendered, and the remaining text may not be visible.

If entering text that requires a width greater than 1024 pixels, navigate to the **Modify** screen after registration is complete and then in **Option**, select **On** to wrap AR text content. Then, set the height, width, and font size for the area, and adjust to ensure that all the text is displayed.

The calculation formula is shown below. Note that the displayed size may vary according to the character type (such as whether it is a number or a symbol), so the result might not match this formula.

- Height = $fontSize \times 4 / 3 \times numberOfRowsToBeDisplayed$ [pixels]
- Width = $fontSize \times numberOfCharsToDisplayPerRow$ [pixels]

Add Scribble

Follow the procedure below to add a scribble:

1. In the menu bar, tap the **Add Scribble** icon.
2. The menus below will be added to the menu bar - select the one that suits your needs.
 - **Pen**
Enters a memo as traced on the screen.

- **Eraser**

Erases a memo as traced on the screen.

3. On the action bar, tap **OK** after entering the memo. Navigate to the **Modify** screen.



Example

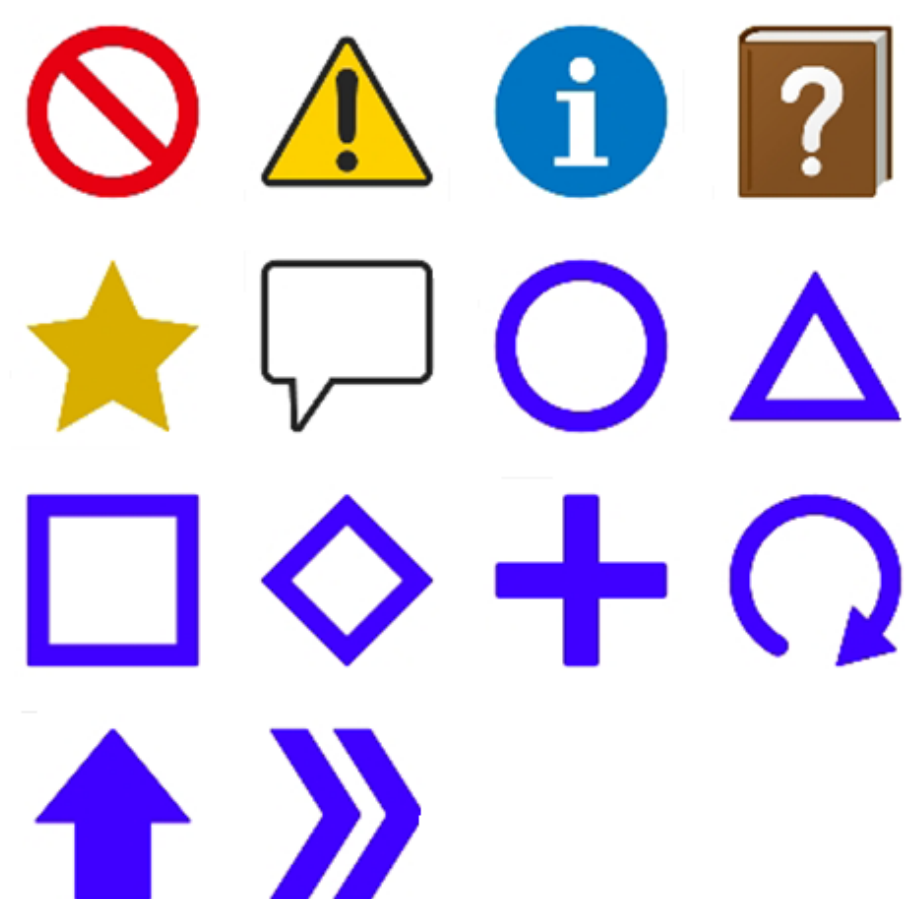
If adding a scribble, ensure that the selected AR marker is reflected in the center of the device display, and is being viewed from the front. If 3D projection is used when the AR marker is not recognized from the front side, the AR overlay content will be generated at an inclination from the AR marker.

Add Shape

Follow the procedure below to add shapes (provided with the product), such as arrows:

1. In the menu bar, tap the **Add Shape** icon.
2. The shapes will be displayed in the menu bar - tap the shape to be overlaid. The selected image will be positioned in the center of the AR marker. Navigate to the **Modify** screen.

The following shapes are provided as standard:



Add File

Follow the procedure below to add images or photographs that have been saved locally on the smart device:

1. In the menu bar, tap the **Add File** icon.
2. In the **Add File** dialog box, select the file.
3. The selected image will be positioned in the center of the AR marker. Navigate to the **Modify** screen.

Point

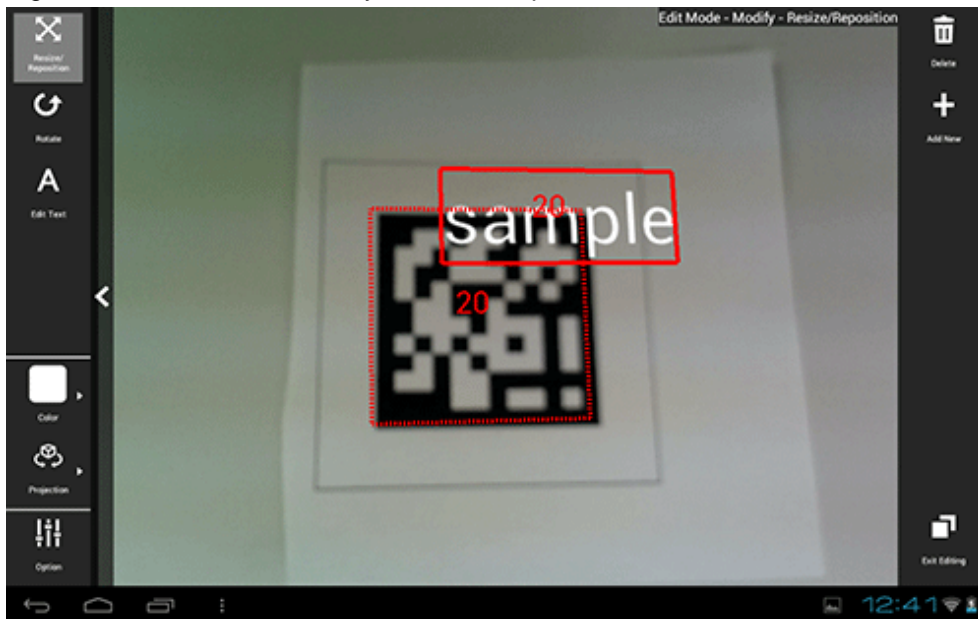
Existing AR overlay content can be deleted by tapping the **Delete** con on the **Edit Mode > Add New** screen.

- If AR overlay content is selected, only the selected content will be deleted.
- If an AR marker is selected, all AR overlay content associated with that marker will be deleted.

3.6.2.6 Edit the AR overlay definition

Follow the procedure below to edit added AR overlay content.

Figure 3.14 Edit Mode > Modify > Resize/Reposition screen



1. In **Edit Mode** of the client authoring tool, select the AR content.
2. Select from the following options on the menu bar:
 - **Resize/Reposition**
 - **Rotate**
 - **Edit Text** (displayed only when text content is selected)
 - **Color**
 - **Projection**
 - **Option**
3. Tap the **Exit Editing** icon, and then select **Save and exit**.

Point

- Items in the selected content that can be modified will be displayed in the menu.
- **Resize/Reposition** is selected by default.
- Note that when **Rotate** is selected, any operation to switch the "selected" state to another AR overlay content item or AR marker will be invalid. To switch the "selected" state, use an operation other than **Rotate**, such as **Resize/Reposition**.

Resize/Reposition

Modify the position or size of the selected AR overlay content item.

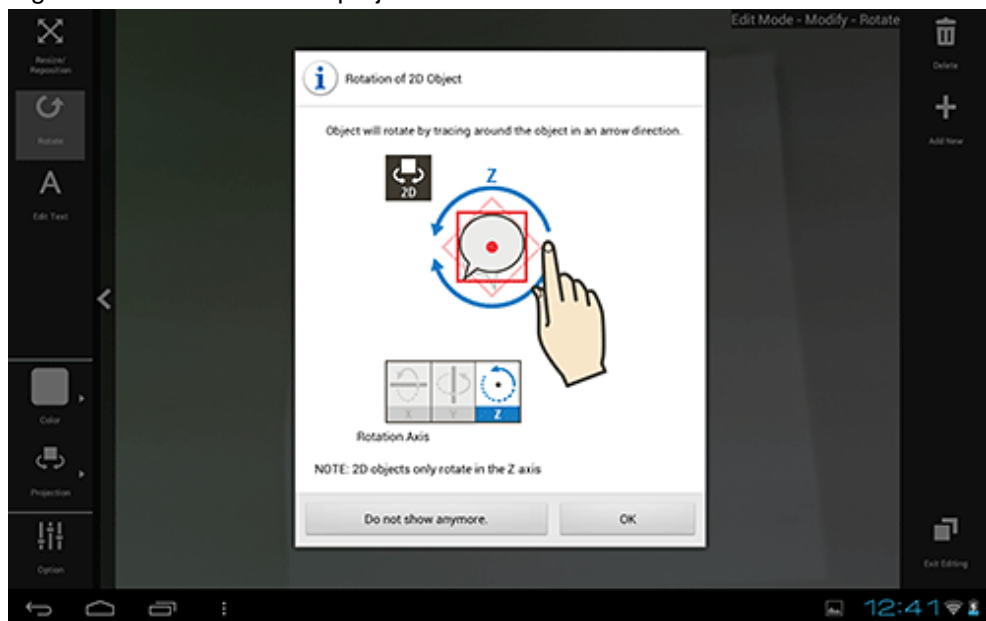
1. In the menu bar, tap the **Resize/Reposition** icon.
2. Pinch or stretch the item to resize it, or drag to reposition it.

Rotate

Rotate the selected AR overlay content item.

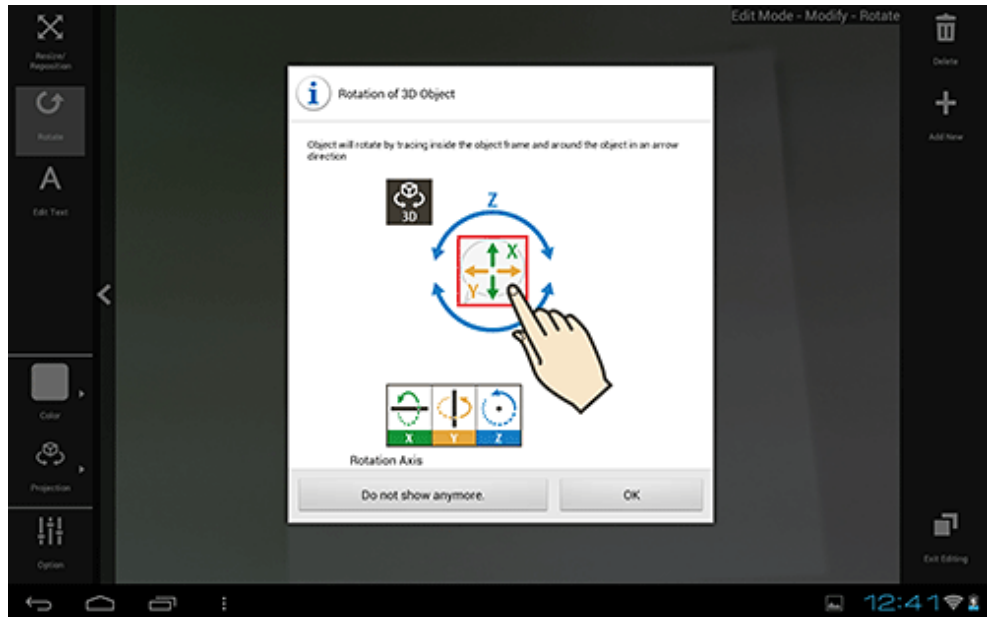
1. In the menu bar, tap the **Rotate** icon.
2. A photography guide will be displayed in accordance with the selected projection mode. Rotate the item as directed.
 - For 2D
Drag the item's perimeter to rotate it on the z-axis.

Figure 3.15 Rotation for 2D projection



- For 3D
Drag the item vertically to rotate it on the x-axis, horizontally for the y-axis, or drag the item's perimeter to rotate it on the z-axis.

Figure 3.16 Rotation for 3D projection



Edit text

Text details can be modified if the content type is 'text':

1. In the menu bar, tap the **Edit Text** icon.
2. In the **Edit Text** dialog box, edit the content as required.
3. Tap **OK**.

Color

Color can be modified if the content type is 'text' or 'scribble':

1. In the menu bar, tap the **Color** icon.
2. In the color palette, select a color. Alternatively, tap the **Color Setting** icon to navigate to the **Option** menu and from there to the **Color Setting** dialog box, where a more specific color can be selected.
 - If a color from the color palette is selected, content will be modified to the specified color, and then **Resize/Reposition** will be selected.
 - If the **Color Setting** dialog box was selected, the user can choose a color and degree of transparency by tapping the RGB slider or the color picker. The currently selected color will be displayed in the center of the color

picker. Once the color has been decided, tap the center of the color picker to finalize it and navigate to the **Option** menu.

Figure 3.17 Colors menu

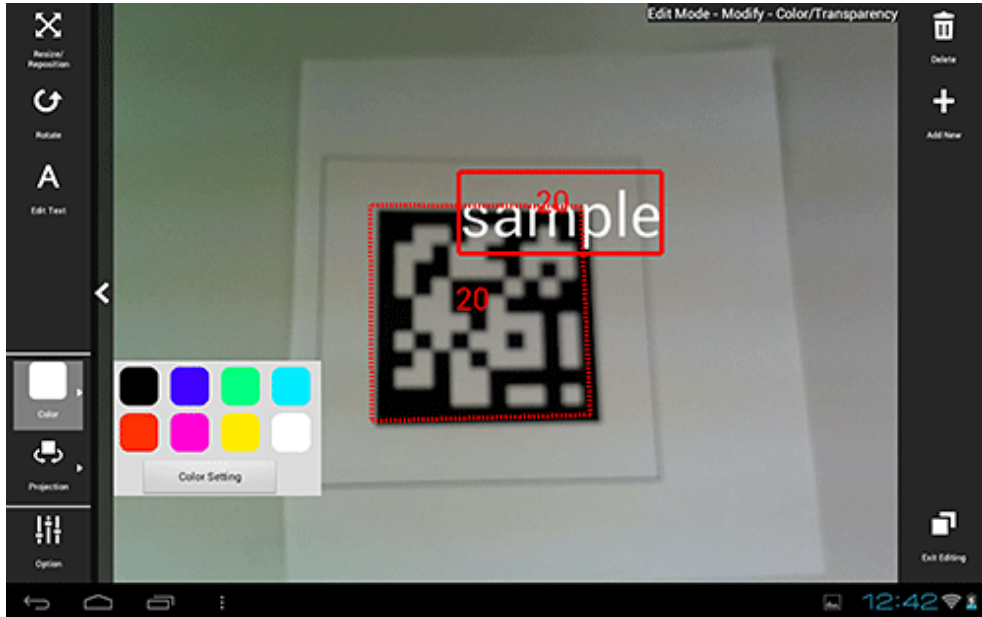
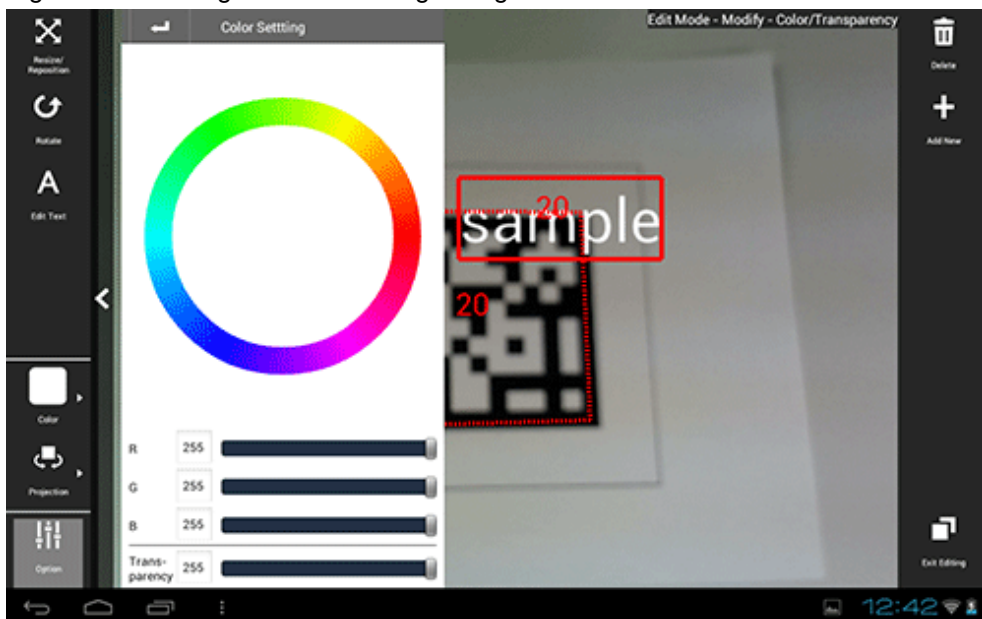


Figure 3.18 Settings > Color Setting dialog box



Projection

The user can select a projection mode for the AR overlay content.

Figure 3.19 Projection menu



Option

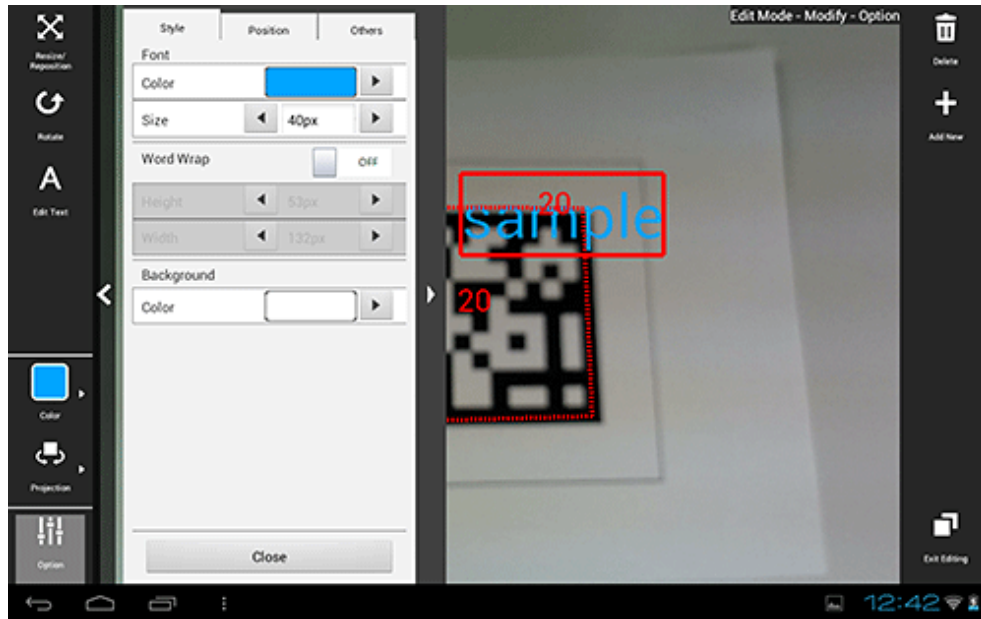
The user can configure detailed information - the displayed content depends on the selected item):

Content	Style	Position	Others
Text	<ul style="list-style-type: none"> - Character - Word Wrap - Background 	<ul style="list-style-type: none"> - Projection - Rotation - Scale 	<ul style="list-style-type: none"> - Tap Action - AR overlay definition information
Scribble	Color		
Shape	None		
File	None		

Style

Configure character colors or text wrapping information.

Figure 3.20 Settings > Style dialog box



Character

The color and font size of characters can be modified. The color and degree of transparency can be modified by tapping the RGB slider or **setting** that is displayed on the **Color Setting** dialog box when a color is selected. The currently selected color will be displayed in the center of the color picker. Once the color has been decided, tap the center of the color picker. Enter between 10 and 750 pixels for the font size.

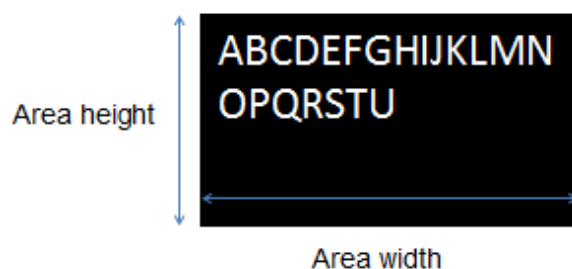
Word Wrap

Configure whether to wrap text information. If **Word Wrap** is 'ON', enter the height and width for wrapping, in pixels. Select a value between 10 and 1024 pixels for both the width and height of the wrapping. If **Word Wrap** is 'OFF', a white margin will be displayed at the top and bottom of the text (*fontSize:heightIncludingWhiteMargin* ~ = 3:4).

