

FUJITSU Software

Interstage AR Processing Server V1.1.1

A horizontal band with a red abstract graphic featuring glowing, overlapping lines and light effects.

Operator's Guide

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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 Workflow

Describes how to operate Interstage AR Processing Server.

Chapter 3 Operations using the data management console

Describes how to operate the data management console used with Interstage AR Processing Server.

Chapter 4 Operations on smart devices

Describes how to perform operations using a smart device.

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 R2 Foundation	Windows Server 2012 R2	Windows
Microsoft Windows Server 2012 R2 Standard		
Microsoft Windows Server 2012 R2 Datacenter		
Microsoft Windows Server 2012 Foundation	Windows Server 2012	
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		
Windows 8.1	Windows 8.1	
Windows 8.1 Pro		
Windows 8.1 Enterprise		

Official name	Abbreviation	
Windows 8	Windows 8	
Windows 8 Pro		
Windows 8 Enterprise		
Red Hat Enterprise Linux 6 (for Intel64)	RHEL 6	Linux
Red Hat Enterprise Linux 7 (for Intel64)	RHEL 7	

Notations

In this manual, text that must be replaced by the user is denoted in *italicsWithMixedCase* (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 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.

1.2 AR markers

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

Format

- AR marker configuration

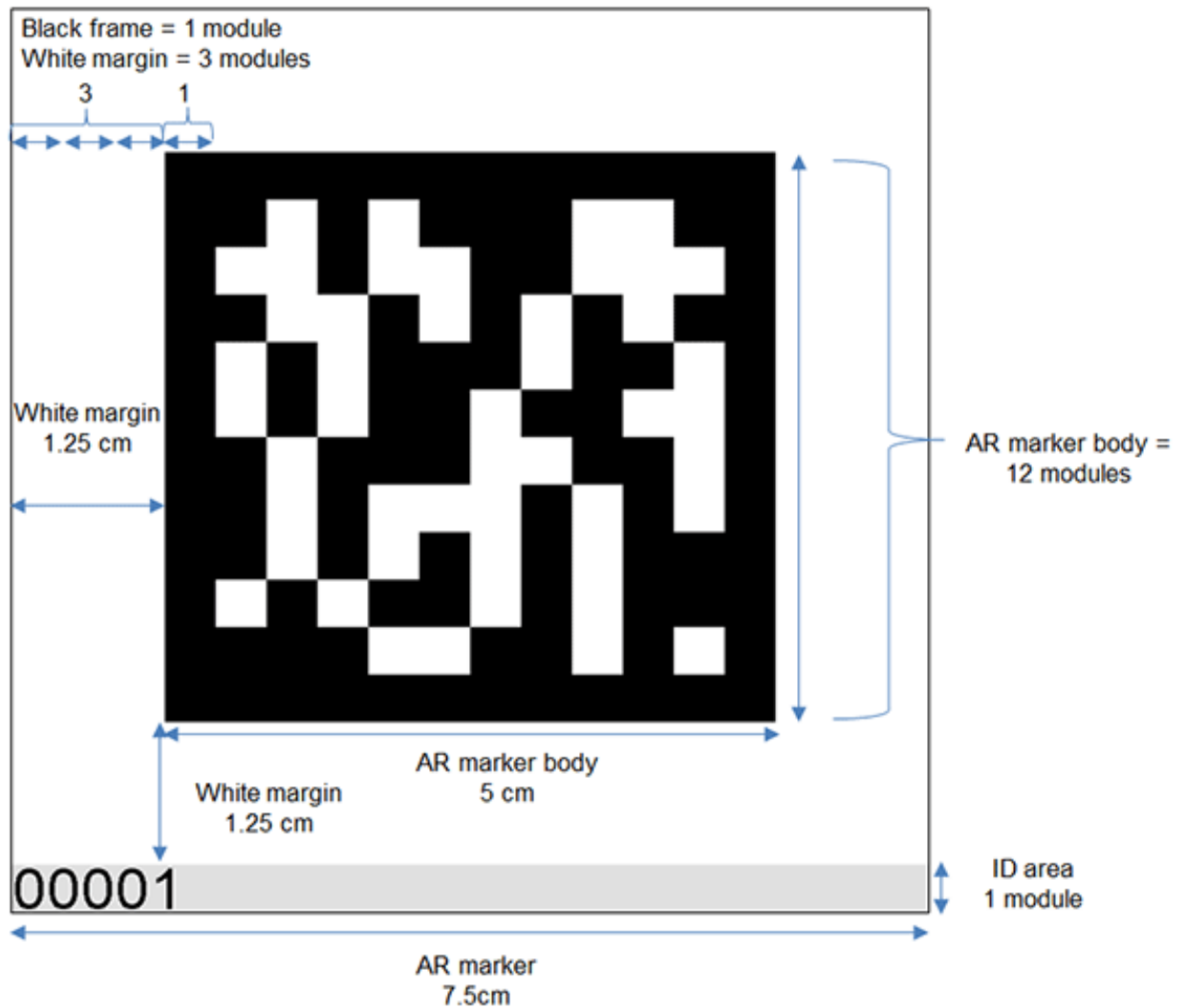
A "module" is the smallest unit (black or white square) of an AR marker. An AR marker is composed of the marker body, which is enclosed by a black frame and white margin. The length of the black frame must be 1 module, while the white margin must be 3 modules long.
- AR marker type: Black and white 12 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 1.1 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 illuminance of a normally lit room is between 100 and 1000 lx.
- 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 that contains 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

Table 1.1 Recognition distance when AR markers are used

Camera orientation	Recognition distance
Recognition distance (face-on)	400 to 1,400 mm
Recognition distance (± 30 degree-orientation)	400 to 1,000 mm

 **Note**

- These results were measured using a Fujitsu smart device. 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.

1.3 Barcode

This section explains the barcode recognition mode provided by Interstage AR Processing Server.

Supported formats

- QR code
- UPC A
- UPC E
- EAN 8
- EAN 13

Illuminance level required for image recognition

50 lx or more

Number of barcodes that can be recognized simultaneously

Simultaneous recognition is not available.

Recognition performance

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

- Size of the barcode body: 5 cm (long side)
- Image size per frame: 640 pixels x 480 pixels
- Illuminance: 400 to 500 lx

When using barcodes, preferably perform recognition from the front side.

Table 1.2 Recognition distance when barcodes are used

Format	Minimum recognition distance	Maximum recognition distance
QR code	70 mm	300 mm
UPC A		150 mm
UPC E		300 mm
EAN 8		250 mm
EAN 13		120 mm

 **Note**

- These results were measured using a Fujitsu smart device. 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 barcode. Check the recognition performance beforehand using the smart device that will be used.
- Ensure that the barcodes to be used meet the relevant barcode format specifications.

- Some characters, such as Chinese characters not designated for daily use, may be replaced by another character such as a question mark (?).
- The recognition accuracy of the QR code depends on the version (number of cells). The recognition performance is the actual measured value for Version 5 (37 x 37). Versions 1 to 10 are recommended for use.
- To enable recognition of a barcode (UPC A, UPC E, EAN 8, EAN 13), you must hold up the smartphone with the barcode facing the right way up.
- if use an EAN 13 barcode and ID of the target barcode starts with '0', the barcode will be recognized as an UPC A barcode by recognition specification. In this case, it is required to enable UPC A recognition mode.

1.4 Location Data

This section explains the recognition mode provided by Interstage AR Processing Server, and that uses positioning information.

- Position information
 - Retrieved values
 - . This recognition mode uses information such as latitude, longitude, altitude. Latitude is the angle created by the zenith (directly above the device) and the equatorial plane at a particular point. It is expressed in decimal (for example, 35.40529), with the equator defined as 0 degrees, the North Pole defined as +90 degrees, and the South Pole defined as -90 degrees. Longitude is expressed in decimal (for example, 139.45579), with the Greenwich Meridian defined as the prime meridian, and east extending to +180 degrees and west extending to -180 degrees. Altitude is the vertical distance between the current position and the sea level.
 - Retrieval methods
 - This product can retrieve positioning information using the following methods (note that they can be used in combination):
 - GPS
 - Wi-Fi
 - Mobile network

Table 1.3 Retrieval methods

Item	GPS	Wi-Fi	Mobile network
Positioning method	GPS satellite	Public Wi-Fi access point	Mobile network base station
Accuracy	A few meters to several tens of meters	Several tens of meters to few hundred meters	A few thousand meters
Indoor use	N	Y	Y
Outdoor use	Y	Y	Y
Refresh interval	A few minutes (this will vary depending on the user location and the satellite status)	A few seconds	A few seconds
Network connection	Not required	Required	Required
Battery consumption	High	Low	Low

Information

- Accuracy of the Location Data retrieved affects the display accuracy of the overlay content. When using Location Data, it is recommended using GPS, Wi-Fi, and mobile network for reliable operation.
- Small distances to the target object (roughly the margin of error of the recognition mode multiplied by 10) impact the margin of error created by the recognition accuracy. For this reason, when using the GPS, content a few hundred of meters away is accurately displayed.
- Accuracy depends on the smart device used.
- Retrieval status of Location Data and sensor information will vary depending on the smart device used.

- Position information retrieval accuracy
Configure in accordance with the environment used, since this depends on the retrieval method. The best accuracy display is achieved when the smart device is used under conditions where all retrieval methods are effective.
- Refresh rules
 - Android version
 - Changes in Location Data are ignored if the dislocation distance is 10m or less. Note that 10m is a rough indication only, and the margin of error depends on the specification of the device used.
 - For GPS, Location Data is retrieved every 30 seconds.
 - For Wi-Fi and mobile network, Location Data is retrieved every second.
 - iOS version
Updated when the dislocation distance is large. Updates are ignored when the dislocation distance is 10m or less, and in indoor spaces such as rooms or the subway, where retrieval of Location Data is often not possible.
 - Windows version
 - Changes in Location Data are ignored if the dislocation distance is 10m or less. Note that 10m is a rough indication only, and the margin of error depends on the specification of the device used.
 - Positioning information is retrieved every second. Note that the retrieval interval will vary depending on the smart device used.
- Camera tilt information
If accuracy of camera tilt information is low due to interference by the geomagnetic sensor compass, for example, then the geomagnetic sensor needs to be adjusted. Move away from the cause of interference, or trace out the figure 8 with the device.

Figure 1.2 Adjusting the geomagnetic sensor



Information

- If camera tilt information is off by one degree, content 1km away is displayed off track by approximately 17.5m.
- The accuracy will vary depending on the smart device used.

- Object display range
Attribute of AR overlay content display range. It is the maximum distance between the device and the position for which AR content is defined.
 - Valid range
Up to 200,000m.

Note

- If 3D is set as the projection type and the content assumed to be overlaid further away is actually overlaid close by, then it may occupy the whole window. Check this by switching scenes depending on the position from which the content is viewed, and reconfiguring the overlaid content.
- Location data mode cannot be used while the device is in flight mode.
- The refresh interval will vary depending on the device used and retrieval condition.
- Altitude "0" may be constantly retrieved, depending on the device used.

- Accuracy of camera tilt information may be low in the following situations:
 - The smart device is pointed towards the zenith or the ground below.
 - You are close to an object that produces a magnetic field, such as reinforcing steel, electronic wiring, or electronic devices.
 - You are at a place where geomagnetic measurement is difficult, such as a bedrock that contains a large concentration of magnetite.
-

1.5 Beacon

This section explains the beacon recognition mode provided by Interstage AR Processing Server.

Beacon

- Retrieved values
The Bluetooth Low Energy GATT (Generic Attribute Profile) format can be retrieved. The UUID is recognized and then content is overlaid.
- Number of beacons that can be recognized simultaneously
Up to four (recommended)
- Recognition distance
Up to 20 meters (recommended)
Depends on the distance of an obstacle from the target beacon and the beacon radio field intensity.
- Retrieval frequency
Reported whenever an obstacle is recognized or lost.



- The beacon recognition mode does not support the 3D projection type.
 - The beacon recognition mode is supported only in Android.
 - These results were measured using a Fujitsu smart device. Actual recognition performance will vary depending on the smart device used and the beacon radio field intensity. Accordingly, check in advance the recognition performance of the smart device and beacon that will be used.
-

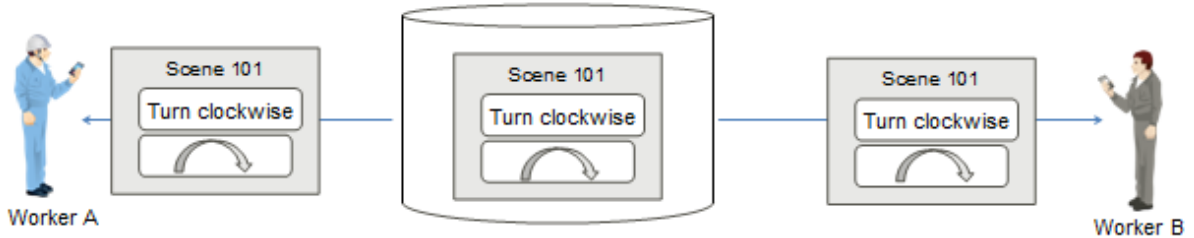
1.6 Uploading

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.

 Note

Figure 1.3 If Worker B makes no changes to an AR overlay definition that was deleted by Worker A

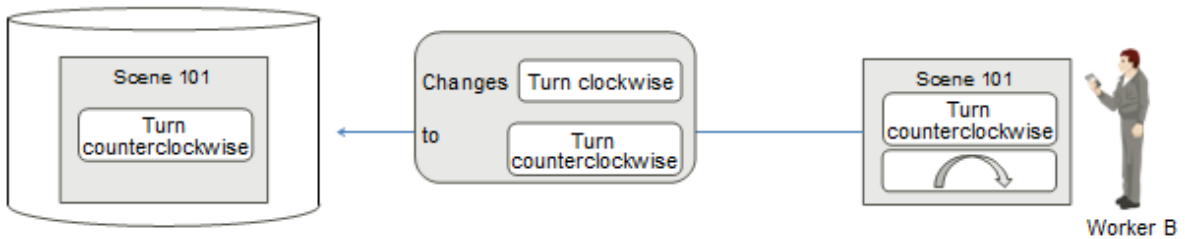
1: Workers A and B download scene 101 at the same time



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



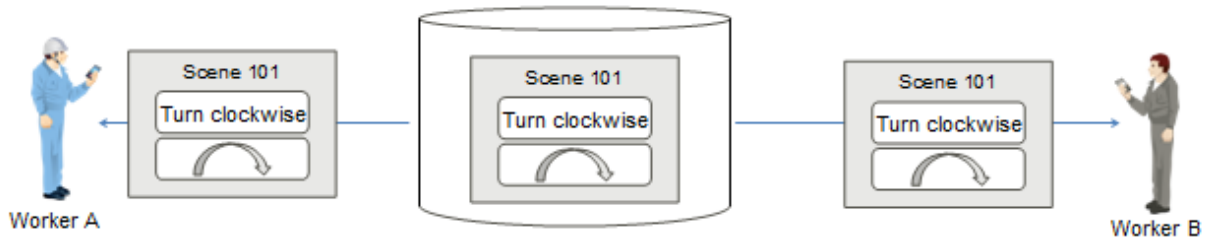
3: Worker B modifies an AR overlay definition and uploads this information



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

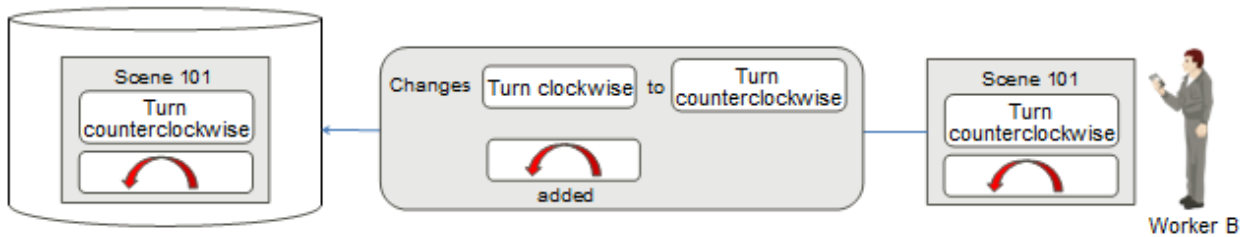
1: Workers A and B download scene 101 at the same time



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.

1.7 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.

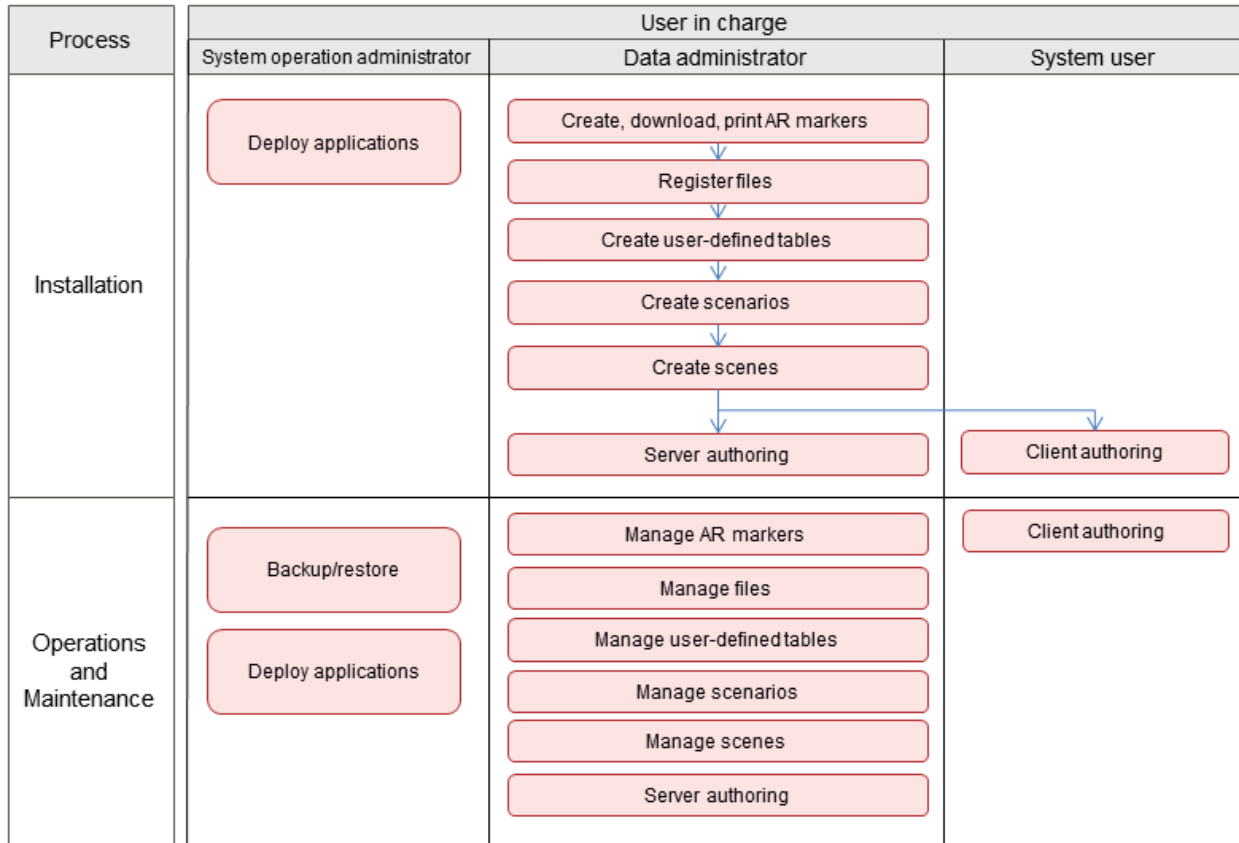
 Note

- If using client authoring, the scale information will be reset whenever the projection is switched.
- If 2D is selected, the overlay order when overlay content overlaps depends on the usage. Set the authoring so that content does not overlap.
- If AR content is displayed using 3D projection, non-3D models may be displayed flattened and on their "side" (as if rotated), depending on the viewing angle.
- 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.
- 3D models are properly displayed only if using 3D projection.
- If the recognition mode is **Beacon**, only 2D is available as the projection mode.

Chapter 2 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 2.1 Task workflow and operator



Task workflow during installation

This section explains the required tasks for actual use of the system during installation, assuming that the tasks below have been completed.

- Installation and setup tasks for servers and smart devices, as described in the *Installation Guide*,
- Development of requirement definitions, such as 3D models and overlay applications, as described in the *Developer's Guide*.

Task workflow during operation and maintenance

This section explains the required tasks for operation management on the system used for operation, such as changing the various types of data in use, and backup and restore.

2.1 Task workflow during installation

If required, perform the tasks below:

- Prepare applications
- If you are developing an overlay application, then deploy it.
To deploy the applications to the AR processing server, perform [5.3.1 Deploying](#).
- Prepare the data to be used in the system
Follow the procedure below to register the required data to build an environment where AR overlay can be executed using a smart device.
 1. Add, download, and print an AR marker

If using the AR marker recognition mode, perform [3.2.1 Add AR marker](#), [3.2.3 Download AR marker](#), and [3.2.4 Print AR marker](#).

2. Register files
Register files to be used as AR overlay content.
3. Create user-defined tables
If using a user-defined table in an overlay application, perform [3.4.1 Create user-defined tables](#).
4. Create scenarios (required)
Perform [3.5.1 Register scenarios](#) to suit the needs of the business.
5. Create scenes (required)
Perform [3.6.1 Register scenes](#) to suit the needs of the business.
6. Server authoring and client authoring (required)
Using [3.7 Server authoring](#) or [4.3 Client authoring \(Android\)](#) [4.4 Client authoring \(iOS\)](#) [4.5 Client authoring \(Windows\)](#), create AR overlay definitions to suit the needs of the business.



Note

- AR overlay content cannot be created before a scenario and scene are created.
- The following are optional: Adding, downloading, and printing an AR marker, registering files,, and creating user-defined tables. Perform these in accordance with the work status.

2.2 Task workflow during operation and maintenance

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

Manage AR markers

Add a new AR marker

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.

Chapter 3 Operations using the data management console

This chapter describes how to use the data management console provided by Interstage AR Processing Server.

3.1 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.

3.1.1 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

- If using SSL encryption for communications on Model A:

```
https://arServerName:httpsListenerPortForDataMgmtConsole/arsvdmc/
```

- If not using SSL encryption for communications on Model A:

```
http://arServerName:httpsListenerPortForDataMgmtConsole/arsvdmc/
```

- If using SSL encryption for communications on Model B/C/D:

```
https://webServerName:webServerHttpsListenerPortForDataMgmtConsole/arsvdmc/
```

- If not using SSL encryption for communications on Model B/C/D:

```
http://webServerName:webServerHttpsListenerPortForDataMgmtConsole/arsvdmc/
```

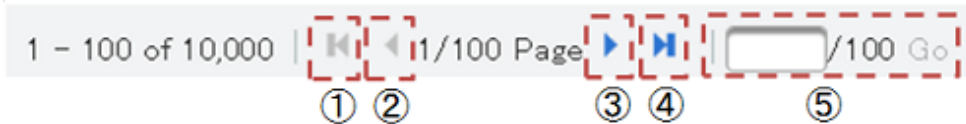
Note

- 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.
- 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.

3.1.2 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 10 items. Other kinds of tables can display up to 100 items.

Figure 3.1 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.

3.1.3 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:

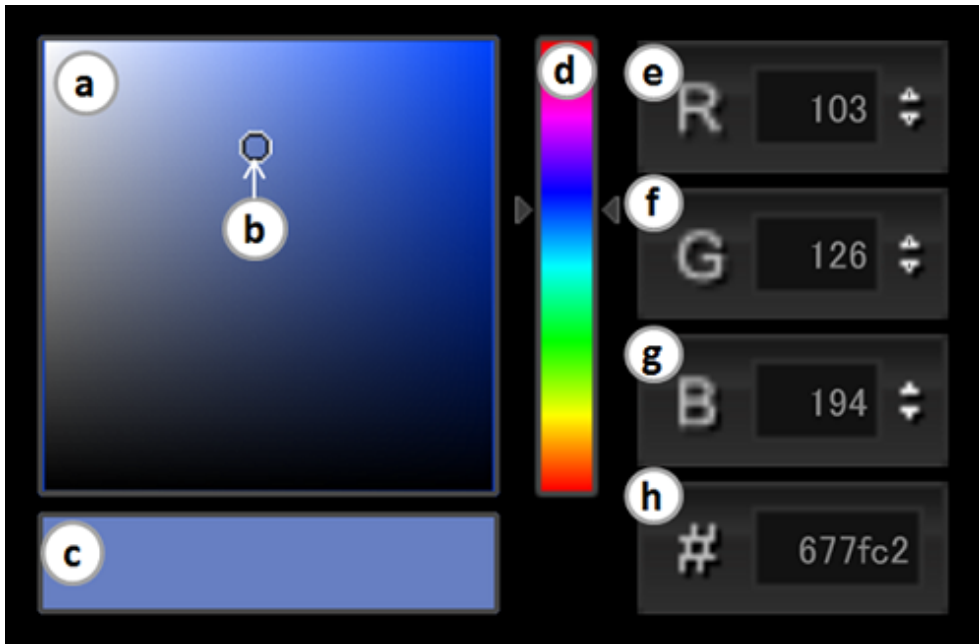
- Scenario management
 - Scenario list - Number of scenes and AR overlay definitions
 - Scene list - Number of AR overlay definitions
 - AR overlay definition list - Type
 - Data management
 - AR overlay definition list - Type, scenario name, scene name
 - File list - Type
 - User-defined table list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

3.1.4 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 3.2 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.

