

# BRAVIA Meeting

User Guide

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# 1. Overview

BRAVIA Meeting provides a means of comfortably using a BRAVIA that is installed in a meeting room.

You can select either the free or paid version of BRAVIA Meeting to suit your specific requirements.

## Common Functions

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You can use the following main functions in both the free and paid versions of BRAVIA Meeting:

- Automatic switching of inputs
  - This software can automatically execute input switching.
  - BRAVIA automatically displays the PC screen simply by connecting the external input terminal to the PC.
- Automatic power OFF function
  - This software automatically turns BRAVIA OFF after a fixed period of inactivity (no input or operations performed) has elapsed.
- Presentation timer
  - This software allows you to display a timer on the screen simply by one-touch operation of the remote control.
- Customizing the home screen
  - You can customize the home screen as you like. For example, playing back still images or videos or embedding your favorite web page.
  - You can customize the names of external inputs or icon images.
- Customizing the Help page
  - You can specify the URL of your favorite web page as the Help page.

## Functions in Paid Version

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You can use the following functions in only the paid version of BRAVIA Meeting:

- BRAVIA Meeting Display Management
  - You can operate BRAVIA Meeting or change BRAVIA Meeting settings remotely.
  - You can automatically turn a connected BRAVIA ON and OFF with the power schedule setting.
  - Local admin accounts and OAuth2 authentication for the admin console are supported.
- Annotation mode (draw function)
  - You can draw annotation overlaying a connected external input.
  - You can use the screen as a whiteboard when there are no connected external inputs.
- Schedule collaboration with groupware
  - You can display the reservation status of the meeting room on the BRAVIA Meeting home screen in collaboration with groupware.
  - The following groupware is supported:
    - G Suite (Google Calendar)
    - Microsoft Office 365
    - Microsoft Exchange
- You can perform the following by using the companion applications of BRAVIA Meeting that are installed on a Windows device or a Mac.
  - My Shot
    - You can capture the screen of your computer as a still image, and either display it on the BRAVIA in the meeting room or delete the displayed image. You can also display the screen of your computer on the BRAVIA in the meeting room through screen mirroring.
  - Me Shot
    - You can download the My Shot image displayed on the BRAVIA in the meeting room or what you have drawn with the Draw function, and save that on your computer.
  - My Touch
    - By operating the mouse of your computer or by touch panel operation, you can display a pointer on the BRAVIA in the meeting room or draw with the Draw function.
  - Me Touch
    - You can remotely operate your computer by touch operation on the BRAVIA in the meeting room if it has a touch panel.
  - Changing External Input
    - You can change the external input or return the screen to HOME on the BRAVIA in the meeting room.

## 2. System Requirements

### BRAVIA Meeting

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BRAVIAs which support professional mode.

### BRAVIA Meeting Display Management

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- Server
  - Synology NAS
    - DS218+, DS718+, DS918+, EDS14
  - Windows
    - Supported OS
      - Windows 8.1 Pro 64bit
      - Windows 10 Pro 64bit
- Browser
  - IE 11
  - Google Chrome

### BRAVIA Meeting Client

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- Supported OS
  - Windows
    - Windows 7 Professional 64bit (\*1)
    - Windows 8.1 Pro 64bit
    - Windows 10 Pro 64bit
  - macOS 10.14 Mojave (\*1)

(\*1) Me Touch touch operation not supported

## 3. System Configuration

### System Configuration Elements

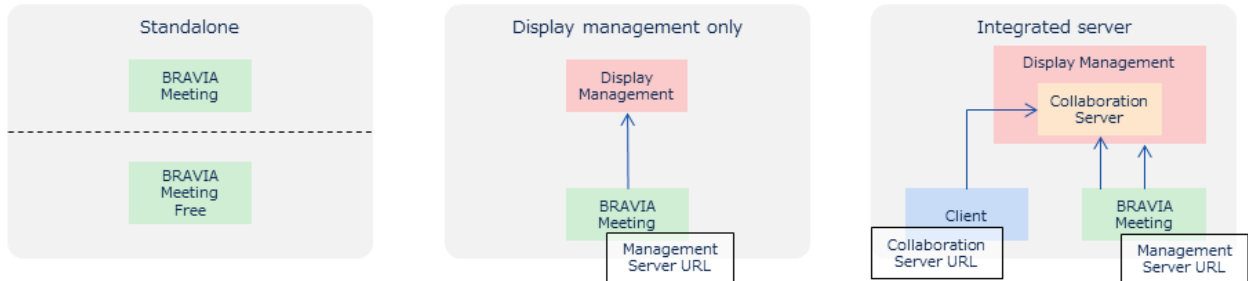
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- BRAVIA Meeting
  - This is the main entity of the BRAVIA Meeting software that is installed on BRAVIA.
  - This comes in two versions, free or paid, depending on the supported functions.
- BRAVIA Meeting Display Management
  - This server is for remotely controlling BRAVIA in meeting rooms where BRAVIA Meeting is installed.
- BRAVIA Meeting Collaboration Server
  - This server is for performing collaborations between BRAVIA Meeting and BRAVIA Meeting Client, the companion application described later.
- BRAVIA Meeting Client
  - This companion application is installed on a Windows or a Mac OS.

## System Configuration Patterns

You can configure the BRAVIA Meeting system in the following ways:

- Standalone configuration
- Display management only configuration
- Integrated server configuration



### Standalone Configuration

- In this configuration, BRAVIA Meeting (free or paid for version) is used by itself.
  - The free version of BRAVIA Meeting is supported only in this configuration.
- Remote control using Display Management and collaboration with BRAVIA Meeting Client are not used.
- Connection of BRAVIA to a network is not essential.

### Display Management Only Configuration

- In this configuration, BRAVIA Meeting (free version) is not supported.
- Display Management is used to manage BRAVIA Meeting.
- Collaboration with BRAVIA Meeting Client is not used.
- Connection of BRAVIA to a network is essential, and connection to Display Management must be possible.

### Integrated Server Configuration

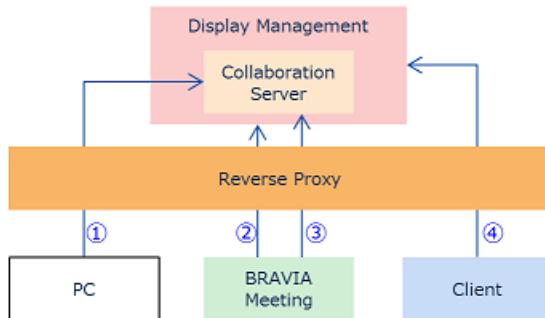
- In this configuration, BRAVIA Meeting (free version) is not supported.
- Display Management is used to manage BRAVIA Meeting.
- Collaboration with BRAVIA Meeting Client is used.
  - Collaboration Server is included in Display Management.
    - IP address and port number of Collaboration Server are same as those of Display Management.
- Connection of BRAVIA to a network is essential, and connection to Display Management must be possible.