Figure 3.21 Example: Font color=#FFFFFF, Background color=#000000, Word Wrap=OFF



Figure 3.22 Example: Font color=#FFFFFF, Background color=#000000, Word Wrap=ON



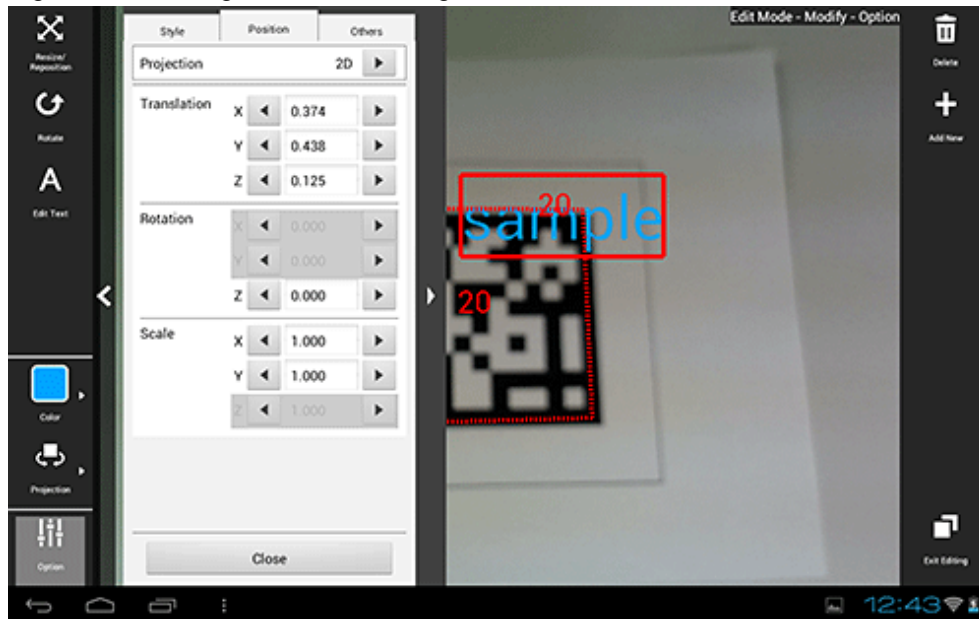
Color

The background color can be modified if the content type is 'text', while the pen color can be modified if the type is 'scribble'. The color and degree of transparency can be modified by tapping the RGB slider or color picker that is displayed on the **Color Setting** dialog box when a color is selected. The currently selected color will be displayed in the center of the color picker. Once the color has been decided, tap the center of the color picker.

Position

Position information can be configured.

Figure 3.23 Settings > Position dialog box



Projection

The user can switch between 2D and 3D projection for AR overlay content.

Translation

Enter the x-, y-, and z-coordinates of the position to display the AR overlay content, using integers between -32 and +32, based on the AR marker. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).

1=size of the AR marker body

Rotation

Enter an integer between -360 and +360 for the rotation angle of the AR overlay content. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places). If 2D projection is selected, only the z-axis can be entered.

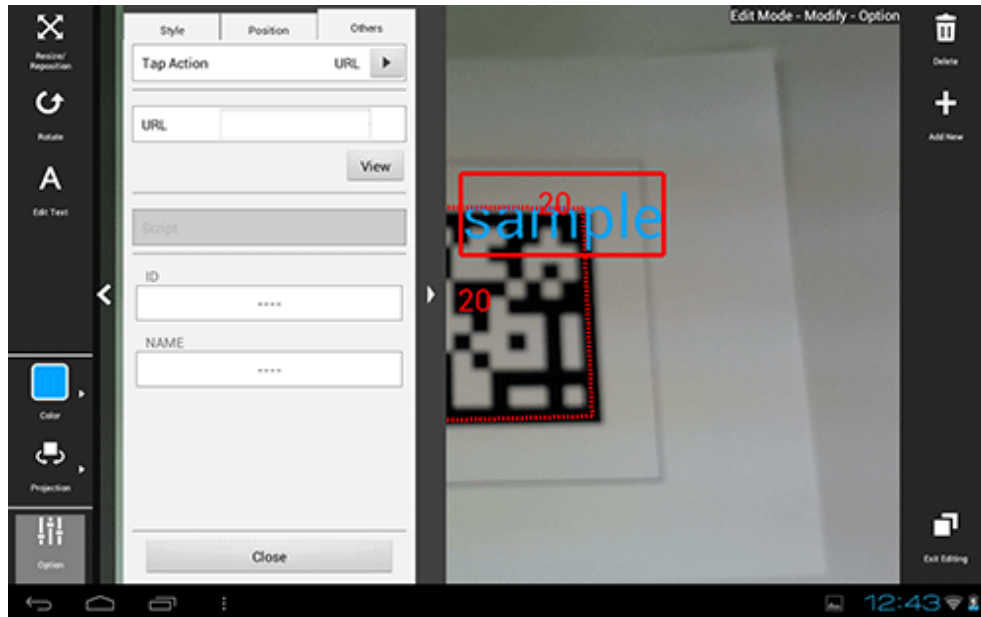
Scale

Enter an integer between 0.1 and 32 for the scaling factor of the AR overlay content. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places). If 2D projection is selected, only the x- and y-axes can be entered.

Others

Configure other information.

Figure 3.24 Settings > Other dialog box



Tap Action

Select the type of tap action from the **URL** or from the **Script**. The specified URL or JavaScript will be called when the AR overlay content is tapped.

If a JavaScript script is specified, then it will be run when the AR overlay application is executed and the content is tapped (note that if the content is tapped during client authoring stage, then the script will not be run, because there is no web layer to execute it, and instead its name will be displayed in a dialog box - note that the dialog box will not be displayed if the script is empty).

URL

Input is possible if **URL** is selected in **Tap Action**. Enter the URL of the file called by the tap action, or click **Browse** to select a file stored on the smart device.

Script

Input is possible if **Script** is selected in **Tap Action**. Enter the JavaScript method and arguments in the AR overlay application that was developed, using up to 256 characters.

ID

The ID information of AR overlay definitions can be checked.

NAME

The names of AR overlay definitions configured in server authoring and client authoring can be checked.

Point

- Existing AR overlay content can be deleted by tapping the **Delete** icon on the **Edit Mode > Modify** screen.
 - If AR overlay content is selected, only the selected content will be deleted.
 - If an AR marker is selected, all AR overlay content associated with that marker will be deleted.
- Tap the **Add New** icon on the **Edit Mode > Modify** screen to navigate to the **Edit Mode > Add New** screen for the selected AR marker.

3.6.2.7 Upload the AR overlay definition

Follow the procedure below to upload the edited AR overlay definition to the server.

If 'Server Data Authoring' was used

1. On the AR view screen action bar, tap the **Upload** icon.
2. In the upload completion message, click **OK**.

If 'Local Data Authoring' was used

1. On the AR view screen action bar, tap the **Back to Scene Selection** icon.
2. Ensure that the smart device is in server connection mode.
If the device is in standalone mode, follow the procedure below to startup in server connection mode:
 1. In the scenario selection screen, tap **Exit** to exit the client authoring tool.
 2. Move to an online environment.
 3. Ensure that the smart device can connect to the AR processing server, and then start the client authoring tool.
 4. From the scenario selection screen, select the scenario.
3. From the scene selection screen, select the scene and then either select **Upload Authoring Data**, or select **Batch** and then click **Upload scene data by batch**.

Point

When uploading data using client authoring, the AR overlay definition name is set to *basicAuthenticationUserId yyyyymmdd hhmmss* (if basic authentication is not being used, then DefaultUser will be used for *basicAuthenticationUserId*).

Example

If basic authentication is being used and the user name is aruser, and the current datetime is 15:05:30 on August 5, 2013, then the AR overlay definition name will be:

```
aruser 20130805 150530
```

Note

- Data can be uploaded only in server connection mode. If authoring is performed in standalone mode, the user must later upload data to the server when in server connection mode.
- The AR overlay definition name will be configured when the data is uploaded, but no AR definition ID will be set. Use the AR overlay definition name to specify AR overlay content.
- The datetime configured at **Update datetime** in the **AR overlay definition list** of the data management console will be the datetime when the data was uploaded.

3.6.2.8 Exit the client authoring tool

On the scenario selection screen action bar, tap **Exit**. The client authoring tool will quit.

3.6.3 Client authoring (iOS)

Follow the procedure below to perform authoring using a smart device (iOS):

1. Start the client authoring tool.
2. From the scenario selection screen, select the scenario.
3. From the scene selection screen, select the scene.
4. On the **Add New** screen, register the AR overlay definition.

5. If required, revise the registered AR overlay definition using the client authoring **Modify** screen.
6. Upload the registered AR overlay definition to the AR processing server.

Point

- Before using the client authoring tool, ensure that the tool has been set up, and that the scenarios and scenes have been registered using the data management console.
- The following tasks must be performed before authoring can be used in an offline environment:
 1. Start the client authoring tool in an online environment.
 2. Select the scenario and scene, and download the data.
 3. Quit the client authoring tool, and move to the location where authoring will be performed.
- The following tasks must be performed before files such as images can be called as AR overlay content or by tap actions.
 1. Using a third-party software, create images that meet the criteria below:
 - MIME type
 - jpeg
 - png
 - Size
 - Maximum: 1024 pixels x 1024 pixels
 - If a file that exceeds the maximum size is specified, the overlay will not be displayed.
 2. Store the created file in:
 - clientAuthoringToolHomeDir*
- Each directory can store up to 30 files. Store additional files in separate directories.
- In **Edit Mode**, select **Exit Editing**, and then in the dialog box, click **Save and exit** to save authoring data as local data. Data will not be saved if the user redirects to a different screen using the **HOME** button or power button on the terminal while the data is in an unsaved state. Data should be saved frequently during editing.

3.6.3.1 Start the client authoring tool

To start the client authoring tool provided by Interstage AR Processing Server, tap **Interstage AR Authoring** in the list of applications on your smart device.

3.6.3.2 Select scenario

From the displayed **Scenario List**, tap the scenario to be selected.

Figure 3.25 Scenario List screen



Point

If required, perform the tasks below.

Update Scenario List

Update the displayed **Scenario List** to the latest information:

1. Tap the **Update Scenario List** icon.
2. The **Download** dialog box will be displayed.
3. The latest scenario information will be displayed in the list.

3.6.3.3 Select scene

Follow the procedure below to select the scene to be edited:

1. From the displayed **Scene List**, tap the scene to be edited.

2. Select either **Server Data Authoring** or **Local Data Authoring** to suit your circumstances. **Server Data Authoring** can only be selected when in server connection mode.

Figure 3.26 Scene List screen



Point

If required, perform the tasks below.

Update Scene List

Update the displayed **Scene List** to the latest information:

1. Tap the **Update Scene List** icon.
2. The **Download** dialog box will be displayed.
3. The latest scene information will be displayed in the list.

Batch content operation

Perform batch operations on scenes registered in the scenario:

1. Tap the **Batch** icon.
2. In the **Batch** dialog box, select **Download scene data by batch** to download data from the server, or **Upload scene data by batch** to upload data.
Note batch downloads discard data saved locally and overwrite it with data saved to the AR processing server. If you do not want data to be overwritten, ensure that uploads are performed first.

3.6.3.4 Navigate to Edit Mode

Select the AR marker to be registered in the AR overlay definition.

1. In the AR view screen, point the camera to the AR marker.
2. Tap the **Edit** icon that is displayed in the action bar after the AR marker has been recognized.

Figure 3.27 AR view screen



Point

In the AR view screen, tap the **Shutter** icon to take a photo of the image currently captured by the camera.

- Images captured by the camera are stored in:
 - Directory:
`/var/mobile/Applications/uniqueAppId/Documents/Files/Pictures`
 - Reference path from **Add File** menu:
`/Files/Pictures`
 - Reference path from iTunes:
`/Files/Pictures`
- AR overlay content is not included in the saved image.

3.6.3.5 Register the AR overlay definition

Follow the procedure below to register the AR overlay definition associated with the selected scene:

Figure 3.28 Edit Mode screen



1. In **Edit Mode**, select the AR marker.
2. The icons below will be displayed in the menu bar. Select the type of AR overlay content to be added.
 - **Add Text**
 - **Add Scribble**
 - **Add Shape**
 - **Add File**

Add Text

Follow the procedure below to add text information:

1. In the menu bar, tap the **Add Text** icon.
2. In the **Add Text** dialog box, enter the information below:
 - **Contents**
Enter the text to be registered using up to 256 characters.
3. Click **Add** to add the text information to the AR marker and navigate to the **Modify** screen.

Note

If text rendering requires a width greater than 1024 pixels (for long text, for example) but **Word wrap** has not been specified, only the text up to 1024 pixels will be rendered, and the remaining text may not be visible.

The calculation formula is shown below. Note that the displayed size may vary according to the character type (such as whether it is a number or a symbol), so the result might not match this formula.

$$\text{- Area height} = \text{fontSize} \times 4 / 3 \times \text{numberOfRowsToBeDisplayed} [\text{pixels}]$$

- Area width = $fontSize \times numberOfCharsToDisplayPerRow$ [pixels]

Add Scribble

Follow the procedure below to add a scribble:

1. In the menu bar, tap the **Add Scribble** icon.
2. The menus below will be added to the menu bar - select the one that suits your needs.
 - **Pen**
Enters a memo as traced on the screen.
 - **Eraser**
Erases a memo as traced on the screen.
 - **Colors**
The pen color can be changed. The user can choose a color and degree of transparency by tapping the RGB slider or the color picker. The currently selected color will be displayed in the center of the color picker. Once the color has been decided, tap the center of the color picker.
3. On the action bar, tap **OK** after entering the memo. Navigate to the **Modify** screen.



Example

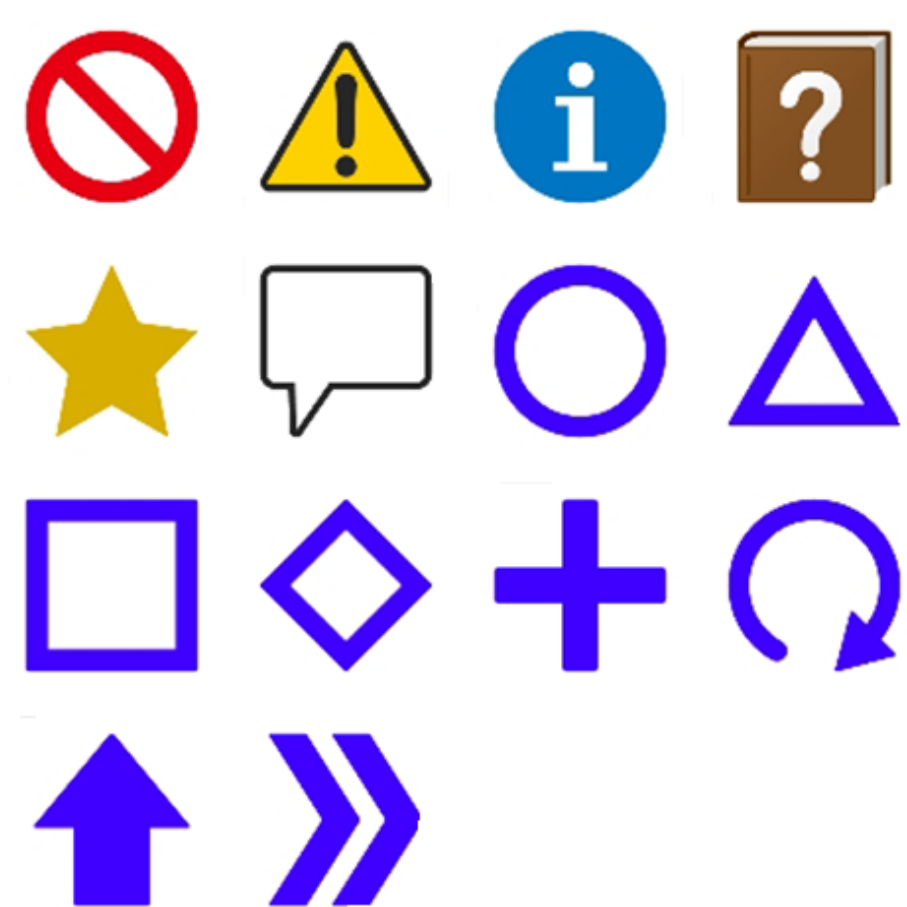
If adding a scribble, ensure that the selected AR marker is reflected in the center of the device display, and is being viewed from the front. If 3D projection is used when the AR marker is not recognized from the front side, the AR overlay content will be generated at an inclination from the AR marker.

Add Shape

Follow the procedure below to add shapes (provided with the product), such as arrows:

1. In the menu bar, tap the **Add Shape** icon.

2. The shapes will be displayed in the menu bar - tap the shape to be overlaid. The selected image will be positioned in the center of the AR marker. Navigate to the **Modify** screen. The following shapes are provided as standard:



Add File

Follow the procedure below to add images or photographs that have been saved locally on the smart device:

1. In the menu bar, tap the **Add File** icon.
2. The **Add File** dialog box will be displayed. Select the file.
3. The selected image will be positioned in the center of the AR marker. Navigate to the **Modify** screen.

Point

Existing AR overlay content can be deleted by tapping the **Delete** icon on the **Edit Mode > Add New** screen.

- If AR overlay content is selected, only the selected content will be deleted.
- If an AR marker is selected, all AR overlay content associated with that marker will be deleted.

3.6.3.6 Edit the AR overlay definition

Follow the procedure below to edit added AR overlay content.

Figure 3.29 Edit Mode > Modify > Resize/Reposition screen



1. Select from the following options on the menu bar:
 - **Resize/Reposition**
 - **Rotate**
 - **Color** (can be modified when the content type is 'text')
 - **Projection**
 - **Option**
2. Tap the **Exit Editing** icon, and then select **Save and exit**.

Point

- Items in the selected content that can be modified will be displayed in the menu.
- **Resize/Reposition** is selected by default.
- Note that when **Rotate** is selected, any operation to switch the "selected" state to another AR overlay content item or AR marker will be invalid. To switch the "selected" state, use an operation other than **Rotate**, such as **Resize/Reposition**.

Resize/Reposition

Modify the position or size of the selected AR overlay content item:

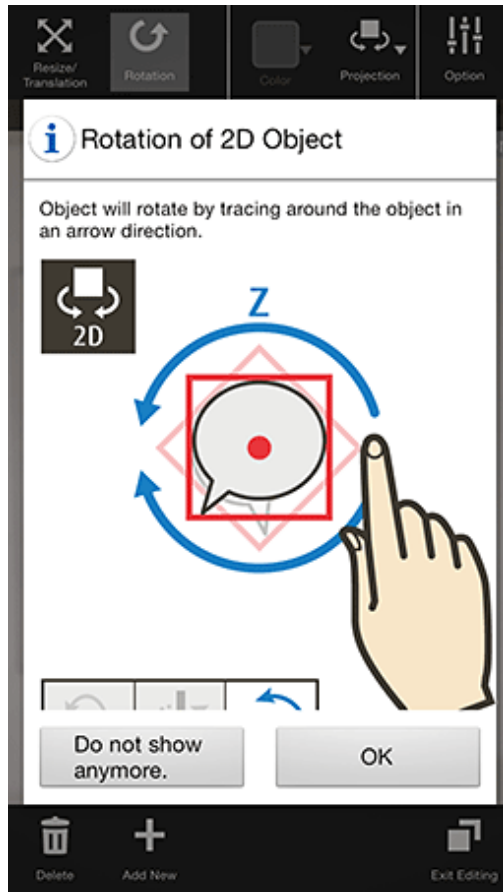
1. In the menu bar, tap the **Resize/Reposition** icon.
2. Pinch or stretch the item to resize it, or drag to reposition it.

Rotate

Rotate the selected AR overlay content item:

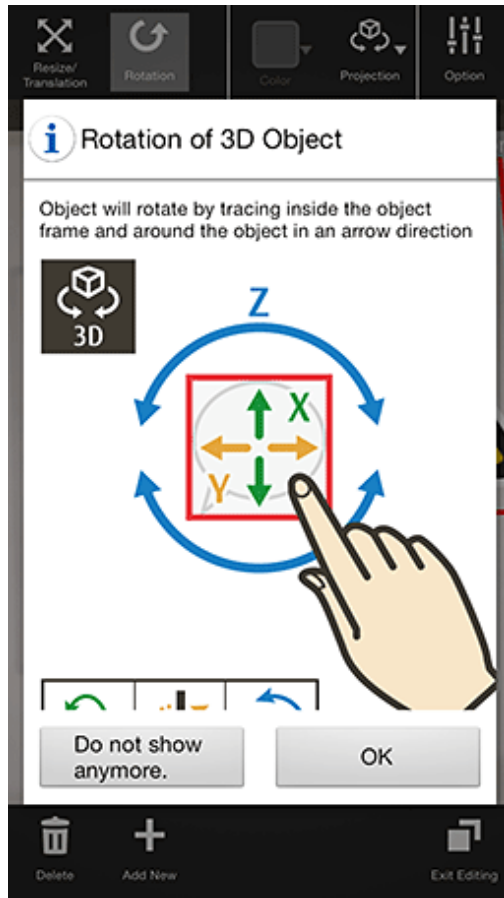
1. In the menu bar, tap the **Rotate** icon.
2. A photography guide will be displayed in accordance with the selected projection mode. Rotate the item as directed.
 - For 2D
Drag the item's perimeter to rotate it on the z-axis.

Figure 3.30 Rotation for 2D projection



- For 3D
Drag the item vertically to rotate it on the x-axis, horizontally for the y-axis, or drag the item's perimeter to rotate it on the z-axis.