3.1.5 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 3.1 List of file extensions that can be registered

MIME type	Extension
application/pdf	.pdf
application/msword	.doc

MIME type	Extension
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
application/zip	.zip
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



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

Table 3.2 Limitation list

Item	Details of limitation
File name	Up to 100 characters (including extension)
Recommended file size	5 MB
Maximum file size	3.9 GB

- Registration may fail for files larger than 3.9 GB.
- If using a registered file on a smart device, ensure that the corresponding application has been installed (for example, Adobe Reader must be installed to view PDF files).
- application/zip files cannot be registered from the file management page. They can only be registered from the **Add New** screen or editing dialog box for AR overlay definitions whose type is 3D model.

3.1.6 Downloading with SSL encryption

If using the management console on Windows Internet Explorer 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 Internet Explorer 9:

1. Start Windows Internet Explorer 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 Internet Explorer 9.

3.2 AR marker management

This section explains the tasks required to manage AR markers in Interstage AR Processing Server.

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
-

3.2.1 Add AR marker

AR markers can be added (based on the designed requirement definition) from the data management console provided by Interstage AR Processing Server.

Attributes of AR marker types are shown below:

Table 3.3 AR marker type attributes

Attribute	Description	Notes
AR marker ID	Number identifying the AR marker.	Value can be an integer from 1 to 10,000. You cannot add an AR marker ID that has already been registered.
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: <ul style="list-style-type: none">- Used- Unused	Select the status to suit the situation.
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 add an AR marker:

1. Log in to the data management console.
2. Select the **AR Marker Management** tab, and in the AR marker list, click **Add**.
3. In the **AR Marker Information Registration** dialog box, enter the required information.
4. Click **OK**.

3.2.2 Edit AR marker information

Follow the procedure below to edit information of a registered AR marker:

1. From the data management console, select **AR Marker Management**.
2. Search for the marker to be edited, using one of the following methods:
 - 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**.
 - 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. Select the check box of the AR marker to be edited, and then click **Edit**.
 4. In **Edit AR marker information**, 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**
If required, update it accordingly.
 - **Description**
If required, enter a memo or description using up to 256 characters.
 5. Click **OK**.

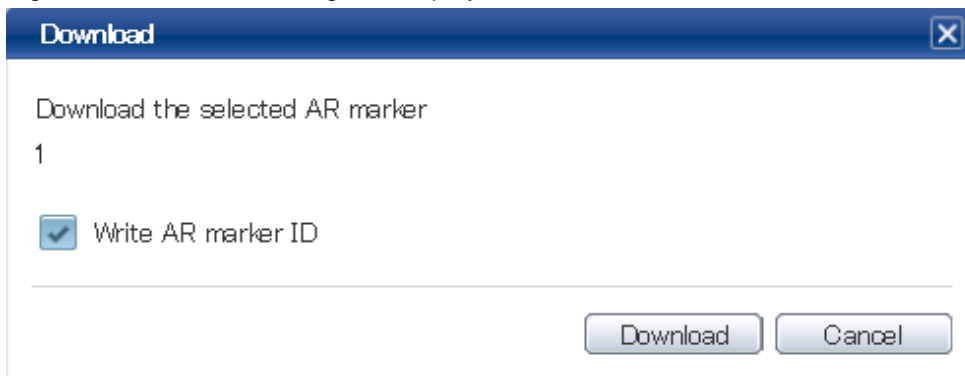
3.2.3 Download AR marker

Registered AR markers are downloaded as image files.

To download, select one of the following methods:

Download by selecting a check box

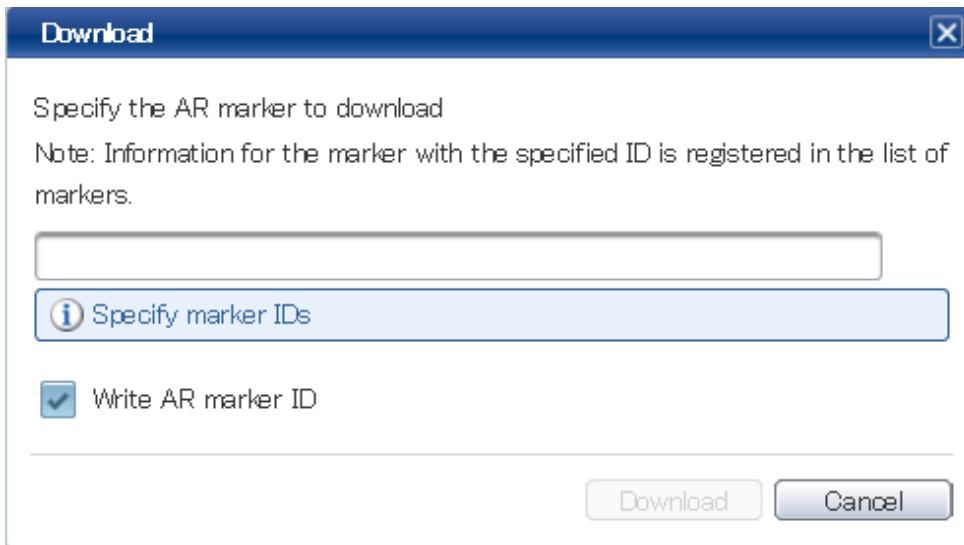
Figure 3.3 **Download** dialog box displayed when a marker is selected



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 the selected AR marker ID list is displayed.
5. If adding an AR marker ID area, then select **Write AR marker ID**.
6. Click **Download**.

Download by specifying the AR marker ID

Figure 3.4 **Download** dialog box displayed when a marker ID is specified



1. From the data management console, select **AR Marker Management**.
2. Click **Specify ID to download**.
3. 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]

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

Note

- Up to 1,000 AR markers can be downloaded at once.
- If downloading by specifying a marker ID, the marker information of unregistered IDs is registered to marker management.

3.2.4 Print AR marker

After downloading an AR marker, it can be printed. 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.
-

3.2.5 Delete AR marker

Follow the procedure below to delete a registered AR marker:

1. From the data management console, select **AR Marker Management**.
2. Search for the AR marker to be deleted, using one of the following methods:
 - 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**.
 - 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. Select the check box of the AR marker to be deleted, and then click **Delete**.
4. In the **Delete AR Marker Information** dialog box, click **OK**.

Note

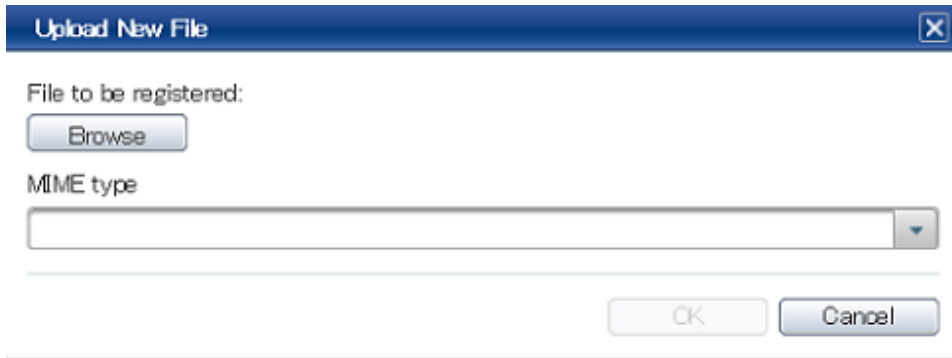
When an AR marker is deleted using the data management console, the AR overlay content associated with that marker is not deleted. Therefore, the content can still be recognized on the smart device.

3.3 Managing files

This section describes how to register or delete files, such as image files used in AR overlay content.

3.3.1 Register files

Figure 3.5 Upload New File dialog box



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.
5. Ensure that the MIME type specified based on the file extension is correct.
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).

3.3.2 Delete files

Follow the procedure below to delete a file:

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. Once a file is deleted, the AR content that references that file will no longer be displayed.

3.4 Manage 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. The following sections describe how to create, edit and delete user-defined tables.

3.4.1 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
- arpoigps_default
- arpoibarcode_default
- arpoi beacon_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 Tables 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.

3.4.2 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, 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**.

3.4.3 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 data 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.

3.5 Manage scenarios

Register the scenarios to be used from the data management console, based on the requirement definitions.

3.5.1 Register scenarios

Using the data management console, enter the scenario data.

The attributes of scenarios are listed below:

Table 3.4 Scenario attributes

Attribute	Description	Notes
Scenario ID	ID of the scenario.	Value can be an integer from 1 to 9999
Scenario name	Name of the scenario	Value can be up to 30 characters long
Description	Description of the scenario	Value can be up to 256 characters long
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.

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**.



Up to 1000 scenarios can be created for a single system.

3.5.2 Edit scenarios

Using the data management console, edit the scenario (only **Scenario name** and **Remarks** 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**. Filtered searches for scenarios can be performed.
 - Case-sensitive searches for exact matches can also be performed for the following attributes: **Scenario name** and **Scenario ID**.
 - Leaving the fields empty will display all results (that is, no filtering will occur).

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**.

3.5.3 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**.



Note

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.

3.6 Manage scenes

Register the scenes to be used from the data management console, based on the requirement definitions.

3.6.1 Register scenes

Using the data management console, enter the scene data.

The attributes of scenes are listed below:

Table 3.5 Scene attributes

Attribute	Description	Notes
Scene ID	ID of the scene.	Value can be an integer from 1 to 999999
Scene name	Name of the scene.	Value can be up to 30 characters long
Description	Description of the scene.	Value can be up to 256 characters long
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.

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 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**.



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

3.6.2 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**.

3.6.3 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**.



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.

3.7 Server authoring

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



- Up to 100 AR overlay definitions can be added to a single scene.
- Do not use Japanese in URLs for tap actions.

- If creating AR content to be used with Location Data recognition mode, enter positioning information (latitude, longitude and altitude, obtained via GSP, online service, or some other method) of the location to associate with the content.

3.7.1 Creating AR overlay definition

The server authoring procedure is as follows:

Figure 3.6 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 3D model**

3.7.1.1 Add text

Follow the procedure below to add text information:

1. Enter the basic information, and then click **Next**.
 - **Recognition mode**
Select the recognition mode to be used.
 - **AR overlay definition name**
Enter the name of the AR overlay definition using between 0 and 30 characters.
 - **AR marker ID**
If **Recognition mode** is **AR marker**, then 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.

- **Barcode ID**

If **Recognition mode** is **Barcode**, then enter the ID of the barcode for the overlay. By default no value is entered.

- **UUID**

If **Recognition mode** is **Beacon**, then enter the UUID of the beacon for the overlay. By default no value is entered. Enter a hexadecimal value.

 **Example**

Example: 550e8400-e29b-41d4-a716-446655440000

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 a value 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 a numeric value 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 a numeric value 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 3.7 Font color: #FFFFFF; background color: #000000; Word wrap: this example shows text rendering when Word wrap is not selected

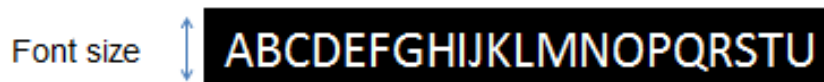
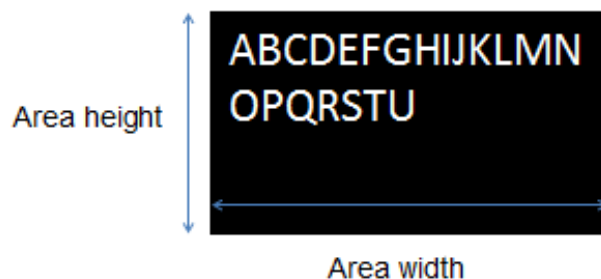


Figure 3.8 Font color: #FFFFFF; background color: #000000; Word wrap: this example shows text rendering when Word wrap is selected



 **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.

- If **Recognition mode** is **AR marker** or **Barcode**:

- **Translation**

Enter the coordinate of the position to display the AR overlay content, using a value between -32 and +32, using the long side of the recognized target 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).

The unit for the numeric value is the size of the long side (or the AR marker body).



Example

If "4" is specified and the AR marker size is 5cm, then the content will be displayed as if it were 20cm away from the marker.

- **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).

- If **Recognition mode** is **Location Data**:

- **Position information**

Enter the latitude, longitude, and altitude of the location for which the AR overlay content is to be displayed.

Latitude: Use positive values for north latitudes and negative values for south latitudes. Up to five decimal places can be specified (values with more than 5 decimal places will be rounded to five decimal places). The unit is degrees.

Longitude: Use positive values for east longitudes and negative values for west longitudes. Up to five decimal places can be specified (values with more than 5 decimal places will be rounded to five decimal places). The unit is degrees.

Altitude: Indicates the value in the z-axis direction. Enter an integer. The unit is meters.

- **Rotation**

Enter the angle of rotation based on the orientation and horizontal direction. 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 150000 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).



Note

If a value with eight or more digits between the highest and the lowest decimal places is entered, rounding errors may occur.

- If **Recognition mode** is **Beacon**:

- **Translation**

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

The reference coordinate is the center of the screen, where changing the translation by 1 moves the AR content by 50 (dip).

- **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 file or script, and then click **OK**. The specified file or JavaScript will be called when the AR overlay content is tapped.
- **File**
Enter the file to be called by the tap action.
 - To specify a file stored on the local machine
 1. In **Select a file**, select **Upload a local file**.
 2. Click **Browse**, and select the file to upload.
 3. Ensure that the MIME type is correct.
 - To specify a file already registered on the server
 1. In **Select a file**, select **Select a file on the server**.
 2. Click **Browse**, and select the file to upload.
 - To specify a URL
 1. In **Select a file**, select **Select a URL**.
 2. Enter the URL using up to 256 characters. Enter either an absolute or relative path.
 - **Script**
Enter the JavaScript method and arguments to be called by the tap action using up to 256 characters.

3.7.1.2 Add shape

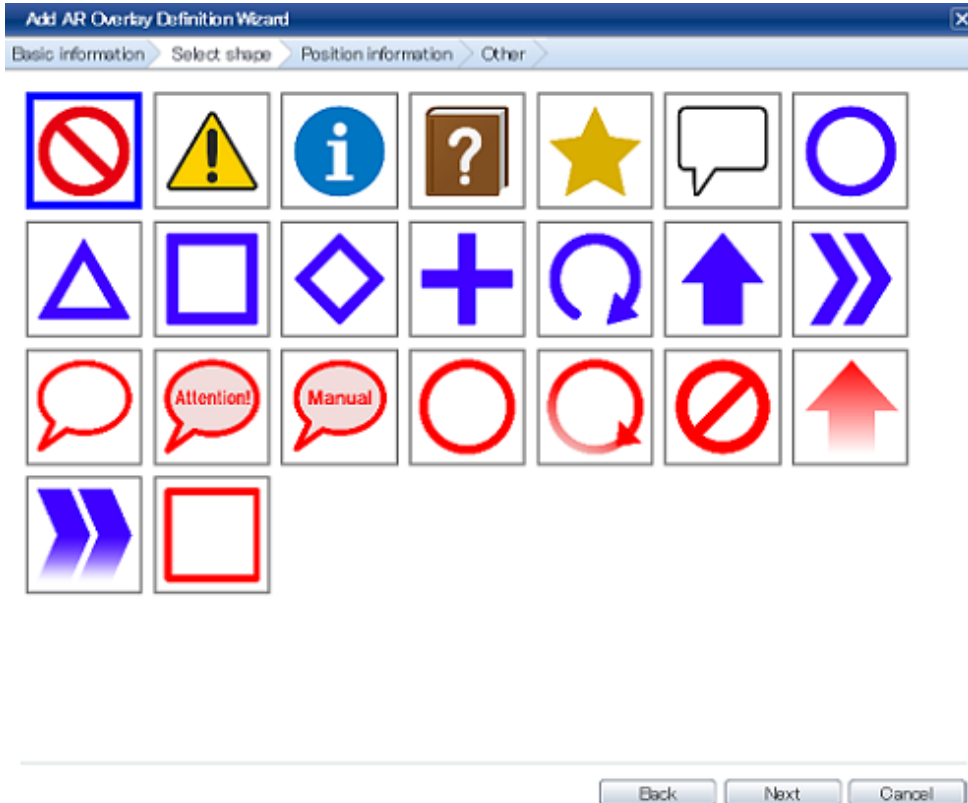
Follow the procedure below to add a shape:

1. Enter the basic information, and then click **Next**.
Modify the ID and AR overlay definition name of the target AR marker.
 - **Recognition mode**
Select the recognition mode to be used.
 - **AR overlay definition name**
Enter the name of the AR overlay definition using between 0 and 30 characters.
 - **AR marker ID**
If **Recognition mode** is **AR marker**, then enter the ID for 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.
 - **Barcode ID**
If **Recognition mode** is **Barcode**, then enter the ID of the barcode for the overlay. By default no value is entered.
 - **UUID**
If **Recognition mode** is **Beacon**, then enter the UUID of the beacon for the overlay. By default no value is entered. Enter a hexadecimal value.

Example

Example: 550e8400-e29b-41d4-a716-446655440000

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



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

- **Projection type**

Select 2D or 3D according to the content.

- If **Recognition mode** is **AR marker** or **Barcode**:

- **Translation**

Enter the coordinate of the position to display the AR overlay content, using a numeric value between -32 and +32, using the long side of the recognized target 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).

The unit for the numeric value is the size of the long side (or the AR marker body).

Example

If "4" is specified and the AR marker size is 5 cm, then the content will be displayed as if it were 20 cm away from the marker.

- **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).

- If **Recognition mode** is **Location Data**

- **Position information**

Enter the latitude, longitude, and altitude of the location for which the AR overlay content is to be displayed.

Latitude: Use positive values for north latitudes and negative values for south latitudes. Up to five decimal places can be specified (values with more than 5 decimal places will be rounded to five decimal places). The unit is degrees.

Longitude: Use positive values for east longitudes and negative values for west longitudes. Up to five decimal places can be specified (values with more than 5 decimal places will be rounded to five decimal places). The unit is degrees.

Altitude: Indicates the value in the z-axis direction. Enter an integer. The unit is meters.

- **Rotation**

Enter the angle of rotation based on the orientation and horizontal direction. 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 150000 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).



Note

.....
If a value with eight or more digits between the highest and the lowest decimal places is entered, rounding errors may occur.
.....

- If **Recognition mode** is **Beacon**:

- **Translation**

Enter the coordinate of the position to display the AR overlay content, using a numeric value between -32 and +32. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places). The reference coordinate is the center of the screen, where changing the translation by 1 moves the AR content by 50 (dip).

- **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 file or script, and then click **OK**. The specified file or JavaScript will be called when the AR overlay content is tapped.

- **File**

Enter the file to be called by the tap action.

- To specify a file stored on the local machine

1. In **Select a file**, select **Upload a local file**.
2. Click **Browse**, and select the file to upload.
3. Ensure that the MIME type is correct.

- To specify a file already registered on the server

1. In **Select a file**, select **Select a file on the server**.
2. Click **Browse**, and select the file to upload.

- To specify a URL

1. In **Select a file**, select **Select a URL**.
2. Enter the URL using up to 256 characters. Enter either an absolute or relative path.

- **Script**

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

3.7.1.3 Add File

Follow the procedure below to add an image 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
- The file name may include the following characters:
Alphanumeric characters and the following symbols: asterisk (*), hyphen (-), period (.), underscore (_).

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

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

- **Recognition mode**
Select the recognition mode to be used.
- **AR overlay definition name**
Enter the name of the AR overlay definition using between 0 and 30 characters.
- **AR marker ID**
If **Recognition mode** is **AR marker**, then 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.
- **Barcode ID**
If **Recognition mode** is **Barcode**, then enter the ID of the barcode for the overlay. By default no value is entered.
- **UUID**
If **Recognition mode** is **Beacon**, then enter the UUID of the beacon for the overlay. By default no value is entered. Enter a hexadecimal value.

Example

Example: 550e8400-e29b-41d4-a716-446655440000

2. Enter the file to be displayed, and then click **Next**.

- To specify a file stored on the local machine
 1. In **Select a file**, select **Upload a local file**.
 2. Click **Browse**, and select the image file to upload.
 3. Ensure that the MIME type is correct.
- To specify a file already registered on the server
 1. In **Select a file**, select **Select an image file on the server**.
 2. Click **Browse**, and select the file to upload.
- To specify a URL
 1. In **Select a file**, select **Select a URL**.
 2. Enter the URL using up to 256 characters. Enter either an absolute or relative path.

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

- **Projection type**

Select 2D or 3D according to the content.

- If **Recognition mode** is **AR marker** or **Barcode**:

- **Translation**

Enter the coordinate of the position to display the AR overlay content, using a numeric value between -32 and +32, using the long side of the recognized target 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).

The unit for the numeric value is the size of the long side (or the AR marker body).



Example

.....
If "4" is specified and the AR marker size is 5 cm, then the content will be displayed as if it were 20 cm away from the marker.
.....

- **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).

- If **Recognition mode** is **Location Data**

- **Positioning information**

Enter the latitude, longitude, and altitude of the location for which the AR overlay content is to be displayed.

Latitude: Use positive values for north latitudes and negative values for south latitudes. Up to five decimal places can be specified (values with more than 5 decimal places will be rounded to five decimal places). The unit is degrees.

Longitude: Use positive values for east longitudes and negative values for west longitudes. Up to five decimal places can be specified (values with more than 5 decimal places will be rounded to five decimal places). The unit is degrees.

Altitude: Indicates the value in the z-axis direction. Enter an integer. The unit is meters.

- **Rotation**

Enter the angle of rotation based on the orientation and horizontal direction. 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 150000 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).



Note

.....
If a value with eight or more digits between the highest and the lowest decimal places is entered, rounding errors may occur.
.....

- If **Recognition mode** is **Beacon**:

- **Translation**

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

The reference coordinate is the center of the screen, where changing the translation by 1 moves the AR content by 50 (dip).

- **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 file or script, and then click **OK**. The specified file or JavaScript will be called when the AR overlay content is tapped.

- File

Enter the file to be called by the tap action.

- To specify a file stored on the local machine
 1. In **Select a file**, select **Upload a local file**.
 2. Click **Browse**, and select the image file to upload.
 3. Ensure that the MIME type is correct.
- To specify a file registered on the server
 1. In **Select a file**, select **Select a file on the server**.
 2. Click **Browse**, and select the image file to upload.
- To specify a URL
 1. In **Select a file**, select **Select a URL**.
 2. Enter the URL using up to 256 characters. Enter either an absolute or relative path.
- Script
Enter the JavaScript method and arguments to be called by the tap action using up to 256 characters.

3.7.1.4 Add 3D model

Follow the procedure below to add a 3D model:



- Refer to the *Developer's Guide* for details on how to create a 3D model.
- Create the zip file to be registered with only the required files and no directory structure.

```
Example:  
bear.zip  
- bear_002.obj  
- bear_002.mtl  
- bear002_tex3.PNG
```

1. Enter the basic information, and then click **Next**.
Modify the ID and AR overlay definition name of the AR marker.
 - **Recognition mode**
Select the recognition mode to be used.
 - **AR overlay definition name**
Enter the name of the AR overlay definition using between 0 and 30 characters.
 - **AR marker ID**
If **Recognition mode** is **AR marker**, then 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.
 - **Barcode ID**
If **Recognition mode** is **Barcode**, then enter the ID of the barcode for the overlay. By default no value is entered.

2. Enter the 3D model to be displayed, and click **Next**.

- To specify a file stored on the local machine

1. In **Select a file**, select **Upload a local file**.
2. Click **Browse**, and select the file to upload.
3. Ensure that the MIME type is correct.

- To specify a file registered on the server

1. In **Select a file**, select **Select a file on the server**.
2. Click **Browse**, and select the file to upload.

- To specify a URL

1. In **Select a file**, select **Select a URL**.
2. Enter the URL using up to 256 characters. Enter either an absolute or relative path.



- When using a 3D model stored on the local machine

- Specify a .zip file that includes .obj and .mtl files. It will be converted to a format that speeds up parsing process at a client application.
- After conversion, the .zip file name will be prefixed with "ar3d_".
- Conversion will be performed ignoring the data not used in the AR content. Use client authoring, for example, to check that the converted files are overlaid correctly.

- When using a 3D model already registered on the server, or when selecting URL directly

- Specify the .zip file that was converted at "Upload from local system".

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

- **Projection type**

When using 3D models, only 3D will be available.

- If **Recognition mode** is **AR marker** or **Barcode**:

- **Translation**

Enter the coordinate of the position to display the AR overlay content, using a value between -32 and +32, using the long side of the recognized target 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).

The unit for the numeric value is the size of the long side (or the AR marker body).



Example

If "4" is specified and the AR marker size is 5 cm, then the content will be displayed as if it were 20 cm away from the marker.

- **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).

- If **Recognition mode** is **Location Data**

- **Positioning information**

Enter the latitude, longitude, and altitude of the location for which the AR overlay content is to be displayed.

Latitude: Use positive values for north latitudes and negative values for south latitudes. Up to five decimal places can be specified (values with more than 5 decimal places will be rounded to five decimal places). The unit is degrees.

Longitude: Use positive values for east longitudes and negative values for west longitudes. Up to five decimal places can be specified (values with more than 5 decimal places will be rounded to five decimal places). The unit is degrees.