## TLS Communications

When BRAVIA Meeting is used in a configuration other than standalone, we recommend performing all communications by TLS communications.

BRAVIA Meeting supports configurations that use TLS communications (server and client authentication). However, BRAVIA Meeting Display Management and BRAVIA Meeting Collaboration Server do not directly support TLS communications, and so a reverse proxy must be installed to perform TLS communications.

You must also issue and manage certificates separately for performing authentication.



The following is an outline of operations to perform when TLS is supported.

### 1. Display Management admin console

- TLS communications are supported.
- Reverse proxy
  - Set server authentication, client authentication, basic authentication, etc., if required.
  - Set the following forwarding setting.

```
/manage/ui/ → http://<Display Management IP address>:40004/manage/ui/
```

### ◦ BRAVIA Meeting Display Management

- Specify the URL of the reverse proxy under “Display Management URL” in the settings.

```
https://<Reverse Proxy FQDN>:<Reverse Proxy port number>
```

### ▪ PC

- Set the root certificate, the intermediate certificate for authenticating server certificates, or client certificates, if required.

```
https://<Reverse Proxy FQDN>:<Reverse Proxy port number>/manage/ui/
```

### 2. BRAVIA Meeting → Display Management communications

- TLS communications (server and client authentication) are supported.
- Reverse proxy
  - Set server and client authentication.
  - Set the following forwarding setting.

```
/manage/display/ → http://<Display Management IP address>:40004/manage/display/
```

### ◦ BRAVIA Meeting

- Using the import settings from USB memory function, set the root certificate, the intermediate certificate for authenticating server certificates, or client certificates.
- Specify the URL of the reverse proxy under “Server URL” in the settings.

```
https://<Reverse Proxy FQDN>:<Reverse Proxy port number>
```

### 3. BRAVIA Meeting → Collaboration Server communications

- TLS communications (server and client authentication) are supported.
- Reverse proxy



- Set server and client authentication.
- Set the following forwarding setting.

```
/collab/display/ → http://<Collaboration Server IP address>:40004/collab/display/
```

- BRAVIA Meeting Display Management

- Specify the URL of the reverse proxy under “Collaboration Server URL” in the settings.

```
https://<Reverse Proxy FQDN>:<Reverse Proxy port number>
```

- BRAVIA Meeting

- Using the import settings from USB memory function, set the root certificate or the intermediate certificate for authenticating server certificates, and client certificates.

#### 4. BRAVIA Meeting Client → Collaboration Server communications

- TLS communications (server authentication only) are supported.
- Reverse proxy

- Set server authentication.
- Set the following forwarding setting.

```
/collab/client/ → http://<Collaboration Server IP address>:40004/collab/client/
```

- BRAVIA Meeting Client

- Set the root certificate or the intermediate certificate for authenticating server certificates on a Windows machine or a Mac.
- Download the client installer from the following URL.

```
https://<Reverse Proxy FQDN>:<Reverse Proxy port number>/collab/client/
```

- Specify the URL of the reverse proxy under “Server URL” in the settings.

```
https://<Reverse Proxy FQDN>:<Reverse Proxy port number>
```

## Paths of BRAVIA Meeting communications

BRAVIA Meeting communicates by using the following paths.

communication	path
Display Management admin console	/manage/ui/
BRAVIA Meeting → Display Management communications	/manage/display/
BRAVIA Meeting → Collaboration Server communications	/collab/display/
BRAVIA Meeting Client → Collaboration Server communications	/collab/client/

You can specify any paths for reverse proxy URLs. You need to set forwarding settings by considering paths, because BRAVIA Meeting adds paths internally and communicates. You also need to set a replacement “Location” header value for HTTP redirection.

- Ex)
  - “Server URL” setting of BRAVIA Meeting: `http://example.com/bravia-meeting/`
    - BRAVIA Meeting adds `manage/display/` internally and communicates to `http://example.com/bravia-meeting/manage/display/`.
  - You need to forward from `/bravia-meeting/manage/display/` to `/manage/display/` on a reverse proxy, because Display Management server accepts `/manage/display/`.
  - You also need to change settings so that the `/manage/display` “Location” header URL is rewritten to `/bravia-meeting/manage/display`.

## 4. Setup (Free version)

### Setting Up BRAVIA

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You need to set up the following settings manually when you start up BRAVIA Meeting from a USB memory.

- Set “Power” > “Eco” > “Idle TV standby” to “off”.
- Set “Settings” > “Network” > “Home network setup” > “IP control” > “Authentication” to “None”.
- Set “Settings” > “Network” > “Home network setup” > “IP control” > “Simple IP control” to enabled.
- Set “Pro settings” > “PC input optimisaztion” to “Auto”.

Although a network connection is not essential, you must set the BRAVIA network and time or set the time to BRAVIA Meeting so that the correct time is displayed on the home screen.

1. Connect the network cable to BRAVIA, or disable the network connection by selecting “Home” → “Network Settings” → “Wi-Fi”.
2. If a proxy setting is necessary, set by selecting “Home” → “Network Settings” → “Proxy Settings”.
3. If BRAVIA is already connected to the Internet, select “Home” → “Settings” → “Date/Time” → “Automatically Set Date/Time” → “Synchronize With Network Time”. Check that the time is displayed correctly by selecting “Home” → “Settings” → “Date/Time”. If an NTP server is not used, proceed to the procedure in “Starting Up BRAVIA Meeting.”
4. To use an NTP server, BRAVIA must be set to the “Pro Setting Mode”.
5. Set the address of the NTP server by selecting “Home” → “Pro Setting” → “NTP Server”.

### Starting Up BRAVIA Meeting

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1. Unzip `bravia_meeting_free-<version>.zip` on your PC.
2. Copy the files under the “sony” folder to a USB flash drive’s root directory.
3. Insert the USB flash drive containing the copied files into BRAVIA.
4. BRAVIA Meeting automatically starts up.

## BRAVIA Meeting Settings

### Setting clock to BRAVIA Meeting

To accurately display the time when BRAVIA cannot be connected to a network, you must set the time to BRAVIA Meeting by the following procedure.

1. Press the “9” button on the remote control on the BRAVIA Meeting home screen.
2. The current time setting dialog box is displayed. Set the current time, and press “OK”.

The date/time setting of BRAVIA Meeting is cleared when BRAVIA reboots or BRAVIA Meeting exits. Connect BRAVIA to a network and set the date/time correctly if you want to display the clock in BRAVIA Meeting.

### BRAVIA Meeting Setting Items

Perform settings by directly operating BRAVIA Meeting with the remote control. Display the setting dialog box by pressing the “Play” button on the remote control on the BRAVIA Meeting home screen.