Figure 3.31 Rotation for 3D projection



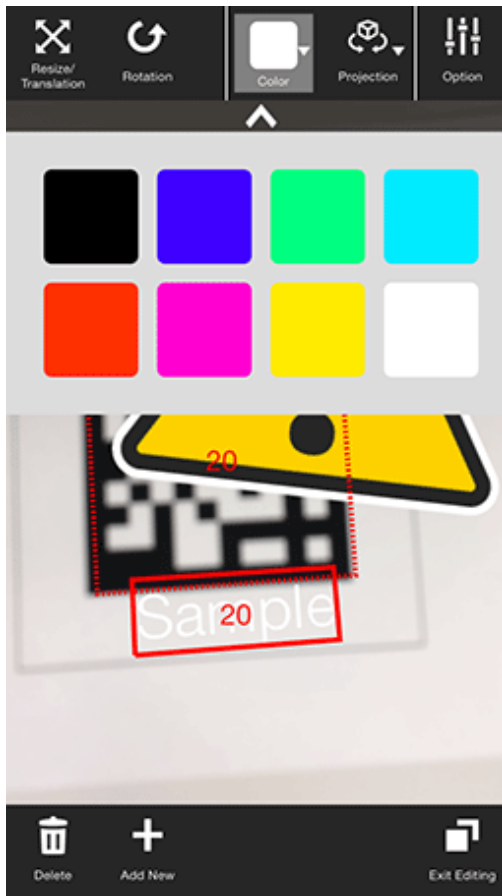
Color

The color can be modified if the AR overlay content type is 'text':

1. In the menu bar, tap the **Color** icon.

2. In the color palette, select a color.

Figure 3.32 Colors menu



Projection

The user can select from 2D or 3D projection for AR overlay content.

Option

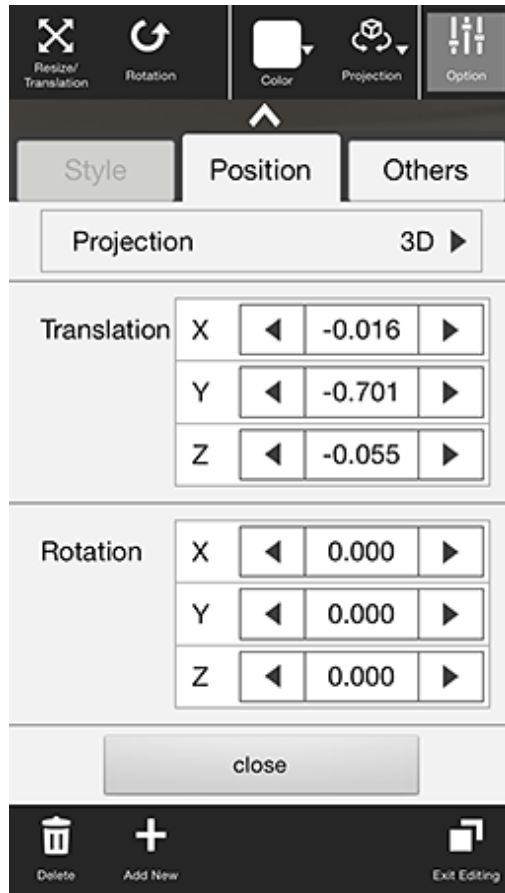
The user can configure detailed information - the displayed content depends on the selected item):

Content	Position	Others
Text	- Projection	- Tap Action
Scribble	- Rotation	- AR overlay
Shape	- Scale	definition
File		information

Position

Position information can be configured.

Figure 3.33 Settings > Position dialog box



Projection

The user can switch between 2D and 3D projection for AR overlay content.

Translation

Enter the x-, y-, and z-coordinates of the position to display the AR overlay content, using integers between -32 and +32, based on the AR marker. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).

l=size of the AR marker body

Rotation

Enter an integer between -360 and +360 for the rotation angle of the AR overlay content. If 2D projection is selected, only the z-axis can be entered. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).

Scale

Enter an integer between 0.1 and 32 for the scaling factor of the AR overlay content. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places). If 2D projection is selected, only the x- and y-axes can be entered.

Others

Configure other information.

Figure 3.34 Settings > Other dialog box



Tap Action

Select the type of tap action from the **URL** or from the **Script**. The specified URL or JavaScript will be called when the AR overlay content is tapped.

If a JavaScript script is specified, then it will be run when the AR overlay application is executed and the content is tapped (note that if the content is tapped during client authoring stage, then the script will not be run, because there is no web layer to execute it, and instead its name will be displayed in a dialog box - note that the dialog box will not be displayed if the script is empty).

URL

Input is possible if **URL** is selected in **Tap Action**. Enter the URL of the file called by the tap action, or click **Browse** to select a file stored on the smart device.

Script

Input is possible if **Script** is selected in **Tap Action**. Enter the JavaScript method and arguments in the AR overlay application that was developed, using up to 256 characters.

ID

The ID information of AR overlay definitions can be checked.

NAME

The names of AR overlay definitions configured in server authoring and client authoring can be checked.

Point

- Existing AR overlay content can be deleted by tapping the **Delete** icon on the **Edit Mode > Modify** screen.
- If AR overlay content is selected, only the selected content will be deleted.

- If an AR marker is selected, all AR overlay content associated with that marker will be deleted.
- Tap the **Add New** icon on the **Edit Mode > Modify** screen to navigate to the **Edit Mode > Add New** screen for the selected AR marker.

3.6.3.7 Upload the AR overlay definition

Follow the procedure below to upload the edited AR overlay definition to the server:

If 'Server Data Authoring' was used

1. On the AR view screen action bar, tap the **Upload** icon.
2. In the upload completion message, click **OK**.

If 'Local Data Authoring' was used

1. On the AR view screen action bar, tap the **Back to Scene Selection** icon.
2. Ensure that the smart device is in server connection mode.

If the device is in standalone mode, follow the procedure below to startup in server connection mode:

1. In the scenario selection screen, tap **Exit** to exit the client authoring tool.
 2. Move to an online environment.
 3. Ensure that the smart device can connect to the AR processing server, and then start the client authoring tool.
 4. From the scenario selection screen, select the scenario.
3. From the scene selection screen, select the scene and then either select **Upload Authoring Data**, or select **Batch** and then click **Upload scene data by batch**.

Point

When uploading data using client authoring, the AR overlay definition name is set to *basicAuthenticationUserId yyyyymmdd hhmmss* (if basic authentication is not being used, then DefaultUser will be used for *basicAuthenticationUserId*).

Example

If basic authentication is being used and the user name is aruser, and the current datetime is 15:05:30 on August 5, 2013, then the AR overlay definition name will be:

```
aruser 20130805 150530
```

Note

- Data can be uploaded only in server connection mode. If authoring is performed in standalone mode, the user must later upload data to the server when in server connection mode.
- The AR overlay definition name will be configured when the data is uploaded, but no AR definition ID will be set. Use the AR overlay definition name to specify AR overlay content.
- The datetime configured at **Update datetime** in the **AR overlay definition list** of the data management console will be the datetime when the data was uploaded.

3.6.3.8 Exit the client authoring tool

On the scenario selection screen action bar, tap **Exit**. The client authoring tool will quit.

Chapter 4 Managing data during system operation

Markers, scenarios, AR overlay definition data types, files, and AR overlay definitions can be edited while operating the system on the Interstage AR Processing Server.

This chapter explains the data management tasks required during operations.

4.1 Task list

This section explains the basic tasks that must be performed during operation of Interstage AR Processing Server.

Manage AR markers

Assign AR markers

Add AR markers to previously unused locations, in the event that there is an increase in the equipment or procedures of the system.

Edit AR markers

Modify location, state, or alias of an AR marker.

Disable AR markers

Physically delete existing AR markers from the equipment and change their state using the data management console.

Replace AR markers

If an installed AR marker should become damaged, then download it, print it, and then affix it again.

Manage scenarios

Add scenarios

Add scenarios to the system.

Edit scenarios

Modify registered scenario information.

Delete scenarios

Delete scenarios.

Manage scenes

Add scenes

Add scenes to the system.

Edit scenes

Modify registered scene information.

Delete scenes

Delete scenes from a scenario.

Manage user-defined tables

Add user-defined tables

Add user-defined tables and attached data to the system.

Edit user-defined tables

Add, edit, and delete user-defined tables and attributes.

Delete user-defined tables

Delete user-defined tables.

Manage AR overlay definitions

Add AR overlay definitions

Add AR overlay definitions to markers.

Edit AR overlay definitions

Modify to marker size or position.

Delete AR overlay definitions

Delete AR overlay definitions associated with markers.

Manage files

Register files

Register files in the system.

Delete files

Delete registered files.

Manage logs

Modify whether to output logs, and the directory to output them to.

Delete resources

Delete data such as resource information from smart devices.



.....
Note that the most recent data may not be displayed when the user clicks **Back** in the browser while using the data management console. Before performing tasks, click **Refresh**, to ensure that the most recent data is available.
.....

4.2 Assign AR markers

AR markers can be added to previously unused locations in the event that there is an increase in target work sites for the system.

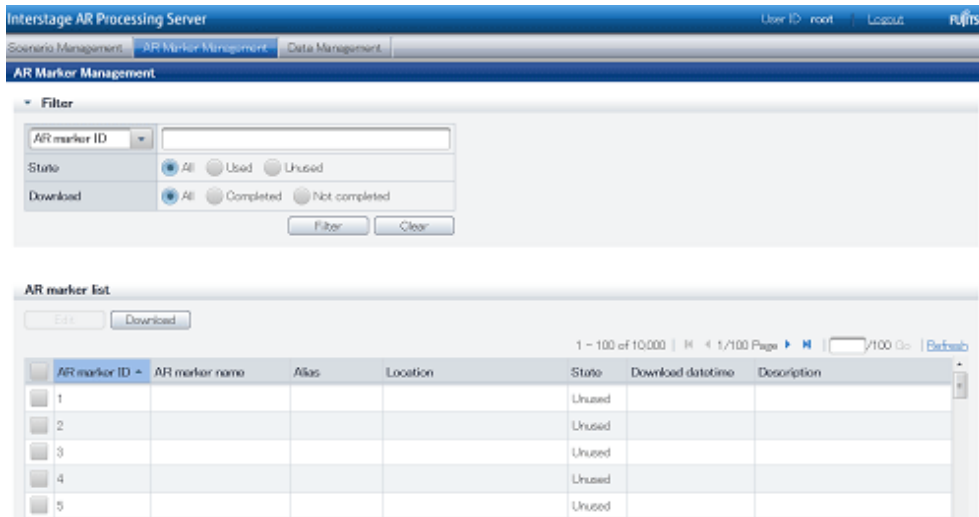
Follow the procedure below to assign an AR marker:

1. Search for the relevant AR marker using the data management console.
2. Modify the AR marker information.
3. Download the AR marker.
4. Print the downloaded AR marker.

4.2.1 Search for AR markers

Using the data management console, select the AR marker.

Figure 4.1 AR marker list window

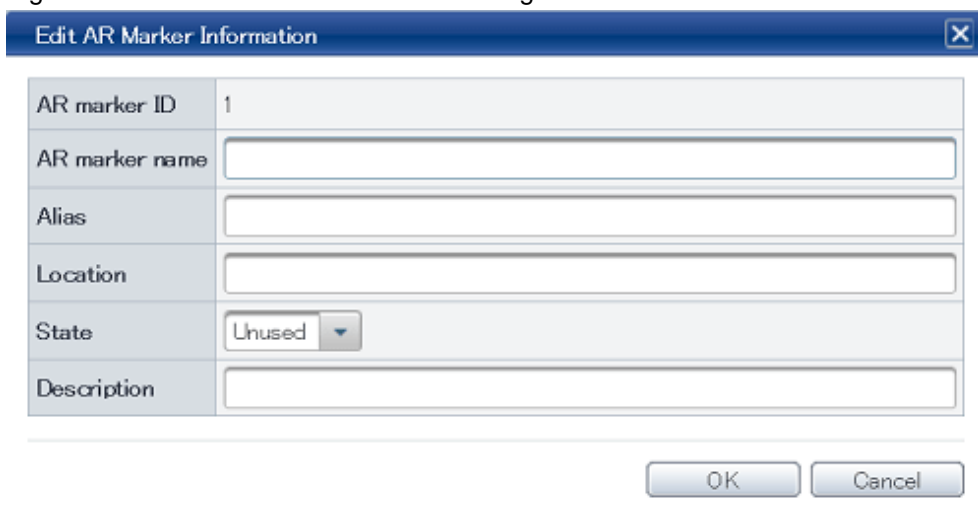


1. From the data management console, select **AR Marker Management**.
2. Search for the AR marker in **AR Marker Management**:
 - Search for markers by filtering
 - Search for an exact match (case-sensitive) using the attributes **AR marker ID**, **AR marker name**, **Alias**, or **Location** (leaving the field empty causes all results to be displayed).
 - For the **State** attribute, the user can filter their search by selecting **All**, **Used**, or **Unused**.
 - For the **Download** attribute, the user can filter their search by selecting **All**, **Completed**, or **Not completed**.
 - Search by page number redirection
100 AR markers are listed per page - this enables the user to move up or down a particular page to locate a specific AR marker.

4.2.2 Edit AR marker information

Using the data management console, edit the AR marker data.

Figure 4.2 Edit AR Marker Information dialog box



1. From the data management console, select **AR Marker Management**.
2. In the **AR marker list**, select the check box of the AR marker, and then click **Edit**.

3. In **Edit AR marker information**, modify the data below:

- **AR marker name**

If required, the data administrator can enter a name to distinguish the AR marker (up to 30 characters).

- **Alias**

If required, alias information can be entered (up to 30 characters) to allow external systems to identify an AR marker.

- **Location**

If required, the marker location can be entered (up to 30 characters).

- **State**

Change to **Used**.

- **Description**

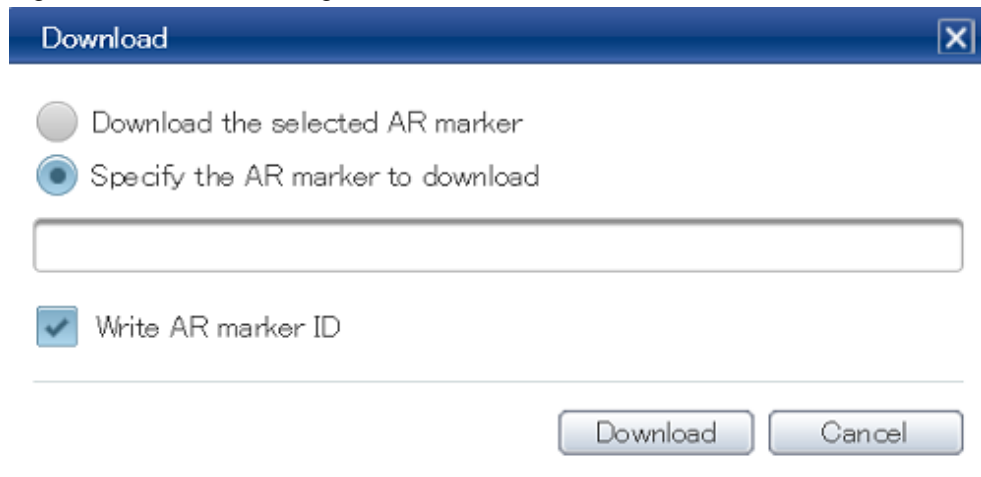
If required, enter a memo or description using up to 256 characters.

4. Click **OK**.

4.2.3 Download AR markers

Download the AR markers as image files.

Figure 4.3 Download dialog box



To download, select one of the following methods:

Download by selecting a check box

1. From the data management console, select **AR Marker Management**.
2. In the **AR marker list**, select the AR marker check box.
3. Click **Download**.
4. In the **Download** dialog box, ensure that **Download the selected AR marker** is selected.
5. If adding an AR marker ID area, then select **Write AR marker ID**.
6. Click **Download**.

Download by specifying the marker ID

1. From the data management console, select **AR Marker Management**.
2. Click **Download**.
3. In the **Download** dialog box, select **Specify the AR marker ID to download**.

4. Specify the AR marker ID in the input field using up to 256 characters - the formats below can be used:
- For a single ID - *number*
 - For a range of IDs - [*startNumber-endNumber*]
 - For multiple IDs - *number,number*



Example

For example, to download IDs 1 to 3, and 5:

Enter [1-3,5]

5. If specifying an AR marker ID area, then select **Write AR marker ID**.
6. Click **Download**.



Note

Up to 1,000 AR markers can be downloaded at once.

4.2.4 Print AR markers

Print the downloaded AR markers. Printing can be performed using your regular printer.



Point

- Select paper and ink for printing the AR markers, taking into account whether the environment where they will be installed requires waterproof or luminescent properties.
- Your regular image editing software can be used to change the AR marker size or to add input such as IDs.
- If changing the size, ensure that an aspect ratio of 1:1 is maintained.



Note

- Actual AR marker recognition performance will vary depending on the camera performance of the smart device used, as well as the usage environment and print quality of the AR marker. Accordingly, check in advance the recognition performance of the smart device that will be used.
- Recognition performance may decrease if the AR marker is printed with a glossy finish.
- With the exception of the ID area, absolutely no additions must be made to the marker body or margins, such as with a pen, which could cause changes to the color or glossiness. Such changes could cause decreased recognition performance of the AR marker, or it could be recognized incorrectly or not at all.
- Ensure as much as possible that operations do not cause the body or margins of the AR marker to become dirty. If a marker is known to have decreased recognition performance because it is dirty, clean or replace it immediately.

4.3 Edit AR markers

Using the data management console, modify the registered content or state of an AR marker:

1. From the data management console, select **AR Marker Management**.
2. In the **AR marker list**, select the AR marker check box, and then click **Edit**.

3. In **Edit AR marker information**, modify the data below:
 - **AR marker name**
Modify to suit the circumstances. Up to 30 characters can be entered.
 - **Alias**
Modify to suit the circumstances. Up to 30 characters can be entered.
 - **Location**
Modify to suit the circumstances. Up to 30 characters can be entered.
 - **State**
Modify to suit the circumstances.
 - **Description**
Modify to suit the circumstances. Up to 256 characters can be entered.
4. Click **OK**.

4.4 Disable AR markers

Using the data management console, disable AR markers provisionally held for testing or operations:

1. From the data management console, select **AR Marker Management**.
2. In the **AR marker list**, select the AR marker check box, and then click **Edit**.
3. In **Edit AR marker information**, modify the data below:
 - **AR marker name**
Delete the marker name.
 - **Alias**
Delete the marker alias name.
 - **Location**
Delete the marker location.
 - **State**
Change to **Unused**.
 - **Description**
Enter or delete information as required.
4. Click **OK**.

4.5 Replace AR markers

If an installed AR marker should become damaged, download and print it again and then affix it to the target location.

1. Using the data management console, download the AR marker (refer to "[4.2.3 Download AR markers](#)" for details).
2. Print the AR marker, and then affix it again on-site (refer to "[4.2.4 Print AR markers](#)" for details).

4.6 Add scenarios

Using the data management console, enter the scenario data:

1. Access the data management console.
2. Select the **Scenario Management** tab.
3. Click **Add**.

4. In the **Add Scenario** dialog box, enter the information below:
 - **Scenario ID**
Enter an integer between 1 and 999 (the value cannot be already allocated to another scenario ID).
 - **Scenario name**
Enter up to 30 characters for the scenario name.
 - **Description**
Enter up to 256 characters for the scenario description, as required.
5. Click **OK**.



Up to 100 scenarios can be created for a single system.

4.7 Edit scenarios

Using the data management console, edit the scenario (only **Scenario name** and **Description** can be edited):

1. Access the data management console.
2. Select the **Scenario Management** tab.
3. In the **Scenario list**, select the scenario check box, and then click **Edit**.
4. In the **Edit Scenario** dialog box, revise the applicable content.
 - **Scenario ID**
The Scenario ID will be displayed. This value cannot be revised.
 - **Scenario name**
Revise the Scenario name using up to 30 characters.
 - **Description**
Revise the scenario description using up to 256 characters, as required.
5. Click **OK**.

4.8 Delete scenarios

Using the data management console, delete the scenario:

1. Access the data management console.
2. Select the **Scenario Management** tab.
3. In the **Scenario list**, select the scenario, and then click **Delete**.
4. In the **Remove** dialog box, click **OK**.



If a scenario is deleted, all scenes and AR overlay definitions associated with that scenario will also be deleted. Ensure that this data is backed up before deleting.

4.9 Register sceness

Using the data management console, enter the scene data:

1. Access the data management console.

2. Select the **Scenario Management** tab.
3. From the **Scenario list**, select the name of the scenario that the scenes will be added to.
4. **Scene list** will be displayed in the scenario details window. Click **Add**.
5. In the **Add Scene** dialog box, enter the information below:
 - **Scene ID**
Enter an integer between 1 and 99999 (the value cannot be already allocated to another scene in the same scenario).
 - **Scene name**
Enter up to 30 characters for the scene name, as required.
 - **Description**
Enter up to 256 characters for the scene description, as required.
6. Click **OK**.



Note

Up to 100 scenes can be created for a single scenario.