Altitude: Indicates the value in the z-axis direction. Enter an integer. The unit is meters.

- **Rotation**

Enter the angle of rotation based on the orientation and horizontal direction. 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 150000 for the scaling factor of the AR overlay content.



.....
If a value with eight or more digits between the highest and the lowest decimal places is entered, rounding errors may occur.
.....

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

- **File**

Enter the file to be called by the tap action.

- To specify a file stored on the local machine

1. In **Select a file**, select **Upload a local file**.
2. Click **Browse**, and select the file to upload.
3. Ensure that the MIME type is correct.

- To specify a file registered on the server

1. In **Select a file**, select **Select a file on the server**.
2. Click **Browse**, and select the file to upload.

- To specify a URL

1. In **Select a file**, select **Select a URL**.
2. Enter the URL using up to 256 characters. Enter either an absolute or relative path.

- **Script**

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



.....
Take note of the following if many 3D models are specified for one scene.

- Parsing of 3D model files use up a lot of memory For this reason, if many 3D models are specified, do not perform overlay before parsing of 3D model files is completed. Applications may be terminated due to insufficient memory.
 - Design the overlay contents with the memory capacity of your smart device in mind. If the number of 3D models exceed the memory capacity, applications may be terminated abnormally.
 - The maximum recommended number of overlay contents per 3D model per scene is 10.
-

3.7.2 Edit AR overlay definitions

Follow the procedure below to edit registered AR overlay definitions using the data management console:

- 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 data 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**, **AR marker ID**, **Barcode ID**, and **UUID**.
 - Leaving the fields empty will display all results (that is, no filtering will occur).
 - For the **Recognition mode** attribute, the user can filter their search by selecting **All**, **AR marker**, **Barcode**, **Location Data**, or **Beacon**.
 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**.



Note

The recognition mode of existing AR overlay definitions cannot be changed. To change it, delete the AR overlay definition, and then create it again with the appropriate recognition mode.

3.7.2.1 Edit scenes and scenarios

Follow the procedure below to change scenes and scenarios associated with the selected AR overlay definition.

1. Select an AR overlay definition, and then click **Edit**.
2. Select the **Basic information** tab.
3. Click **Change** at the top of the table to be edited.
 - To edit a scenario
In the list of scenarios registered in the system, select the scenario to be edited.
 - Case-sensitive searches for exact matches can also be performed for the following attributes: **Scenario name** and **Scenario ID**.
 - Leaving the fields empty will display all results (that is, no filtering will occur).
 - Clicking **OK**, automatically selects the scenes registered in the scenario, so they can be edited as required.
 - To edit a scene
In the list of scenes registered in the selected scenario, select then scene to be edited, and then click **OK**.
4. Edit as required, and then click **OK**.

3.7.2.2 Edit text

Follow the procedure below to change text used in the selected AR overlay definition.

Note

Text can only be edited if the content type is 'text'.

1. Select an AR overlay definition, and then click **Edit**.
2. Select the **Text** tab.
3. Enter the basic information, and then click **Next**.
 - **Text** (required)
Enter up to 256 characters for the text to be overlaid.
 - **Font size** (required)
Specify a value 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 a numeric value 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 a numeric value 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 3.9 Font color: #FFFFFF; background color: #000000; Word wrap: this example shows text rendering when Word wrap is not selected

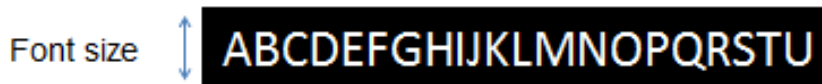
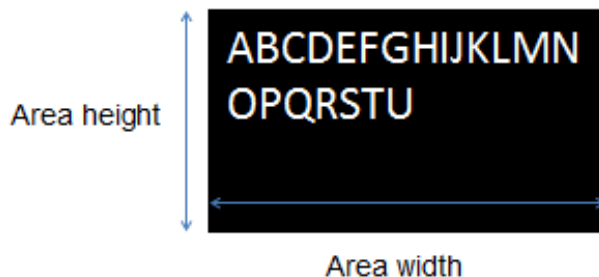


Figure 3.10 Font color: #FFFFFF; background color: #000000; Word wrap: this example shows text rendering when Word wrap is selected



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]

4. Click **OK**.

3.7.2.3 Edit shape

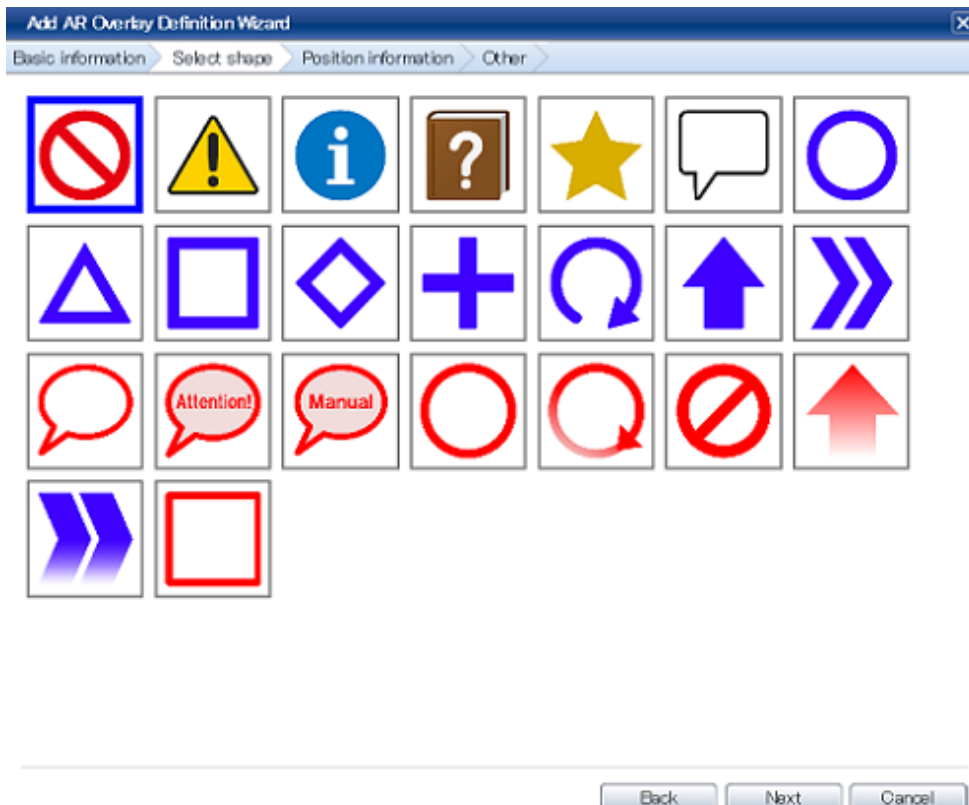
Follow the procedure below to change a shape used in the selected AR overlay definition.



Note

Shape can only be edited if the content type is 'shape'.

1. Select an AR overlay definition, and then click **Edit**.
2. Select the **Select shape** tab.
3. From the list, select the shape, and then click **Next**.



4. Click **OK**.

3.7.2.4 Change file and 3D model

Follow the procedure below to change a file or 3D model used in the selected AR overlay definition.




Note

File and 3D model can only be edited if the content type is 'file' or '3D model', respectively.

1. Select an AR overlay definition, and then click **Edit**.
2. Select either the **Select file** tab or the **Select 3D model** tab.
3. Specify the file to be used, and then click **Next**.
 - To specify a file stored on the local machine
 1. In **Select a file**, select **Upload a local file**.
 2. Click **Browse**, and select the file to upload.
 3. Ensure that the MIME type is correct.
 - To specify a file already registered on the server
 1. In **Select a file**, select **Select a file on the server**.
 2. Click **Browse**, and select the file to upload.
 - To specify a URL
 1. In **Select a file**, select **Select a URL**.
 2. Enter the URL using up to 256 characters. Enter either an absolute or relative path.
4. Make changes, and click **OK**.

3.7.2.5 Edit position information

Follow the procedure below to change the position information of the selected AR overlay definition.

1. Select an AR overlay definition, and then click **Edit**.
2. Select the **Position information** tab.
3. Change the position information as required.
 - **Projection type**
Select 2D or 3D according to the content.
 - If **Recognition mode** is **AR marker** or **Barcode**:
 - **Translation**
Enter the coordinate of the position to display the AR overlay content, using a numeric value between -32 and +32, using the long side of the recognized target 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).
The unit for the numeric value is the size of the long side (or the AR marker body).
 -  **Example**
.....
If "4" is specified and the AR marker size is 5 cm, then the content will be displayed as if it were 20 cm away from the marker.
.....
 - **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).
 - If **Recognition mode** is **Location Data**
 - **Positioning information**
Enter the latitude, longitude, and altitude of the location for which the AR overlay content is to be displayed.
Latitude: Use positive values for north latitudes and negative values for south latitudes. Up to five decimal places can be specified (values with more than 5 decimal places will be rounded to five decimal places). The unit is degrees.
Longitude: Use positive values for east longitudes and negative values for west longitudes. Up to five decimal places can be specified (values with more than 5 decimal places will be rounded to five decimal places). The unit is degrees.
Altitude: Indicates the value in the z-axis direction. Enter an integer. The unit is meters.

- **Rotation**

Enter the angle of rotation based on the orientation and horizontal direction. 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 150000 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 a value with eight or more digits between the highest and the lowest decimal places is entered, rounding errors may occur.
.....

- If **Recognition mode** is **Beacon**:

- **Translation**

Enter the coordinate of the position to display the AR overlay content, using a numeric value between -32 and +32, using the screen ratio of the smart device 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).

The unit for the numeric value is the size of the screen ratio, and the reference coordinate is the center of the screen.

- **Rotation**

Enter a value between -360 and +360 for the rotation angle of the AR overlay content. Values up to 3 decimal places are valid. (values with more decimal places will be rounded to 3 decimal places).

- **Scale**

Enter a value between 0.1 and 32 for the scaling factor of the AR overlay content. Values up to 3 decimal places are valid (values with more decimal places will be rounded to 3 decimal places).

4. Edit as required, and then click **OK**.

3.7.2.6 Edit tap action

Follow the procedure below to change the tap action of the selected AR overlay definition.

1. Select an AR overlay definition, and then click **Edit**.

2. Select the **Other** tab.

3. Change the tap action as required.

- **Use tap action**

Select this option if a tap action should be associated with the content.

- **File**

Enter the file to be called by the tap action.

- To specify a file stored on the local machine

1. In **Select a file**, select **Upload a local file**.

2. Click **Browse**, and select the file to upload.

3. Ensure that the MIME type is correct.

- To specify a file already registered on the server

1. In **Select a file**, select **Select a file on the server**.

2. Click **Browse**, and select the file to upload.

- To specify a URL

1. In **Select a file**, select **Select a URL**.

2. Enter the URL using up to 256 characters. Enter either an absolute or relative path.

- **Script**

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

4. Edit as required, and then click **OK**.

3.7.3 Delete AR overlay definitions

Follow the procedure below to delete registered AR overlay definitions using the data management console:

- 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**, search the AR overlay definition to be deleted. 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**, **AR marker ID**, **Barcode ID**, and **UUID**.
 - Leaving the fields empty will display all results (that is, no filtering will occur).
 - For the **Recognition mode** attribute, the user can filter their search by selecting **All**, **AR marker**, **Barcode**, **Location Data**, or **Beacon**.
5. Select the AR overlay definition.
6. Click **Delete**.
7. In the confirmation message, check the details, and then click **OK**.

Chapter 4 Operations on smart devices

4.1 Client authoring tool

This section provides an overview of the client authoring tool provided by Interstage AR Processing Server. You must perform setup before performing AR client authoring.

4.1.1 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.

- **Application selection** screen
Allows the user to select an overlay application or AR client authoring. To perform client authoring, select **AR Client Authoring**.
- **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.
- AR view screen
Recognizes the AR marker and Location Data, and checks the status of the current AR overlay definition. Tap the **Edit** icon to navigate to **Edit Mode**.
- **Edit mode**
 - **Unselected** screen
AR markers and AR content are not selected in this screen when performing editing using an AR marker as the recognition 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.

4.1.2 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 4.1 Example display showing 'Add New' on a tablet

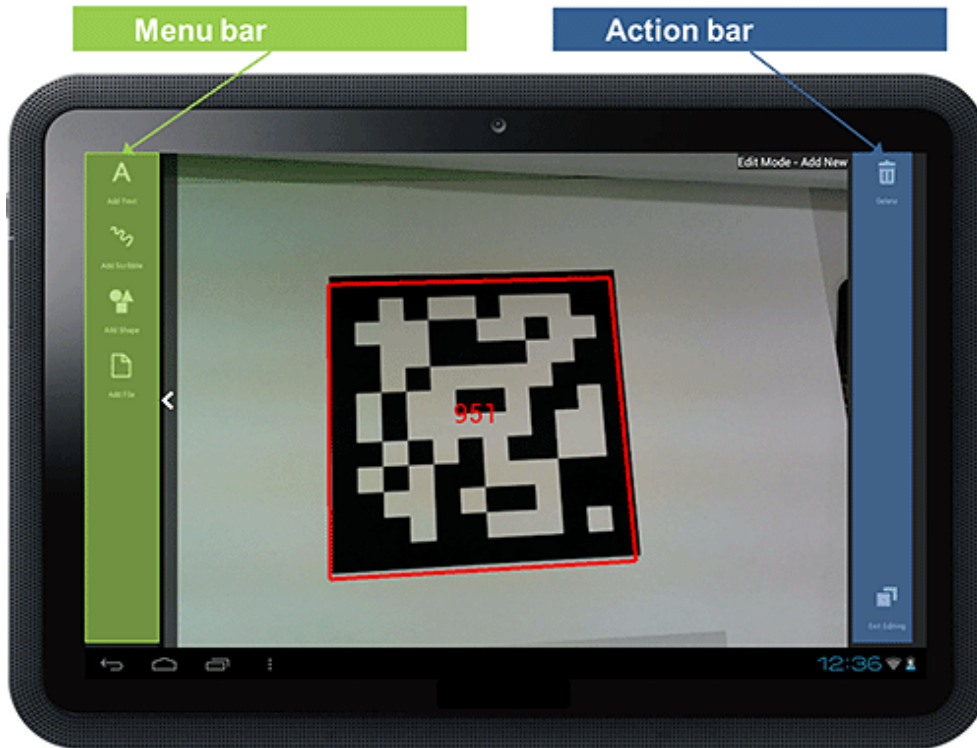


Table 4.1 Bar list

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. - Batch -Batch-downloads and uploads the displayed scene list. - AR view screen <ul style="list-style-type: none"> - Zoom - Changes the zoom factor of a camera image. - Exposure compensation - Compensates the exposure of a camera image. - Options <ul style="list-style-type: none"> - Camera settings - Specifies whether to include contents when the shutter is used to take a photo. - Location Data -Enables/disables the UI implemented when the Location Data recognition mode is used and changes the object display range, for example. - 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. - Add Shape - Creates AR overlay content from shapes 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 - Resizes and/or repositions the selected AR overlay content item.

Bar	Description
	<ul style="list-style-type: none"> - Rotate - Rotates the selected AR overlay content item. - Edit Text (displayed only in Android and Windows) - 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'). - Projection - Modifies projection - 2D or 3D can be selected. - Option - Modified assorted information, such as scale and tap action.
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. - Edit - Navigates to Edit Mode. This menu item is available when the target set using the recognition mode is recognized. - Upload (displayed only when Server Data Authoring is selected) - Uploads data from the smart device to the server. - Unselected screen <ul style="list-style-type: none"> - Delete - Editing target Displayed only when the corresponding recognition mode is ON. <ul style="list-style-type: none"> - AR marker - Barcode - Location Data - Beacon - Exit Editing - Add New screen and Modify screen <ul style="list-style-type: none"> - Delete - Add New - Editing target Displayed only when the corresponding recognition mode is ON. <ul style="list-style-type: none"> - AR marker - Barcode - Location Data - Beacon - Cancel (available only when a menu has been selected in the Add New screen) - Exit Editing

Point

- Usually, menu bars (such as those 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.
-

4.1.3 Zoom

Follow the procedure below, the to zoom images captured by the camera in and out on the AR view screen.

1. In the menu bar, tap the **Zoom** icon.
2. In the adjustment screen, slide the bar to the left or to the right to zoom in and out to the desired size, respectively.
3. Tap the menu bar to close the adjustment screen.

Note

- In the Windows version, AR overlay content associated with Location Data is not resized in line with the zoom.
 - The zoomed image quality will vary depending on the device's camera hardware. Therefore, check the device's image quality to determine if zooming is appropriate for AR marker recognition.
 - Zoom will not be available if it is not supported by the device's hardware.
 - Data will not be saved if the user redirects to a different screen using **Home** or **Resume**.
 - Depends on the smart device used, there are rare cases that the specified values are not reflected.
-

4.1.4 Exposure compensation

Follow the procedure below to adjust exposure compensation of images captured by the camera on the AR view screen:

1. In the menu bar, tap the **Exposure compensation** icon.
2. In the adjustment screen, slide the bar to left or to the right to adjust the exposure.
3. Tap the menu bar to close the adjustment screen.

Note

- The iOS versions do not support exposure compensation.
 - Exposure compensation will not be available if it is not supported by the device's hardware.
 - Data will not be saved if the user redirects to a different screen using **Home** or **Resume**.
 - Default value of exposure compensation depends on the smart device used.
 - Depends on the smart device used, there are rare cases that the specified values are not reflected.
-

4.1.5 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.

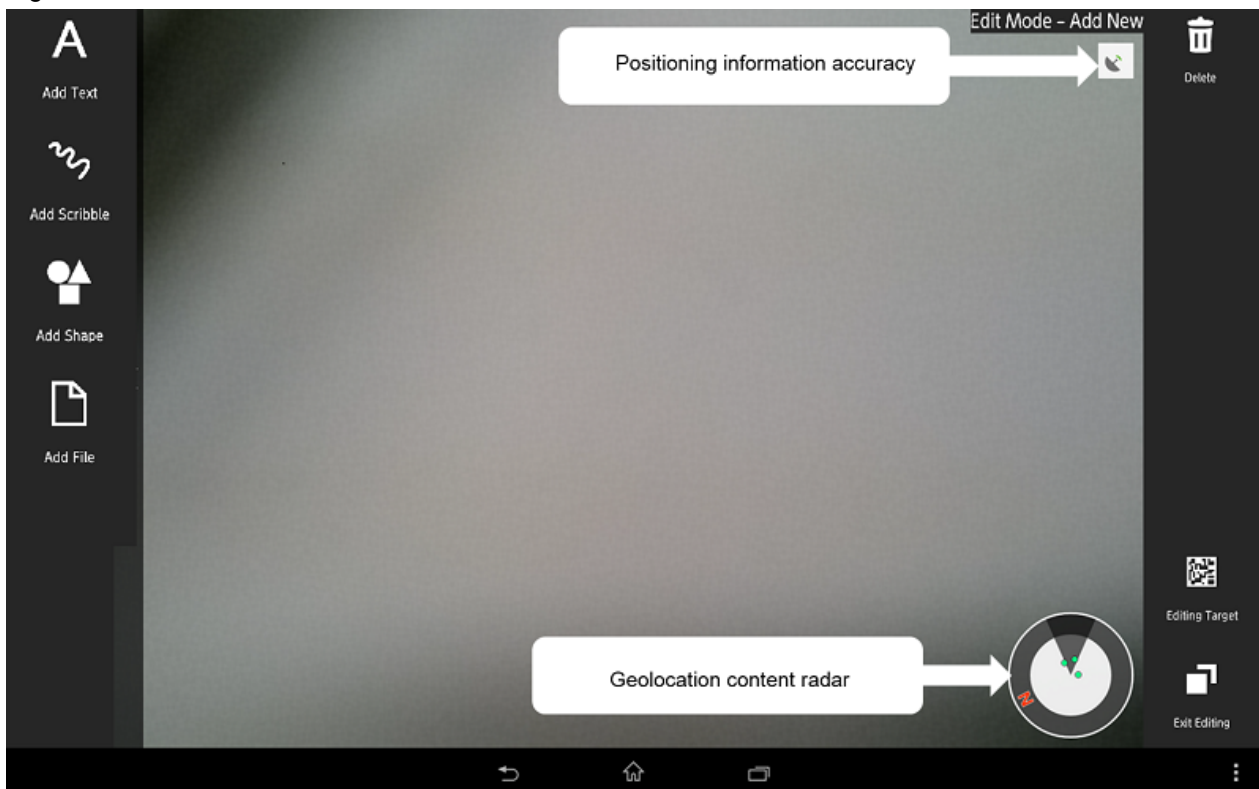
Point

- The volume of resources that can be downloaded at once will depend on the available internal storage of the smart device.
- When starting the client authoring tool, you can select server connection mode or standalone mode.
If switching modes, you must restart the client authoring tool.

4.1.6 GUI for Location Data

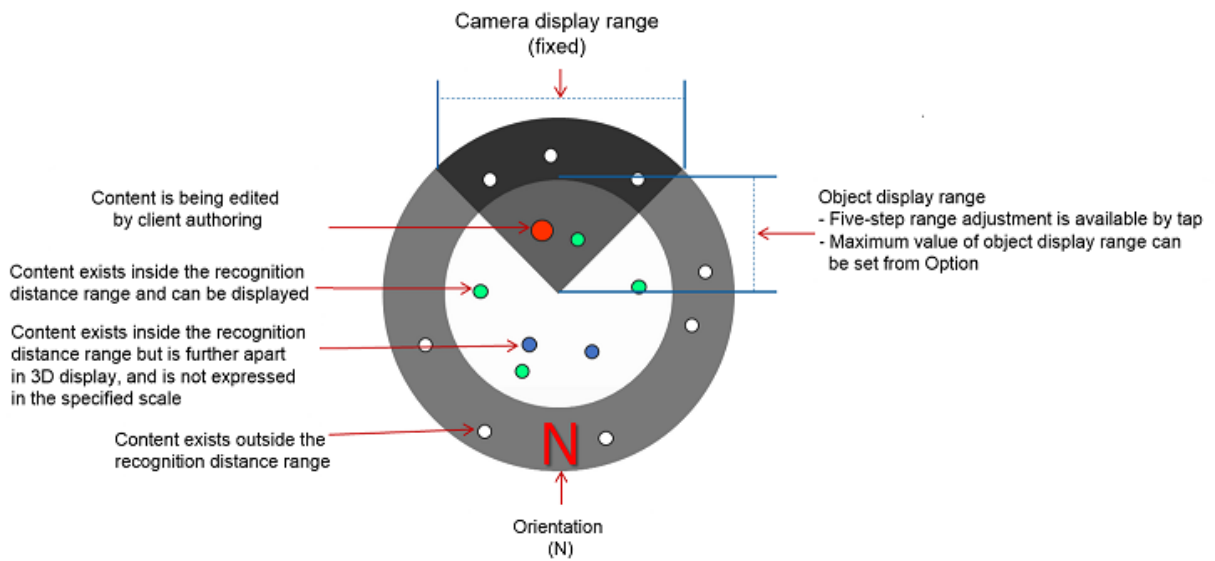
If **Recognition mode** is **Location Data**, additional GUI elements for Location Data will be available during authoring. The provided elements are as follows:

Figure 4.2 Location Data GUI



- Location Data content radar
Displays the Location Data used in the selected scene in 2D.

Figure 4.3 Location Data content radar



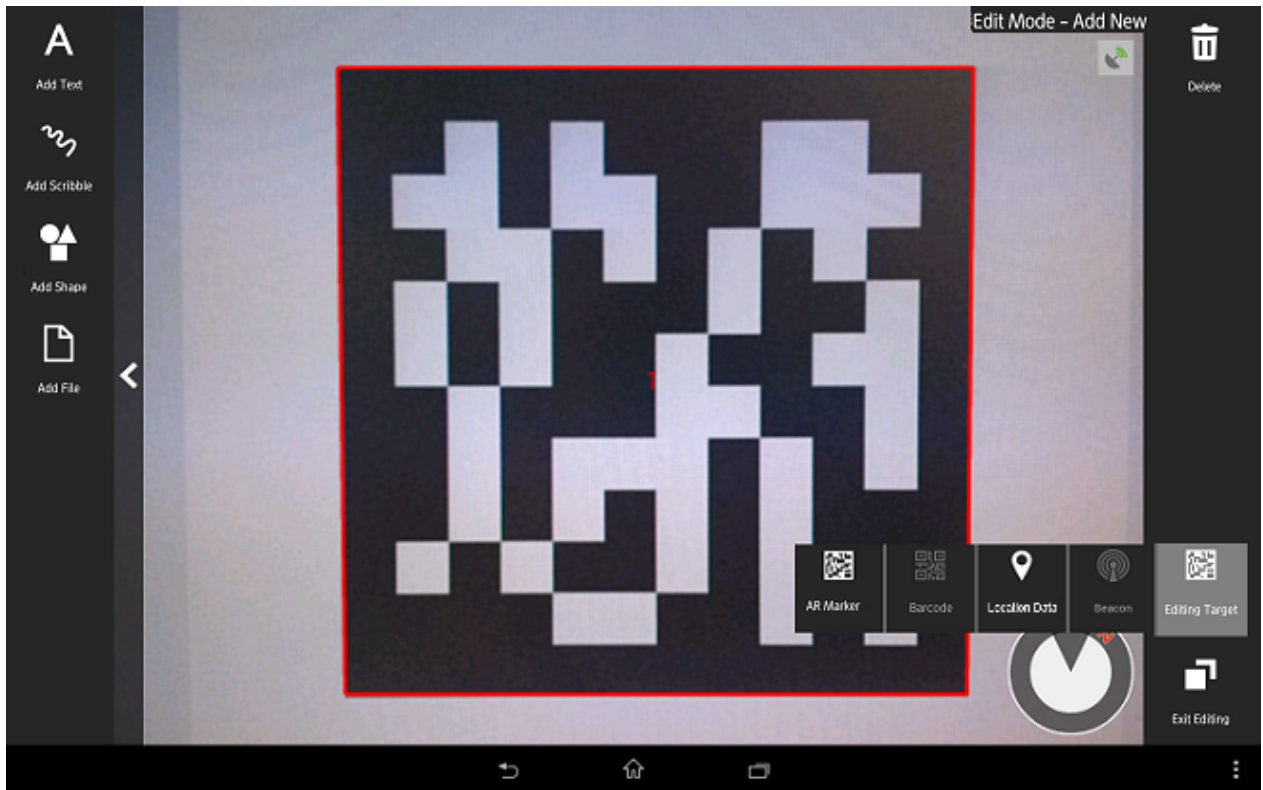
- Red: Content is being edited by client authoring
- Green: Content exists inside the recognition distance range and can be displayed
- Blue: Content exists inside the recognition distance range but is further apart in 3D display, and is not expressed in the specified scale
- White: Content exists outside the recognition distance range

 Note

Content inside the object display range on the radar expressed in white means that its altitude is outside the object display range. If this happens, revise the altitude or the object display range.