The following items can be set in the free version of BRAVIA Meeting:

Setting Item	Explanation
Title	Sets the name of the meeting room and organization that is displayed on the home screen.
Subtitle	Sets the name of the meeting room and organization that is displayed on the home screen.
Auto power off	Turns BRAVIA OFF when operation is disabled due to inactivity on the home screen. This item can be set in 1-minute increments.
Auto reboot	Reboots BRAVIA automatically weekly. Reboot is executed when BRAVIA is inactive for a while.
Clock	Displays the clock on the home screen.
HDMI 1 to 4	Used for selecting character strings and icons for input labels from presets.
Web URL	Sets the URLs of web pages that are displayed on the home screen. “None”: No display “Half”: Web page is displayed in the upper half of the screen “Full”: Web page is displayed on the full screen
Help URL	Sets the URL of your own help page. The default help page is replaced when this is set.
PIN code	Sets the PIN code needed to open the setting screen. When a PIN code is set, the setting screen can only be opened by entering the correct PIN code.

## Setting Still Images and Videos as the Home Screen Background

You can play back still images and videos on the BRAVIA Meeting home screen by playing this playback media in the “media” folder or below in USB memory.

### Home Screen Background Setting Specifications

The specifications of the background settings for the home screen are as follows:

- Files are played back by name in alphabetical order (regardless of whether media type is still image or video)
- Sub-folders are not supported
- The default playback time for still images is 10 seconds
  - The playback time can be specified by appending the file name before the file extension with the desired playback time (e.g. “30sec”)
    - Example) `image(30sec).png`
  - The playback time for video is to the end of the video content
- If the only media file is one still image, that image is displayed at all times
- If the only media file is one video, that video is repeatedly played back.

### Supported Format and Extension

For details on the supported format codecs, refer to the BRAVIA B2B HTML5 Solution Technical Manual.

- Still images
  - JPEG: jpeg, jpg
  - PNG: png
- Videos
  - MP4: mp4
  - MPEG TS: ts, m2ts

Extensions are not case-sensitive.

## 5. Setup (Paid version)

### Setting Up BRAVIA Meeting Display Management

Skip this chapter if BRAVIA Meeting is to be used in a standalone configuration.

#### Installing BRAVIA Meeting Display Management

##### Windows

1. Run `bravia-meeting-display-management.msi` on the server PC.
2. Follow the on-screen instructions to proceed with installation.
3. After installation is complete, follow the on-screen instructions to restart the server PC.
4. After the server PC is restarted, the Windows service for BRAVIA Meeting Display Management automatically starts.

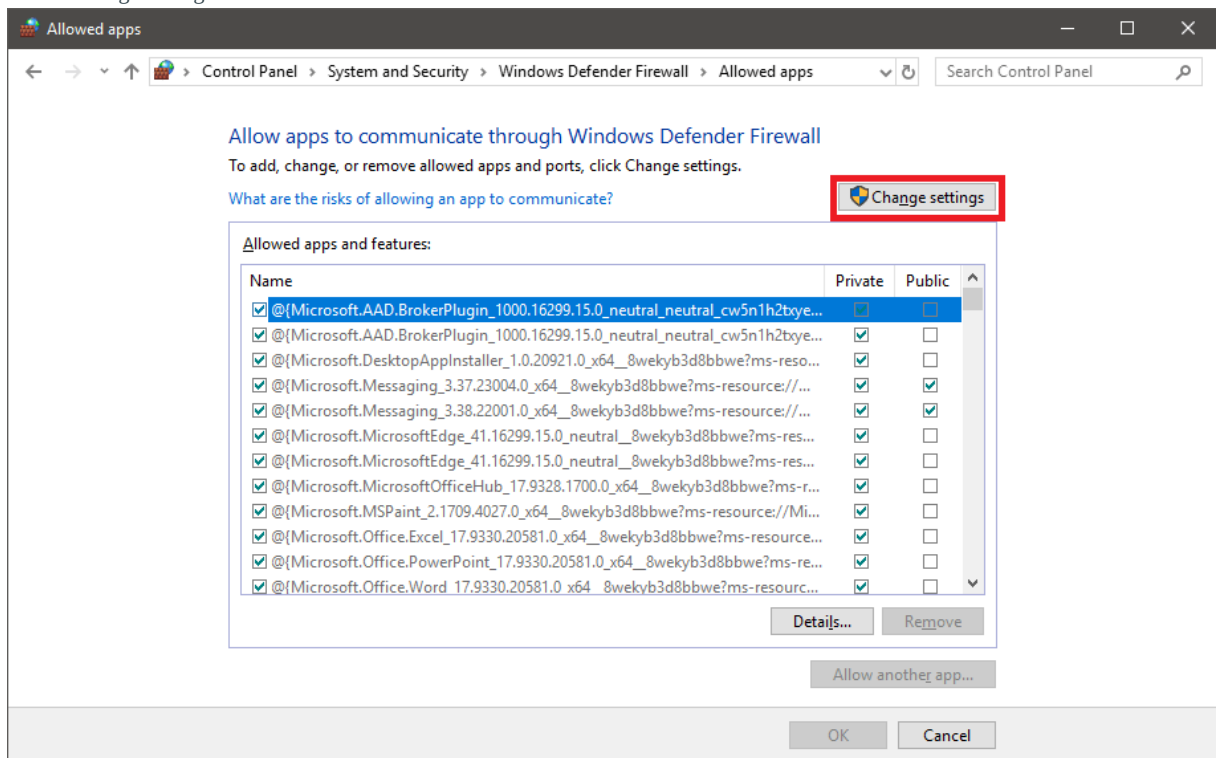
You can check if services are running normally by the following procedure.

1. Open the service menu: Control Panel → Administrator Tools → Services
2. Check the “BRAVIA Meeting Display Management Service” status.
3. If the status is “Stopped”, right click and select “Start” from the menu.
4. To stop a service, right click and select “Stop” from the menu.