4.10 Edit scenes

Using the data management console, edit scene data:

1. Access the data management console.
2. Select the **Scenario Management** tab.
3. In the **Scenario list**, select the scenario.
4. In the **Scene list**, select the scene, and then click **Edit**.
5. In the **Edit Scene** dialog box, enter the information below:
 - **Scene ID**
The scene ID will be displayed. This value cannot be revised.
 - **Scene name**
Revise the scene name using up to 30 characters, as required.
 - **Description**
Revise the scene description using up to 256 characters, as required.
6. Click **OK**.

4.11 Delete scenes

Using the data management console, delete scenes from the system:

1. Access the data management console.
2. Select the **Scenario Management** tab.
3. In the **Scenario list**, select the scenario.
4. In the **Scene list**, select the scene, and then click **Delete**.
5. Click **OK**.

Note

If a scene is deleted, the AR overlay definition associated with that scene will also be deleted. Ensure that this data is backed up before deleting.

4.12 Create user-defined tables

User-defined tables can be created for the system.

Point

- The client authoring feature cannot be used with information in user-defined tables created by the user.
- Up to 100 tables can be created.
- Up to 30 attributes can be added per table.

Using the data management console, create a user-defined table:

1. Access the data management console.
2. Select the **Data Management** tab, and then select **User-defined Table**.
3. From the **User-defined Table Management** window, select **Add** and enter the values below:

- **User-defined table name**
Enter the name of the user-defined table using up to 30 characters.

Note

The following table names are used by the product, and cannot be used for user-defined tables:

- arscn_scenario
- arsen_scene
- armk_fjarmarker
- arpoiarmk_default

- **Description**
Enter a description for the user-defined table using up to 256 characters.

4. Click **Add**, and then create the required attributes.

- **Attribute name**
Enter the name of the attribute using up to 30 characters.
- **Data type**
The following types can be used for attributes created using **Add**:
 - LONG type
 - STRING type
 - FLOAT type
- **Display order**
Enter an appropriate value to change the display order of an added attribute.
- **Description**
If required, enter a memo or description using up to 256 characters.

5. Click **OK**.

6. From the **User-defined Table Management** window, select the name of the user-defined table that was created.
7. Click **Add**, and enter the required data in the **Add Data** dialog box.

4.13 Edit user-defined tables

Using the data management console, edit user-defined tables:

1. Access the data management console.
2. Select the **Data Management** tab, and then select **User-defined Table**.
3. Perform the relevant tasks below in accordance with the content to be edited.

To edit the Description or Attributes

1. Select the user-defined table, and then click **Edit**.
2. Revise the **Attributes** or **Description** as required.
 - **Description**
Enter the description for the table using up to 256 characters.
 - **Attributes**
 - **Edit**
Select the attribute, click **Edit**, and then edit **Display order** or **Description**.
 - **Delete**
Select the attribute check box, and then click **Delete** - in the **Delete data** dialog box, check the details, and then click **OK**.
3. Click **OK**.

To edit data

1. Select the user-defined table.
2. Edit as required.
 - **Add**
Click **Add** - in the **Add Data** dialog box, enter the required data for the data table.
 - **Edit**
Select a data item, and then click **Edit** - in the **Edit Data** dialog box, revise the relevant value.
 - **Remove**
Select the check boxes, and then click **Remove** - in the **Delete data** dialog box, check the details, and then click **OK**.

4.14 Delete user-defined tables

Using the data management console, delete a user-defined table from the system:

1. Access the data management console.
2. Select the **Data Management** tab, and then select **User-defined Table**.
3. From the list, select the table to be deleted, and then click **Delete**.
4. Click **OK**.



Deleting a user-defined table also deletes all data managed by it, therefore ensure that the system is backed up before deleting.

4.15 Add AR overlay definitions

Use server authoring or client authoring to create and associate AR overlay definitions with scenes on the system.

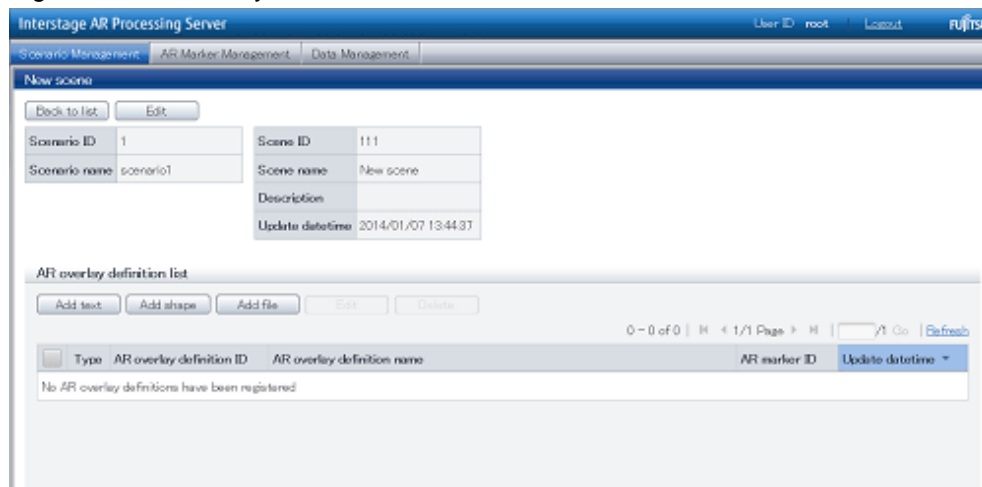
Note

- Up to 100 AR overlay definitions can be added to a single scene.
- Data created using server authoring can be edited using client authoring.

4.15.1 Server authoring

The server authoring procedure is as follows:

Figure 4.4 AR overlay definition list



1. Access the data management console.
2. Select the **Scenario Management** tab.
3. From the **Scenario list**, select the **Scenario name**.
4. From the **Scene list**, select the **Scene name**.
5. From the **AR overlay definition list**, select the type of AR overlay content to be added.
Available content types are as follows:

- **Add text**
- **Add shape**
- **Add file**

Add text

Follow the procedure below to add text information:

1. Enter the basic information, and then click **Next**.
 - **AR overlay definition name (optional)**
Enter the name of the AR overlay definition using between 0 and 30 characters.
 - **AR marker ID**
Enter the ID of the marker for the overlay. The default ID number is "1".
 - **Scenario ID**
The selected scenario ID will be displayed.

- **Scenario name**
The selected scenario name will be displayed.
- **Scene ID**
The selected scene ID will be displayed.
- **Scene name**
The selected scene name will be displayed.

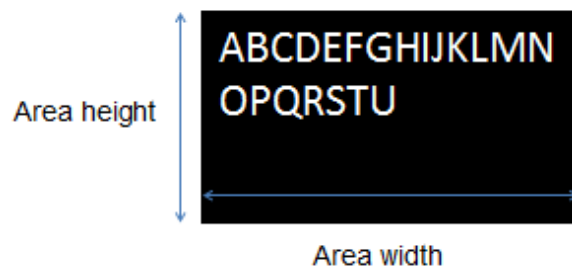
2. Enter the text information, and then click **Next**.

- **Text** (required)
Enter up to 256 characters for the text to be overlaid.
- **Font size** (required)
Specify an integer between 10 and 750 pt for the font size. The default is 40 pt.
- **Font color** (required)
Select the text color using the color picker, and specify the transparency by entering an integer between 0 and 255 in the input field.
- **Background color** (required)
Select the background color using the color picker, and specify the transparency by entering an integer between 0 and 255 in the input field.
- **Word wrap** (required)
Select whether to wrap text information.
- **Area height** (required when **Word wrap** is selected)
If **Word wrap** is selected, specify a numeric value between 10 and 1024 pixels for the area height.
- **Area width** (required when **Word wrap** is selected)
If **Word wrap** is selected, specify a numeric value between 10 and 1024 pixels for the area width.

Figure 4.5 Font color: #FFFFFF; background color: #000000; Word wrap: this example shows text rendering when Word wrap is not selected



Figure 4.6 Font color: #FFFFFF; background color: #000000; Word wrap: this example shows text rendering when Word wrap is selected



 **Note**

If text rendering requires a width greater than 1024 pixels (for long text, for example) but **Word wrap** has not been specified, only the text up to 1024 pixels will be rendered, and the remaining text may not be visible.

If entering text that requires a width greater than 1024 pixels, select **Yes** to wrap AR text content. Then, set the height, width, and font size for the area, and adjust to ensure that all the text is displayed.

The calculation formula is shown below. Note that the displayed size may vary according to the character type (such as whether it is a number or a symbol), so the result might not match this formula.

- Area height = $fontSize \times 4 / 3 \times numberOfRowsToBeDisplayed$ [pixels]
- Area width = $fontSize \times numberOfCharsToDisplayPerRow$ [pixels]

3. Enter the position information, and then click **Next**.

- **Projection type**
Select 2D or 3D according to the content.
- **Translation**
Enter the coordinate of the position to display the AR overlay content, using a numeric value between -32 and +32, using the AR marker as a basis. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).
l=size of the AR marker body
- **Rotation**
Enter a value between -360 and +360 for the rotation angle of the AR overlay content. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).
- **Scale**
Enter a value between 0.1 and 32 for the scaling factor of the AR overlay content. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).

4. If required, click **Use tap action**, configure settings for the URL or script, and then click **OK**. The specified URL or JavaScript will be called when the AR overlay content is tapped.

- **URL**
Enter the URL of the file to be called by the tap action using up to 256 characters.
- **Script**
Enter the JavaScript method and arguments to be called by the tap action using up to 256 characters.

Add shape

Follow the procedure below to add a shape:

1. Enter the basic information, and then click **Next**.

Modify the ID and AR overlay definition name of the AR marker.

- **AR overlay definition name**
Enter between 0 and 30 characters for the AR overlay definition name.
- **AR marker ID**
Enter the ID of the marker for the overlay. The default ID number is "1".
- **Scenario ID**
The selected scenario ID will be displayed.
- **Scenario name**
The selected scenario name will be displayed.
- **Scene ID**
The selected scene ID will be displayed.
- **Scene name**
The selected scene name will be displayed.

2. From the list, select the shape, and then click **Next**.

3. Enter the position information, and then click **Next**.

- **Projection type**
Select 2D or 3D according to the content.
- **Translation**
Enter the coordinate of the position to display the AR overlay content, using an integer between -32 and +32, using the AR marker as a basis. Up to three decimal places can be specified (values with more than

3 decimal places will be rounded to three decimal places).
l=size of the AR marker body

- **Rotation**

Enter an integer between -360 and +360 for the rotation angle of the AR overlay content. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).

- **Scale**

Enter an integer between 0.1 and 32 for the scaling factor of the AR overlay content. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).

4. If required, click **Use tap action**, configure settings for the URL or script, and then click **OK**. The specified URL or JavaScript will be called when the AR overlay content is tapped.

- **URL**

Enter the URL of the file to be called by the tap action using up to 256 characters.

- **Script**

Enter the JavaScript method to be called by the tap action using up to 256 characters.

Add file

Follow the procedure below to add a file:



Note

- Files that can be used as AR overlay content are shown below:

- image/jpeg or image/png
- Size up to 1024 x 1024 pixels

1. Enter the basic information, and then click **Next**.

Modify the ID and AR overlay definition name of the AR marker.

- **AR overlay definition name**

Enter between 0 and 30 characters for the AR overlay definition name.

- **AR marker ID**

Enter the ID of the marker for the overlay. The default ID number is "1".

- **Scenario ID**

The selected scenario ID will be displayed.

- **Scenario name**

The selected scenario name will be displayed.

- **Scene ID**

The selected scene ID will be displayed.

- **Scene name**

The selected scene name will be displayed.

2. Enter the file URL, and then click **Next**.

Confirm the file URL from the file that was registered at **Data Management, File**.

3. Enter the position information, and then click **Next**.

- **Projection type**

Select 2D or 3D according to the content.

- **Translation**

Enter the coordinate of the position to display the AR overlay content, using an integer between -32 and +32, using the AR marker as a basis. Up to three decimal places can be specified (values with more than

3 decimal places will be rounded to three decimal places).
l=size of the AR marker frame

- **Rotation**

Enter an integer between -360 and +360 for the rotation angle of the AR overlay content. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).

- **Scale**

Enter an integer between 0.1 and 32 for the scaling factor of the AR overlay content. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).

4. If required, click **Use tap action**, configure settings for the URL or script, and then click **OK**. The specified URL or JavaScript will be called when the AR overlay content is tapped.

- **URL**

Enter the URL of the file to be called by the tap action using up to 256 characters.

- **Script**

Enter the JavaScript method to be called by the tap action using up to 256 characters.

4.15.2 Client authoring (Android)

Follow the procedure below to perform client authoring using a smart device (Android):

1. Start the client authoring tool.
2. From the scenario selection screen, select the scenario.
3. From the scene selection screen, select the scene.
4. On the **Add New** screen, register the AR overlay definition.
5. If required, revise the registered AR overlay definition using the client authoring **Modify** screen (refer to "[4.16.2 Client authoring \(Android\)](#)" for details).
6. Tap the **Exit Editing** icon, and then select **Save and exit**.
7. Upload the registered AR overlay definition to the AR processing server.

Point

- Before using the client authoring tool, ensure that the tool has been set up, and that the scenarios and scenes have been registered using the data management console.
- The following tasks must be performed before authoring can be used in an offline environment:
 1. Start the client authoring tool in an online environment.
 2. Select the scenario and scene, and download the data.
 3. Quit the client authoring tool, and move to the location where authoring will be performed.
- The following tasks must be performed before files such as images can be called as AR overlay content or by tap actions.
 1. Using a third-party software, create images that meet the criteria below:
 - MIME type
 - jpeg
 - png
 - Size
 - Maximum: 1024 pixels x 1024 pixels
 - If a file that exceeds the maximum size is specified, the overlay will not be displayed.

2. Store the created file in:

internalStorage/Android/data/packageName/files/authoring

- For client authoring, the package name is:
com.fujitsu.interstage.ar.mobileclient.android.authoring.app
 - If the package name is changed, specify the package name of the current application.
 - The directory *internalStorage/Android/data/packageName/files/authoring* is created when using the client authoring tool in **Edit Mode**, and one or more photos are taken by tapping the **Shutter** icon.
 - Each directory can store up to 30 files. Store additional files in separate directories.
 - In **Edit Mode**, select **Exit Editing**, and then in the dialog box, click **Save and exit** to save authoring data as local data. Data will not be saved if the user redirects to a different screen using the **HOME** button or power button on the device while the data is in an unsaved state. Data should be saved frequently during editing.
-

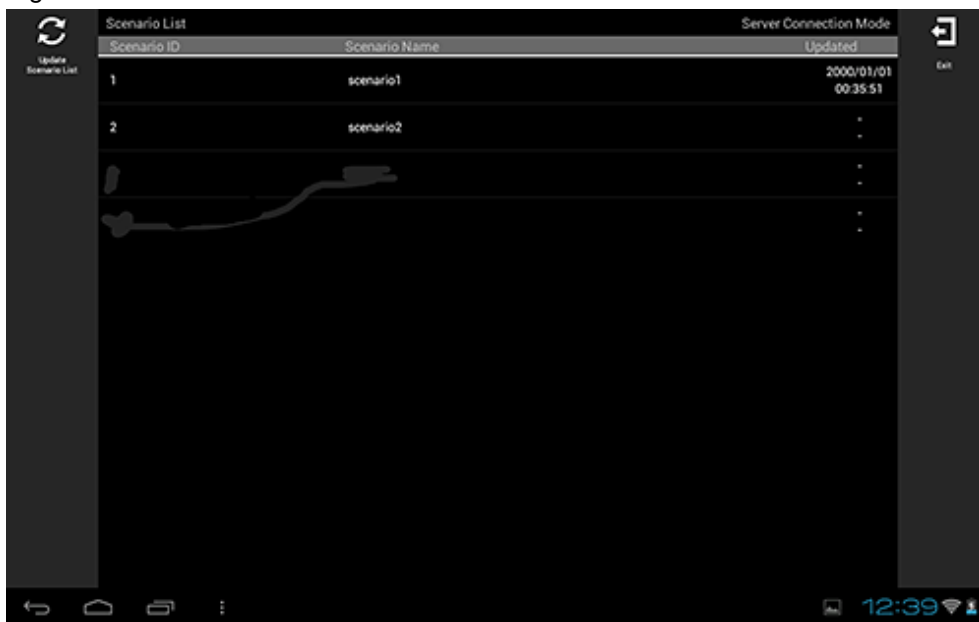
4.15.2.1 Start the client authoring tool

To start the client authoring tool provided by Interstage AR Processing Server, tap **Interstage AR Authoring** in the list of applications on your smart device. If the **Interstage AR Dev** icon is selected, tap it and then select **AR Client Authoring**.

4.15.2.2 Select scenario

From the displayed **Scenario List**, tap the scenario.

Figure 4.7 Scenario List screen



Point

.....

If required, perform the tasks below.

Update Scenario List

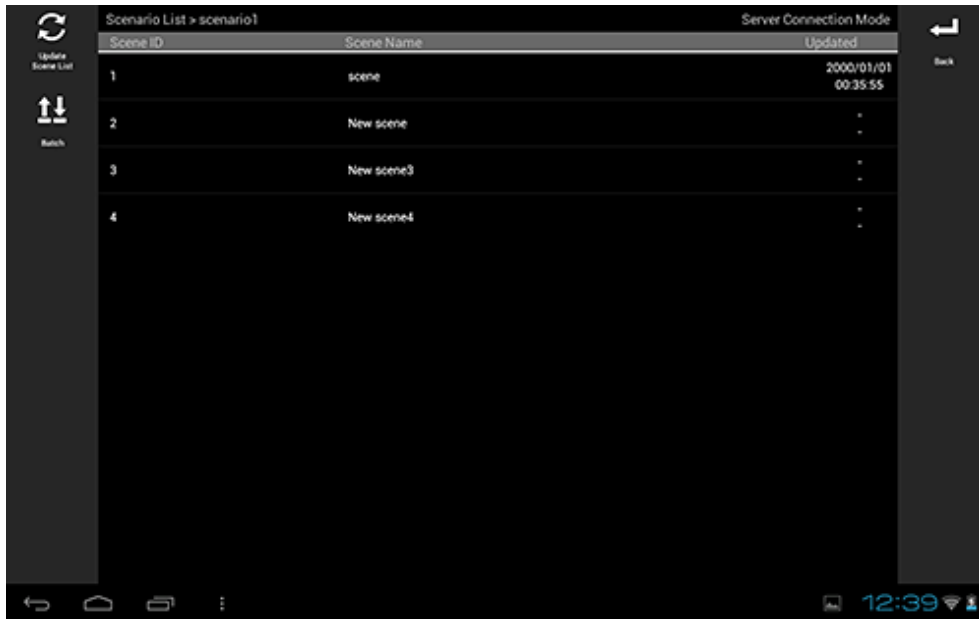
Update the displayed **Scenario List** to the latest information:

1. Tap the **Update Scenario List** icon.
 2. The **Download** dialog box will be displayed.
 3. The latest scenario information will be displayed in the list.
-

4.15.2.3 Select scene

Follow the procedure below to select the scene.

Figure 4.8 Scene List screen



1. From the displayed **Scene List**, tap the scene.
2. Select either **Server Data Authoring** or **Local Data Authoring** to suit your circumstances. **Server Data Authoring** can only be selected when in server connection mode.

Point

If required, perform the tasks below.

Update Scene List

Update the displayed **Scene List** to the latest information:

1. Tap the **Update Scene List** icon.
2. The **Download** dialog box will be displayed.
3. The latest scene information will be displayed in the list.

Batch content operation

Perform batch operations on scenes registered in the scenario:

1. Tap the **Batch** icon.
2. In the **Batch** dialog box, select **Download scene data by batch** to download data from the server, or **Upload scene data by batch** to upload data.
Note batch downloads discard data saved locally and overwrite it with data saved to the AR processing server. If you do not want data to be overwritten, ensure that uploads are performed first.

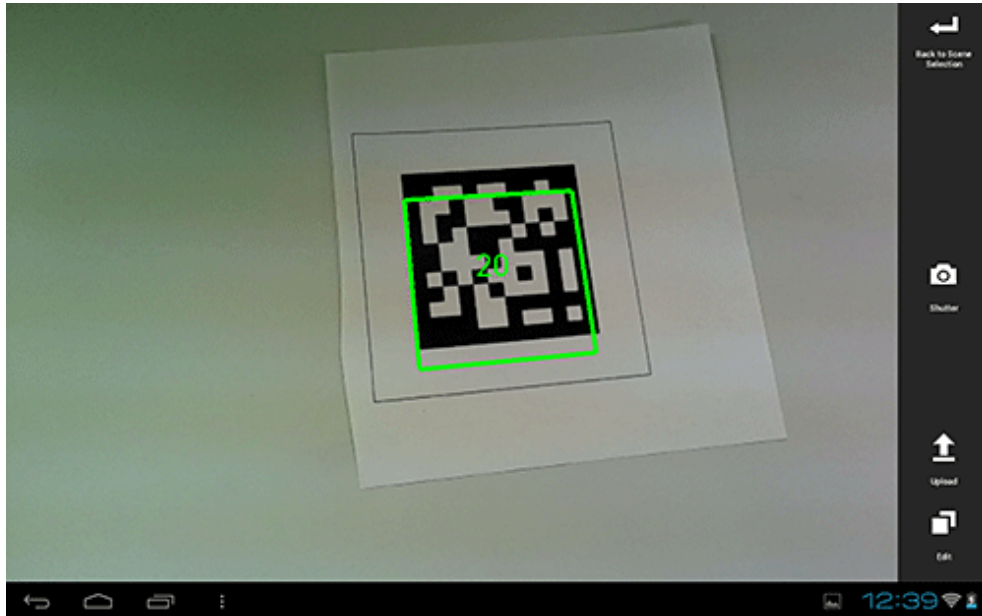
4.15.2.4 Navigate to Edit Mode

Follow the procedure below to select the AR marker to be registered in the AR overlay definition:

1. In the AR view screen, point the camera to the AR marker.

2. Tap the **Edit** icon that is displayed in the action bar after the AR marker has been recognized.

Figure 4.9 AR view screen



Point

In the AR view screen, tap the **Shutter** icon to take a photo of the image currently captured by the camera.