- Location Data accuracy
Location Data accuracy is displayed in three levels (an 'x' is displayed if Location Data cannot be retrieved).
- Content to be edited
Displays or selects that the content being edited is for which recognition mode from AR marker, Barcode, Location Data and Beacon recognition modes. If the target recognition mode is turned off, it will not be listed.

Figure 4.4 Content to be edited



Note

- This can be selected only when the recognition mode is valid, and the target is recognized. For example, if an AR marker is recognized but the Location Data cannot be retrieved, only AR marker can be selected as the content to be edited.
- If multiple recognition mode targets are recognized, then initial selection is determined in the following order of mode: AR marker, barcode, beacon, and Location Data.

Follow the procedure below:

1. Ensure that **Recognition mode** is **Location Data**.
2. In the menu bar, tap the **Option** icon.
3. Set **Show UI of location data** to **On**.
4. Select the object display range for the Location Data content radar.
5. Tap **Close**.

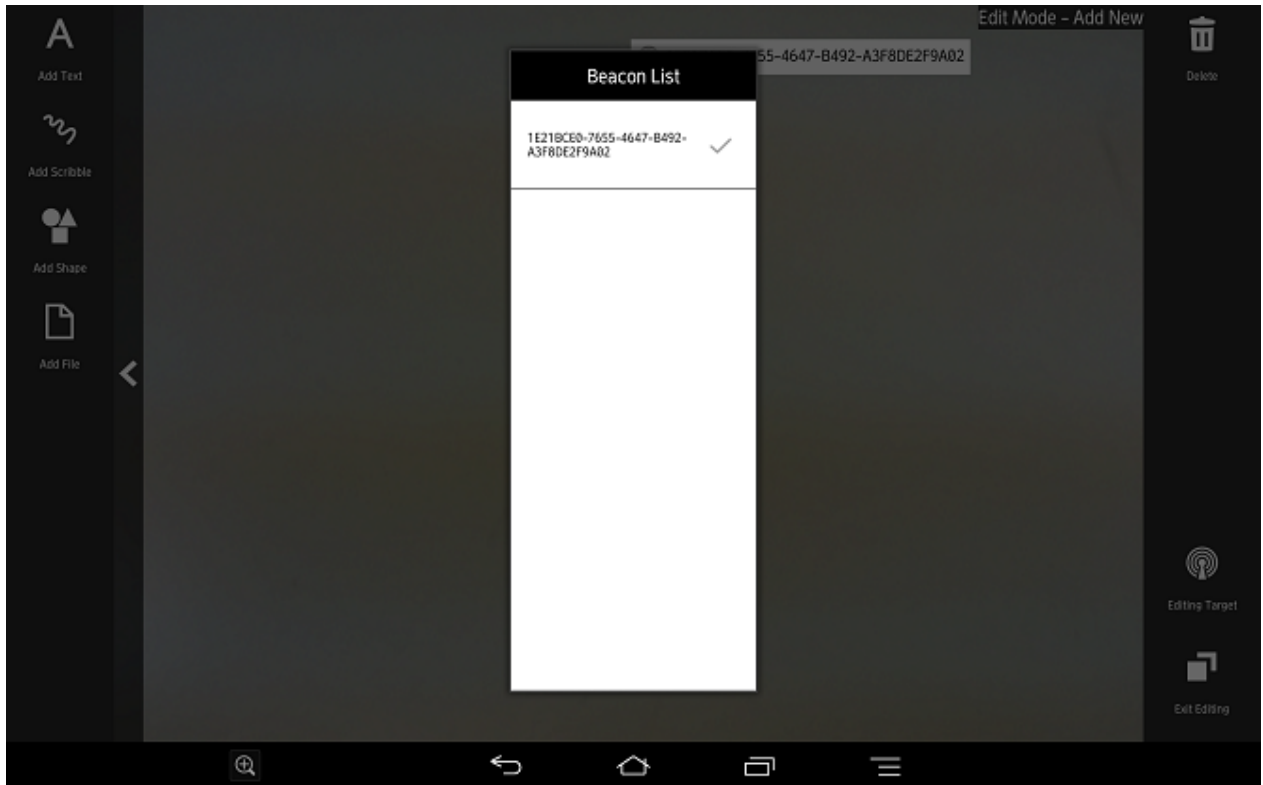
Note

- The Windows version does not support the Location Data GUI.
- Data will not be saved if the user redirects to a different screen using Home or Resume.

4.1.7 GUI for beacon

If **Recognition mode** is **Beacon**, you can use the beacon selection GUI during authoring. The provided elements are as follows:

Figure 4.5 Beacon GUI



- Target beacon
Displays the UUID of the beacon selected for authoring from all recognized beacons. To switch display of the authoring target beacon, select a GUI for beacon display. Selecting a GUI selects the authoring target beacon from the list of UUIDs of recognized beacons.

4.2 Client authoring tool settings

This section explains the settings for the client authoring tool provided by Interstage AR Processing Server.

4.2.1 Settings (Android)

For the Android version, the following changes can be made to **Settings**.

- General settings
- Account settings
- Recognition mode settings

4.2.1.1 General settings

The following settings can be changed.

Retrieve logs

Retrieves logs using the native application.

Camera display for AR marker recognition

Select either **Prioritize object tracking** or **Prioritize camera display** to determine behavior when recognizing AR markers.

Export log

If **Retrieve logs** is selected, stored logs can be exported (refer to [5.9.2.1 Retrieve logs \(Android\)](#) for details).

Delete local data

Deletes local data and the web cache stored in the native application. For overlay applications developed by a system developer, check with the developer directly.

1. In the list of smart device applications, tap the **InterstageAR Authoring** or **InterstageAR Dev** icon to start the client authoring tool.
2. In the status bar, tap the menu icon and select **Settings**.
3. Select **Account Setting**.
4. In the **Account Setting** window, select **General settings**.
5. Select the data you wish to delete.
 - **Delete local data**
Deletes local data stored in your smart device. Tap **OK**.
 - **Delete web cache**
Delete the web cache stored in your smart device. Tap **OK**.

4.2.1.2 Account settings

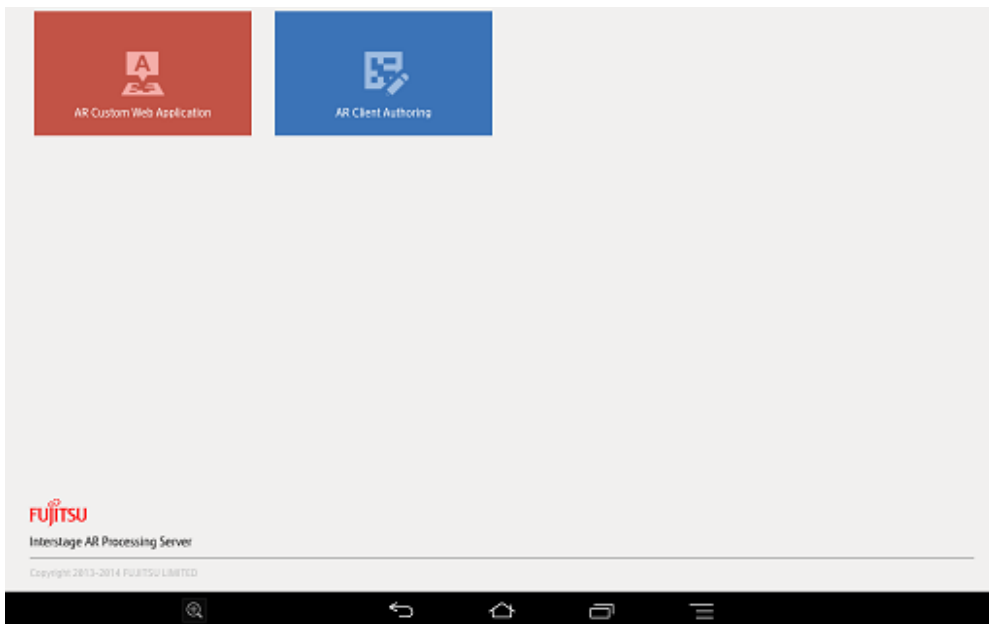
Configure an account for a server running Interstage AR Processing Server.



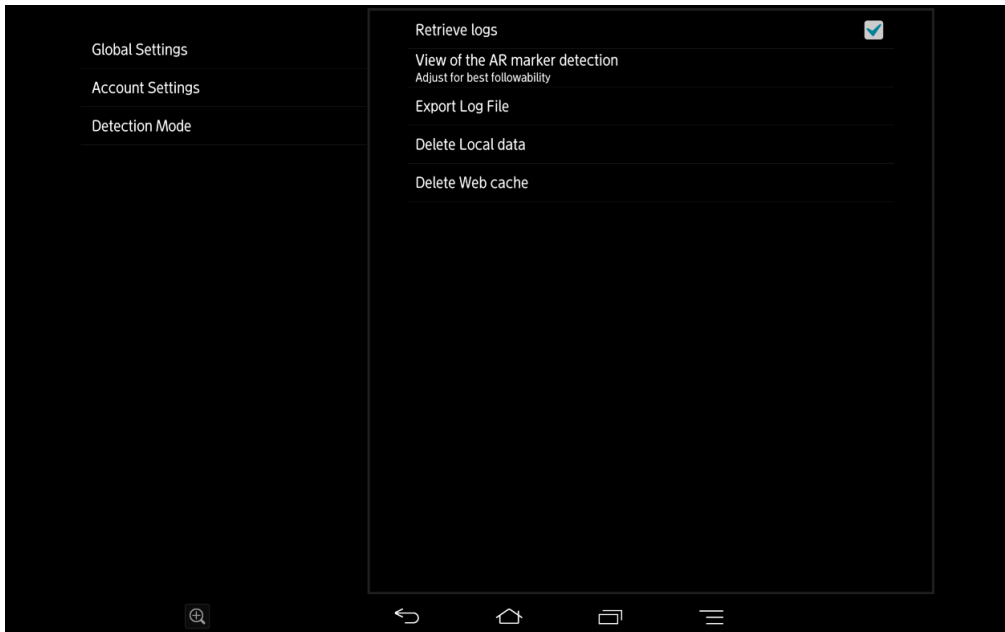
- An account must be created for the AR server if performing client authoring or similar tasks.
- Multiple accounts cannot be configured for a single AR server.
- For information on how to configure accounts for overlay applications developed by a system developer, check with the developer directly.

Follow the procedure below to configure an account:

1. In the list of smart device applications, tap the **InterstageAR Authoring** or **InterstageAR Dev** icon to start the client authoring tool.
2. In the status bar, tap the menu icon, and then select **Settings**.



3. From the menu list, tap **Account Setting**.



4. In the **Account Setting** window, select **Add New Account**.
5. In the **Account Type Selection** window, select **AR server account**.
6. Input the account information to the AR server, and then select **Register**.
 - URL
Enter the server URL, according to the server configuration.

Example

- Model A with SSL encryption
`https://arServerName:httpsListenerPortForRestApi`
 - Model A without SSL encryption
`http://arServerName:httpsListenerPortForRestApi`
 - Model B, C, or D with SSL encryption
`https://webServerName:webServerHttpsListenerPortForRestApi`
 - Model B, C, or D without SSL encryption
`http://webServerName:webServerHttpsListenerPortForRestApi`
-
- ID and password
If the server uses basic authentication, then enter the account information (no input is required if basic authentication is not used).
7. If obtaining resources from a file management server other than Interstage AR Processing Server, configure the connection information required for basic authentication, in accordance with the system configuration (for servers with no basic authentication, this is not necessary, since there is no need to store the individual account settings).
 1. Select **Add New Account**.
 2. From the **Account Type Selection** window, select **Other account**. If an AR server account has already been created, there is no need to select the account type.
 3. Enter the account information to a file management server other than an Interstage AR Processing Server and select **Register**.

Point

AR processing server account names are prefixed with an asterisk (*) in the **Account List** window.

Up to ten accounts can be configured as "other accounts".

Follow the procedure below to edit or delete information for registered AR server accounts or for other accounts (for overlay applications developed by a system developer, check with the developer directly).

Editing account information

1. In the list of smart device applications, tap the **InterstageAR Authoring** or **InterstageAR Dev** icon to start the client authoring tool.
2. In the status bar, tap the menu icon and select **Settings**.
3. Tap **Account Setting**.
4. Information for registered accounts will be displayed - tap the account to be edited.
5. In the **Account Information Input** window, edit the account, and then tap **Register**.

Deleting account information

1. In the list of smart device applications, tap the **InterstageAR Authoring** or **InterstageAR Dev** icon to start the client authoring tool.
2. In the status bar, tap the menu icon and select **Settings**.
3. Tap **Account Setting**.
4. Tap and hold the account to be deleted from the registered account information.
5. In the confirmation dialog box, tap **OK**.

4.2.1.3 Recognition mode settings

Select the recognition mode to use to achieve AR (for overlay applications developed by a system developer, check with the developer directly).

1. In the list of smart device applications, tap the **InterstageAR Authoring** or **InterstageAR Dev** icon to start the client authoring tool.
2. In the status bar, tap the menu icon and select **Settings**.
3. Select **Recognition mode**.
4. Select the recognition mode to be used.
 - AR marker
Identifies the target using an AR marker.
 - Location Data
Identifies the target using Location Data.
 - Beacon
Identifies the target using a beacon.
 - Barcode
Identifies the target using a barcode.



- It is not possible to have all modes set to OFF - at least one mode must be ON to use AR.
- If using Location Data as the recognition mode, access to location services must be enabled in the settings on your smart device.
- If using beacon as the recognition mode, Bluetooth must be enabled in the settings on your smart device.

4.2.2 Settings (iOS)

For the iOS version, the following changes can be made to **Settings**.

- General settings
- Account settings
- Recognition mode settings

4.2.2.1 General settings

The following settings can be changed.

Retrieve logs

Retrieves logs using the native application

Camera display for AR marker recognition

Select either **Prioritize object tracking** or **Prioritize camera display** to determine behavior when recognizing AR markers.

Export log

If **Retrieve logs** is selected, stored logs can be exported (refer to [5.9.2.2 Retrieve logs \(iOS\)](#) for details).

Delete local data

Deletes local data stored in the native application. For information on how to configure settings for overlay applications developed by a system developer, check with the developer directly.

1. In the list of smart device applications, tap the **InterstageAR Authoring** or **InterstageAR Dev** icon to start the client authoring tool.
2. From the displayed menu, select **Settings**.
3. Select **General settings**.
4. **Delete local data**
Deletes local data stored in your smart device. Tap **OK**.

4.2.2.2 Account settings

Configure an account for a server running Interstage AR Processing Server.



Note

- An account must be created for the AR server if performing client authoring or similar tasks.
- Multiple accounts cannot be configured for a single AR server.
- For information on how to configure accounts for overlay applications developed by a system developer, check with the developer directly.

Follow the procedure below to configure an account:

1. In the list of smart device applications, tap the **InterstageAR Authoring** or **InterstageAR Dev** icon to start the client authoring tool.
2. From the displayed menu, select **Settings**.



Interstage AR Processing Server

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3. From the menu list, tap **Account Setting**.
4. In the **Account Setting** window, select **Add New Account**.
5. In the **Account Type Selection** window, select **AR server account**.
6. Input the account information to the AR server, and then select **Register**.

- URL

Enter the server URL, according to the server configuration.



Example

- Model A with SSL encryption
`https://arServerName:httpsListenerPortForRestApi`
- Model A without SSL encryption
`http://arServerName:httpListenerPortForRestApi`
- Model B, C, or D with SSL encryption
`https://webServerName:webServerHttpsListenerPortForRestApi`
- Model B, C, or D without SSL encryption
`http://webServerName:webServerHttpListnerPortForRestApi`

- ID and password

If the server uses basic authentication, then enter the account information. No input is required if basic authentication is not used.

7. If obtaining resources from a file management server other than Interstage AR Processing Server, configure the connection information required for basic authentication. For servers with no basic authentication, this is not necessary, since there is no need to store the individual account settings. Create this in accordance with the system configuration.
 1. Select **Add New Account**.
 2. From the **Account Type Selection** window, select **Other account**. If an AR server account has already been created, there is no need to select the account type.
 3. Enter the account information to a file management server other than an Interstage AR Processing Server and select **Register**.

Point

AR processing server account names are prefixed with an asterisk (*) in the **Account List** window.

Up to ten accounts can be configured as "other accounts".

Follow the procedure below to edit or delete information for registered AR server accounts or for other accounts (for overlay applications developed by a system developer, check with the developer directly).

Editing account information

1. In the list of smart device applications, tap the **InterstageAR Authoring** or **InterstageAR Dev** icon to start the application.
2. From the displayed menu, select **Settings**.
3. From the menu list, tap **Account Setting**.
4. Information for registered accounts will be displayed - tap the account to be edited.
5. In the **Account Information Input** window, edit the account, and then tap **Register**.

Deleting account information

1. In the list of smart device applications, tap the **InterstageAR Authoring** or **InterstageAR Dev** icon to start the application.
2. From the displayed menu, select **Settings**.
3. From the menu list, tap **Account Setting**.
4. Tap and hold the account to be deleted from the registered account information.
5. In the confirmation dialog box, tap **OK**.

4.2.2.3 Recognition mode settings

Select the recognition mode to use to achieve AR (for overlay applications developed by a system developer, check with the developer directly).

1. In the list of smart device applications, tap the **InterstageAR Authoring** or **InterstageAR Dev** icon to start the client authoring tool.
2. From the displayed menu, select **Settings**.
3. Select **Recognition Mode**.
4. Select the recognition mode to be used.
 - AR marker
Identifies the target using an AR marker.
 - Location Data
Identifies the target using location data.
 - Barcode
Identifies the target using a barcode.

Note

- It is not possible to have all modes set to OFF - at least one mode must be ON to use AR.
- If using Location Data as the recognition mode, access to location services must be enabled in the settings on your smart device.

4.2.3 Settings (Windows)

For the Windows version, the following changes can be made to **Settings**.

- General settings

- Account settings
- Recognition mode settings

4.2.3.1 General settings

The following settings can be changed.

Retrieve logs

Retrieves logs using the native application

Camera settings

Configures the camera to use with the native application (for information on how to configure settings for overlay applications developed by a system developer, check with the system developer directly).

- Select camera
Follow the procedure below to select a smart device camera:
 - Select **Select camera**, and from the list of camera names recognized by your device, select the camera to be used.
 - Ensure that the selected camera name and preview are displayed correctly.
- Camera display for AR marker recognition
Select either **Prioritize object tracking** or **Prioritize camera display** to determine behavior when recognizing AR markers.



Note

- The application will select the first camera recognized by the device.
- **Select camera** cannot be selected during authoring or while the camera is being used by the overlay application.
- Front camera images are not displayed as mirror images.

Application data

Deletes the local data and web cache stored in the native application (for overlay applications developed by a system developer, check with the system developer directly).

- Delete local data
Deletes local data stored in your smart device. Tap **OK**.
- Delete web cache
Deletes the web cache stored in your smart device. Tap **OK**.

4.2.3.2 Account settings

Configure an account for a server running Interstage AR Processing Server.

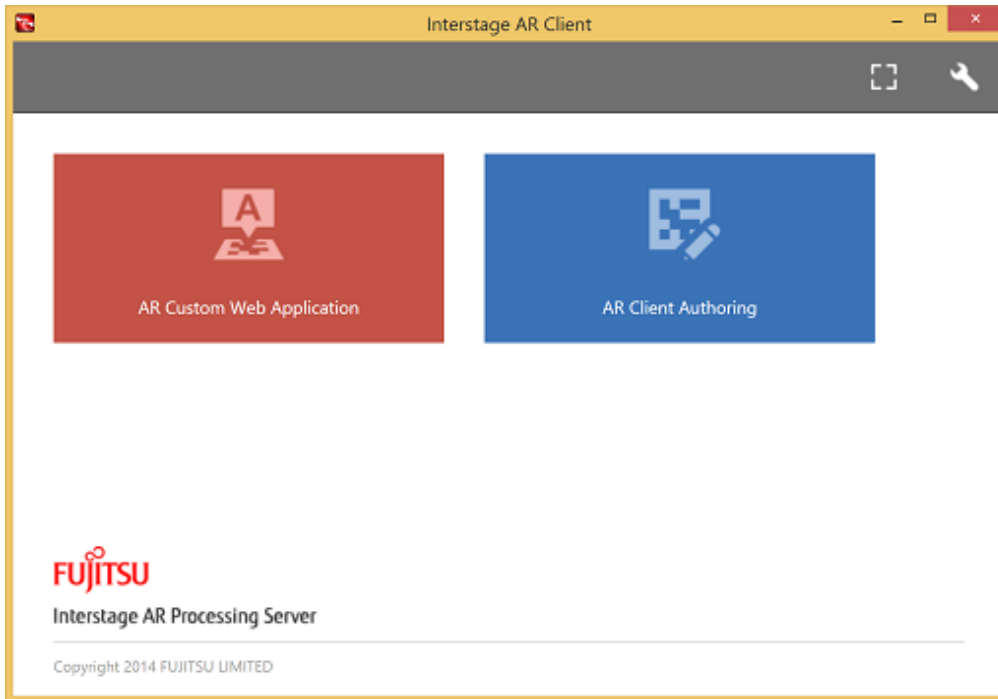


Note

- An account must be created for the AR server if performing client authoring or similar tasks.
- Multiple accounts cannot be configured for a single AR server.
- For information on how to configure accounts for overlay applications developed by a system developer, check with the developer directly.

Follow the procedure below to configure an account:

1. In the list of smart device applications, under **InterstageAR**, tap the **Authoring** or **Dev** icon to start the application.
2. At the top-right of the window, tap the **Settings** icon .



3. In the **Account Setting** window, select **Add New Account**.
4. In the **Account Type Selection** window, select **AR server account**.
5. Input the account information to the AR server, and then select **Register**.

- URL

Enter the server URL, according to the server configuration.



Example

- Model A with SSL encryption

`https://arServerName:httpsListenerPortForRestApi`

- Model A without SSL encryption

`http://arServerName:httpListenerPortForRestApi`

- Model B, C, or D with SSL encryption

`https://webServerName:webServerHttpsListenerPortForRestApi`

- Model B, C, or D without SSL encryption

`http://webServerName:webServerHttpListnerPortForRestApi`

- ID and password

If the server uses basic authentication, then enter the account information. No input is required if basic authentication is not used.

6. If obtaining resources from a file management server other than Interstage AR Processing Server, configure the connection information required for basic authentication. For servers with no basic authentication, this is not necessary, since there is no need to store the individual account settings. Create this in accordance with the system configuration.
 1. Select **Add New Account**.
 2. From the **Account Type Selection** window, select **Other account**. If an AR server account has already been created, there is no need to select the account type.
 3. Enter the account information to a file management server other than an Interstage AR Processing Server and select **Register**.

Point

AR processing server account names are prefixed with an asterisk (*) in the **Account List** window.

Up to ten accounts can be configured as "other accounts".

Follow the procedure below to edit or delete information for registered AR server accounts or for other accounts (for overlay applications developed by a system developer, check with the developer directly).

Editing account information

1. In the list of smart device applications, under **InterstageAR**, tap the **Authoring** or **Dev** icon to start the application.
2. At the top-right of the window, tap the **Settings** icon .
3. Information for registered accounts will be displayed - tap the account to be edited.
4. In the **Account Information Input** window, edit the account, and then tap **Register**.

Deleting account information

1. In the list of smart device applications, under **InterstageAR**, tap the **Authoring** or **Dev** icon to start the application.
2. At the top-right of the window, tap the **Settings** icon .
3. Tap and hold the account to be deleted from the registered account information.
4. Release your fingertip once the display effects render a rectangle around the account information.
5. In the confirmation dialog box, tap **OK**.

4.2.3.3 Recognition mode settings

Select the recognition mode to use to achieve AR (for overlay applications developed by a system developer, check with the developer directly).