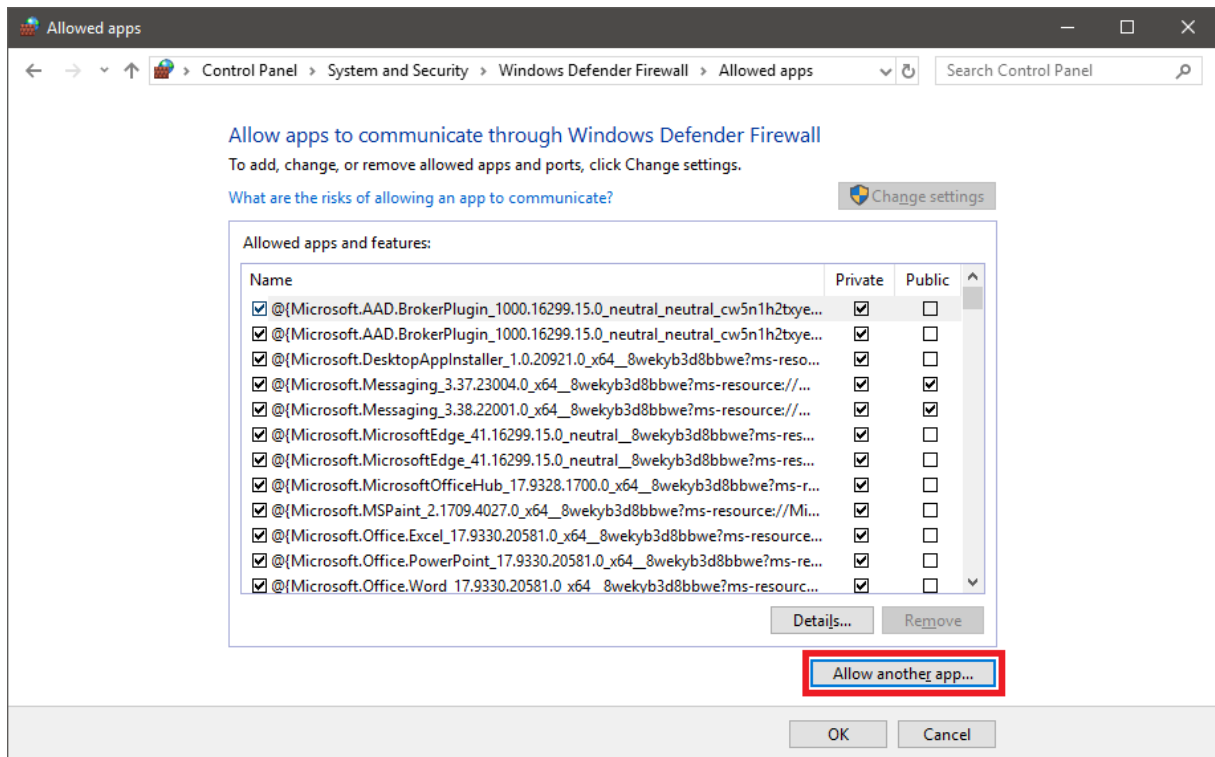
Allow BRAVIA Meeting Display Management to communicate through the firewall

Allow BRAVIA Meeting Display Management to communicate through Windows Defender Firewall. If you are using another firewall software, follow the instructions on the software to allow BRAVIA Meeting Display Management to communicate through it.

1. Open “Control Panel > System and Security > Windows Defender Firewall” and select “Allow an app or feature through Windows Defender Firewall”.
2. Click “Change settings”.