- Images captured by the camera are stored in:
internalStorage/Android/data/packageName/files/authoring/Pictures
- For client authoring, the package name is:
com.fujitsu.interstage.ar.mobileclient.android.authoring.app
- If the package name is changed, specify the package name of the current application.
- AR overlay content is not included in the saved image.

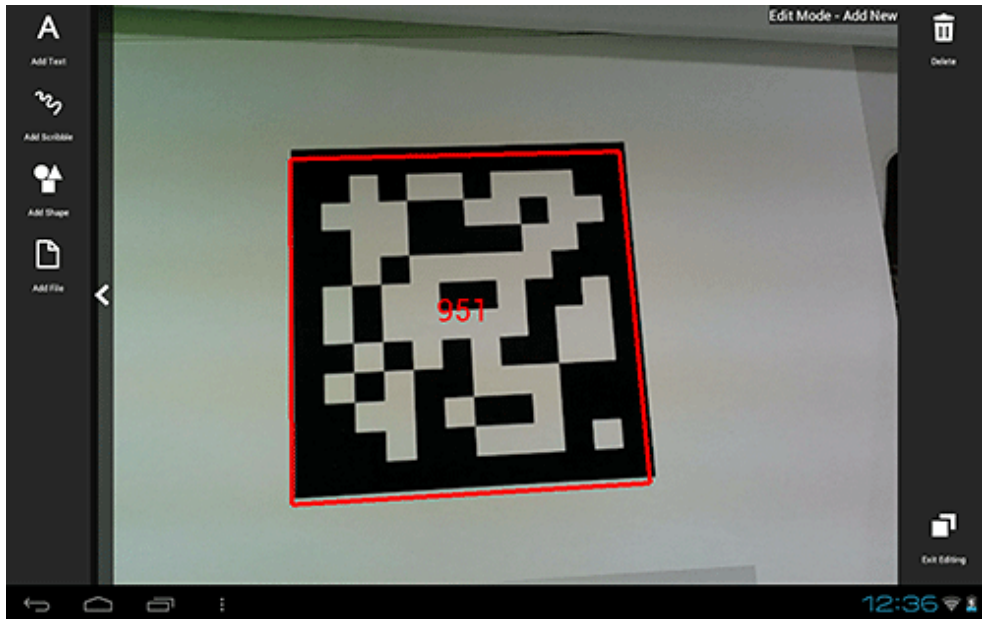
4.15.2.5 Register the AR overlay definition

Follow the procedure below to register the AR overlay definition associated with the selected AR marker:

1. In **Edit Mode**, select the AR marker.
2. From the menu bar, select one of the icons below, according to the type of AR overlay content to be added:
 - **Add Text**
 - **Add Scribble**
 - **Add Shape**

- **Add File**

Figure 4.10 Edit Mode > Add New screen



Add Text

Follow the procedure below to add text information:

1. In the menu bar, tap the **Add Text** icon.
2. In the **Add Text** dialog box, enter the information below:
 - **Contents**
Enter the text using up to 256 characters.
3. Click **Add** to add the text information to the AR marker and navigate to the **Modify** screen.

Add Scribble

Follow the procedure below to add a scribble:

1. In the menu bar, tap the **Add Scribble** icon.
2. The menus below will be added to the menu bar - select the one that suits your needs.
 - **Pen**
Enters a memo as traced on the screen.
 - **Eraser**
Erases a memo as traced on the screen.
3. On the action bar, tap **OK** after entering the memo. Navigate to the **Modify** screen.

 **Example**

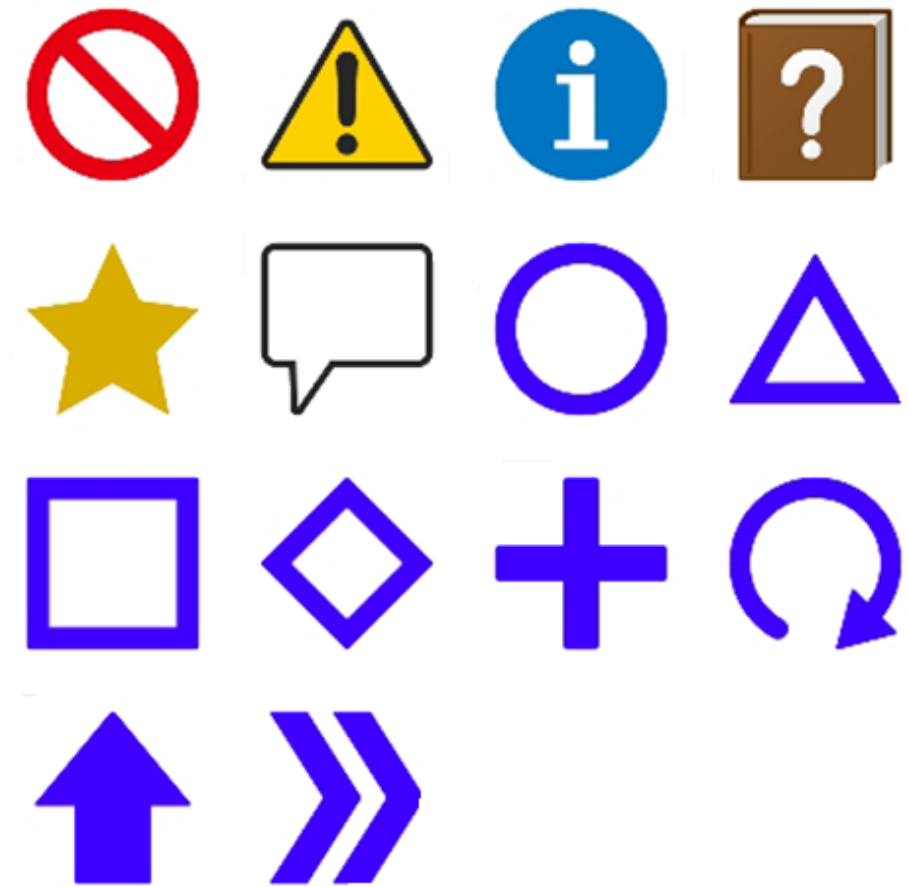
.....
If adding a scribble, ensure that the selected AR marker is reflected in the center of the device display, and is being viewed from the front. If 3D projection is used when the AR marker is not recognized from the front side, the AR overlay content will be generated at an inclination from the AR marker.
.....

Add Shape

Follow the procedure below to add shapes (provided with the product), such as arrows:

1. In the menu bar, tap the **Add Shape** icon.

- The shapes will be displayed in the menu bar - tap the shape to be overlaid. The selected image will be positioned in the center of the AR marker. Navigate to the **Modify** screen.
The following shapes are provided as standard:



Add File

Follow the procedure below to add images or photographs that have been saved locally on the smart device:

- In the menu bar, tap the **Add File** icon.
- The **Add File** dialog box will be displayed. Select the file.
- The selected image will be positioned in the center of the AR marker. Navigate to the **Modify** screen.

Point

Existing AR overlay content can be deleted by tapping the **Delete** icon on the **Edit Mode > Add New** screen.

- If AR overlay content is selected, only the selected content will be deleted.
- If an AR marker is selected, all AR overlay content associated with that marker will be deleted.

4.15.2.6 Upload the AR overlay definition

Follow the procedure below to upload the edited AR overlay definition to the server:

If 'Server Data Authoring' was used

- On the AR view screen action bar, tap the **Upload** icon.

2. In the upload completion message, click **OK**.

If 'Local Data Authoring' was used

1. On the AR view screen action bar, tap the **Back to Scene Selection** icon.
2. Ensure that the smart device is in server connection mode.
If the device is in standalone mode, follow the procedure below to startup in server connection mode:
 1. In the scenario selection screen, tap **Exit** to exit the client authoring tool.
 2. Move to an online environment.
 3. Ensure that the smart device can connect to the AR processing server, and then start the client authoring tool.
 4. From the scenario selection screen, select the scenario.
3. From the scene selection screen, select the scene and then either select **Upload Authoring Data**, or select **Batch** and then click **Upload scene data by batch**.

Point

When uploading data using client authoring, the AR overlay definition name is set to *basicAuthenticationUserId yyyyymmdd hhmmss* (if basic authentication is not being used, then DefaultUser will be used for *basicAuthenticationUserId*).

Example

If basic authentication is being used and the user name is aruser, and the current datetime is 15:05:30 on August 5, 2013, then the AR overlay definition name will be:

```
aruser 20130805 150530
```

Note

- Data can be uploaded only in server connection mode. If authoring is performed in standalone mode, the user must later upload data to the server when in server connection mode.
- The AR overlay definition name will be configured when the data is uploaded, but no AR definition ID will be set. Use the AR overlay definition name to specify AR overlay content.
- The datetime configured at **Update datetime** in the **AR overlay definition list** of the data management console will be the datetime when the data was uploaded.

4.15.2.7 Exit the client authoring tool

On the scenario selection screen action bar, tap **Exit**. The client authoring tool will quit.

4.15.3 Client authoring (iOS)

Follow the procedure below to perform authoring using a smart device (iOS):

1. Start the client authoring tool.
2. From the scenario selection screen, select the scenario.
3. From the scene selection screen, select the scene.
4. On the **Add New** screen, register the AR overlay definition.
5. If required, revise the registered AR overlay definition using the client authoring **Modify** screen.
6. Upload the registered AR overlay definition to the AR processing server.

Point

- Before using the client authoring tool, ensure that the tool has been set up, and that the scenarios and scenes have been registered using the data management console.
 - The following tasks must be performed before authoring can be used in an offline environment:
 1. Start the client authoring tool in an online environment.
 2. Select the scenario and scene, and download the data.
 3. Quit the client authoring tool, and move to the location where authoring will be performed.
 - The following tasks must be performed before files such as images can be called as AR overlay content or by tap actions:
 1. Using a third-party software, create images that meet the criteria below:
 - MIME type
 - jpeg
 - png
 - Size
 - Maximum: 1024 pixels x 1024 pixels
 - If a file that exceeds the maximum size is specified, the overlay will not be displayed.
 2. Store the created file in:
clientAuthoringToolHomeDir
 - Each directory can store up to 30 files. Store additional files in separate directories.
 - In **Edit Mode**, select **Exit Editing**, and then in the dialog box, click **Save and exit** to save authoring data as local data. Data will not be saved if the user redirects to a different screen using the **HOME** button or power button on the device while the data is in an unsaved state. Data should be saved frequently during editing.
-

4.15.3.1 Start the client authoring tool

To start the client authoring tool provided by Interstage AR Processing Server, tap the **Interstage AR Authoring** or **Interstage AR Dev** icon in the list of applications on your smart device, and select **AR Client Authoring**.

4.15.3.2 Select scenario

From the displayed **Scenario List**, tap the scenario.

Figure 4.11 Scenario List screen



Point

If required, perform the tasks below.

Update Scenario List

Update the displayed **Scenario List** to the latest information:

1. Tap the **Update Scenario List** icon.
2. The **Download** dialog box will be displayed.
3. The latest scenario information will be displayed in the list.

4.15.3.3 Select scene

Follow the procedure below to select the scene:

1. From the displayed **Scene List**, tap the scene.

2. Select either **Server Data Authoring** or **Local Data Authoring** to suit your circumstances. **Server Data Authoring** can only be selected when in server connection mode.

Figure 4.12 Scene List screen



Point

If required, perform the tasks below.

Update Scene List

Update the displayed **Scene List** to the latest information:

1. Tap the **Update Scene List** icon.
2. The **Download** dialog box will be displayed.
3. The latest scene information will be displayed in the list.

Batch content operation

Perform batch operations on scenes registered in the scenario:

1. Tap the **Batch** icon.
2. In the **Batch** dialog box, select **Download scene data by batch** to download data from the server, or **Upload scene data by batch** to upload data.
Note batch downloads discard data saved locally and overwrite it with data saved to the AR processing server. If you do not want data to be overwritten, ensure that uploads are performed first.

4.15.3.4 Navigate to Edit Mode

Select the AR marker to be registered in the AR overlay definition.

1. In the AR view screen, point the camera to the AR marker.
2. Tap the **Edit** icon that is displayed in the action bar after the AR marker has been recognized.

Figure 4.13 AR view screen



Point

In the AR view screen, tap the **Shutter** icon to take a photo of the image currently captured by the camera.

- Images captured by the camera are stored in:
 - Directory:
`/var/mobile/Applications/uniqueAppId/Documents/Files/Pictures`
 - Reference path from **Add File** menu:
`/Files/Pictures`
 - Reference path from iTunes:
`/Files/Pictures`
- AR overlay content is not included in the saved image.

4.15.3.5 Register the AR overlay definition

Register the AR overlay definition associated with the selected scene.

Figure 4.14 Edit Mode screen



1. In **Edit Mode**, select the AR marker.
2. From the menu bar, select one of the icons below, according to the type of AR overlay content to be added:
 - **Add Text**
 - **Add Scribble**
 - **Add Shape**
 - **Add File**

Add Text

Add text information.

1. In the menu bar, tap the **Add Text** icon.
2. In the **Add Text** dialog box, enter the information below:
 - **Contents**
Enter the text using up to 256 characters.
3. Click **Add** to add the text information to the AR marker and navigate to the **Modify** screen.

Note

If text rendering requires a width greater than 1024 pixels (for long text, for example) but **Word wrap** has not been specified, only the text up to 1024 pixels will be rendered, and the remaining text may not be visible.

The calculation formula is shown below. Note that the displayed size may vary according to the character type (such as whether it is a number or a symbol), so the result might not match this formula.

$$\text{- Area height} = \text{fontSize} \times 4 / 3 \times \text{numberOfRowsToBeDisplayed} [\text{pixels}]$$

- Area width = $fontSize \times numberOfCharsToDisplayPerRow$ [pixels]

Add Scribble

Add a scribble.

1. In the menu bar, tap the **Add Scribble** icon.
2. The menus below will be added to the menu bar - select the one that suits your needs.
 - **Pen**
Enters a memo as traced on the screen.
 - **Eraser**
Erases a memo as traced on the screen.
 - **Colors**
The pen color can be changed. The user can choose a color and degree of transparency by tapping the RGB slider or the color picker. The currently selected color will be displayed in the center of the color picker. Once the color has been decided, tap the center of the color picker.
3. On the action bar, tap **OK** after entering the memo. Navigate to the **Modify** screen.



Example

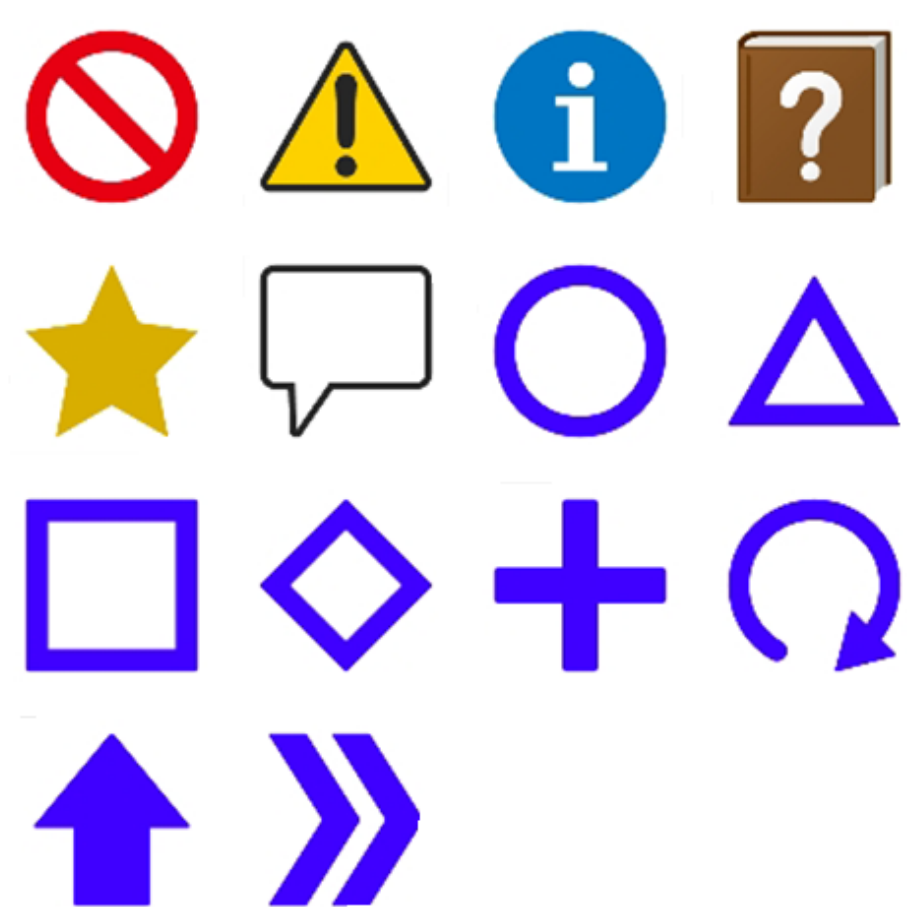
If adding a scribble, ensure that the selected AR marker is reflected in the center of the device display, and is being viewed from the front. If 3D projection is used when the AR marker is not recognized from the front side, the AR overlay content will be generated at an inclination from the AR marker.

Add Shape

Follow the procedure below to add shapes (provided with the product), such as arrows:

1. In the menu bar, tap the **Add Shape** icon.

- The shapes will be displayed in the menu bar - tap the shape to be overlaid. The selected image will be positioned in the center of the AR marker. Navigate to the **Modify** screen. The following shapes are provided as standard:



Add File

Add images or photographs that have been saved locally on the smart device.

- In the menu bar, tap the **Add File** icon.
- The **Add File** dialog box will be displayed. Select the file.
- The selected image will be positioned in the center of the AR marker. Navigate to the **Modify** screen.

Point

Existing AR overlay content can be deleted by tapping the **Delete** icon on the **Edit Mode > Add New** screen.

- If AR overlay content is selected, only the selected content will be deleted.
- If an AR marker is selected, all AR overlay content associated with that marker will be deleted.

4.15.3.6 Upload the AR overlay definition

Upload the edited AR overlay definition to the server.

If 'Server Data Authoring' was used

- On the AR view screen action bar, tap the **Upload** icon.
- In the upload completion message, click **OK**.

If 'Local Data Authoring' was used

1. On the AR view screen action bar, tap the **Back to Scene Selection** icon.
2. Ensure that the smart device is in server connection mode.
If the device is in standalone mode, follow the procedure below to startup in server connection mode:
 1. In the scenario selection screen, tap **Exit** to exit the client authoring tool.
 2. Move to an online environment.
 3. Ensure that the smart device can connect to the AR processing server, and then start the client authoring tool.
 4. From the scenario selection screen, select the scenario.
3. From the scene selection screen, select the scene and then either select **Upload Authoring Data**, or select **Batch** and then click **Upload scene data by batch**.

Point

When uploading data using client authoring, the AR overlay definition name is set to *basicAuthenticationUserId yyyyymmdd hhmmss* (if basic authentication is not being used, then DefaultUser will be used for *basicAuthenticationUserId*).

Example

If basic authentication is being used and the user name is aruser, and the current datetime is 15:05:30 on August 5, 2013, then the AR overlay definition name will be:

```
aruser 20130805 150530
```

Note

- Data can be uploaded only in server connection mode. If authoring is performed in standalone mode, the user must later upload data to the server when in server connection mode.
- The AR overlay definition name will be configured when the data is uploaded, but no AR definition ID will be set. Use the AR overlay definition name to specify AR overlay content.
- The datetime configured at **Update datetime** in the **AR overlay definition list** of the data management console will be the datetime when the data was uploaded.

4.15.3.7 Exit the client authoring tool

On the scenario selection screen action bar, tap **Exit**. The client authoring tool will quit.

4.16 Edit AR overlay definitions

Authoring can be used to edit the size or position of a created AR overlay definition.

Note

When server authoring and client authoring are used together and the client authoring tool is used to upload, then the AR overlay definitions contained in the scene will be overwritten and updated.

4.16.1 Server authoring

Two kinds of server authoring procedure can be performed:

- Edit from **Scenario Management**

1. Access the data management console.
2. Select the **Scenario Management** tab.
3. From the **Scenario list**, select the **Scenario name**.
4. From the **Scene list**, select the **Scene name**.
5. From the **AR overlay definition list**, select the AR overlay definition.
6. Click **Edit**.
7. Edit the attributes as required - editable items depend on the selected content type.
8. Click **OK**.