1. In the list of smart device applications, under **InterstageAR**, tap the **Authoring** or **Dev** icon to start the client authoring tool.
2. In the status bar, tap the menu icon, and then select **Settings**.
3. Select **Recognition mode**.
4. Select the recognition mode to be used.
 - AR marker
Identifies the target using an AR marker.
 - Location Data
Identifies the target using Location Data.
 - Barcode
Identifies the target using a barcode.

Note

- It is not possible to have all modes set to OFF - at least one mode must be set to ON to use AR.
 - If using Location Data as the recognition mode, access to location services must be enabled in the settings on your smart device.
 - If using Location Data as the recognition mode, the rear camera is the default one used for tilt information. If using the front camera or a USB camera, the tilt information may be different, so overlays may not be positioned as expected.
 - The recognition mode cannot be changed while the camera is running.
-

4.3 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 created files can be called as AR overlay content or by tap actions.
 1. Copy files that are to be used for AR overlay content or by tap actions to the smart device. The files must meet the criteria below:
 - Image file
 - 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.
 - The file name may include the following characters:
 - Alphanumeric characters and the following symbols: asterisk (*), hyphen (-), period (.), underscore (_).
 - 2. Store the created file in:
 - internalStorage/Android/data/packageName/files/authoring*
 - *packageName*
 - InterstageAR authoring: com.fujitsu.interstage.ar.mobileclient.android.authoring.app
 - InterstageARDev: com.sample.clientdev (default value)
 - 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.
 - 3D models cannot be added from the client authoring tool , they must be added using authoring from the data management console.
-

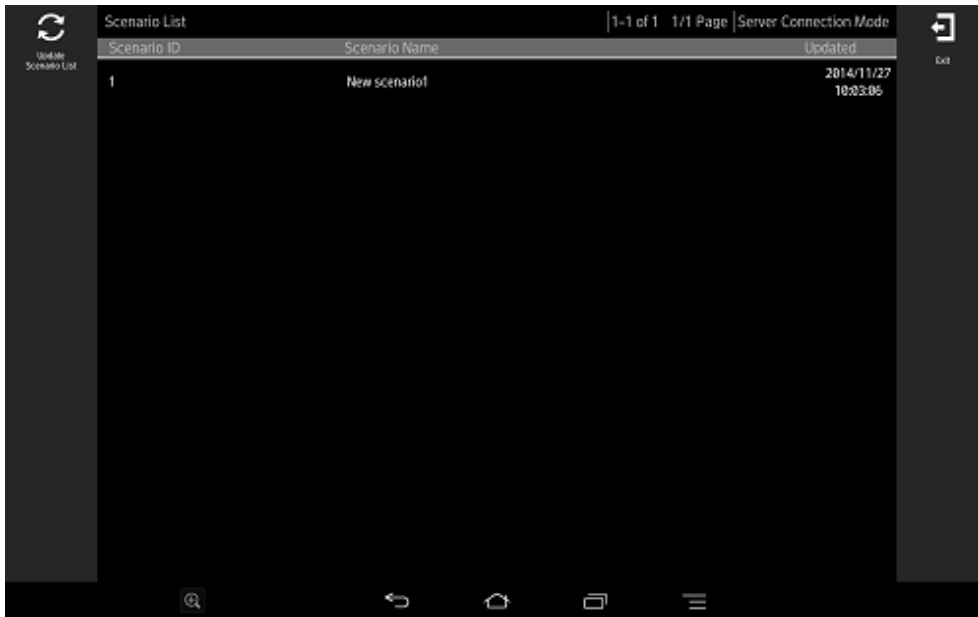
4.3.1 Start the client authoring tool

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

4.3.2 Select scenario

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

Figure 4.6 Scenario List screen



Point

If required, perform the tasks below.

Update Scenario List

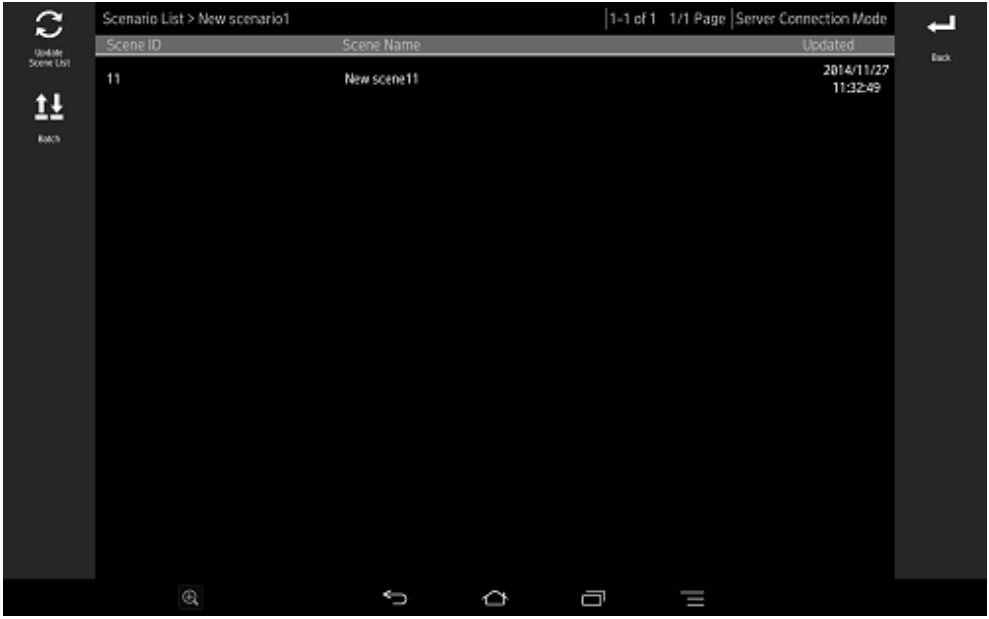
Update the displayed **Scenario List** to the latest information:

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.

4.3.3 Select scene

Follow the procedure below to select the scene.

Figure 4.7 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:

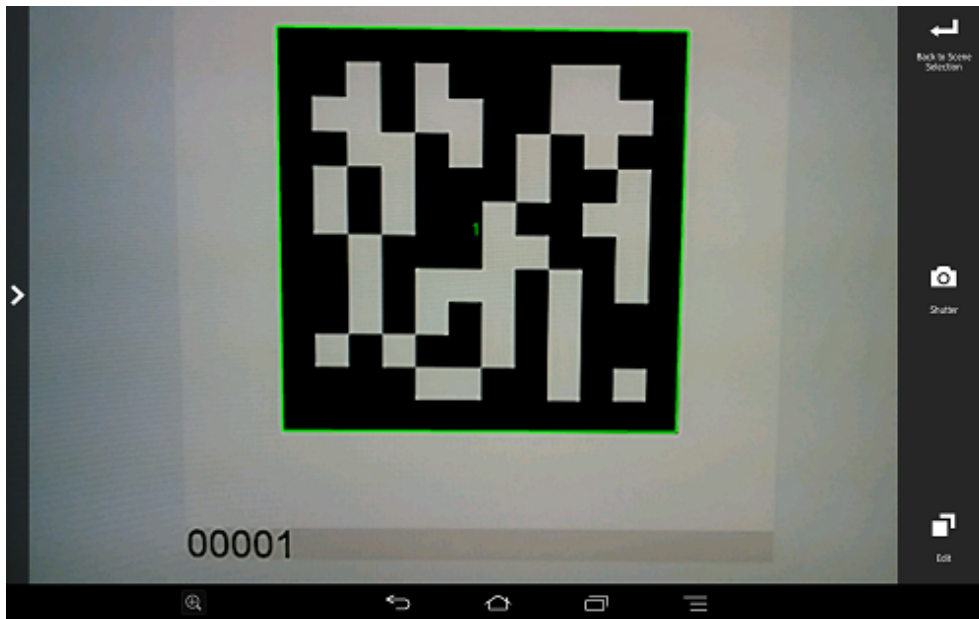
1. Tap the **Batch** icon.
2. In the **Batch** dialog box, select **Download scene data by batch** to download data from the server, or **Upload scene data by batch** to upload data. Note that batch downloads discard data saved locally and overwrite it with data saved to the AR processing server. If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

4.3.4 Navigate to Edit Mode

Follow the procedure below to navigate to **Edit Mode** from the AR view screen.

1. Enable the **Edit** icon.
The **Edit** icon will be enabled when the target set using the recognition mode object is recognized.
2. Tap the **Edit** icon.

Figure 4.8 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.

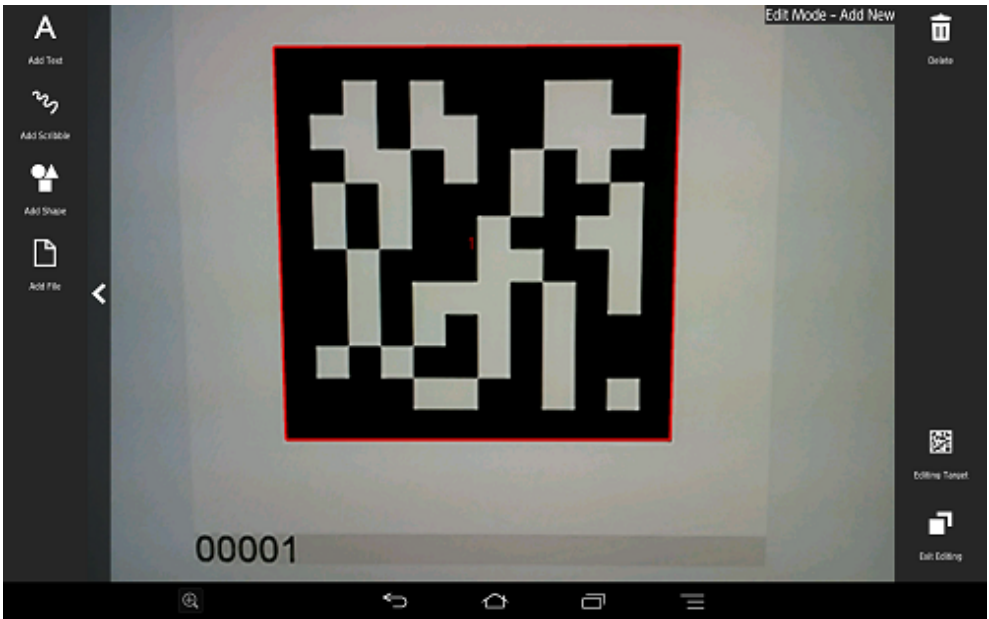
- Images captured by the camera are stored in:
internalStorage/Android/data/packageName/files/authoring/Pictures
 - *packageName*
InterstageAR authoring: com.fujitsu.interstage.ar.mobileclient.android.authoring.app
InterstageARDev: com.sample.clientdev (default value)

4.3.5 Register the AR overlay definition

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

1. In **Edit Mode**, select the target for recognition.
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 4.9 Edit Mode > Add New screen



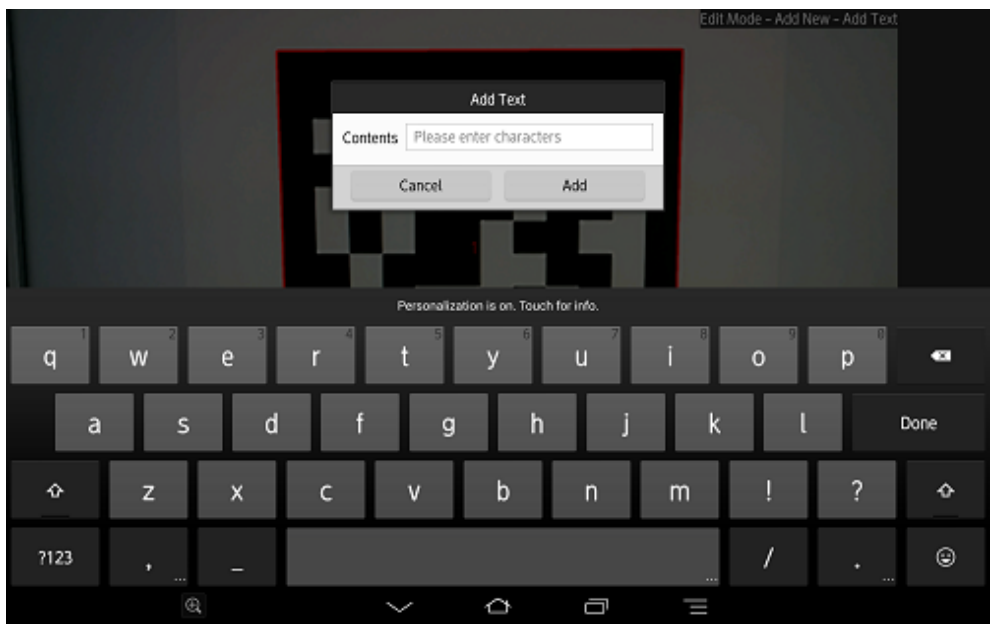
Add Text

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.

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 of more 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.

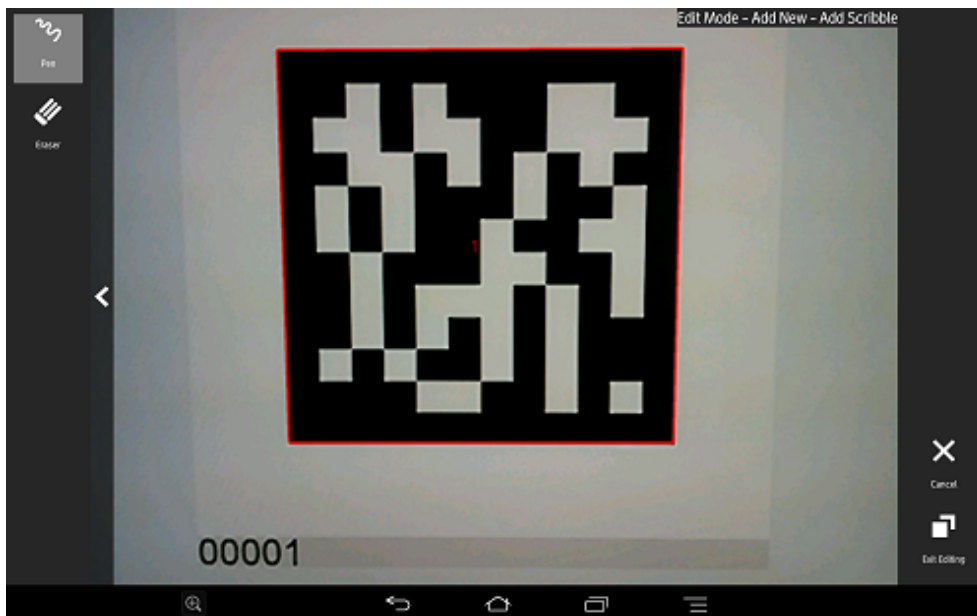
The calculation formula is shown below. Note that the displayed size may vary according to the character type (such as whether it is a number or a symbol), so the result might not match this formula.

- 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.

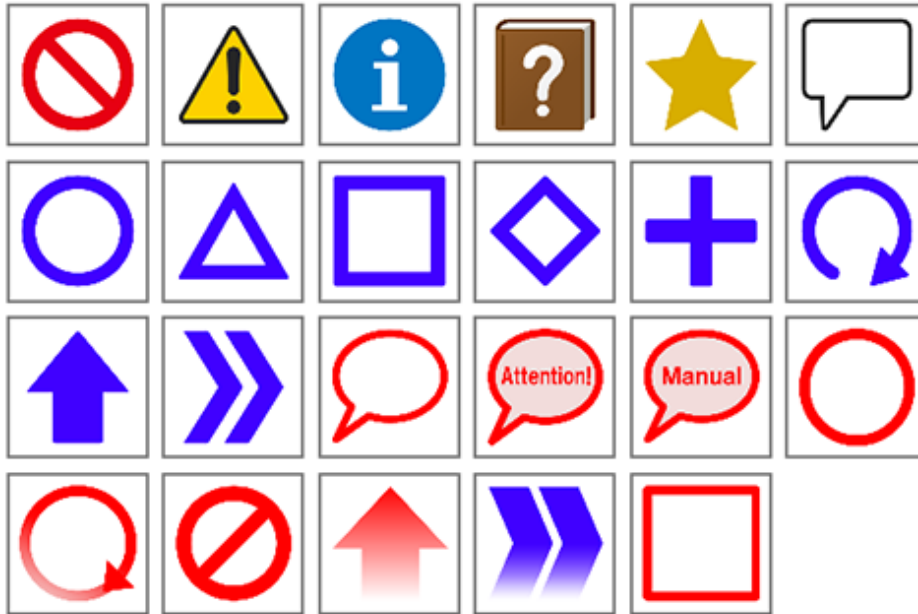
Example

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:

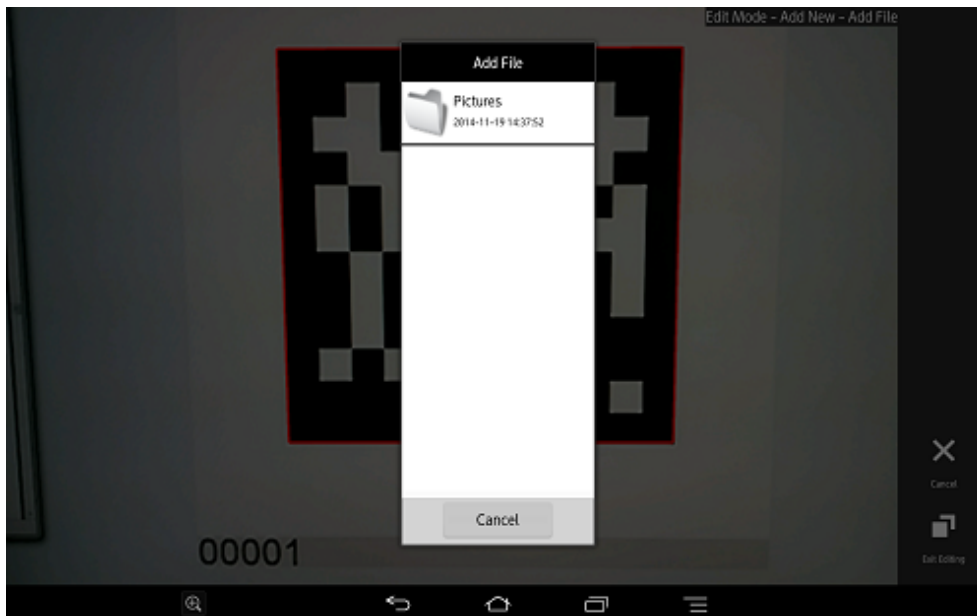
1. In the menu bar, tap the **Add Shape** icon.
2. The shapes will be displayed in the menu bar - tap the shape to be overlaid. The selected image will be positioned in the center of the AR marker. Navigate to the **Modify** screen.
The following shapes are provided as standard:



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. The **Add File** dialog box will be displayed. Select the file.

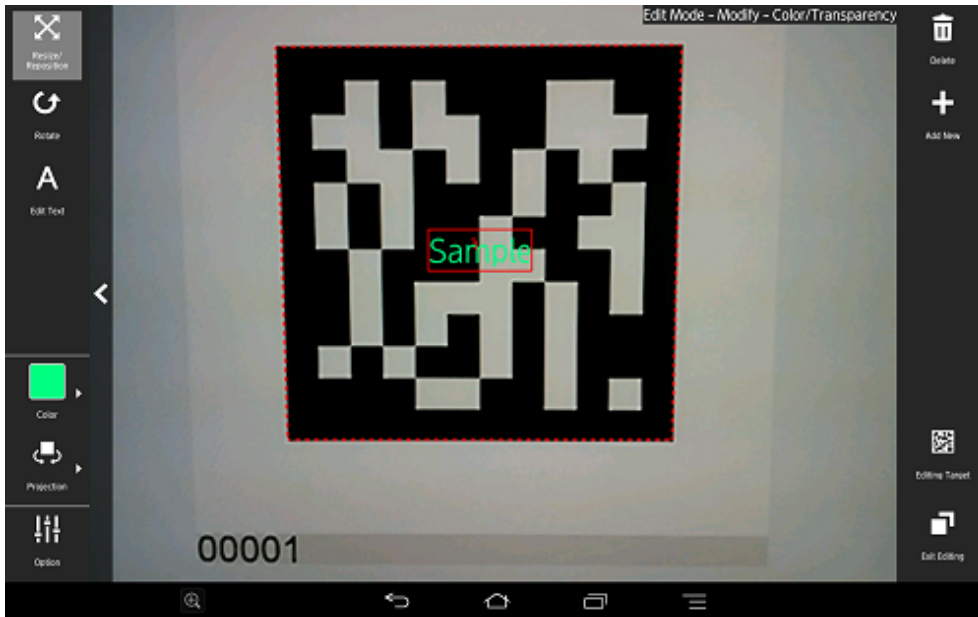


3. The selected image will be positioned in the center of the AR marker. Navigate to the **Modify** screen.

4.3.6 Edit/delete the AR overlay definition

Follow the procedure below to edit added AR overlay content.

Figure 4.10 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.

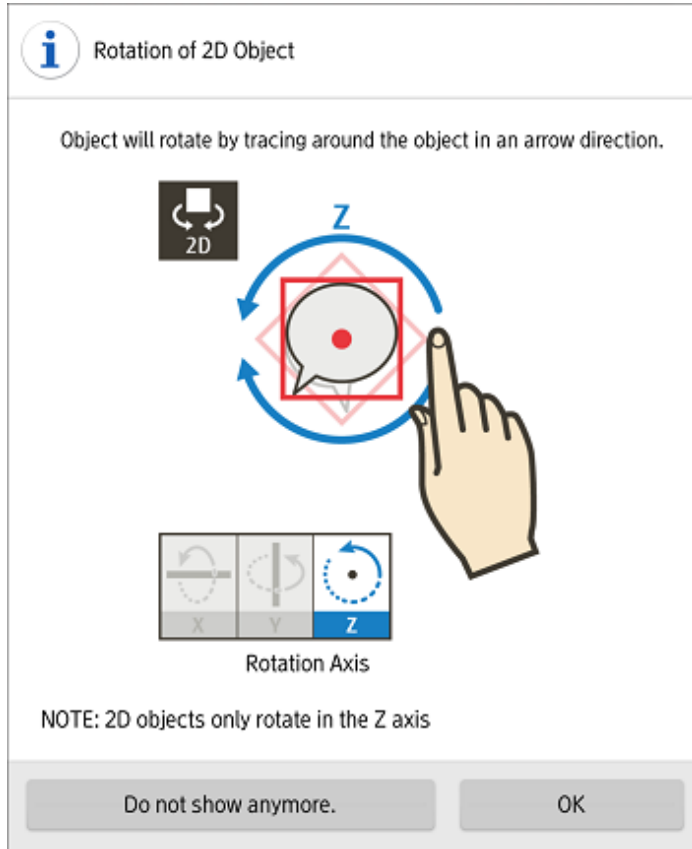
1. In the menu bar, tap the **Resize/Reposition** icon.
2. Pinch or stretch the item to resize it, or drag to reposition it.

Rotate

Rotate the selected AR overlay content item.

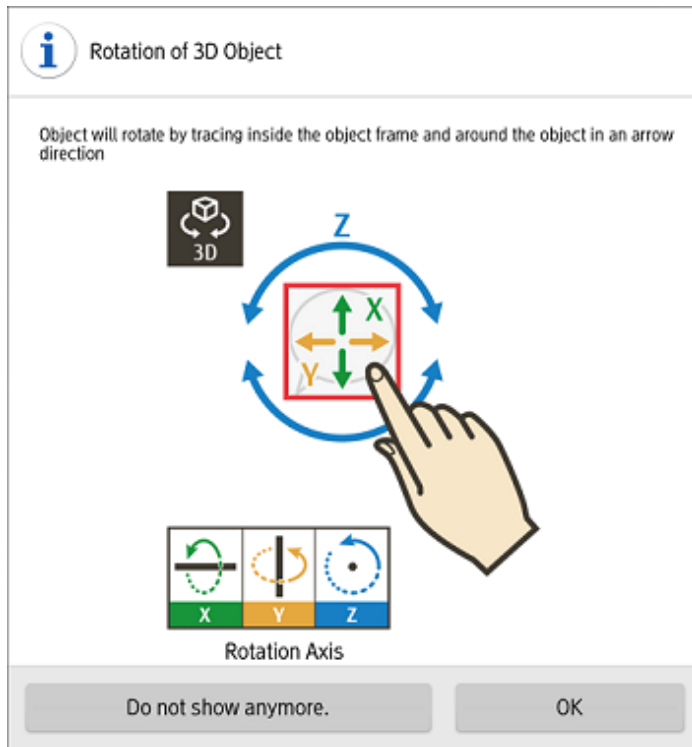
1. In the menu bar, tap the **Rotate** icon.
2. A photography guide will be displayed in accordance with the selected projection mode. Rotate the item as directed.
 - For 2D
Drag the item's perimeter to rotate it on the z-axis.