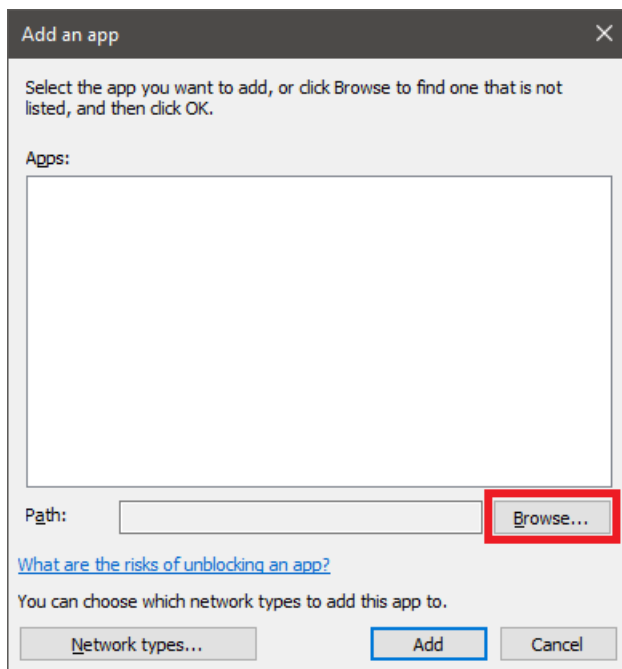


3. Click “Allow another app...”.

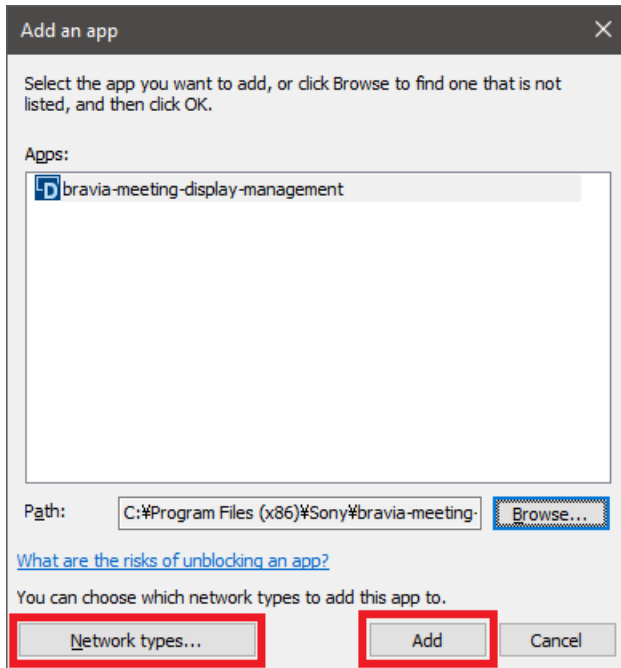


4. Click “Browse...” and select the following path.

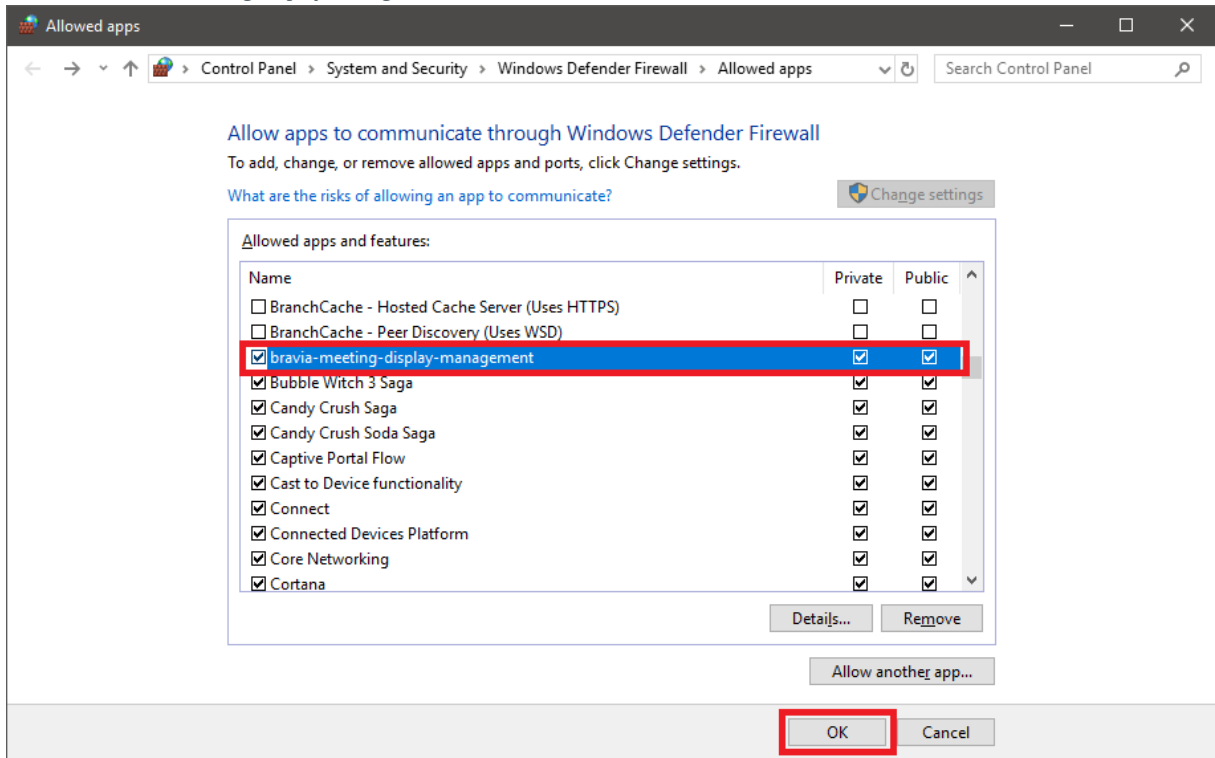
```
Windows(C): > Program Files (x86) > Sony > bravia-meeting-display-management-win32-ia32 > bravia-meeting-display-management.exe
```



5. Select the network types according to your network environment from “Network types...” and click “Add”.



6. Check that “bravia-meeting-display-management” is on the list and click “OK”.



## Synology NAS

Install BRAVIA Meeting from the Package Center.

## Setting BRAVIA Meeting Display Management

- Open the following URL on your PC browser.
  - If a reverse proxy is installed, open the URL set with the reverse proxy.
  - If a reverse proxy is not installed, open the following URL:

```
http://<BRAVIA Meeting Display Management server PC host name or IP address>:40004
```

- Or click the BRAVIA Meeting Display Management desktop icon on the windows server PC.



### Setting Up the Display Management URL

The “Display Management URL” is used to generate URLs such as the callback URL used by the BRAVIA Meeting Display Management OAuth2. This URL must be set when you have a reverse proxy installed or are using OAuth2 authentication.

1. Open the “Settings” tab on the admin console and press the “Edit” icon.
2. Set the “Server” setting “Display management URL”.

- Do not include the path `/manage/ui/` in the URL. Ex)

```
http://example.com:40004
```

- Set reverse proxy URL if you have one. Include a path to specify the reverse proxy URL.  
Ex)

```
https://example.com/bravia-meeting/
```

3. Press the “Save” button to save your settings.

### Collaboration Server URL

You need the collaboration server URL to use the BRAVIA Meeting companion application feature.

1. Select the “Settings” tab on the BRAVIA Meeting Display Management administration screen.
2. Set the URL of the collaboration server at “Collaboration Server URL”.
  - If a reverse proxy is installed, set the URL set with the reverse proxy. - If a reverse proxy is not installed, set as follows:

```
http://<BRAVIA Meeting Display Management server PC host name or IP address>:40004
```

When this setting is blank, the Display Management URL setting is used for the collaboration server URL. When the collaboration server URL is also blank, the collaboration server URL is automatically configured. If collaboration with the client is not established or a reverse proxy is being used in your network, specify a collaboration server URL.



## Setting Up Authentication for Admin Console

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The admin console for BRAVIA Meeting Display Management supports local admin account and OAuth2 authentication.

Authentication is disabled by default. Enable “Auth management” in the “Settings” tab of the admin console to enable authentication.

### Local admin account

The initial password for the local admin account is `admin`. Change the password from “Change admin password” in the “Settings” tab before starting your operation.

### Setting OAuth2 authentication

OAuth2 authentication is disabled by default. Enable “OAuth2 management” and configure the settings to access the service provider in the “Settings” tab.

### Setting Display Management URL

You need the “Display Management URL” when use the OAuth2 authentication. Refer to the “Display Management URL” in “Setting BRAVIA Meeting Display Management”.

### Setting HTTP proxy

You need the HTTP proxy settings when your BRAVIA Meeting Display Management requires a proxy to connect to OAuth2 service providers.

1. Open “Settings” tab of the admin console and press “Edit” icon.
2. Set “HTTP Proxy” of the “Server” setting.
3. Press “Save” button to save the settings.

## Setting OAuth2 service provider

This section shows examples of OAuth2 authentication. Configure your own settings values depending on your environment.

### Google account

#### Service provider side

1. Access to the following URL and sign in.

```
https://console.developers.google.com
```

2. Create a new project from “NEW PROJECT”.
3. Select “Dashbord” from the menu and click “ENABLE APIS AND SERVICES”.
4. Select “Google People API” and enable it.
  - Configure “Quotas” depending on your environment if needed.
5. Select “Credentials” from the menu and select “OAuth content screen” tab.
6. Select “Application type” depending on your environment.
7. Confirm that “email”, “profile” and “openid” are listed in “Scopes for Google APIs”.
8. Set your domain for BRAVIA Meeting Display Management to “Authorized domains”.
  - Domain name is required to authenticate with Google.
9. Select “Credentials” from the menu and select “Credentials” tab.
10. Click “Create credentials” then “OAuth client ID”.
11. Select “Web application” and enter an arbitrary name.
12. Enter the value of “Callback URL” of “OAuth2 management” of “Settings” tab of BRAVIA Meeting Display Management admin console, then click “Create”.
13. Copy “Cliend ID” and “Client secret” of “OAuth client” dialog.

#### BRAVIA Meeting Display Management side

1. Open “Settings” tab of the admin console and press “Edit” icon.
2. Enable “OAuth2 management”.
3. Enter the following settings to connect a service provider.
  - Enter an arbitrary value to “Name” and “Login button label”.
  - Enter the following value to “Authorization URL”.

```
https://accounts.google.com/o/oauth2/auth
```

- Enter the following value to “Token URL”.

```
https://oauth2.googleapis.com/token
```

- Enter the following value to “User data URL”.

```
https://www.googleapis.com/oauth2/v1/userinfo
```

- Enter “Client ID” and “Client secret” assigned by the service provider.
- Enter the following value to “Scope”.

```
openid email profile
```

4. Add emails of users to be permitted to access BRAVIA Meeting Display Management admin console.
  - Use emails which are registered to the OAuth2 service provider.
5. Press “Save” button to save the settings.