- Edit from **Data Management**

1. Access the data management console.
2. Select the **Data Management** tab.
3. Select **AR overlay definition**.
4. From the **AR overlay definition list**, search for the AR overlay definition.
Filtered searches can be performed in **Data Management**.
 - Case-sensitive searches for exact matches can also be performed for the following attributes: **AR overlay definition ID**, **AR overlay definition name**, **Scenario ID**, **Scene ID**, and **AR marker ID**.
 - Leaving the fields empty will display all results (that is, no filtering will occur).
5. Select the AR overlay definition, and then click **Edit**.
6. Edit the attributes as required - editable items depend on the selected content type.
7. Click **OK**.

Edit text

Values can be revised in **Basic information**, **Text information**, **Position information**, or **Other**.

Basic information

Modify the ID and AR overlay definition name of the AR marker.

- **AR overlay definition ID**
The AR overlay definition ID will be displayed. This value cannot be changed.
- **AR overlay definition name**
Revise the AR overlay definition name using between 0 and 30 characters.
- **AR marker ID**
Revise the ID of the marker for the overlay.
- **Scenario ID**
The selected scenario ID will be displayed. A registered scenario can be selected.
- **Scenario name**
The selected scenario name will be displayed. This value cannot be changed.
- **Scene ID**
The selected scene ID will be displayed. A scene associated with the selected scenario can be specified.
- **Scene name**
The selected scene name will be displayed. This value cannot be changed.

Text information

Modify the displayed text.

- **Text**
Revise the text using up to 256 characters.
- **Font size**
Revise the font size using an integer between 10 and 750 pt.
- **Font color**
Select the text color using the color picker, and revise the transparency by specifying an integer between 0 and 255 in the input field.
- **Background color**
Select the background color using the color picker, and revise the transparency by specifying an integer between 0 and 255 in the input field.
- **Word wrap**
Select whether to wrap text information.
- **Area height** (required)
If **Word wrap** information is selected, revise the area height in pixels.
- **Area width** (required)
If **Word wrap** information is selected, revise the area width in pixels.



Note

.....

If text rendering requires a width greater than 1024 pixels (for long text, for example) but **Word wrap** has not been specified, only the text up to 1024 pixels will be rendered, and the remaining text may not be visible.

If entering text that requires a width greater than 1024 pixels, select **Yes** to wrap AR text content. Then, set the height, width, and font size for the area, and adjust to ensure that all the text is displayed.

The calculation formula is shown below. Note that the displayed size may vary according to the character type (such as whether it is a number or a symbol), so the result might not match this formula.

- Area height = $fontSize \times 4 / 3 \times numberOfRowsToBeDisplayed$ [pixels]
 - Area width = $fontSize \times numberOfCharsToDisplayPerRow$ [pixels]
-

Position information

Revise the position information.

- **Projection type**
Select 2D or 3D according to the content.
- **Translation**
Enter the coordinate of the position to display the AR overlay content, using a numeric value between -32 and +32, based on the AR marker. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).
1=size of the AR marker body
- **Rotation**
Enter an integer between -360 and +360 for the rotation angle of the AR overlay content. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).
- **Scale**
Enter an integer between 0.1 and 32 for the scaling factor of the AR overlay content. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).

Other

Configure the tap action.

- **Use tap action**
The specified URL or JavaScript will be called when the AR overlay content is tapped.

- **URL**
Enter the URL of the file to be called by the tap action using up to 256 characters.
- **Script**
Enter the JavaScript method to be called by the tap action using up to 256 characters.

Edit shape

Values can be revised in **Basic information**, **Select shape**, **Position information**, or **Other** - click **OK** when ready.

Basic information

Modify the ID and AR overlay definition name of the AR marker.

- **AR overlay definition ID**
The AR overlay definition ID will be displayed. This value cannot be changed.
- **AR overlay definition name**
Revise the AR overlay definition name using between 0 and 30 characters.
- **AR marker ID**
Revise the ID of the marker for the overlay.
- **Scenario ID**
The selected scenario ID will be displayed. A registered scenario can be selected.
- **Scenario name**
The selected scenario name will be displayed. This value cannot be changed.
- **Scene ID**
The selected scene ID will be displayed. A scene associated with the selected scenario can be specified.
- **Scene name**
The selected scene name will be displayed. This value cannot be changed.

Select shape

From the list, select the shape.

Position information

Revise the position information.

- **Projection type**
Select 2D or 3D according to the content.
- **Translation**
Enter the coordinate of the position to display the AR overlay content, using a numeric value between -32 and +32, based on the AR marker. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).
1=size of the AR marker body
- **Rotation**
Enter an integer between -360 and +360 for the rotation angle of the AR overlay content. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).
- **Scale**
Enter an integer between 0.1 and 32 for the scaling factor of the AR overlay content. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).

Other

Configure the tap action.

- **Use tap action**
The specified URL or JavaScript will be called when the AR overlay content is tapped.
- **URL**
Enter the URL of the file to be called by the tap action using up to 256 characters.

- **Script**
Enter the JavaScript method to be called by the tap action using up to 256 characters.

Edit the file information

Values can be revised in **Basic information**, **Select file**, **Position information**, or **Other** - click **OK** when ready.

Basic information

Modify the ID and AR overlay definition name of the AR marker.

- **AR overlay definition ID**
The AR overlay definition ID will be displayed. This value cannot be changed.
- **AR overlay definition name**
Revise the AR overlay definition name using between 0 and 30 characters.
- **AR marker ID**
Revise the ID of the marker for the overlay.
- **Scenario ID**
The selected scenario ID will be displayed. A registered scenario can be selected.
- **Scenario name**
The selected scenario name will be displayed. This value cannot be changed.
- **Scene ID**
The selected scene ID will be displayed. A scene associated with the selected scenario can be specified.
- **Scene name**
The selected scene name will be displayed. This value cannot be changed.

Select file

Revise the file URL. Confirm the file URL from the details screen of the file that was registered at **Data List**, **File**.

Position information

Revise the position information.

- **Projection type**
Select 2D or 3D according to the content.
- **Translation**
Enter the coordinate of the position to display the AR overlay content, using a numeric value between -32 and +32, based on the AR marker. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).
1=size of the AR marker body
- **Rotation**
Enter an integer between -360 and +360 for the rotation angle of the AR overlay content. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).
- **Scale**
Enter an integer between 0.1 and 32 for the scaling factor of the AR overlay content. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).

Other

Configure the tap action.

- **Use tap action**
The specified URL or JavaScript will be called when the AR overlay content is tapped.
- **URL**
Enter the URL of the file to be called by the tap action using up to 256 characters.
- **Script**
Enter the JavaScript method to be called by the tap action using up to 256 characters.

Note

- Files that can be used as AR overlay content are shown below:
 - image/jpeg or image/png
 - Size up to 1024 x 1024 pixels

4.16.2 Client authoring (Android)

Follow the procedure below to perform client authoring using the client authoring tool provided with Interstage AR Processing Server.

1. Start the client authoring tool.
2. From the scenario selection screen, select the scenario.
3. From the scene selection screen, select the scene.
4. Hold the device up to the AR marker to begin editing.
5. In **Edit Mode** of the client authoring tool, select the AR content.
6. Select from the following options on the menu bar:
 - **Resize/Translation**
 - **Rotation**
 - **Edit Text** (displayed only when text content is selected)
 - **Color**
 - **Projection**
 - **Option**
7. Tap the **Exit Editing** icon, and then select **Save and exit**.
8. Upload the registered AR overlay definition to the AR processing server.

Point

- In **Edit Mode**, select **Exit Editing**, and then in the dialog box, click **Save and exit** to save authoring data as local data. Data will not be saved if the user redirects to a different screen using the **HOME** button or power button on the device while the data is in an unsaved state. Data should be saved frequently during editing.
- The following tasks must be performed before authoring can be used in an offline environment:
 1. Start the client authoring tool in an online environment.
 2. Select the scenario and scene, and download the data.
 3. Quit the client authoring tool, and move to the location where authoring will be performed.

4.16.2.1 Edit AR overlay definitions

Follow the procedure below to edit added AR overlay content.

Figure 4.15 Edit Mode > Modify > Resize/Translation screen



1. In **Edit Mode** of the client authoring tool, select the AR content.
2. Select from the following options on the menu bar:
 - **Resize/Translation**
 - **Rotation**
 - **Edit Text** (displayed only when text content is selected)
 - **Color**
 - **Projection**
 - **Option**
3. Tap the **Exit Editing** icon, and then select **Save and exit**.

Point

- Items in the selected content that can be modified will be displayed in the menu.
- **Resize/Translation** is selected by default.
- Note that when **Rotation** is selected, any operation to switch the "selected" state to another AR overlay content item or AR marker will be invalid. To switch the "selected" state, use an operation other than **Rotation**, such as **Resize/Translation**.

Resize/Translation

Modify the position or size of the selected AR overlay content item.

1. In the menu bar, tap the **Resize/Translation** icon.
2. Pinch or stretch the item to resize it, or drag to reposition it.

Rotation

Rotate the selected AR overlay content item.

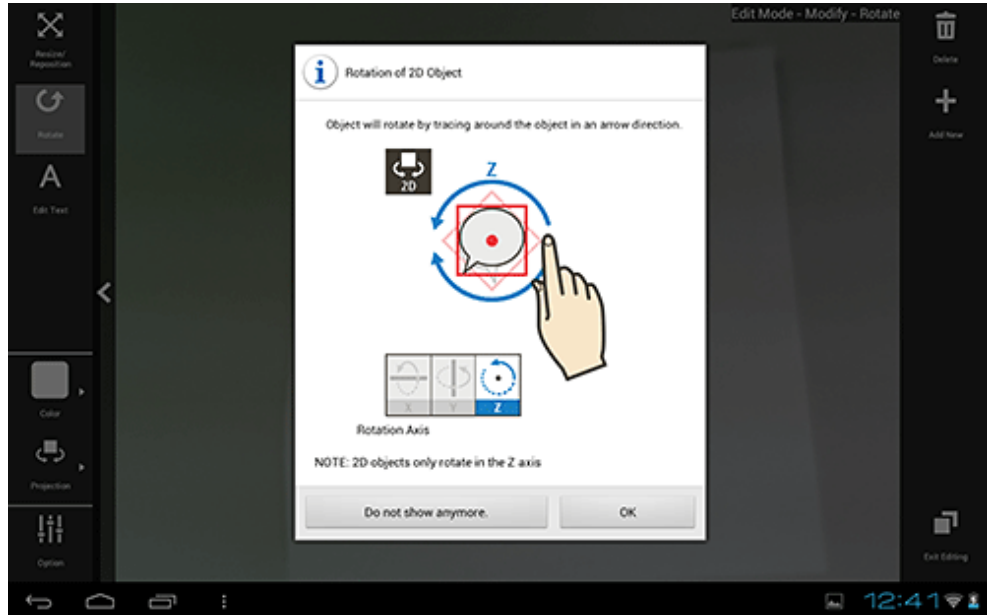
1. In the menu bar, tap the **Rotation** icon.

2. A photography guide will be displayed in accordance with the selected projection mode. Rotate the item as directed.

- For 2D

Drag the item's perimeter to rotate it on the z-axis.

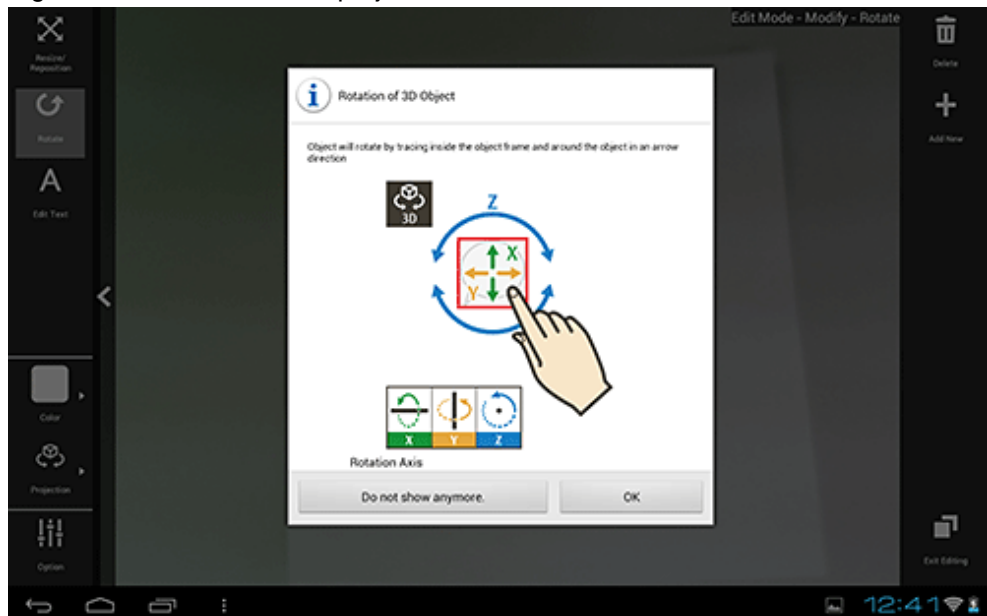
Figure 4.16 Rotation for 2D projection



- For 3D

Drag the item vertically to rotate it on the x-axis, horizontally for the y-axis, or drag the item's perimeter to rotate it on the z-axis.

Figure 4.17 Rotation for 3D projection



Edit text

Text details can be modified if the content type is 'text':

1. In the menu bar, tap the **Edit Text** icon.
2. In the **Edit Text** dialog box, edit the content as required.
3. Tap **OK**.

Color

Color can be modified if the content type is 'text' or 'scribble':

1. In the menu bar, tap the **Color** icon.
2. In the color palette, select a color. Alternatively, tap the **Color Picker** dialog box to navigate to the **Option** menu and from there to the **Color Picker** dialog box, where a more specific color can be selected.
 - If a color from the color palette is selected, content will be modified to the specified color, and then **Resize/Translation** will be selected.
 - If the **Color Picker** dialog box was selected, the user can choose a color and degree of transparency by tapping the RGB slider or the color picker. The currently selected color will be displayed in the center of the color picker. Once the color has been decided, tap the center of the color picker to finalize it and navigate to the **Option** menu.

Figure 4.18 Colors menu

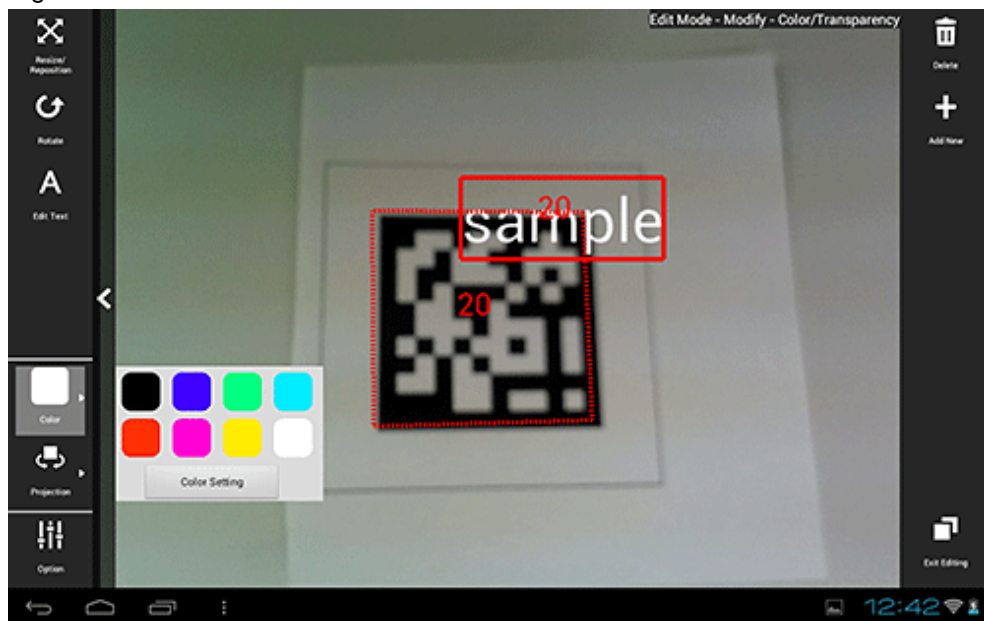
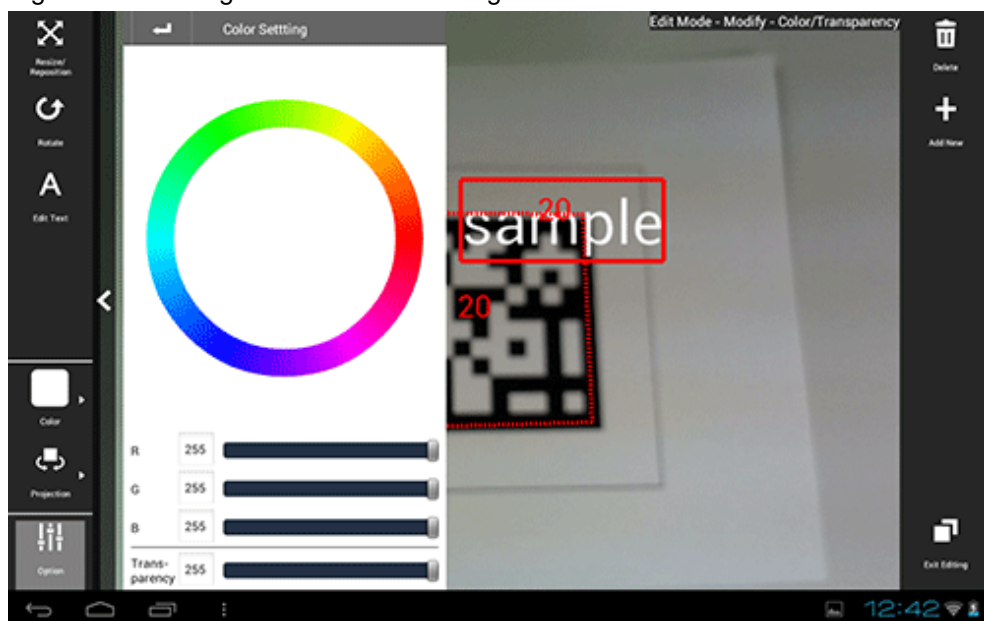


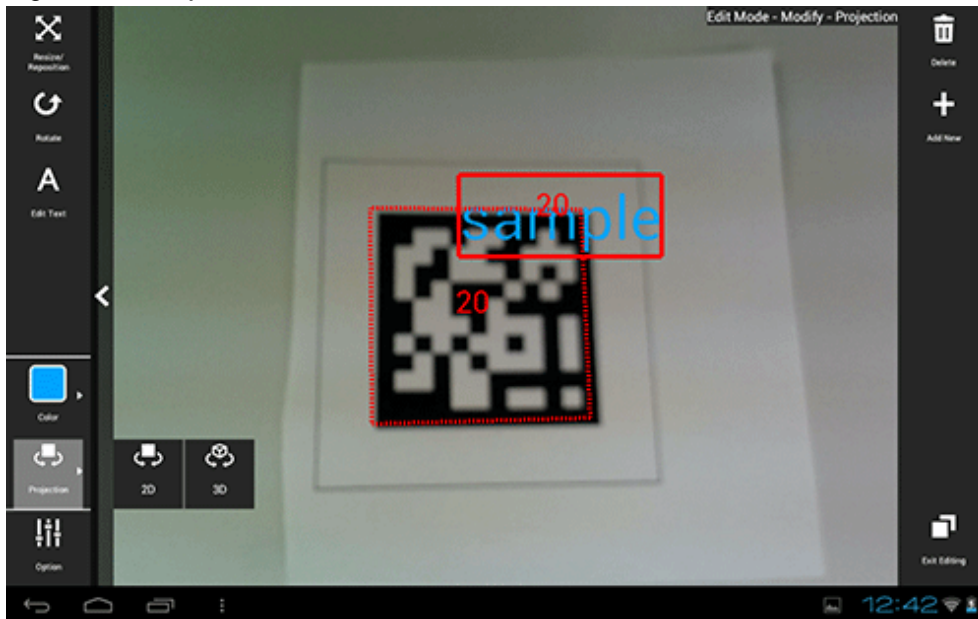
Figure 4.19 Settings > Color Picker dialog box



Projection

The user can select a projection mode for the AR overlay content.