Figure 4.11 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 4.12 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 **Enter 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 4.13 Colors menu

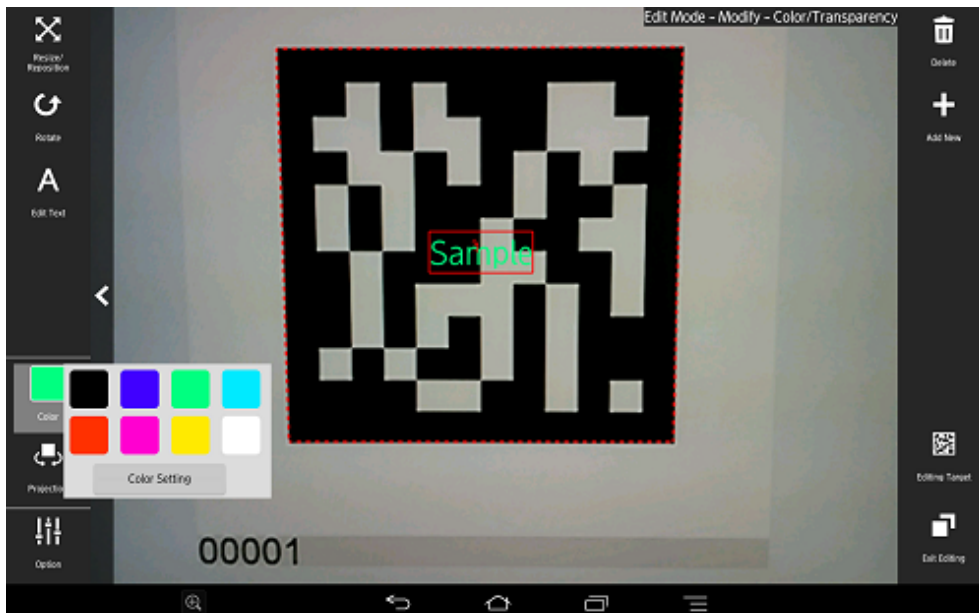
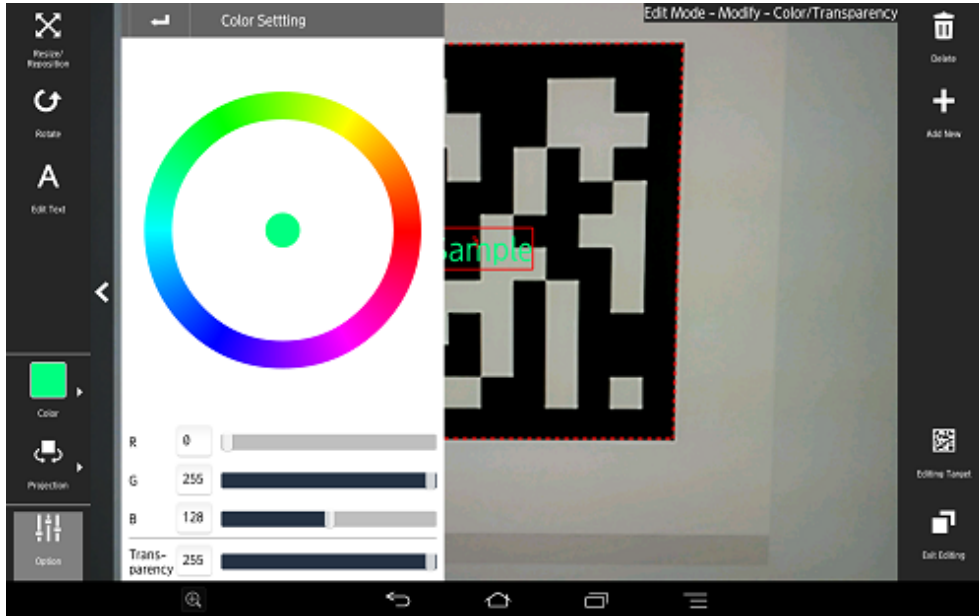


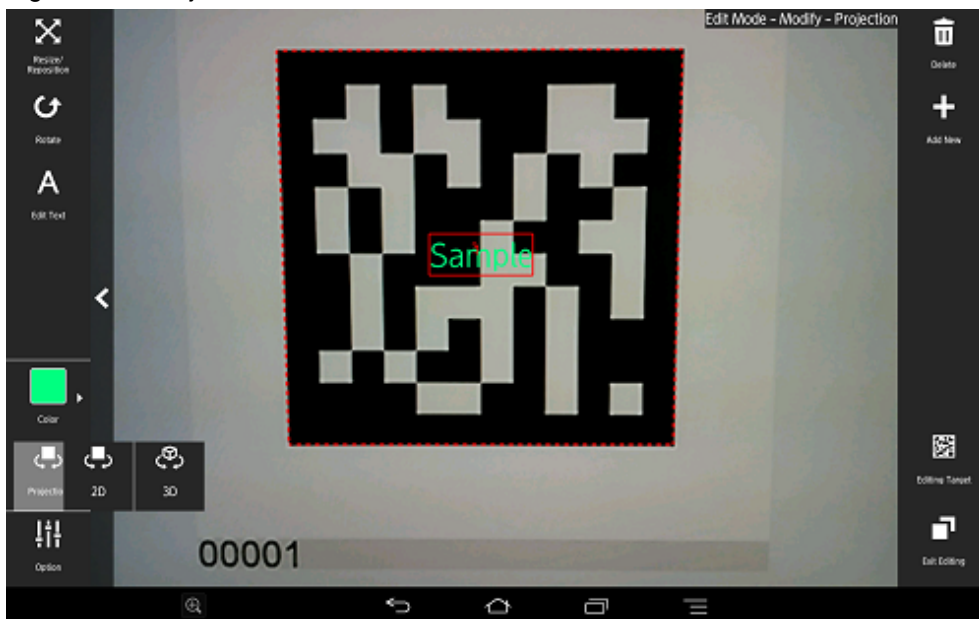
Figure 4.14 Settings > Color Setting dialog box



Projection

The user can select a projection mode for the AR overlay content. If the definition is a 3D model, you can select only 3D as the projection mode.

Figure 4.15 Projection menu



Option

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

Table 4.2 AR overlay edit option

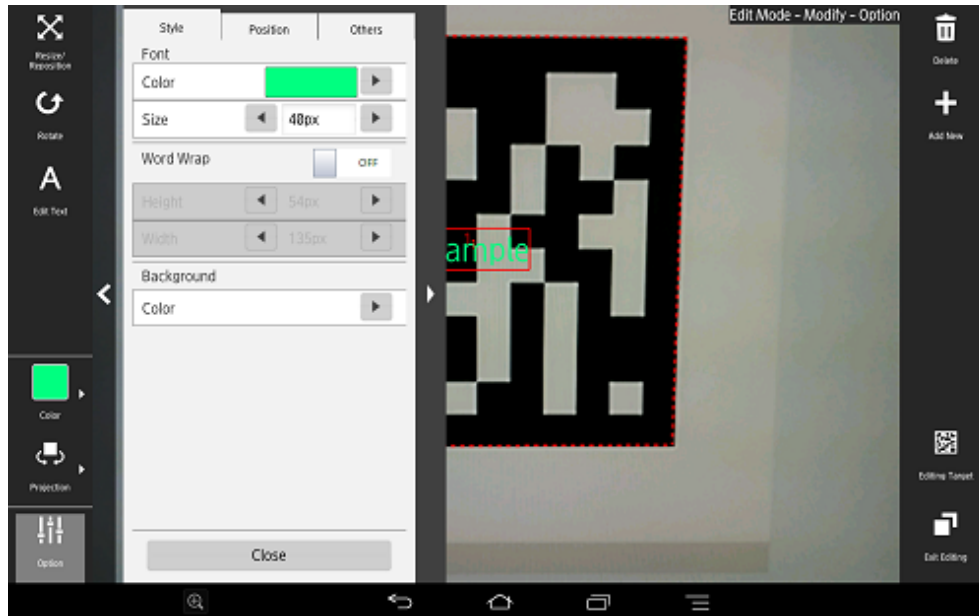
Content	Style	Position	Other
Text	<ul style="list-style-type: none"> - Font - Word Wrap - Background 	<ul style="list-style-type: none"> - Projection type - Translation (if using an AR marker, barcode, or Beacon for recognition) 	<ul style="list-style-type: none"> - Tap action - AR overlay definition information
Scribble	Line		

Content	Style	Position	Other
Shape	None	- Location Data (if using Location Data for recognition) - Rotation - Scale	
File	None		
3D model	None		

Style

Configure character colors or text wrapping information.

Figure 4.16 Settings > Style dialog box



Font

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

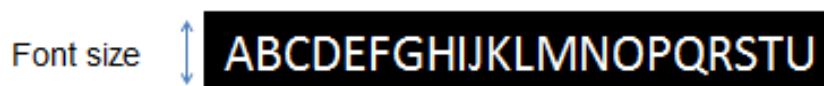
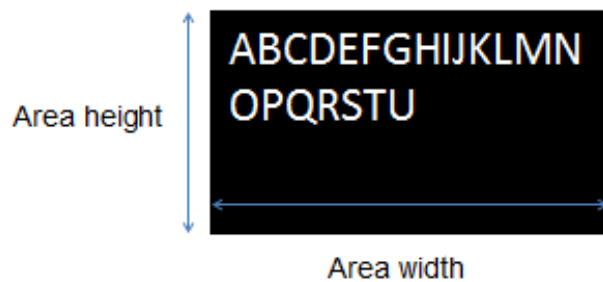


Figure 4.18 Example: Font color=#FFFFFF, Background color=#000000, Word Wrap=ON



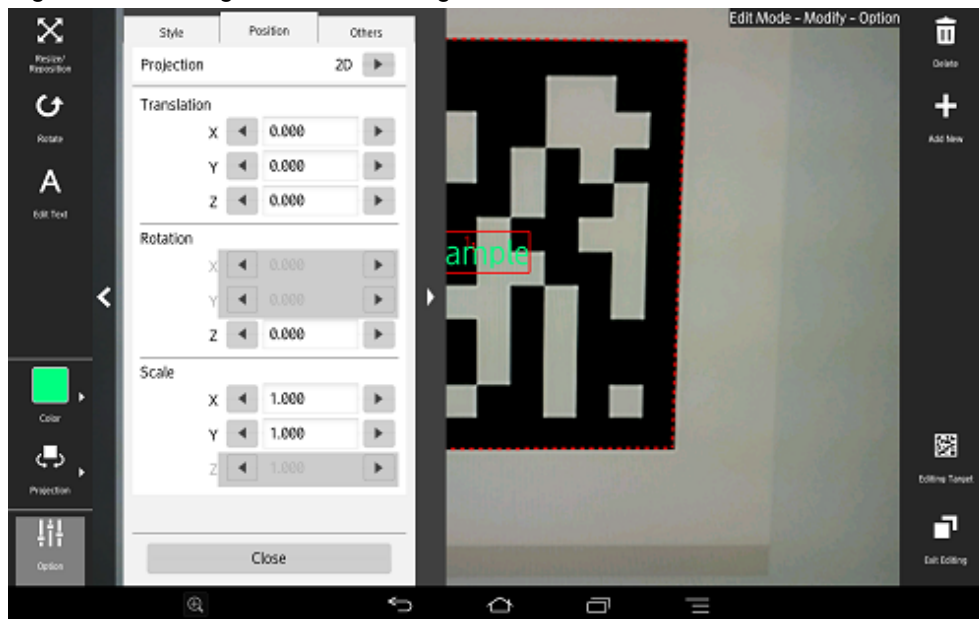
Background

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 4.19 Settings > Position dialog box



Projection

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

If AR marker or Barcode is selected as the target for editing

- Translation

Enter the coordinate of the position to display the AR overlay content, using a numeric value between -32 and +32, using the long side of the recognized target 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).

The unit for the numeric value is the size of the long side (or the AR marker body).

Example

If "4" is specified and the AR marker size is 5 cm, then the content will be displayed as if it were 20 cm away from the marker.

- **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 150000 for the scaling factor of the AR overlay content. If a value with eight or more digits between the highest and the lowest decimal places is entered, rounding errors may occur.

If Beacon is selected for editing

- **Translation**
Enter the coordinate of the position to display the AR overlay content, using a numeric value between -32 and +32, using the screen ratio of the smart device 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).
The unit for the numeric value is the size of the screen ratio, and the reference coordinate is the center of the screen.
- **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).

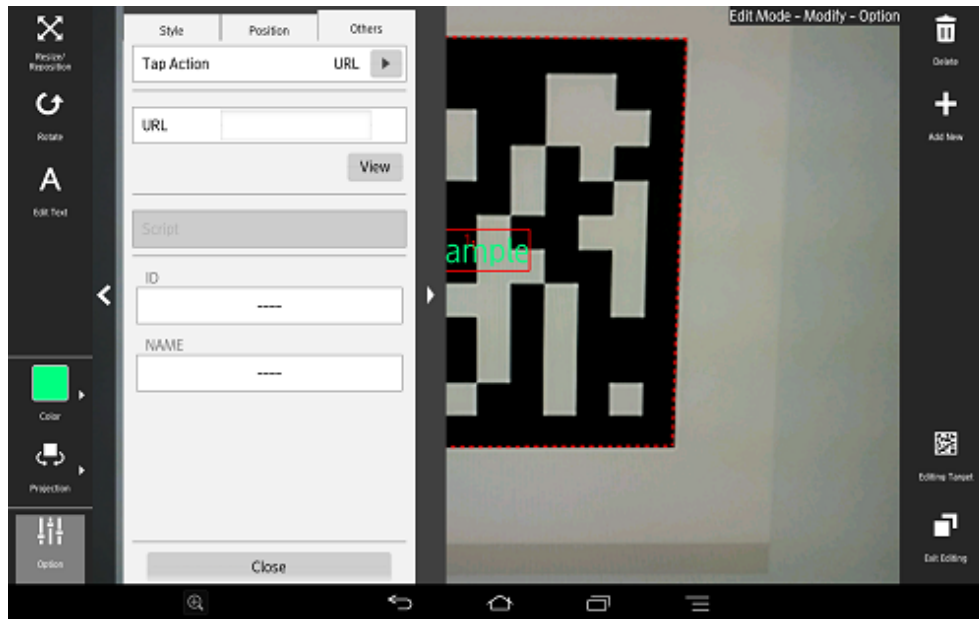
If Location Data is selected for editing

- **Location Data**
Enter the latitude, longitude, and altitude of the location to associate with the AR overlay content.
Latitude: Use positive values for north latitudes and negative values for south latitudes. Up to five decimal places can be specified (values with more than 5 decimal places will be rounded to five decimal places). The unit is degrees.
Longitude: Use positive values for east longitudes and negative values for west longitudes. Up to five decimal places can be specified (values with more than 5 decimal places will be rounded to five decimal places). The unit is degrees.
Altitude: Indicates the value in the z-axis direction. Enter an integer. The unit is meters.
- **Rotation**
Enter the angle of rotation based on the orientation and horizontal direction. 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 150000 for the scaling factor of the AR overlay content. If a value with eight or more digits between the highest and the lowest decimal places is entered, rounding errors may occur.

Others

Configure other information.

Figure 4.20 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.
 - If Location Data is selected, all AR overlay content associated with the Location Data will be deleted.
 - If a barcode is selected, all AR overlay content associated with that barcode will be deleted.
 - If a beacon is selected, all AR overlay content associated with the selected UUID will be deleted.
 - If nothing is selected, all AR overlay content associated with the modification target will be deleted.
- Tap the **Add New** icon on the **Edit Mode > Modify** screen to navigate to the **Edit Mode > Add New** screen.