## Microsoft Azure Active Directory account

### Service provider side

1. Access to the following URL and sign in.

```
https://admin.microsoft.com
```

2. Go to Azure Active Directory admin center by clicking “Admin center” - “Azure Active Directory” from the menu.
3. Select “Azure Active Directory” from the “All services” of the menu.
4. Select “App registration” from the menu.
5. Click “New application registration”.
6. Enter an arbitrary name, select “Web app / API” on “Application type” and enter BRAVIA Meeting Display Management URL to “Sign-on URL”, then click “Create”.
7. Copy the value of “Application ID” in the application settings.
8. Click “Settings” of the application settings.
9. Select “Settings” - “Reply URLs” and enter the value of “Callback URL” of “OAuth2 management” of “Settings” tab of BRAVIA Meeting Display Management admin console, then click “Save”.
10. Select “Settings” - “Keys”, enter an arbitrary name to “DESCRIPTION” and select an arbitrary duration from “EXPIRATION”, then click “Save”.
11. After saved, copy the value of “VALUE”.
  - Make sure to copy the value. You won’t be able to retrieve after you leave the blade.

### BRAVIA Meeting Display Management side

1. Open “Settings” tab of the admin console and press “Edit” icon.
2. Enable “OAuth2 management”.
3. Enter the following settings to connect a service provider.
  - Enter an arbitrary value to “Name” and “Login button label”.
  - Enter the following value to “Authorization URL”. Set `<tenant>` or `common` depending on your environment.

```
https://login.microsoftonline.com/<tenant>/oauth2/v2.0/authorize
```

or

```
https://login.microsoftonline.com/common/oauth2/v2.0/authorize
```

- Enter the following value to “Token URL”. Set `<tenant>` or `common` depending on your environment.

```
https://login.microsoftonline.com/<tenant>/oauth2/v2.0/token
```

or

```
https://login.microsoftonline.com/common/oauth2/v2.0/token
```

- Enter the following value to “User data URL”.
- Enter “Application ID” and VALUE of the key assigned by the service provider to “Client ID” and “Client secret”.
- Enter the following value to “Scope”.

```
openid profile email offline_access
```

- You can see the values for “Authorization URL”, “Token URL”, “User data URL” and “Scope” by accessing the following URL”

```
https://login.microsoftonline.com/<tenant>/v2.0/.well-known/openid-configuration
```

4. Add emails of users to be permitted to access BRAVIA Meeting Display Management admin console.
  - Use emails which are registered to the OAuth2 service provider.
5. Press “Save” button to save the settings.

## Facebook account

### Service provider side

1. You need to be Facebook developer.
2. Sign-in to Facebook then move to the developer page by clicking “Manage Apps” from the menu.
3. Create a new app from “Add a New App”.
  - Configure your app depending on your environment and enable it.
4. Select “Settings” - “Basic” from the menu and copy “App ID” and “App Secret”.
5. Select “PRODUCT+” from the menu and click “Settings” of “Facebook Login”.
6. Select “Facebook Login” - “Settings” from the menu and enter the value of “Callback URL” of “OAuth2 management” of “Settings” tab of BRAVIA Meeting Display Management to “Valid OAuth Redirect URIs”, then save the changes.

### BRAVIA Meeting Display Management side

1. Open “Settings” tab of the admin console and press “Edit” icon.
2. Enable “OAuth2 management”.
3. Enter the following settings to connect a service provider.
  - Enter an arbitrary value to “Name” and “Login button label”.
  - Enter the following value to “Authorization URL”.

```
https://www.facebook.com/v3.2/dialog/oauth
```
  - Enter the following value to “Token URL”.

```
https://graph.facebook.com/v2.3/oauth/access_token
```
  - Enter the following value to “User data URL”.

```
https://graph.facebook.com/me?fields=name,email
```
  - Enter “App ID” and “App Secret” assigned by the service provider to “Client ID” and “Client secret”.
  - Enter the following value to “Scope”.

```
email
```
4. Add emails of users to be permitted to access BRAVIA Meeting Display Management admin console.
  - Use emails which are registered to the OAuth2 service provider.
5. Press “Save” button to save the settings.

## GitHub account

### Service provider side

1. Sign-in to GitHub.
2. Select “Settings” from the menu.
3. Select “Developer settings” from the menu of the settings page.
4. Create a new app from “Register a new application”.
  - Enter the the of “Callback URL” of “OAuth2 management” of “Settings” tab of BRAVIA Meeting Display Management to “Authorization callback URL”.
5. Copy “Client ID” and “Client secret” from the app settings.

### BRAVIA Meeting Display Management side

1. Open “Settings” tab of the admin console and press “Edit” icon.
2. Enable “OAuth2 management”.
3. Enter the following settings to connect a service provider.
  - Enter an arbitrary value to “Name” and “Login button label”.
  - Enter the following value to “Authorization URL”.

```
https://github.com/login/oauth/authorize
```
  - Enter the following value to “Token URL”.

```
https://github.com/login/oauth/access_token
```
  - Enter the following value to “User data URL”.

```
https://api.github.com/user
```
  - Enter “Client ID” and “Client secret” assigned by the service provider.
  - Leave “Scope” to blank.
4. Add emails of users to be permitted to access BRAVIA Meeting Display Management admin console.
  - Use emails which are registered to the OAuth2 service provider.
5. Press “Save” button to save the settings.

### GitHub setting for every user

Email address of every GitHub user must be public to authenticate with GitHub.

1. Sign-in to GitHub.
2. Select “Settings” from the menu.
3. Select “Emails” from the settings menu and uncheck “Keep my email address private”.
4. Select “Profile” from the settings menu and select the registered email from “Public email”, then save the changes.

## Setting Up Schedule Collaboration with Groupware

---

### HTTP proxy setting

You need to set the HTTP proxy setting when it's required to connect to a groupware server from your BRAVIA Meeting Display Management server.

1. Select the "Settings" tab on the BRAVIA Meeting Display Management administration console.
2. Set "HTTP Proxy" in the "Server" setting.

## GSuite (Google Calendar)

### GSuite side

- Project settings

1. Access the following URL and sign in.

```
https://console.developers.google.com
```

2. Add the project from the project selection dialog.
3. Fill in the project name. (Ex. BraviaMeeting)
4. Enable the API by selecting “ENABLE APIS AND SERVICES” in the “Dashboard” tab.
5. Open the “Library” tab and select “Google Calendar API”, and then select “ENABLE” to enable the API.
6. “Queries per day” and “Queries per 100 seconds” are editable from “Quotas”.
  - This software uses the API once or twice every 100 seconds, or 1440 times per day for each display.
  - If the maximum number of queries is not high enough, request Google to change the maximum limitation from “Queries quota limit” on the same page.
7. Create credentials: “Credentials” tab - “Create credentials” - “Service account key”.
8. Select “Service account” - “New service account”, then fill in “Service account name” and “Service account ID”.
9. Select “Role” - “Project” - “Viewer”
10. Select “Key type” - “JSON”, and execute “Create”.
11. Save created JSON file (\*1).
12. Record the “Service account ID” (\*2).