Figure 4.20 Projection menu



Option

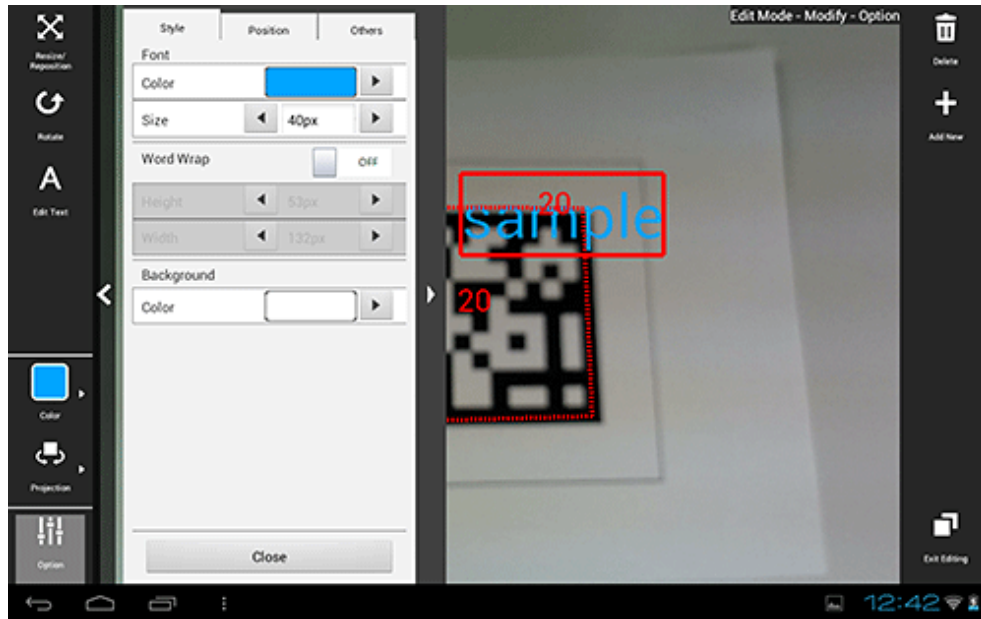
The user can configure detailed information - the displayed content depends on the selected item):

Content	Style	Position	Others
Text	- Character - Word Wrap - Background	- Projection - Rotation - Scale	- Tap Action - AR overlay definition information
Scribble	Color		
Shape	None		
File	None		

Style

Configure character colors or text wrapping information.

Figure 4.21 Settings > Style dialog box



Character

The color and font size of characters can be modified. The color and degree of transparency can be modified by tapping the RGB slider or color picker that is displayed on the **Color Picker** dialog box when a color is selected. The currently selected color will be displayed in the center of the color picker. Once the color has been decided, tap the center of the color picker. Enter between 10 and 750 pixels for the font size.

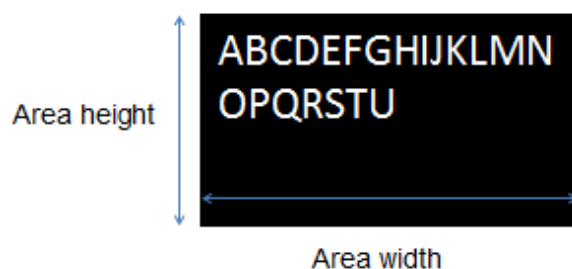
Word Wrap

Configure whether to wrap text information. If **Word Wrap** is 'ON', enter the height and width for wrapping, in pixels. Select a value between 10 and 1024 pixels for both the width and height of the wrapping. If **Word Wrap** is 'OFF', a white margin will be displayed at the top and bottom of the text (*fontSize:heightIncludingWhiteMargin* \approx 3:4).

Figure 4.22 Example: Font color=#FFFFFF, Background color=#000000, Word Wrap=OFF



Figure 4.23 Example: Font color=#FFFFFF, Background color=#000000, Word Wrap=ON



Note

If text rendering requires a width greater than 1024 pixels (for long text, for example) but **Word wrap** has not been specified, only the text up to 1024 pixels will be rendered, and the remaining text may not be visible.

If entering text that requires a width greater than 1024 pixels, navigate to the **Modify** screen after registration is complete and then in **Option**, select **On** to wrap AR text content. Then, set the height, width, and font size for the area, and adjust to ensure that all the text is displayed.

The calculation formula is shown below. Note that the displayed size may vary according to the character type (such as whether it is a number or a symbol), so the result might not match this formula.

- Height = $fontSize \times 4 / 3 \times numberOfRowsToBeDisplayed$ [pixels]
- Width = $fontSize \times numberOfCharsToDisplayPerRow$ [pixels]

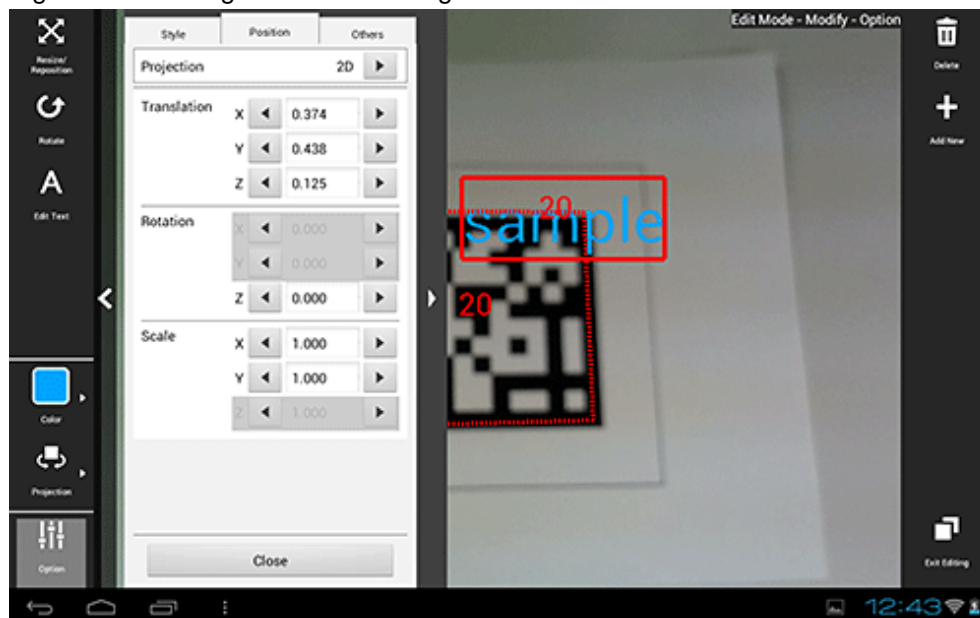
Color

The background color can be modified if the content type is 'text', while the pen color can be modified if the type is 'scribble'. The color and degree of transparency can be modified by tapping the RGB slider or color picker that is displayed on the **Color Picker** dialog box when a color is selected. The currently selected color will be displayed in the center of the color picker. Once the color has been decided, tap the center of the color picker.

Position

Position information can be configured.

Figure 4.24 Settings > Position dialog box



Projection

The user can switch between 2D and 3D projection for AR overlay content.

Translation

Enter the x-, y-, and z-coordinates of the position to display the AR overlay content, using integers between -32 and +32, based on the AR marker. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).

l=size of the AR marker body

Rotation

Enter an integer between -360 and +360 for the rotation angle of the AR overlay content. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places). If 2D projection is selected, only the z-axis can be entered.

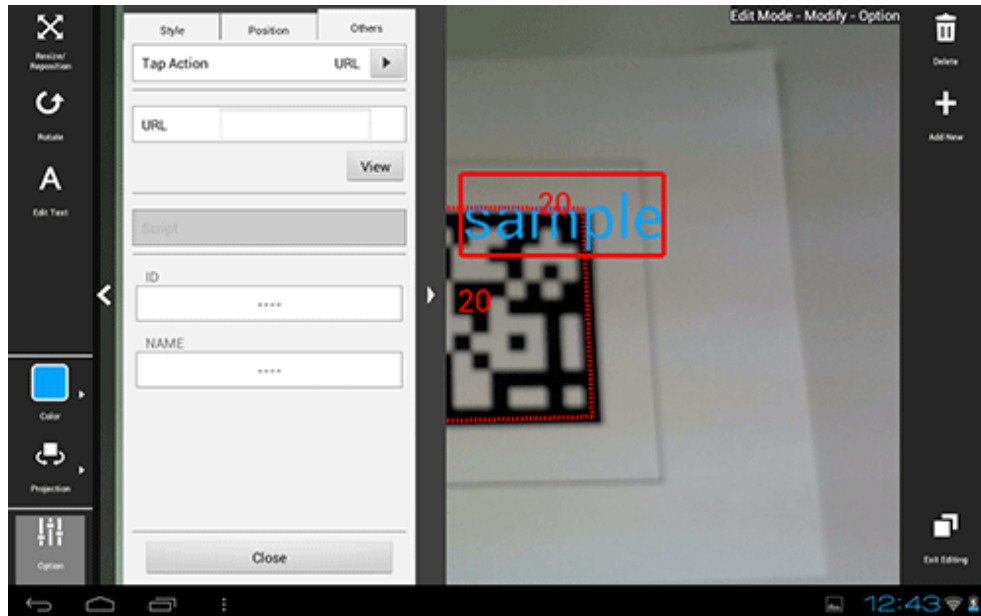
Scale

Enter an integer between 0.1 and 32 for the scaling factor of the AR overlay content. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places). If 2D projection is selected, only the x- and y-axes can be entered.

Others

Configure other information.

Figure 4.25 Settings > Other dialog box



Tap Action

Select the type of tap action from the **URL** or from the **Script**. The specified URL or JavaScript will be called when the AR overlay content is tapped.

If a JavaScript script is specified, then it will be run when the AR overlay application is executed and the content is tapped (note that if the content is tapped during client authoring stage, then the script will not be run, because there is no web layer to execute it, and instead its name will be displayed in a dialog box - note that the dialog box will not be displayed if the script is empty).

URL

Input is possible if **URL** is selected in **Tap Action**. Enter the URL of the file called by the tap action, or click **Browse** to select a file stored on the smart device.

Script

Input is possible if **Script** is selected in **Tap Action**. Enter the JavaScript method and arguments in the AR overlay application that was developed, using up to 256 characters.

ID

The ID information of AR overlay definitions can be checked.

NAME

The names of AR overlay definitions configured in server authoring and client authoring can be checked.

4.16.2.2 Upload the AR overlay definition

Upload the edited AR overlay definition to the server.

If 'Server Data Authoring' was used

1. On the AR view screen action bar, tap the **Upload** icon.

2. In the upload completion message, click **OK**.

If 'Local Data Authoring' was used

1. On the AR view screen action bar, tap the **Back to Scene Selection** icon.
2. Ensure that the smart device is in server connection mode.
If the device is in standalone mode, follow the procedure below to startup in server connection mode:
 1. In the scenario selection screen, tap **Exit** to exit the client authoring tool.
 2. Move to an online environment.
 3. Ensure that the smart device can connect to the AR processing server, and then start the client authoring tool.
 4. From the scenario selection screen, select the scenario.
3. From the scene selection screen, select the scene and then either select **Upload Authoring Data**, or select **Batch** and then click **Upload scene data by batch**.

Point

When uploading data using client authoring, the AR overlay definition name is set to *basicAuthenticationUserId yyyyymmdd hhmmss* (if basic authentication is not being used, then DefaultUser will be used for *basicAuthenticationUserId*).

Example

If basic authentication is being used and the user name is aruser, and the current datetime is 15:05:30 on August 5, 2013, then the AR overlay definition name will be:

```
aruser 20130805 150530
```

Note

- Data can be uploaded only in server connection mode. If authoring is performed in standalone mode, the user must later upload data to the server when in server connection mode.
- The AR overlay definition name will be configured when the data is uploaded, but no AR definition ID will be set. Use the AR overlay definition name to specify AR overlay content.
- The datetime configured at **Update datetime** in the **AR overlay definition list** of the data management console will be the datetime when the data was uploaded.

4.16.2.3 Exit the client authoring tool

On the scenario selection screen action bar, tap **Exit**. The client authoring tool will quit.

4.16.3 Client authoring (iOS)

Follow the procedure below to perform client authoring using the client authoring tool provided with Interstage AR Processing Server.

1. Start the client authoring tool.
2. From the scenario selection screen, select the scenario.
3. From the scene selection screen, select the scene.
4. Point the camera to the AR marker to edit the AR overlay definition.

5. Select from the following options on the menu bar:
 - **Resize/Translation**
 - **Rotation**
 - **Color**
 - **Projection**
 - **Option**
6. Tap the **Exit Editing** icon, and then select **Save and exit**.
7. Upload the registered AR overlay definition to the AR processing server.

Point

- In **Edit Mode**, select **Exit Editing**, and then in the dialog box, click **Save and exit** to save authoring data as local data. Data will not be saved if the user redirects to a different screen using the **HOME** button or power button on the device while the data is in an unsaved state. Data should be saved frequently during editing.
 - The following tasks must be performed before authoring can be used in an offline environment:
 1. Start the client authoring tool in an online environment.
 2. Select the scenario and scene, and download the data.
 3. Quit the client authoring tool, and move to the location where authoring will be performed.
-

4.16.3.1 Edit AR overlay definitions

Edit newly-added AR overlay content as required.

Figure 4.26 Edit Mode > Modify > Resize/Translation screen



1. Select from the following options on the menu bar:
 - **Resize/Translation**
 - **Rotation**
 - **Color** (can be modified when the content type is 'text')
 - **Projection**
 - **Option**
2. Tap the **Exit Editing** icon, and then select **Save and exit**.

Point

- Items in the selected content that can be modified will be displayed in the menu.
- **Resize/Translation** is selected by default.
- Note that when **Rotation** is selected, any operation to switch the "selected" state to another AR overlay content item or AR marker will be invalid. To switch the "selected" state, use an operation other than **Rotation**, such as **Resize/Translation**.

Resize/Translation

Modify the position or size of the selected AR overlay content item.

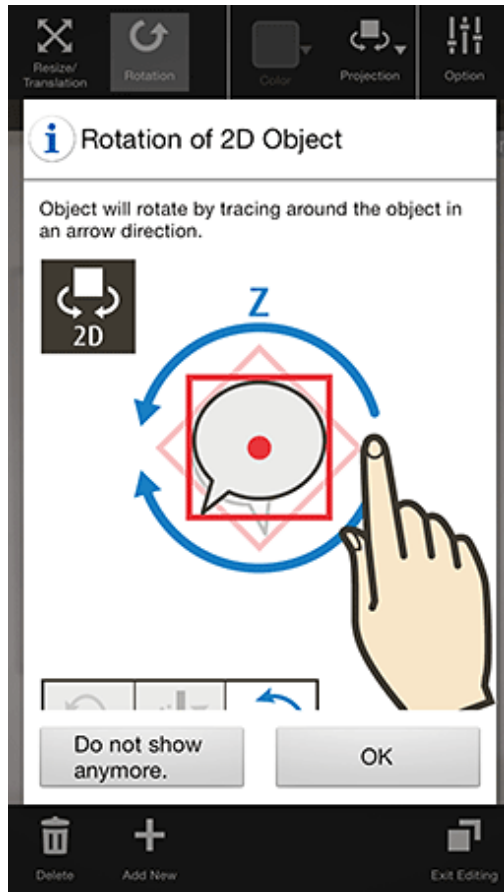
1. In the menu bar, tap the **Resize/Translation** icon.
2. Pinch or stretch the item to resize it, or drag to reposition it.

Rotation

Rotate the selected AR overlay content item.

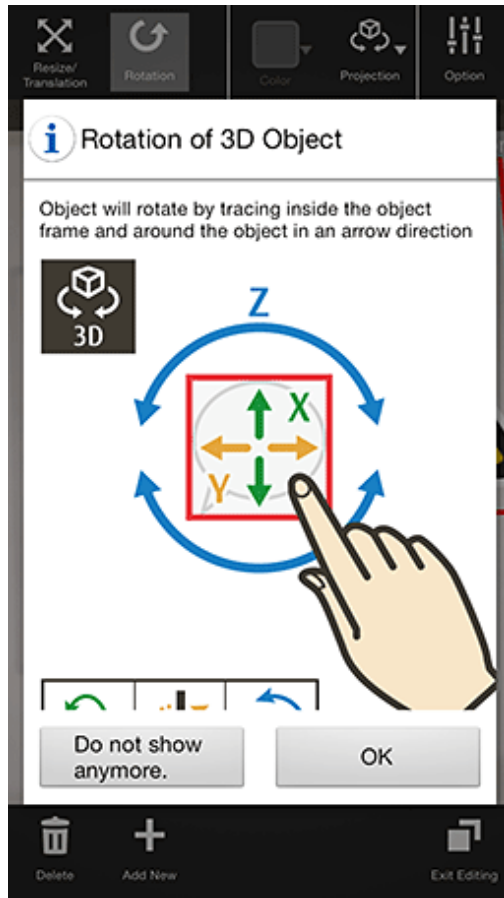
1. In the menu bar, tap the **Rotation** icon.
2. A photography guide will be displayed in accordance with the selected projection mode. Rotate the item as directed.
 - For 2D
Drag the item's perimeter to rotate it on the z-axis.

Figure 4.27 Rotation for 2D projection



- For 3D
Drag the item vertically to rotate it on the x-axis, horizontally for the y-axis, or drag the item's perimeter to rotate it on the z-axis.

Figure 4.28 Rotation for 3D projection



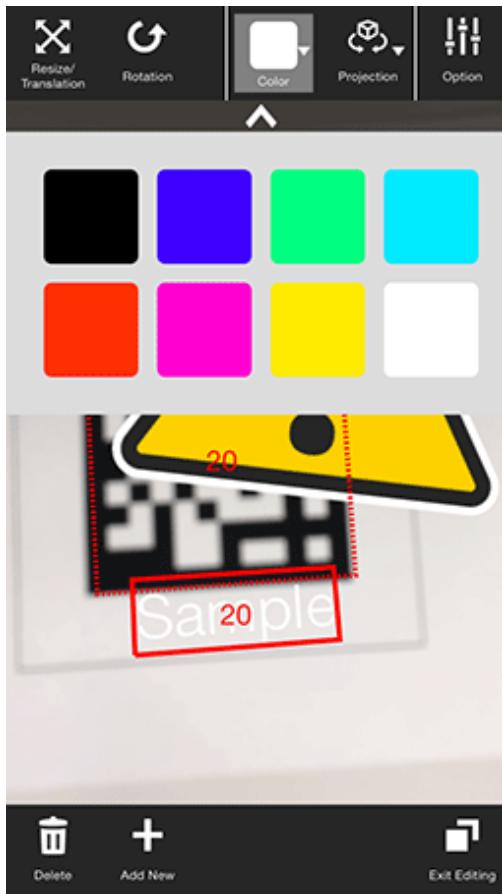
Color

The color can be modified if the AR overlay content type is 'text':

1. In the menu bar, tap the **Color** icon.

2. In the color palette, select a color.

Figure 4.29 Colors menu



Projection

The user can select from 2D or 3D projection for AR overlay content.

Option

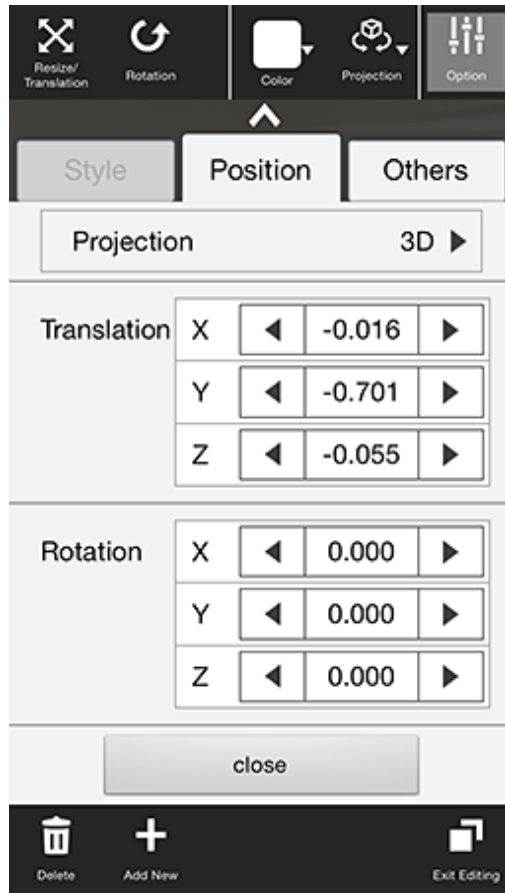
The user can configure detailed information - the displayed content depends on the selected item):

Content	Position	Others
Text	- Projection	- Tap Action
Scribble	- Rotation	- AR overlay
Shape	- Scale	- definition
File		- information

Position

Position information can be configured.

Figure 4.30 Settings > Position dialog box



Projection

The user can switch between 2D and 3D projection for AR overlay content.

Translation

Enter the x-, y-, and z-coordinates of the position to display the AR overlay content, using integers between -32 and +32, based on the AR marker. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).

l=size of the AR marker body

Rotation

Enter an integer between -360 and +360 for the rotation angle of the AR overlay content. If 2D projection is selected, only the z-axis can be entered. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).

Scale

Enter an integer between 0.1 and 32 for the scaling factor of the AR overlay content. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places). If 2D projection is selected, only the x- and y-axes can be entered.

Others

Configure other information.

Figure 4.31 Settings > Other dialog box



Tap Action

Select the type of tap action from the **URL** or from the **Script**. The specified URL or JavaScript will be called when the AR overlay content is tapped.

If a JavaScript script is specified, then it will be run when the AR overlay application is executed and the content is tapped (note that if the content is tapped during client authoring stage, then the script will not be run, because there is no web layer to execute it, and instead its name will be displayed in a dialog box - note that the dialog box will not be displayed if the script is empty).

URL

Input is possible if **URL** is selected in **Tap Action**. Enter the URL of the file called by the tap action, or click **Browse** to select a file stored on the smart device.

Script

Input is possible if **Script** is selected in **Tap Action**. Enter the JavaScript method and arguments in the AR overlay application that was developed, using up to 256 characters.

ID

The ID information of AR overlay definitions can be checked.

NAME

The names of AR overlay definitions configured in server authoring and client authoring can be checked.

4.16.3.2 Upload the AR overlay definition

Upload the edited AR overlay definition to the server.