4.3.7 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 December 5, 2014, then the AR overlay definition name will be:

```
aruser 20141205 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.

4.3.8 Exit the client authoring tool

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

4.4 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. 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. Copy files that are to be used for AR overlay content or by tap actions to the smart device. The files must meet the criteria below:
 - Image file
 - 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.
 - The file name may include the following characters:
 - Alphanumeric characters and the following symbols: asterisk (*), hyphen (-), period (.), underscore (_).
 - 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.
 - 3D models cannot be added from the client authoring tool, they must be added using authoring from the data management console.

4.4.1 Start the client authoring tool

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

4.4.2 Select scenario

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

Figure 4.21 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.

4.4.3 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 4.22 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.

4.4.4 Navigate to Edit Mode

Follow the procedure below to navigate to **Edit Mode** from the AR view screen.

1. Enable the **Edit** icon.
The **Edit** icon will be enabled when the target set using the recognition mode object is recognized.
2. Tap the **Edit** icon.

Figure 4.23 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`

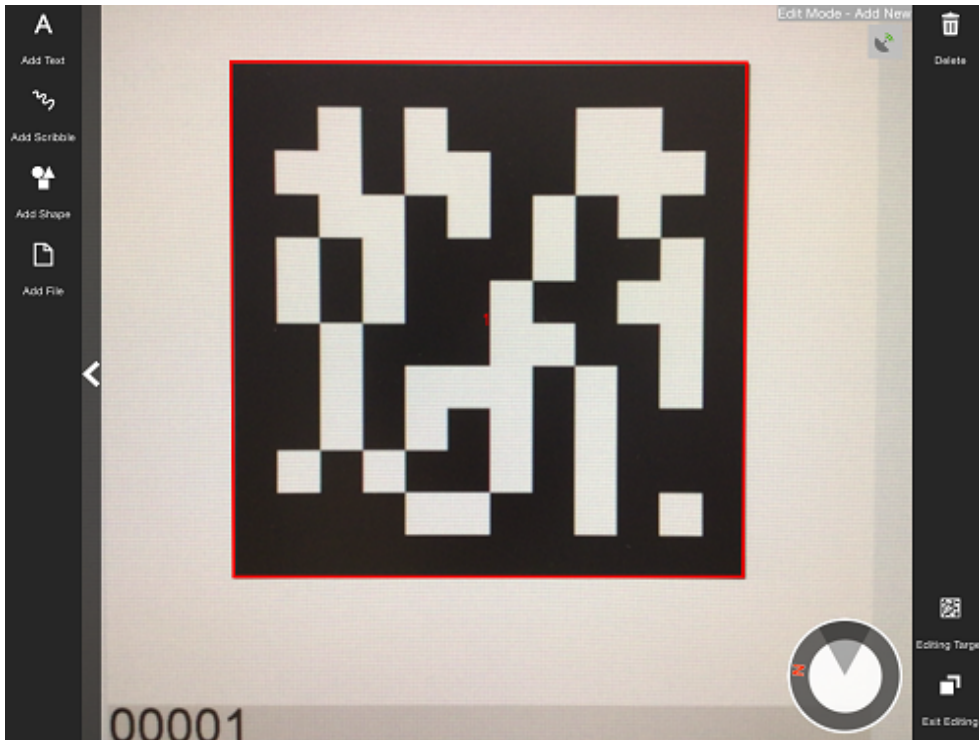
Note

Camera shutter will not make a sound while taking a photo.

4.4.5 Register the AR overlay definition

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

Figure 4.24 Edit Mode screen



1. In **Edit Mode**, tap the **Editing target** icon and select an editing target.
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

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.

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 of more than 1024 pixels, complete registration and then select **Yes** to wrap AR text content in server authoring. 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]

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.
 - **Color**
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

.....

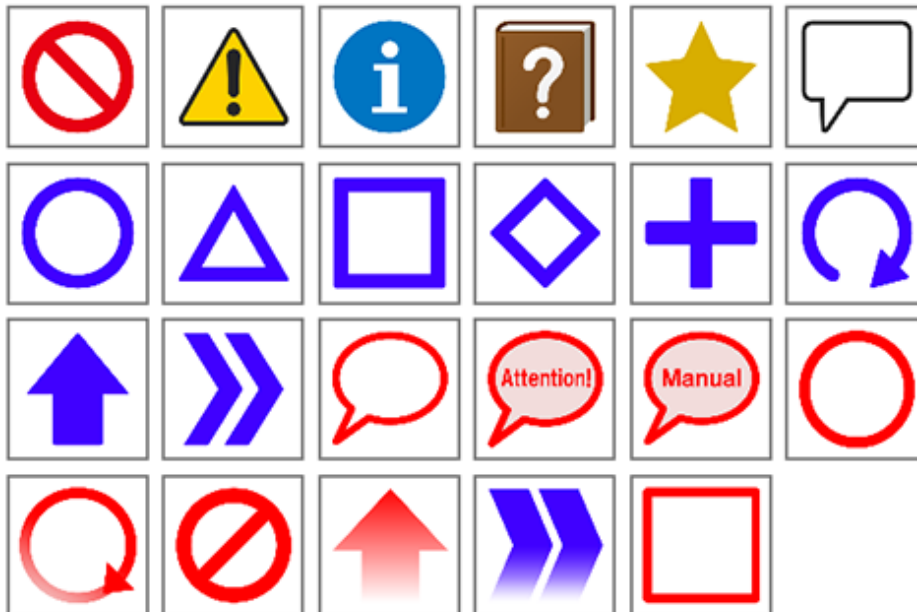
If adding a scribble, ensure that the selected AR marker is reflected in the center of the device display, and is being viewed from the front. If 3D projection is used when the AR marker is not recognized from the front side, the AR overlay content will be generated at an inclination from the AR marker.

.....

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

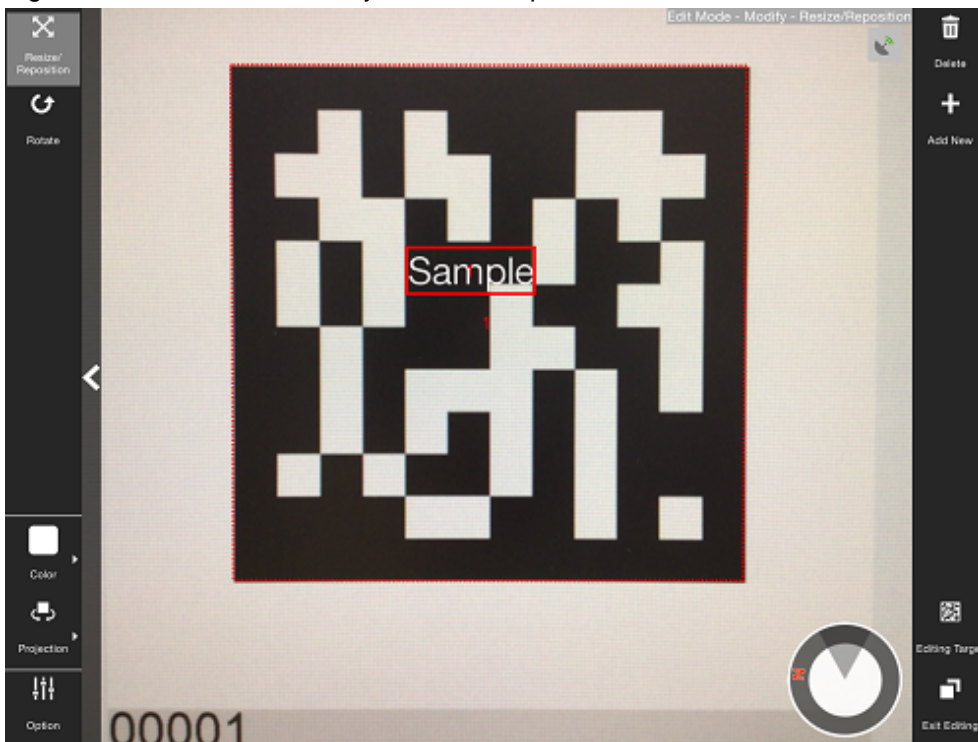
Follow the procedure below to add images or photographs that have been saved locally on the smart device.

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.

4.4.6 Editing/delete the AR overlay definition

Follow the procedure below to edit added AR overlay content.

Figure 4.25 Edit Mode > Modify > Resize/Reposition screen



1. Select from the following options on the menu bar:
 - **Resize/Reposition**
 - **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/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.

Rotation

Rotate the selected AR overlay content item.

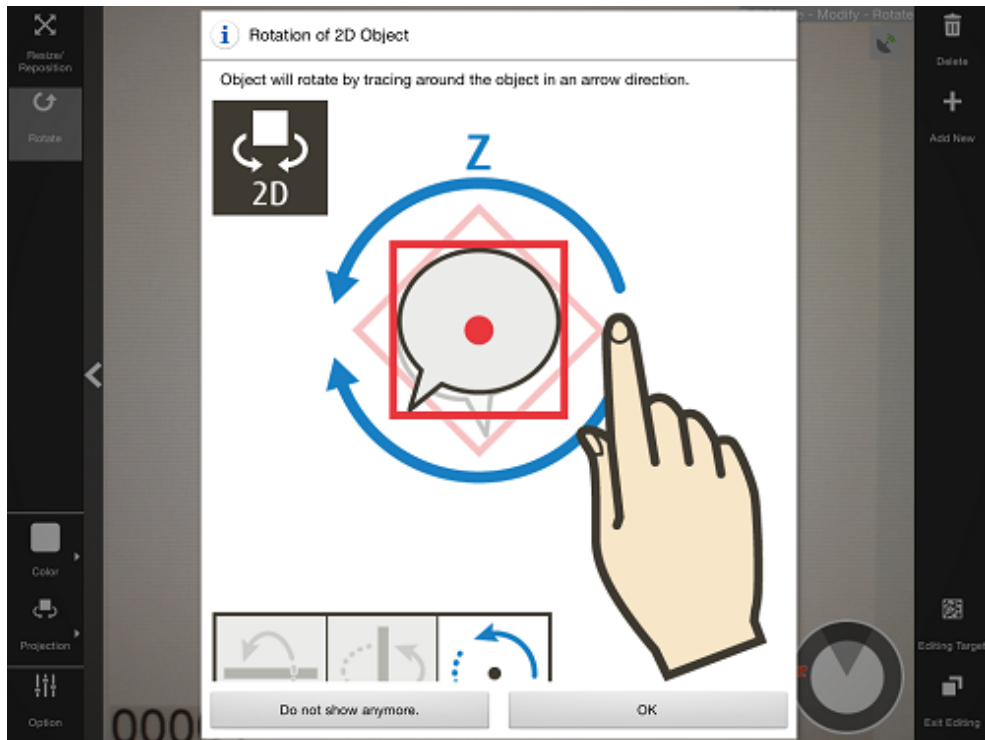
1. In the menu bar, tap the **Rotation** icon.

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

- Rotation of 2D Object

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

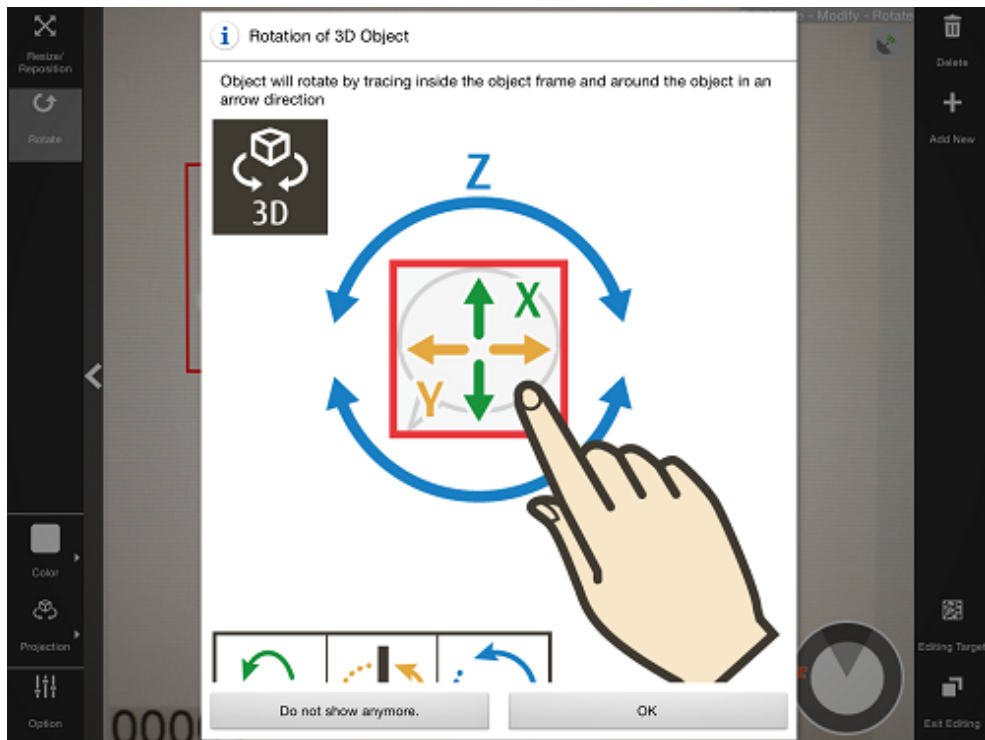
Figure 4.26 Rotation of 2D Object



- Rotation of 3D Object

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 4.27 Rotation of 3D Object

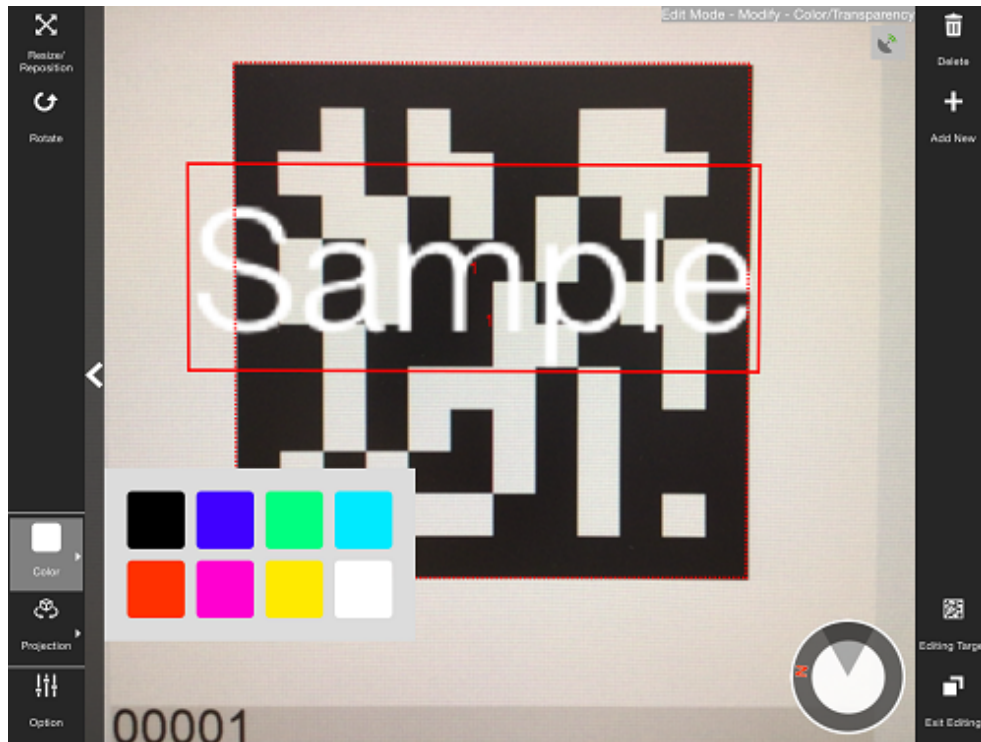


Color

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 4.28 Colors menu



Projection

The user can select from 2D or 3D projection for AR overlay content. Only 3D projection can be selected for 3D models.

Option

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

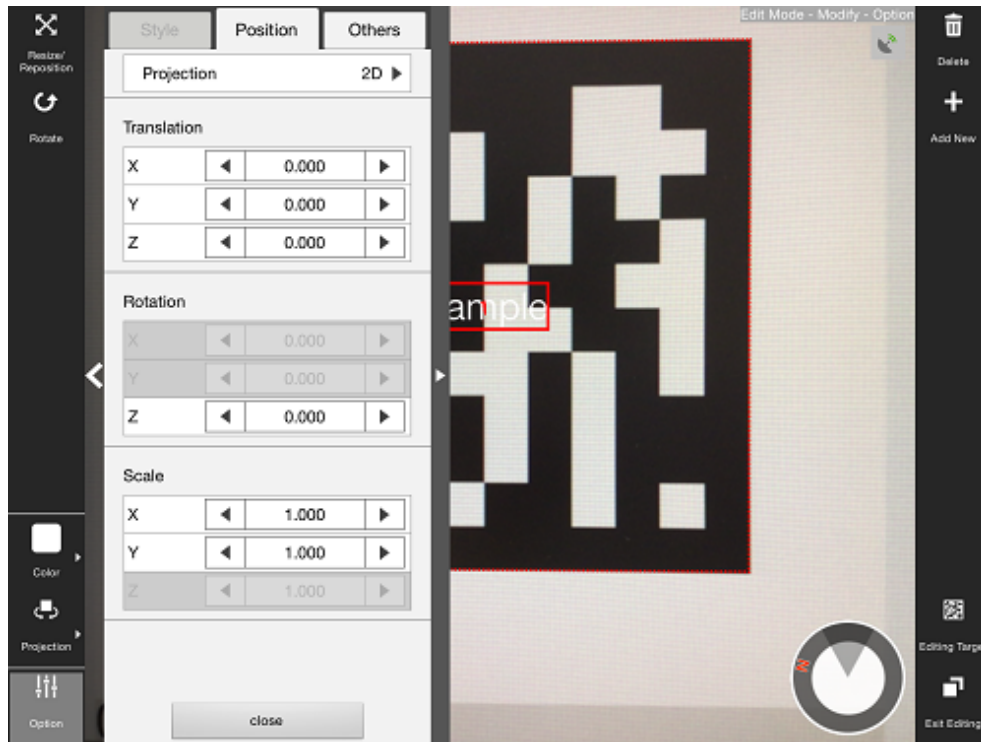
Table 4.3 AR overlay edit option

Content	Position	Others
Text	- Projection	- Tap action
Scribble	- Translation (if using an AR marker or barcode for recognition)	- AR overlay definition information
Shape	- Location Data (if using Location Data for recognition)	
File	- Rotation	
3D model	- Scale	

Position

Position information can be configured.

Figure 4.29 Settings > Position dialog box



Projection

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

If AR marker or Barcode is selected as the target for editing

- Translation

Enter the coordinate of the position to display the AR overlay content, using a numeric value between -32 and +32, using the long side of the recognized target 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).

The unit for the numeric value is the size of the long side (or the AR marker body).



Example

If "4" is specified and the AR marker size is 5cm, then the content will be displayed as if it were 20cm away from the marker.

- 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).

If Location Data is selected for editing

- Location Data

Enter the latitude, longitude, and altitude of the location to associate with the AR overlay content.

Latitude: Use positive values for north latitudes and negative values for south latitudes. Up to five decimal places can be specified (values with more than 5 decimal places will be rounded to five decimal places). The unit is degrees.

Longitude: Use positive values for east longitudes and negative values for west longitudes. Up to five decimal places can be specified (values with more than 5 decimal places will be rounded to five decimal places). The unit is degrees.

Altitude: Indicates the value in the z-axis direction. Enter an integer. The unit is meters.

- Rotation

Enter the angle of rotation based on the orientation and horizontal direction. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places).

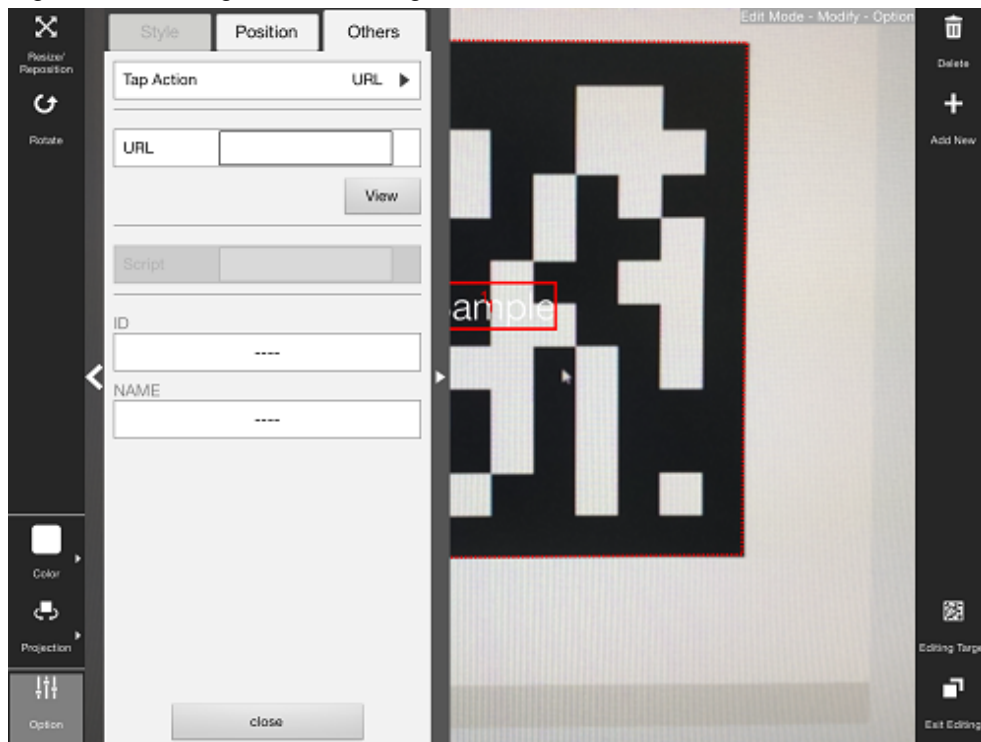
- **Scale**

Enter a value between 0.1 and 150000 for the scaling factor of the AR overlay content. If a value with eight or more digits between the highest and the lowest decimal places is entered, rounding errors may occur.

Others

Configure other information.

Figure 4.30 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.
 - If Location Data is selected, all AR overlay content associated with the Location Data will be deleted.
 - If a barcode is selected, all AR overlay content associated with that barcode will be deleted.
 - If none is selected, all AR overlay content associated with the content to be edited will be deleted.
- Tap the **Add New** icon on the **Edit Mode > Modify** screen to navigate to the **Edit Mode > Add New** screen.

4.4.7 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 December 5, 2014, then the AR overlay definition name will be:

```
aruser 20141205 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.
-

4.4.8 Exit the client authoring tool

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

4.5 Client authoring (Windows)

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

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

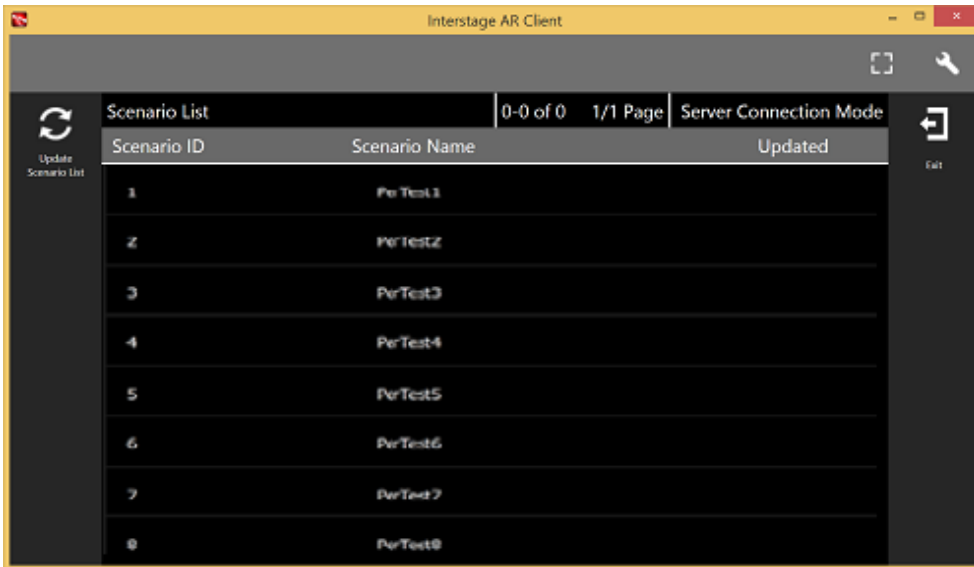
- Before using the client authoring tool, ensure that the tool has been set up, and that the scenarios and scenes have been registered using the data management console.
 - The following tasks must be performed before authoring can be used in an offline environment:
 1. Start the client authoring tool 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.
 - Images must be created using an image editor or similar software before they can be used for AR overlay content or by tap actions. The files must 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.
 - The file name may include the following characters:
 - Alphanumeric characters and the following symbols: asterisk (*), hyphen (-), period (.), underscore (_).
 - In **Edit Mode**, select **Exit Editing**, and then in the dialog box, click **Save and exit** to save authoring data as local data.
 - Ensure to save any changes when exiting the native application. **Save and exit** saves all changes before exiting, and **Exit without save**, exits without saving. **Cancel** causes the native application to continue running, without saving changes. Data should be saved frequently during editing.
-

4.5.1 Start the client authoring tool

To start the client authoring tool provided by Interstage AR Processing Server, tap **Apps > InterstageAR Authoring**.

4.5.2 Select scenario

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



Point

If required, perform the tasks below:

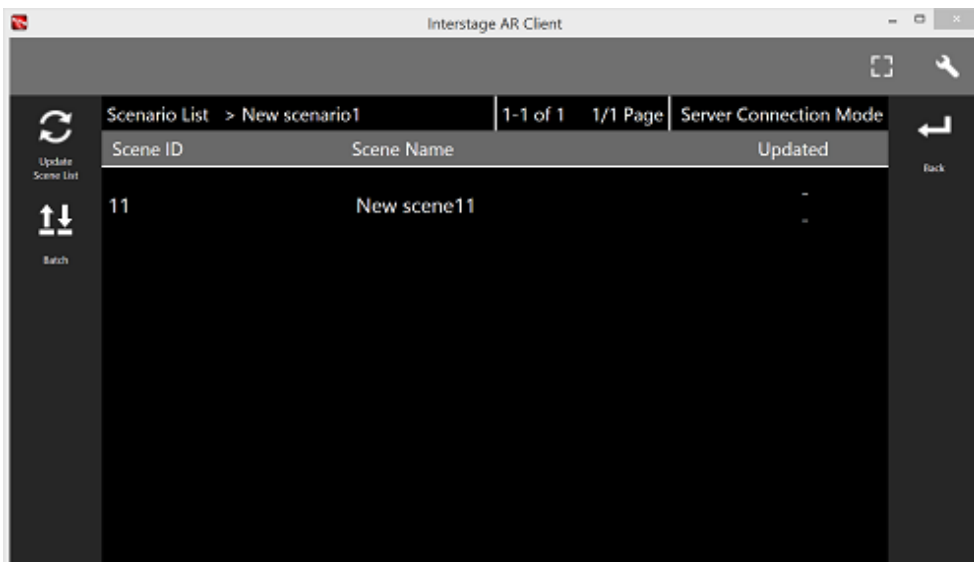
Update Scenario List

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.

4.5.3 Select scene

Follow the procedure below to select the scene.



1. From the displayed **Scene List**, select 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.
-

4.5.4 Navigate to Edit Mode

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

1. Enable the **Edit** icon.
The **Edit** icon will be enabled when the target set using the recognition mode object is recognized.
2. Tap the **Edit** icon.



Point

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

- Images captured by the camera are stored in:
USERPROFILE\Fujitsu\Interstage AR\applicationName\Pictures
 - AR overlay content is not included in the saved image.
 - If you are using authoring to edit the AR overlay definition, the screen direction will be fixed.
-

4.5.5 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:

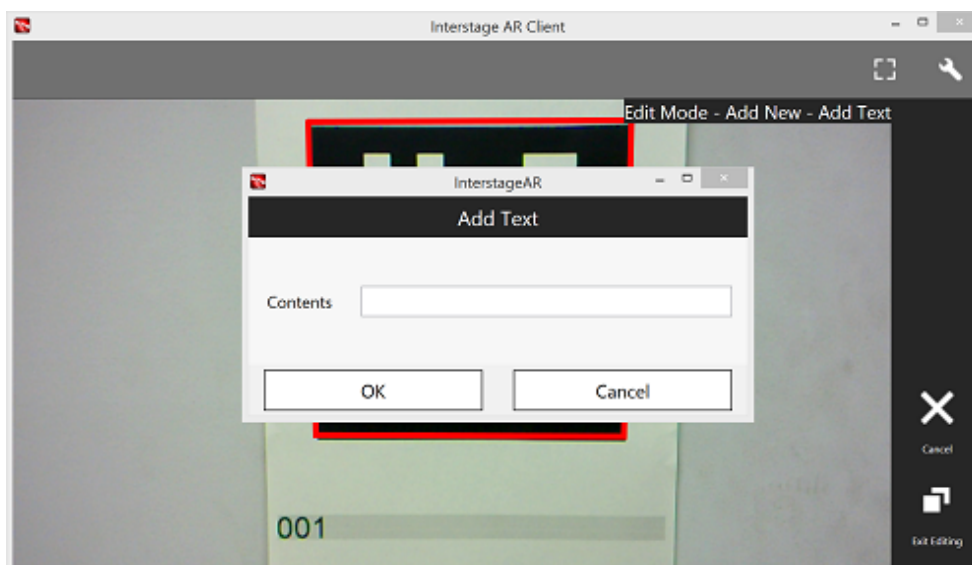


- **Add Text**
- **Add Scribble**
- **Add Shape**
- **Add File**

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.

Point

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.

Point

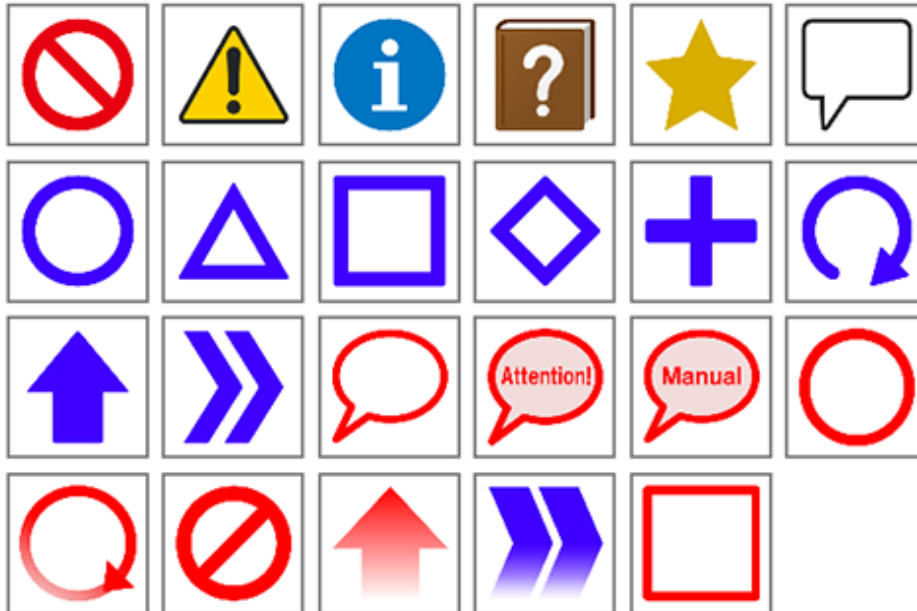
If adding a scribble, ensure that the selected AR marker is reflected in the center of the device display, and is being viewed from the front. If 3D projection is used when the AR marker is not recognized from the front side, the AR overlay content will be generated at an inclination from the AR marker.

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.

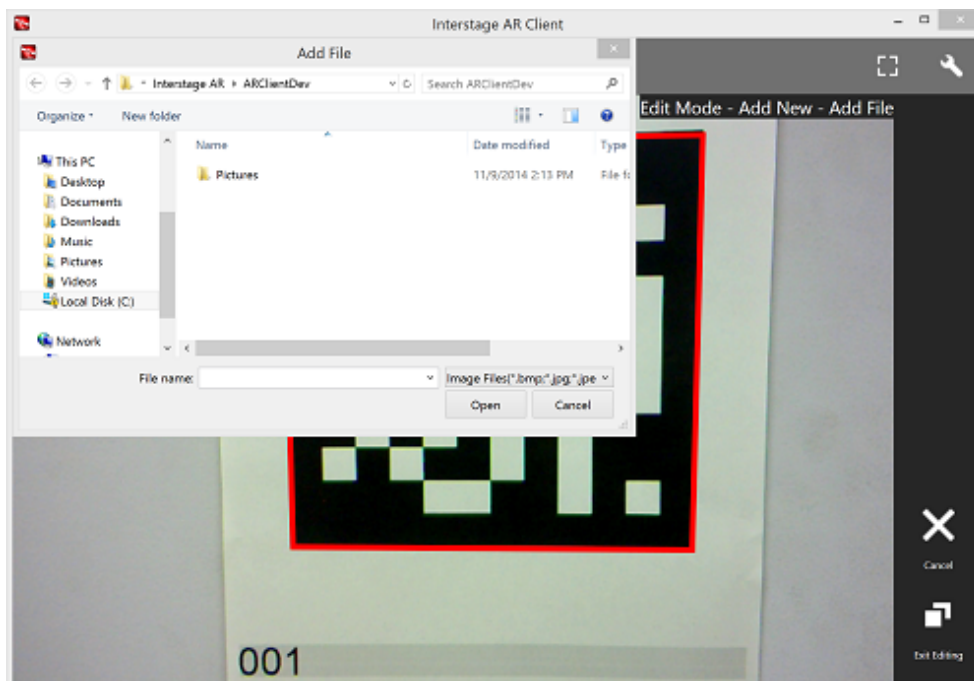
The following shapes are provided as standard:



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 selecting 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.
- If nothing is selected, all AR overlay contents within the scene will be deleted.

4.5.6 Edit/delete AR overlay definitions

Follow the procedure below to edit added AR overlay content.

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**.

- The Windows on-screen keyboard can be displayed floating or fixed. As a fixed display, the area in which options are entered may be hidden - if this happens, use the floating displayed.

Resize/Reposition

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

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

Rotate

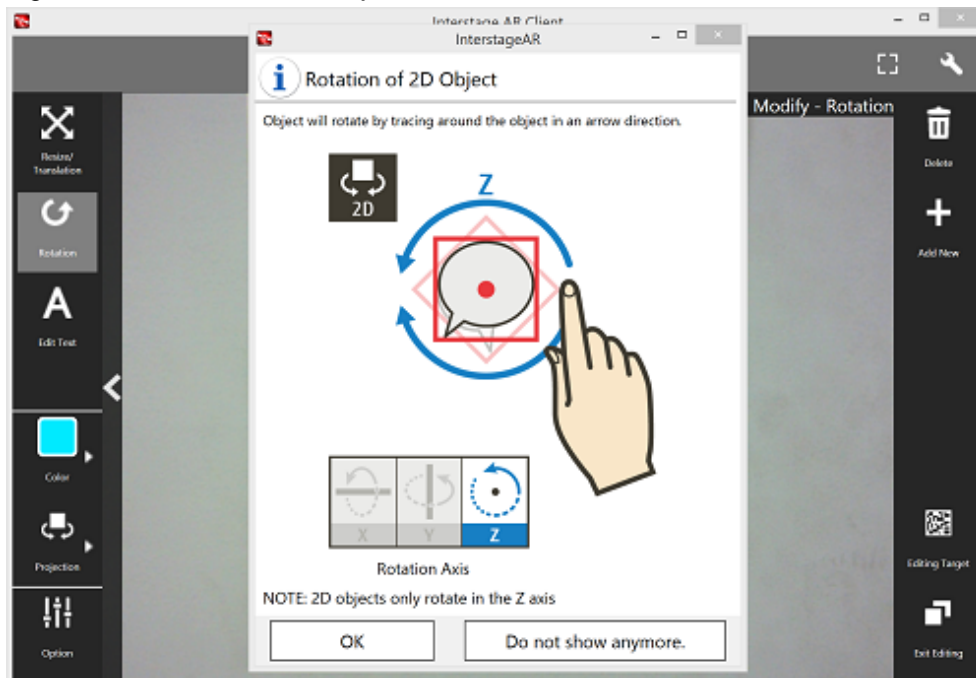
Rotate the selected AR overlay content item.