- Ex)

```
account@project-777777.iam.gserviceaccount.com
```

- You can also go to “Credentials” tab - “Credentials”-“Manage service accounts” to confirm the “Service account ID”.

- Room resource settings

1. Follow the instructions in the link below to register your meeting rooms as resources.

```
https://support.google.com/a/answer/1033925
```

- Calendar settings

1. Access the following URL and sign in.

```
https://calendar.google.com/calendar/render
```

2. Change the following settings for each resource calendar so that they can be displayed.
3. Open calendar settings.
4. Record the “Calendar ID” (\*3).
5. Add the service account ID of (\*2) to “Share with specific people” and set “See all event details” permissions.

### BRAVIA Meeting Display Management side

1. Open the “Settings” tab and press the “Edit” button.
2. Open “Edit credentials” of the “Google Calendar” item, select the service account key downloaded by (\*1) and press “OK”.
3. Press “OK” to save the settings.
4. Change the following “Schedule integration” settings for each display.
5. Set “Schedule enabled” to “ON”.
6. Select “Google Calendar” in “System”.
7. Set “Room ID” to the calendar ID of (\*3) on each display.

## Microsoft Exchange Server

### BRAVIA Meeting Display Management side

1. Open the “Settings” tab and press the “Edit” button.
2. Set “URL” in the “Microsoft Exchange Server” item to the URL of the EWS service.
  - Ex)

```
https://computer.domain.contoso.com/EWS/Exchange.asmx
```

3. Select the method from “Authentication/Authorization method” of the “Microsoft Exchange Server” item.
4. Fill in “User” and “Password” based on the method from “Edit credentials” of the “Microsoft Exchange Server” item.
  - Use the “domain\user” format if the NTLM method and domain are used in your environment.
5. Press “OK” to save the settings.
6. Change the following “Schedule integration” settings for each display.
7. Set “Schedule enabled” to “ON”.
8. Select “Microsoft Exchange Server” in “System”.
9. Set the e-mail address of the facility resource to “Room ID” of each display.



## Microsoft Office 365

### Microsoft Office 365 side

You need the following settings when you use OAuth for the Authentication/Authorization method.

- Application registration portal

1. Access the following URL and sign in as an administrator.

```
https://apps.dev.microsoft.com
```

2. Click “Add an app”.
3. Input “Application Name” and click “create”.
4. Record the displayed “Application ID” (\*1).
5. Click “Generate New Key Pair” in “Application Secrets”, and download the generated PFX file (\*2).
6. Click “Add Platform” in “Platforms”, and select “Web”.
7. Input the following URL to “Redirect URLs”.

```
http://localhost:40002
```

8. Click “Add” in “Microsoft Graph Permissions” - “Application Permissions”.
9. Activate “Calendars.Read”, and click “OK”.
10. Save settings.

- Permission

1. Access the following URL and sign in as an administrator.

```
https://login.microsoftonline.com/{tenant}/adminconsent?client_id={application ID}&state={arbitrary value}&redirect_uri=http:%2f%2flocalhost:40002
```

2. Click “Accept”.

### BRAVIA Meeting Display Management side

1. Open the “Settings” tab and press the “Edit” button.
2. “URL” will be automatically set based on the Authentication/Authorization method.
3. Select the method from “Authentication/Authorization method” of the “Microsoft Office 365” item.
4. Fill in the credentials based on the method from “Edit credentials” of the “Microsoft Office 365” item.
  - Fill in “User” and “Password” when you use BASIC authentication.
  - When you use OAuth.
    1. Enter the domain part of the e-mail address in “Tenant”.
    2. Enter the ID of (\*1) to “Application ID”.
    3. Select the downloaded PFX file (\*2) for “Application secret”.
    4. Enter the password which you set to download the PFX file.
5. Press “OK” to save the settings.
6. Change the following “Schedule integration” settings for each display.
7. Set “Schedule enabled” to “ON”.
8. Select “Microsoft Office 365” in “System”.
9. Set the e-mail address of the facility resource to “Room ID” of each display.

## Remarks

- The function is available only if the display’s timezone is set correctly.
- The function is available only if access rights are correctly given to the user.

## Setting Up BRAVIA

---

When a timetable of the meeting room is displayed in collaboration with groupware or when performing server and client authentication by TLS communications, setting of the time on the BRAVIA unit is required.

Although a network connection is not required when BRAVIA Meeting is to be used in a standalone configuration, you must set the BRAVIA network and time or set the time to BRAVIA Meeting so that the correct time is displayed on the home screen.

1. Connect the network cable to BRAVIA, or disable the network connection by selecting “Home” → “Network Settings” → “Wi-Fi”.
2. If a proxy setting is necessary, set by selecting “Home” → “Network Settings” → “Proxy Settings”.
3. If BRAVIA is already connected to the Internet, select “Home” → “Settings” → “Date/Time” → “Automatically Set Date/Time” → “Synchronize With Network Time”. Check that the time is displayed correctly by “Home” → “Settings” → “Date/Time”. If an NTP server is not used, proceed to the procedure in “Install BRAVIA Meeting on BRAVIA”.
4. To use an NTP server, BRAVIA must be set to the “Pro Setting Mode”.
5. Set the address of the NTP server by selecting “Home” → “Pro Setting Mode” → “NTP Server”.

## Installing BRAVIA Meeting on BRAVIA

---

1. Copy “extapp\_installer.pkg” to the USB memory root directory.
2. Insert the USB memory into BRAVIA.
3. The installation screen is displayed. Follow the on-screen instructions to proceed with the installation.
4. When you have finished the entire procedure, remove the USB memory and restart the system.
5. BRAVIA Meeting automatically starts up a short time after the system is restarted.

## Setting BRAVIA Meeting

You can configure settings on the paid version of BRAVIA Meeting using the following three methods:

- Operating BRAVIA Meeting by remote control
  - You can set the basic setting items in BRAVIA Meeting.
- Importing setting information saved on USB memory to BRAVIA
  - You can configure almost all settings by importing, basic settings, custom settings, background still image settings for the home screen, certificates and other settings.
- Configuring settings from the BRAVIA Meeting Display Management administration screen
  - You can configure almost all settings, with the exception of importing certificates.