If 'Server Data Authoring' was used

1. On the AR view screen action bar, tap the **Upload** icon.

2. In the upload completion message, click **OK**.

If 'Local Data Authoring' was used

1. On the AR view screen action bar, tap the **Back to Scene Selection** icon.
2. Ensure that the smart device is in server connection mode.
If the device is in standalone mode, follow the procedure below to startup in server connection mode:
 1. In the scenario selection screen, tap **Exit** to exit the client authoring tool.
 2. Move to an online environment.
 3. Ensure that the smart device can connect to the AR processing server, and then start the client authoring tool.
 4. From the scenario selection screen, select the scenario.
3. From the scene selection screen, select the scene and then either select **Upload Authoring Data**, or select **Batch** and then click **Upload scene data by batch**.

Point

When uploading data using client authoring, the AR overlay definition name is set to *basicAuthenticationUserId yyyyymmdd hhmmss* (if basic authentication is not being used, then DefaultUser will be used for *basicAuthenticationUserId*).

Example

If basic authentication is being used and the user name is aruser, and the current datetime is 15:05:30 on August 5, 2013, then the AR overlay definition name will be:

```
aruser 20130805 150530
```

Note

- Data can be uploaded only in server connection mode. If authoring is performed in standalone mode, the user must later upload data to the server when in server connection mode.
- The AR overlay definition name will be configured when the data is uploaded, but no AR definition ID will be set. Use the AR overlay definition name to specify AR overlay content.
- The datetime configured at **Update datetime** in the **AR overlay definition list** of the data management console will be the datetime when the data was uploaded.

4.16.3.3 Exit the client authoring tool

On the scenario selection screen action bar, tap **Exit**. The client authoring tool will quit.

4.17 Delete AR overlay definitions

AR overlay definitions associated with markers can be deleted using client authoring or server authoring.

4.17.1 Server authoring

Two kinds of server authoring procedure can be used to delete AR overlay definitions:

- Delete from **Scenario Management**
 1. Access the data management console.
 2. Select the **Scenario Management** tab.

3. From the **Scenario list**, select the **Scenario name**.
 4. From the **Scene list**, select the **Scene name**.
 5. From the **AR overlay definition list**, select the AR overlay definition.
 6. Click **Remove**.
 7. In the confirmation message, check the details, and then click **OK**.
- Delete from **Data Management**
1. Access the data management console.
 2. Select the **Data Management** tab.
 3. Select **AR overlay definition**.
 4. From the **AR overlay definition list**, select the AR overlay definition.
Filtered searches can be performed in **Data Management**.
 - Case-sensitive searches for exact matches can also be performed for the following attributes: **AR overlay definition ID**, **AR overlay definition name**, **Scenario ID**, **Scene ID**, and **AR marker ID**.
 - Leaving the fields empty will display all results (that is, no filtering will occur).
 5. Select the **AR overlay definition**.
 6. Click **Delete**.
 7. In the confirmation message, check the details, and then click **OK**.

4.17.2 Client authoring (Android/iOS)

Follow the procedure below to delete an AR overlay definition.

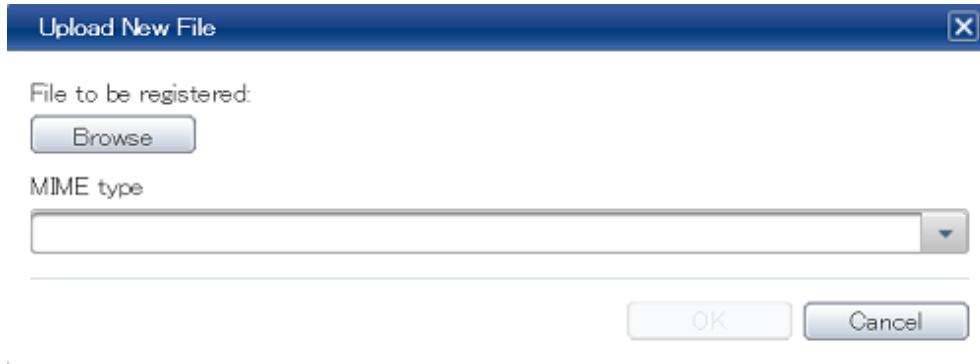
1. Start the client authoring tool.
2. From the scenario selection screen, select the scenario.
3. From the scene selection screen, select the scene.
4. Tap the **Edit** icon that is displayed in the action bar after the AR marker has been recognized.
5. In **Edit Mode**, select the AR marker or the AR overlay content item (depending on the content to be deleted), and then tap the **Delete** icon.
 - If an AR marker is selected, all AR overlay content associated with that marker can also be deleted.
 - If AR overlay content is selected, it is possible to delete only the selected content item.
6. Tap the **Exit Editing** icon, and then select **Save and exit**.
7. Upload the data to the server.
 - If **Server Data Authoring** was used
 1. On the AR view screen action bar, tap the **Upload** icon.
 2. In the upload completion message, click **OK**.
 - If **Local Data Authoring** was used
 1. On the AR view screen action bar, tap the **Back to Scene Selection** icon.
 2. Ensure that the smart device is in server connection mode.
If in standalone mode, then in the scenario selection screen, tap **Exit** to exit the client authoring tool, put the smart device online, ensure that the it can connect to the AR processing server, and then restart the client authoring tool.
 3. From the scenario selection screen, select the scenario.

8. From the scene selection screen, select the scene and then either select **Upload Authoring Data**, or select **Batch** and then click **Upload scene data by batch**.
9. On the scenario selection screen action bar, tap **Exit**. The client authoring tool will quit.

4.18 Register files

This section describes how to register files on the server, such as image files used in AR overlay content.

Figure 4.32 Upload New File dialog box



Using the data management console, register a file:

1. Access the data management console.
2. Select the **Data Management** tab, and then select **File**.
3. On the **File Management** window, select **Add**.
4. In **Upload New File**, click **Browse**, and then select the file.
5. Select the MIME type from the list.
6. Click **OK**.

A registered file's MIME type is determined by the MIME type specified during registration, not by the file extension. Note that if an incorrect MIME type is selected, it will be handled as that MIME type, regardless of file extension. If registering again, first delete the incorrectly registered file and then register the file again.

Example

.....

If a file named "123.jpg" is registered as the MIME type **video/mp4**, it will be handled as a video file.

.....

Point

- A link to the registered file will be pasted in the file ID. The behavior when the link destination is referenced will depend on the file type and the settings of the browser used.
 - If registering a file, the datetime of the start of registration will be configured as the "Registration datetime", while the datetime of completion of registration will be configured as the "Update datetime". This means that "Registration datetime" will differ from "Update datetime" if registration took a few moments to complete (due to slow communications, for example).
-

4.19 Delete files

Using the data management console, delete a file registered in the data management console:

1. Access the data management console.

2. Select the **Data Management** tab, and then select **File**.
3. Search for the file in the list of registered files.
Filtered searches can be performed in **File Management**.
 - Case-sensitive searches for exact matches can also be performed for the following attributes: **File ID**, and **File name**
 - It is also possible to filter for a specific MIME type.
 - Leaving the fields empty will display all results (that is, no filtering will occur).
4. Select the file check box.
5. Click **Delete**.
6. In the confirmation message, check the details, and then click **OK**.

Note

- Do not delete files that are used by the AR overlay definition.

4.20 Manage logs

The user can specify whether to retrieve logs that use the native application.

The procedure to retrieve log files is shown below:

1. Start the relevant tool to display the **Settings** screen.
 - In Android, in the list of smart device applications, tap the **Interstage AR Authoring** or **Interstage AR Dev** icon to start the client authoring tool. In the status bar, tap the menu icon, and then select **Settings**.
 - In iOS, in the list of smart device applications, tap the **Interstage AR Authoring** or **Interstage AR Dev** icon to start the application. From the displayed menu, select **Settings**.
 - For overlay applications developed by a system developer, check with the developer directly.
2. Select or clear the **Retrieve logs** check box, according to the requirements of the application.

Note

At least 20 MB space is required to retrieve the logs. Up to ten generations can be saved.

If the upper limit is exceeded, files will be written from the oldest first.

Point

- The file name uses the format shown below in accordance with the log type:
 - Maintenance log: ArClient_debug_x.log
 - The "x" in the file name represents a unique number between 0 and 9 to that resolves duplication.
 - New logs are output in order from the smallest unique number upwards.
- If log data of 20 MB or more is stored in the cache, the rotation feature will output the most recent 20 MB of log data to the log file.
- The log file is stored in the internal file area. When logs are exported, the log file is output from the internal file area to the internal storage.

4.20.1 Retrieve logs (Android)

The procedure to retrieve a log file from the Android native application is shown below. For overlay applications developed by a system developer, contact the system developer directly.

1. Tap the **Interstage AR authoring** icon or the **Interstage AR Dev** icon from the list of smart device applications and start the native application.
2. In the status bar, tap the menu icon, and then select **Settings**.
3. From the menu list, tap **Log file export**.
4. Select **Maintenance log** and output the log. The log file is output to the following directory:
internalStorageAndroid/data/packageName/files/log
 - *packageName*
InterstageAR authoring: com.fujitsu.interstage.ar.mobileclient.android.authoring.app
InterstageAR Dev: com.sample.clientdev (default value)
5. Connect the smart device using a USB cable and load the log file to the PC.
6. After the log file has been retrieved, delete the file from the smart device.



Note that the output file is not immediately written to the internal storage under Android specifications, so it may not be possible to reference the log file from the PC even when the log is exported. If this occurs, the write process can be executed by restarting the smart device. After restarting, it will be possible to reference the log file from the PC.

4.20.2 Retrieve logs (iOS)

Use iTunes to retrieve a log file from the iOS native application. The procedure is described below. For overlay applications developed by a system developer, contact the system developer directly.

1. Connect the device to a computer and launch iTunes.
2. Select the application from the menu bar to display a list in iTunes of applications that can share files. Select **Interstage AR Authoring** or **Interstage AR Dev** from the displayed list.
3. Select the "Log" directory displayed in the file list.
4. Specify the export directory for the log file and save.

4.21 Delete resources

Data such as resources stored in the native application can be deleted. The following resources can be deleted:

- Resource files (such as images, PDF)
- Scenarios, scenes, AR overlay definitions for the client authoring tool

Follow the procedure below to delete these resources:

1. Start the relevant tool to display the **Settings** screen.
 - In Android, in the list of smart device applications, tap the **Interstage AR Authoring** or **Interstage AR Dev** icon to start the client authoring tool. In the status bar, tap the menu icon, and then select **Settings**.
 - In iOS, in the list of smart device applications, tap the **Interstage AR Authoring** or **Interstage AR Dev** icon to start the application. From the displayed menu, select **Settings**.
 - For overlay applications developed by a system developer, check with the developer directly.
2. Select **Delete Resource**, and then click **OK** in the warning dialog box.

Chapter 5 Operation management

This chapter describes the operation and management of Interstage AR Processing Server.

Note

Interstage AR Processing Server supports the following server configurations:

- Model A: Small-scale entry model used in an intranet environment (all-in-one minimum configuration)
- Model B: Small-scale entry model used in an Internet environment (web servers deployed in DMZ)
- Model C: Medium- to large-scale, high reliability, high availability model used in an intranet environment (multiple-server configuration)
- Model D: Medium- to large-scale, high reliability, high availability model used in an Internet environment (in addition to above, web servers are deployed in DMZ)

The operation management features provided by Interstage AR Processing Server only support models A and B. If using a system configuration that integrates multiple chassis such as models C and D, use your existing operation management application.

5.1 Overview

Interstage AR Processing Server provides commands to perform the following types of operation and management:

- Start or stop a server
- Enable and disable web container resources
- Display the server status
- Backup and restore

Point

Commands provided by Interstage AR Processing Server are stored in the following directory:

W

```
installDir\bin\
```

L

```
/opt/FJSVar/bin/
```

See

- Refer to "Command reference" in the *Reference Guide* for details on the commands provided by Interstage AR Processing Server.
- If an error occurs when a command is executed, refer to the *Message Guide* or to "Command reference" in the *Reference Guide*.

5.2 Start or stop a server

To start or stop a server on which Interstage AR Processing Server is installed, start or stop the web container and database using arsvadmin.

5.2.1 Start a server

Follow the procedure below to start the database and web container:

1. Start the database:

```
> arsvadmin start-db
```

2. Ensure that the message below is output and that the database has started normally:

```
Command start-db executed successfully.
```

3. Start the web container:

```
> arsvadmin start-webcontainer
```

4. Ensure that a message similar to the one below is output and that the web container has started normally:

```
Command start-webcontainer executed successfully.
```

5.2.2 Stop a server

Follow the procedure below to stop the web container and database:

1. Stop the web container:

```
> arsvadmin stop-webcontainer
```

2. Ensure that the message below is output and that the web container has stopped normally:

```
Command stop- webcontainer executed successfully.
```

3. Stop the database:

```
> arsvadmin stop-db
```

4. Ensure that a message similar to the one below is output and that the database has stopped normally:

```
Command stop-db executed successfully.
```

5.3 Enable/disable web container resources

The following resources are stored in the Interstage AR Processing Server web container:

- Data management feature
- File management feature
- Server authoring feature
- Business applications created by the user

Use arsvadmin to enable or disable resources stored in the web container.

5.3.1 Enable the data management feature

Follow the procedure below to enable the data management feature:

1. Enable the data management feature:

```
> arsvadmin enable arsvdm
```

2. The following message will be output:

```
Command enable executed successfully.
```

5.3.2 Disable the data management feature

Follow the procedure below to disable the data management feature:

1. Execute the command below:

```
> arsvadmin disable arsvdm
```

2. The following message will be output:

```
Command disable executed successfully.
```

5.3.3 Enable the file management feature

Follow the procedure below to enable the file management feature:

1. Execute the command below:

```
> arsvadmin enable arsvfdm
```

2. The following message will be output:

```
Command enable executed successfully.
```

5.3.4 Disable the file management feature

Follow the procedure below to disable the file management feature:

1. Execute the command below:

```
> arsvadmin disable arsvfdm
```

2. The following message will be output:

```
Command disable executed successfully.
```

5.3.5 Enable the data management console feature

Follow the procedure below to enable the data management console feature:

1. Execute the command below:

```
> arsvadmin enable arsvdmc
```

2. The following message will be output:

```
Command enable executed successfully.
```

5.3.6 Disable the data management console feature

Follow the procedure below to disable the data management feature:

1. Execute the command below:

```
> arsvadmin disable arsvdmc
```

2. The following message will be output:

```
Command disable executed successfully.
```

5.3.7 Enable business applications created by the user

Follow the procedure below to enable business applications created by the user:

1. Execute the command below:

```
> arsvadmin enable nameOfAppCreatedByUser
```

2. The following message will be output:

```
Command enable executed successfully.
```

5.3.8 Disable business applications created by the user

Follow the procedure below to disable business applications created by the user:

1. Execute the command below:

```
> arsvadmin disable nameOfAppCreatedByUser
```

2. The following message will be output:

```
Command disable executed successfully.
```

5.4 Display the server status

It is possible to display the management status of the web container and the deployment status of applications in Interstage AR Processing Server.

5.4.1 Display the management status of the web container

Follow the procedure below to display the management status of the web container:

1. Execute the command below:

```
> arsvadmin show-webcontainer
```

2. The management status of the web container will be displayed. The following are the displayed statuses:

- started - the web container is in the started state.
- stopped - the web container is in the stopped state.



Example

Example of the output

```
Name                               Status
-----
Interstage AR Web Container Service  started
Command show- webcontainer executed successfully.
```

5.4.2 Display the deployment status of applications

Follow the procedure below to display the deployment status of applications:

1. Execute the command below:

```
> arsvadmin list-components
```

2. The deployment status of applications will be displayed:

- <ear>: ear file
- <web>: war file
- <connector>: rar file
- <ejb>: ejb-jar file
- <appclient>: client-jar file
- <webservices>: web service application



Example

Example of the output

```
NAME          TYPE    STATUS
arsvdm        <web>  enabled
arsvfdm       <web>  enabled
arsvdmc       <web>  enabled
_arsvsample   <web>  disabled
Command list-components executed successfully.
```

5.5 Backup and restore

It is possible to backup and restore databases and file resources in Interstage AR Processing Server.

Use arsvbackup to back up data, and arsvrestore to restore it.

The main resources that are backed up or restored include the following:

- AR markers
- Scenarios
- Scenes
- AR overlay definitions
- User-defined tables
- Files
- Database users

5.5.1 Backup

Follow the procedure below to back up:

1. Stop the web container:

```
> arsvadmin stop-webcontainer
```

2. Ensure that the message below is output and that the web container has stopped normally:

```
Command stop- webcontainer executed successfully.
```

3. Stop the database:

```
> arsvadmin stop-db
```

4. Ensure that a message similar to the one below is output and that the database has stopped normally:

```
Command stop-db executed successfully.
```

5. Perform backup:

```
> arsvbackup
```

6. A directory will be created under *backupDir* with the datetime of the backup, and two compressed files will be created under it:

```
backupDir\yyyyMMddHHmmss
```

7. The following message will be output:

```
Back up to backupDir\yyyyMMddHHmmss  
Command arsvbackup executed successfully.
```

8. Start the database:

```
> arsvadmin start-db
```

9. Ensure that the message below is output and that the database has started normally:

```
Command start-db executed successfully.
```

10. Start the web container:

```
> arsvadmin start-webcontainer
```

11. Ensure that a message similar to the one below is output and that the web container has started normally:

```
Command start- webcontainer executed successfully.
```

Point

- *yyyyMMddHHmmss* is the format used for the year (four digits), month (two digits), day (two digits), hour (two digits), minute (two digits), and second (two digits). For example, 12:34.56 on 23 January, 2003 is represented as "20030123123456".
- If the datetime directory already exists, then files under that directory will be overwritten.

Note

- Do not perform the following operations, because this might cause the command to not end normally:
 - Using Ctrl+C to terminate arsvbackup
 - Using arsvadmin while arsvbackup is running
 - Using arsvrestore while arsvbackup is running
- The following message is output if Interstage AR Processing Server has not stopped running:

```
The command cannot be executed because Web Container or Database Service is running.  
Command arsvbackup failed.
```

- Ensure that there is sufficient available disk space before performing a backup.

5.5.2 Restore

Follow the procedure below to restore:

1. Stop the web container:

```
> arsvadmin stop-webcontainer
```

2. Ensure that the message below is output and that the web container has stopped normally:

```
Command stop- webcontainer executed successfully.
```

3. Stop the database:

```
> arsvadmin stop-db
```

4. Ensure that a message similar to the one below is output and that the database has stopped normally:

```
Command stop-db executed successfully.
```

5. Execute the command below:

```
> arsvrestore -target directoryName
```

6. The following message will be output:

```
Restore from backupDir\datetimeDir  
Command arsvrestore executed successfully.
```

7. Start the database:

```
> arsvadmin start-db
```

8. Ensure that the message below is output and that the database has started normally:

```
Command start-db executed successfully.
```

9. Start the web container:

```
> arsvadmin start-webcontainer
```

10. Ensure that a message similar to the one below is output and that the web container has started normally:

```
Command start- webcontainer executed successfully.
```

Point

- The directory name specifies the name and datetime of the backup.
- The format of the backup name is *yyyyMMddHHmmss*, which includes the year (four digits), month (two digits), day (two digits), hour (two digits), minute (two digits), and second (two digits).

Note

- Do not perform the following operations, because this might cause the command to not end normally:
 - Using Ctrl+C to terminate arsvrestore
 - Using arsvadmin while arsvrestore is running
 - Using arsvbackup while arsvrestore is running

- Ensure that there is sufficient available disk space when performing recovery, so that the current user resources can be restored.
- The backed up user resources cannot be restored to a different platform. Contact Fujitsu technical support if you need to migrate data between Windows and Linux.

5.6 Modify settings

Modify the settings of the Interstage AR Processing Server backup directory - its settings are stored in the operation management UI definition file.

Follow the procedure below to modify the backup directory:

1. Open `arsvadmui.properties` using a text editor or similar program.

- Full name:

W

```
installDir\conf\arsvadmui.properties
```

L

```
/etc/opt/FJSVar/conf/arsvadmui.properties
```

2. Modify the backup directory:

Item	Property name	Default value	Meaning
Backup directory	BACKUP_DIRECTORY	The backup directory specified during installation	Specify the directory where the user resource data will be backed up.

3. Save the file and quit the editor.

Note

- The backup directory name may include the following characters:
 - Alphanumeric characters
 - Spaces
 - Hyphens (-)
 - Underscores (_)
 - Parentheses
- The backup directory name can be up to 45 characters long.

Example

Modify the directory as shown below.

W

```
### BACKUP/RESTORE
BACKUP_DIR = C:\\Fujitsu\\Interstage\\ISAR\\backup
```

L

```
### BACKUP/RESTORE
BACKUP_DIR = /opt/FJSVar/backup
```

5.7 Retrieve server logs

Refer to the file below to retrieve server logs:

- Model A or B:

W

```
installDir\fjje6_domainsroot\domains\domain1\logs\server.log
```

L

```
/var/opt/FJSVar/fjje6_domainsroot/domains/domain1/logs/server.log
```

- Model C or D:

Refer to the log file of the application server currently in use (refer to the product manual for details on how to retrieve logs).

5.8 Retrieve smart device logs

Refer to "[4.20 Manage logs](#)" for details on how to retrieve smart device server logs.