1. In the menu bar, select the **Rotate** icon.
2. A photography guide will be displayed in accordance with the selected projection mode. Rotate the item as directed.

- **Rotation of 2D Object**

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

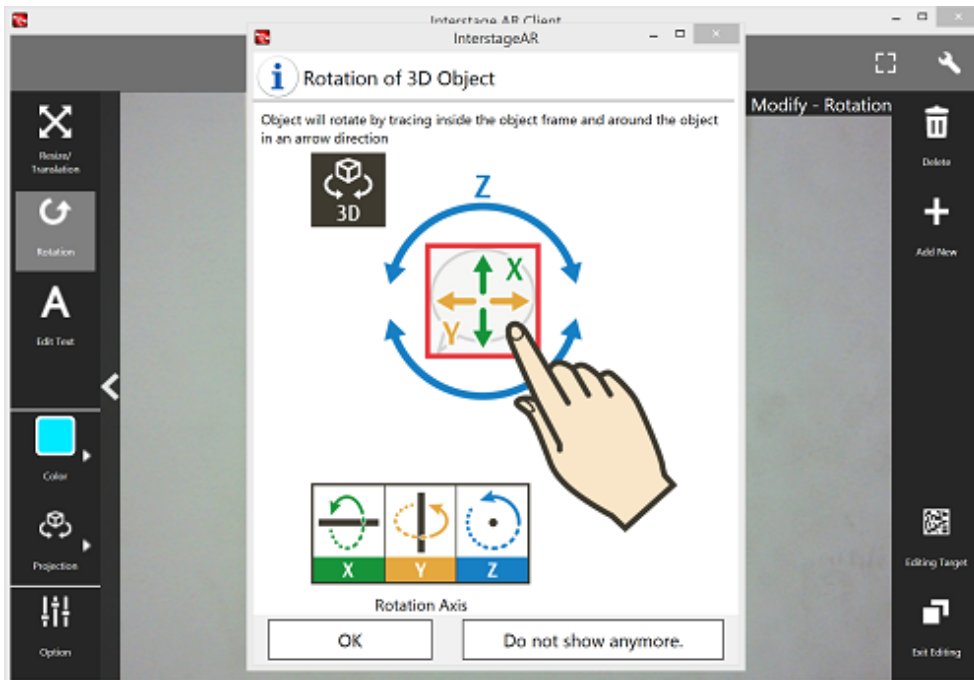
Figure 4.31 Rotation of 2D Object



- **Rotation of 3D Object**

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 4.32 Rotation of 3D Object



Edit text

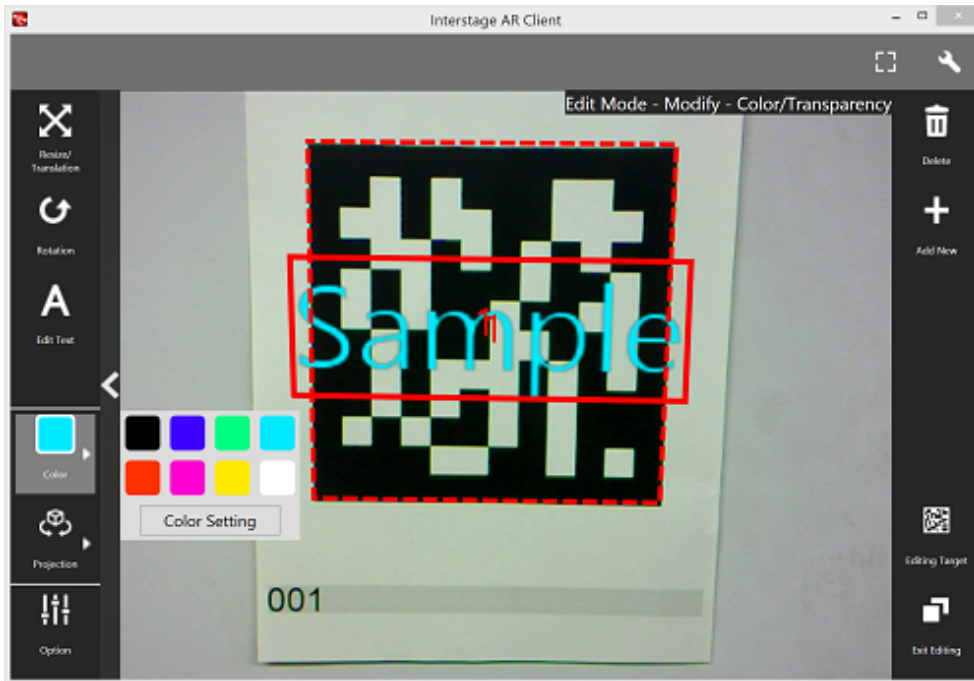
Text details can be modified if the content type is 'text'.

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

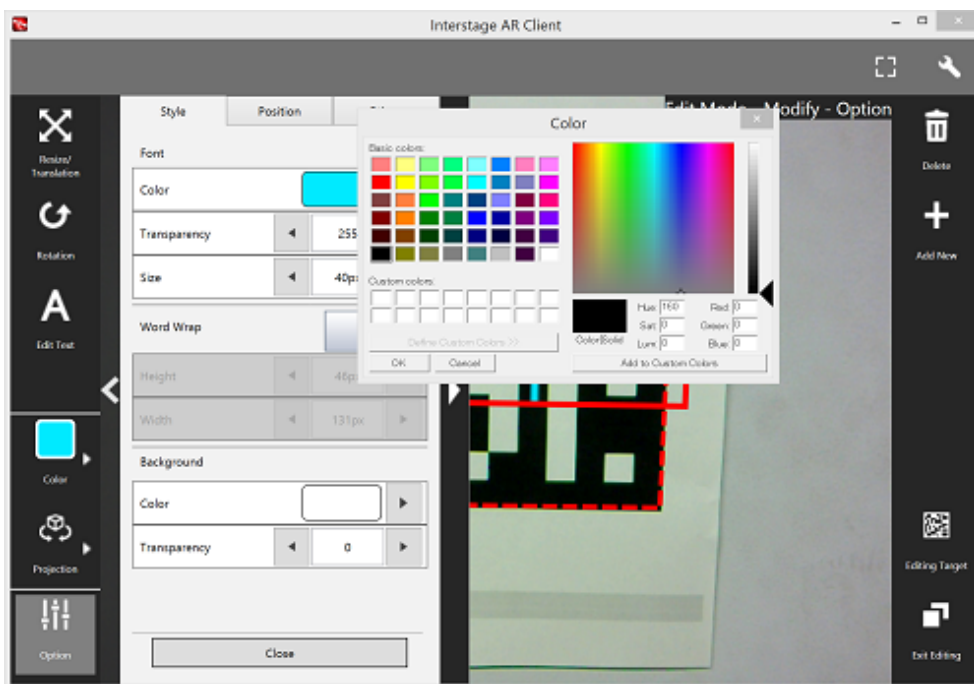
Color

The background color can be modified if the content type is 'text', while the pen color can be modified if the type is 'scribble'.

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 by selecting the RGB slider or the color picker.



- The degree of transparency can be set from **Option > Style**.

Projection

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

Option

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

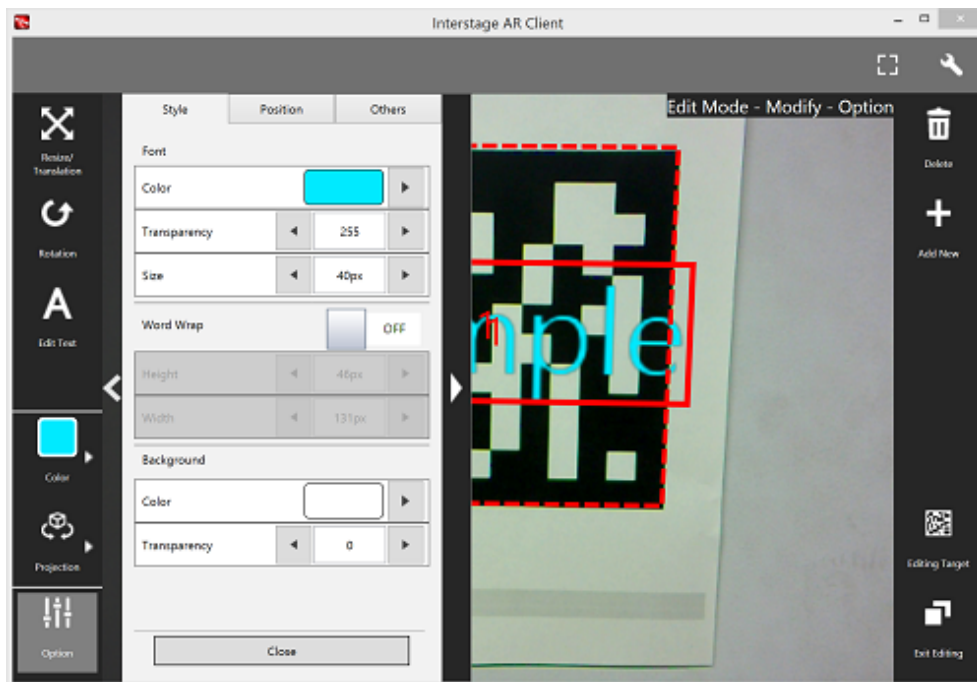
Table 4.4 AR overlay edit option

Content	Style	Position	Others
Text	Font Word Wrap	- Projection	Tap Action AR overlay definition information

	Background	<ul style="list-style-type: none"> - Translation (if using an AR marker or barcode for recognition) - Location Data (if using Location Data for recognition) - Rotation - Scale
Scribble	Line	
Shape	None	
File	None	

Style

Configure character colors or text wrapping information.



Font

The color and font size of characters can be modified. The color and degree of transparency can be modified by selecting 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. Enter between 10 and 750 pixels for the font size.

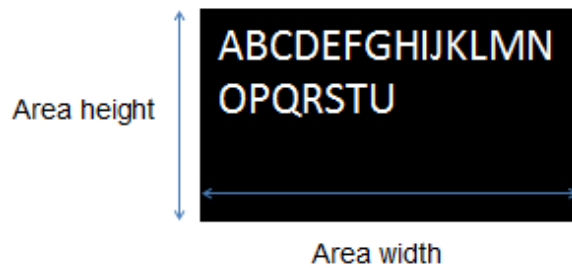
Word Wrap

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 ($fontSize:heightIncludingWhiteMargin \sim 3:4$).

Figure 4.33 Example: Font color=#FFFFFF, Background color=#000000, Word Wrap=OFF



Figure 4.34 Font color: #FFFFFF; background color: #000000; Wrap Text: this example shows text rendering when Wrap Text is selected

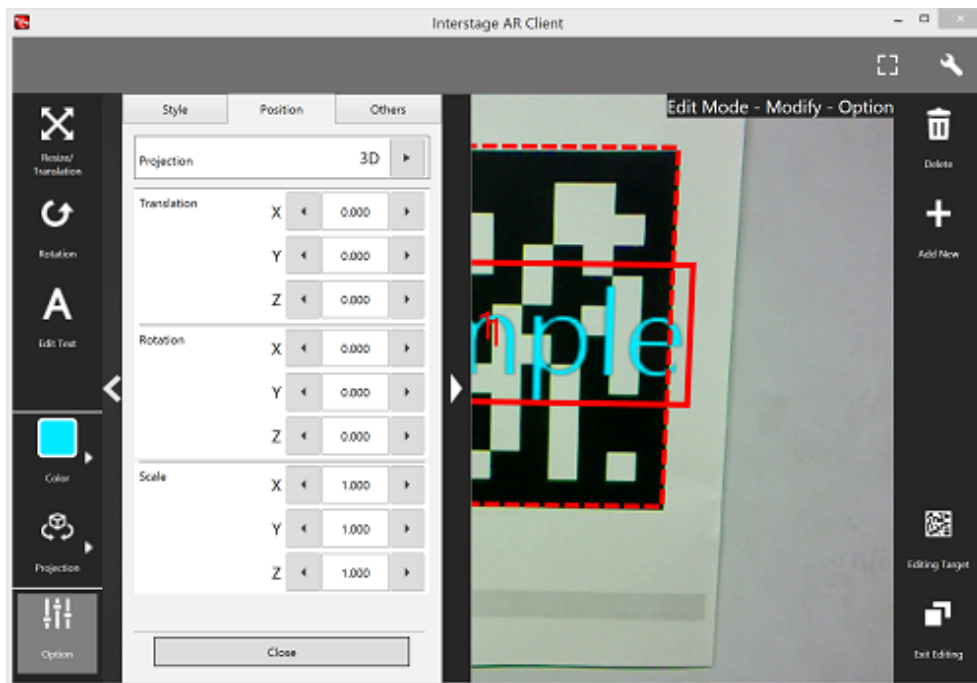


Color

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 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 degree of transparency can be set from **Option > Style**.

Position

Position information can be configured.



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 values 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).

The unit for the numeric value is the size of the long side (or the AR marker body).

Example

.....
 If "4" is specified and the AR marker size is 5cm, then the content will be displayed as if it were 20cm away from the marker.

Rotation

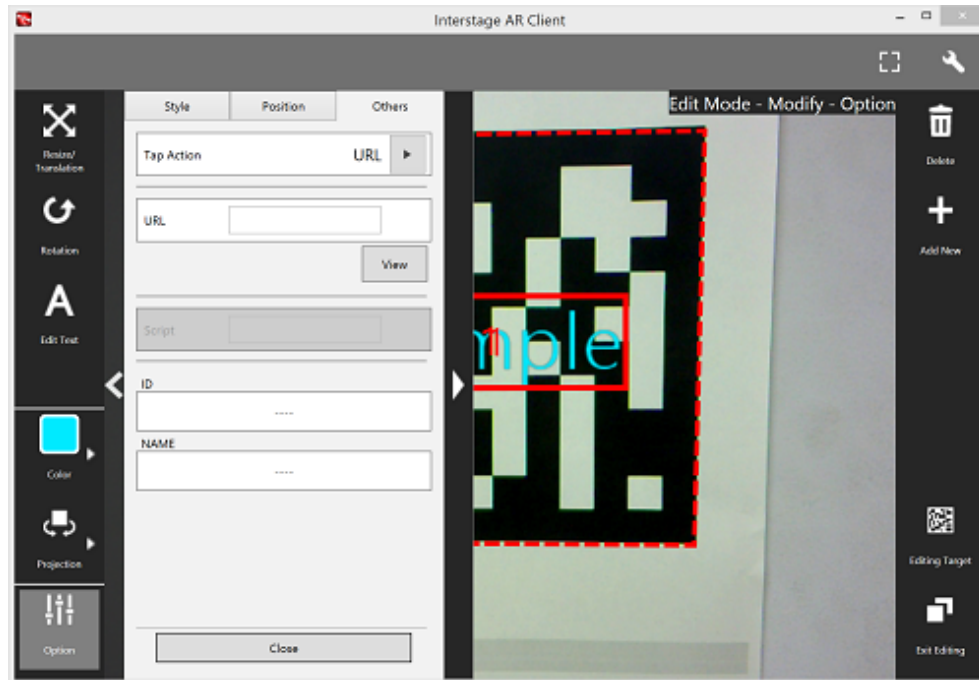
Enter a value between -360 and +360 for the rotation angle of the AR overlay content. Up to three decimal places can be specified (values with more than 3 decimal places will be rounded to three decimal places). If 2D projection is selected, only the z-axis can be entered.

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). If 2D projection is selected, only the x- and y-axes can be entered.

Others

Configure other information.



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 selected. If a script is set in the tap action, the configured JavaScript will run when the AR overlay application is executed and the content is selected. Note that if content is selected when client authoring is executed, the configured JavaScript will instead be displayed in the dialog box as a string, because there is no web layer to execute the JavaScript.

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 selection, or click **Browse** to select a file stored on the smart device.

Script

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

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 selecting 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.
 - If Location Data is selected, all AR overlay content associated with the Location Data will be deleted.
 - If a barcode is selected, all AR overlay content associated with that barcode will be deleted.
 - If nothing is selected, all AR overlay content associated with the modification target will be deleted.
- Tap the **Add New** icon on the **Edit Mode > Modify** screen to navigate to the **Edit Mode > Add New** screen.

4.5.7 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 start up 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 **Download 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 December 5, 2014, then the AR overlay definition name will be:

aruser 20141205 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.
-

4.5.8 Exit the client authoring tool

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

4.6 Usage notes

Note the following when using a smart device:

- Using 3D models
If a scene contains more than ten 3D models, do not execute overlay until the download dialog box for resource data is no longer displayed and parsing of 3D model files is completed. Applications may be terminated due to insufficient memory.

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
- Deploying/undeploying the web application
- Enable or disable web container resources
- Display the server status
- Backup and restore

Point

- This chapter describes command usage examples. Execute the commands according to the operating system used.
- Commands provided by Interstage AR Processing Server are stored in the following directory:

`installDir\bin\`

`/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 *Messages* 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.

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.



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 the message 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 the message below is output and that the database has stopped normally:

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

5.3 Deploy/undeploy 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).

5.3.1 Deploying

Command format:

```
arsvadmin deploy
```

```
[--contextroot context_root] [--name component_name] filepath
```

Description

Deploys modules of web applications (.war) created by the user.

Options

Option	Mandatory	Description
--contextroot <i>contextRoot</i>	No	Specifies the context root.

Option	Mandatory	Description
		If omitted, the value specified for <i>filePath</i> (without the extension) will be used.
<code>--name <i>componentName</i></code>	No	Specifies the application name. If omitted, the value specified for <i>filePath</i> (without the extension) will be used.

Operands

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

Return value

0: Ended normally

1: Ended in an error

Example

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

```
/opt/FJSVar/bin/arsvadmin.sh deploy /sample.war
```

Output

Output is sent to the standard output,

as in the example below:

```
Command deploy executed successfully.
```



Note

Notes on application file names

When specifying the `--name` option, note the following about the application name:

- It must be up to 50 characters long, and the following characters are allowed:
 - Alphanumeric characters and the following symbols: hyphen (-), underscore (_), period (.), semicolon (;).
 - It can start with an underscore (_) or an alphanumeric character.
- If the `--name` option is specified, then application name is the value specified for *componentName*, otherwise it is the value specified for *filePath* (without the extension).

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.

5.3.2 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.
```




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.

5.4 Deploy 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).

5.5 Deploy 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.

5.6 Enable/disable web container resources

Business applications created by the user can be installed on web containers (overlay applications) of Interstage AR Processing Server.

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

5.6.1 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.
```

5.6.2 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.
```

5.7 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.

5.7.1 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.
- Partially started - the web container is in the started state, but some features are stopped (this status does not normally occur).

Note

If the web container is partially started, then it must be restarted. Execute the stop-webcontainer subcommand and then the start-webcontainer subcommand.

Example

Output example

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

Note

Execute the stop-webcontainer subcommand and then the start-webcontainer subcommand.

5.7.2 Display the deployment status of applications

Command format:

```
arsvadmin list-components
```

Description

Displays the status of applications deployed to a web container.

Operands

This subcommand does not allow operands.

Return value

0: Ended normally

1: Ended in an error

Example

```
> arsvadmin list-components
```

```
./arsvadmin.sh list-components
```

Output

Output is sent to the standard output.

Example

Output example

```
NAME      TYPE  STATUS
arsvdm    <web> enabled
```

```
arsvfdm      <web>  enabled
arsvdmc      <web>  enabled
_arsvsample  <web>  disabled
```

```
Command list-components executed successfully.
```

5.8 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

5.8.1 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 the message below is output and that the database has stopped normally:

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

5. Execute the command below:

```
> 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\yyyyMMdHHmmss
```

7. The following message will be output:

```
Back up to backupDir\yyyyMMdHHmmss
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 the message 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.

5.8.2 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 the message 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: By restoring, the current database data will be deleted. Enter "y" to start the restoration, or "n" to abort it.

```
This command will overwrite the current database data. Continue the operation?  
[y,n]
```

7. The following message will be output:

```
Restore from backupDir\datetimeDir
Command arsvrestore 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 the message 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 before restoring.
- 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.

5.8.3 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:

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

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

2. Modify the backup directory:

Item	Property name	Default value	Meaning
Backup directory	BACKUP_DIR	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 127 characters long.
- Escape the path delimiter "\" with another backslash, that is, "\\".

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
```

5.9 Retrieve logs

5.9.1 Retrieve server logs

Refer to the file below to retrieve server logs:

- Model A or B:

W

- Installation log
installDir\\logs\\ISARinst.log
- Setup log
installDir\\logs\\ISARinst.setup.log
- Setup removal log
installDir\\logs\\ISARinst.unsetup.log
- Uninstallation log
installDir\\logs\\ISARinst.uninst.log
- Operation management log
installDir\\logs\\arsvcmd.log.x
- Application log
installDir\\fjje6_domainsroot\\domains\\domain1\\logs\\server.log
installDir\\fjje6_domainsroot\\nodes\\localhost-domain1\\arconsole1\\logs\\server.log
installDir\\fjje6_domainsroot\\nodes\\localhost-domain1\\ardbservice1\\logs\\server.log

L

- Installation log
/var/opt/FJSVar/logs/ISARinst.log
- Setup log
/var/opt/FJSVar/logs/ISARinst.setup.log
- Setup removal log

```
/var/opt/FJSVvar/logs/ISARinst.unsetup.log
```

- Uninstallation log
/var/opt/FJSVvar/logs/ISARinst.uninst.log
- Operation management log
/var/opt/FJSVvar/logs/arsvcmd.log.x
- Application log
/var/opt/FJSVvar/fjje6_domainsroot/domains/domain1/logs/server.log
/var/opt/FJSVvar/fjje6_domainsroot/nodes/localhost-domain1/arconsole1/logs/server.log
/var/opt/FJSVvar/fjje6_domainsroot/nodes/localhost-domain1/ardbservice1/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).

5.9.2 Retrieve smart device 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 **InterstageAR Authoring** or **InterstageAR 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 **InterstageAR Authoring** or **InterstageAR Dev** icon to start the application. From the displayed menu, select **Settings**.
 - In Windows, in the list of the smart device applications, select the **Interstage AR Authoring** or **Dev** icon to start the application. Select the **Settings** icon at the top-right of the window.
 - 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

- Android/iOS
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.
 - Windows
Logs can be accessed in the **Event Viewer**, which is provided in the **Microsoft Management Console**.
Up to 20 MB can be stored, and generation management is not performed. If the upper limit is exceeded, logs will be deleted from the oldest first.
-

Point

- Android/iOS
 - 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.

- Windows
 - Logs can be accessed in the **Event Viewer** window, in **Applications and Services Logs > Interstage AR**.
 - The events recorded in these logs are classified as error, warning, or information.
 - Logs will not be generated if **Settings > Obtain logs** in the status bar is not enabled.

5.9.2.1 Retrieve logs (Android)

Follow the procedure below to retrieve a log file from the Android native application (for overlay applications developed by a system developer, contact the system developer directly):

1. In the list of smart device applications, tap the **InterstageAR authoring** or **InterstageAR Dev** icon to 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:
internalStorage/Android/data/packageName/files/log
 - *packageName*
 - InterstageAR authoring: com.fujitsu.interstage.ar.mobileclient.android.authoring.app
 - InterstageARDev: 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

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

5.9.2.2 Retrieve logs (iOS)

Follow the procedure below to use iTunes to retrieve a log file from the iOS native application (for overlay applications developed by a system developer, contact the system developer directly):

1. Connect the device to a computer and launch iTunes.
2. Click the **Apps** tab to display the **File Sharing** section with the list of applications that can share files - from that list, select **InterstageAR Authoring** or **InterstageAR Dev**
3. In the file list, select the "Log" directory.
4. Click **Save To** - in the displayed window, specify the export directory, and then click **Open**.

5.9.2.3 Retrieve logs (Windows)

Follow the procedure below to retrieve a log file from the Windows native application (for overlay applications developed by a system developer, check with the developer directly):

1. Click **Control Panel > System and Security > Administrative Tools > Event Viewer**.
2. From **Applications and Services Logs**, select **Interstage AR**.



If **Interstage AR** is not listed in **Applications and Services Logs**, and user tries to output a log, then a dialog box is displayed prompting to restart the native application with administrator privileges, click **Yes**. Clicking **No** will cause the native application to continue processing without restarting, and logs to be output to the **Windows Logs > Application** node.

5.9.3 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 **InterstageAR Authoring** or **InterstageAR 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 **InterstageAR Authoring** or **InterstageAR Dev** icon to start the application. From the displayed menu, select **Settings**.
 - In Windows, in the list of the smart device applications, select the **Interstage AR Authoring** or **Dev** icon to start the application. At the top-right of the window, select the **Settings** icon.
 - 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.