### BRAVIA Meeting Basic Setting Items

You can set the following basic setting items in BRAVIA Meeting:

Setting Item	Explanation
Server Connection	Sets to connect or not connect BRAVIA to the Display Management server. “Server URL” can only be configured when this setting is “ON”. The other setting items can only be configured when this setting is “OFF”. When the server connection is enabled, the BRAVIA Meeting settings can only be set through the Display Management server.
Server URL	Sets the URL of the Display Management server to be connected. If a reverse proxy is installed, use the reverse proxy URL. If a reverse proxy is not installed, set as follows: <code>http://&lt;BRAVIA Meeting Display Management IP address&gt;:40004</code>
Title	Sets the name of the meeting room and organization that is displayed on the home screen.
Subtitle	Sets the name of the meeting room and organization that is displayed on the home screen.
Auto power off	Turns BRAVIA OFF when operation is disabled due to inactivity on the home screen. This item can be set in 1-minute increments.
Auto reboot	Automatically reboots BRAVIA weekly. BRAVIA is rebooted when it has been inactive for a while.
Clock	Displays the clock on the home screen.
End alarm	Displays the end alarm based on the meeting room timetable.
Canvas color	Sets the annotation mode canvas color.
HDMI 1 to 4	Used for selecting character strings and icons for input labels from presets.
Web URL	Sets the URLs of web pages that are displayed on the home screen. “None”: No display “Half”: Web page is displayed in the upper half of the screen “Full”: Web page is displayed on the full screen
Help URL	Sets the URL of your help page. The default help page is replaced when this is set.
PIN code	Sets the PIN code needed to open the setting screen. When a PIN code is set, the setting screen can only be opened by entering the correct PIN code.

### Setting by Operating BRAVIA Meeting with the Remote Control

Display the setting dialog box by pressing the “Play” button on the remote control on the BRAVIA Meeting home screen.

## Importing Setting Information from USB Memory

You can import basic settings, custom settings, background still image settings for the home screen, etc. by inserting a USB memory containing the configuration files and these settings.

Place the following files in the USB memory root directory. You can set the following content:

Setting Content	File	Operation
Basic settings	settings.json	(optional) For details on format, see the Appendix.
Custom settings	custom.zip	(optional) For details on format, see the Appendix.
Background still images/video on home screen	backgrounds.zip	(optional) For details on format, see the Appendix.
Root certificate/intermediate certificate	ca_certs/*	(optional) Place certificates in PEM format in the “ca_certs” folder. Any file name is acceptable, and you can place multiple files.
Client certificate	client_cert/cert.pfx	(required when there is the “passphrase.txt” file) Place private keys and client certificates in PKCS#12 format in the “client_cert” folder.
Pass phrase for private key of client certificate	client_cert/passphrase.txt	(required when the “cert.pfx ” file is present) Place the text file containing the pass phrase.

### Import Procedure

1. Copy the configuration files, etc. to the USB memory root directory.
2. Display the setting dialog box by pressing the “Play” button on the remote control at the BRAVIA Meeting home screen.
3. Insert the USB memory into BRAVIA.
4. The import confirmation dialog box is displayed. Follow the on-screen instructions to complete the import.

## Setting from BRAVIA Meeting Display Management

You can set a connected BRAVIA Meeting on the “Settings” tab of BRAVIA Meeting Display Management.

To set from Display Management, the URL of the Display Management server must be set to BRAVIA Meeting, and BRAVIA Meeting must be connected to the Display Management server. For this reason, you must set the “Server URL” either by operating the remote control or by importing by USB memory.

## Setting Still Images and Videos as the Home Screen Background

You can play back still images and videos on the BRAVIA Meeting home screen.

There are two ways of setting customized settings as follows:

- Importing from USB memory
  - Import the backgrounds.zip file stored on the USB memory.
    - For details on the format of the backgrounds.zip file, see the Appendix.
- Setting from Display Management
  - Upload the backgrounds.zip file in “Background image” under the display settings or the tab settings.
    - For details on the format of the backgrounds.zip file, see the Appendix.
    - The maximum file size of backgrounds.zip for upload from Display Management is 30 MB.

Use a backgrounds.zip file which includes no image or video file to reset the home screen background to default.

## Home Screen Background Setting Specifications

The specifications of the background settings for the home screen are as follows:

- Files are played back by name in alphabetical order (regardless of whether media type is still image or video)
- Sub-folders are not supported
- The default playback time for still images is 10 seconds
  - The playback time can be specified by appending the file name before the file extension with the desired playback time (e.g. “30sec”)
    - Example) `image(30sec).png`
  - The playback time for video is to the end of the video content
- If the only media file is one still image, that image is displayed at all times
- If the only media file is one video, that video is repeatedly played back.

## Supported Format and Extension

For details on the supported format codecs, refer to the BRAVIA B2B HTML5 Solution Technical Manual.

- Still images
  - JPEG: jpeg, jpg
  - PNG: png
- Videos
  - MP4: mp4
  - MPEG TS: ts, m2ts

Extensions are not case-sensitive.

## Customizing UI Design

You can customize the UI design of BRAVIA Meeting. You can customize the following UI elements:

- Text (messages, font, text color, text size)
- Icon images
- Background color
- Time format

There are two ways of setting customized settings as follows:

- Importing from USB memory
  - Import the custom.zip file stored on the USB memory.
    - For details on the format of the custom.zip file, see the Appendix.
- Setting from Display Management
  - Upload the custom.zip file in “Custom design” under the display settings or the tab settings.
    - For details on the format of the custom.zip file, see the Appendix.

## Setting Up BRAVIA Meeting Client

---

Skip this chapter if BRAVIA Meeting is to be used in a standalone configuration.

### Downloading the installer

1. Open the following URL on each user's PC browser.
  - If a reverse proxy is installed, set the URL set with the reverse proxy.
  - If a reverse proxy is not installed, set as follows:

```
http://<BRAVIA Meeting Collaboration Server host name or IP address>:40004
```

2. Download the installer.

### On a Windows PC

1. Run `bravia_meeting_client-<version>-setup.exe` for each user on the Windows PC.
2. Follow the on-screen instructions to proceed with the installation.
3. After installation is completed, BRAVIA Meeting Client automatically starts.

### On a Mac

1. Run `bravia_meeting_client-<version>-mac.dmg` for each user on the Mac.
2. Follow the on-screen instructions to proceed with the installation.
3. After installation is completed, launch BRAVIA Meeting Client from Launchpad.

### BRAVIA Meeting Client Settings

Set "Server URL" as follows in the BRAVIA Meeting Client settings.

- If a reverse proxy is installed, set the URL set with the reverse proxy.
- If a reverse proxy is not installed, set as follows:

```
http://<BRAVIA Meeting Collaboration Server host name or IP address>:40004
```

### Automatic Update of BRAVIA Meeting Client

BRAVIA Meeting Client supports automatic update. Software is automatically updated if there is new software in the connected Collaboration Server.



## 6. Basic Operation Method

### Display Management Admin Console

---

#### “Display” tab

You can turn the power of the display on or off, change the display input, and view/edit/delete displays.

Display management operation can be easy and efficient by attaching tags made up of common display settings to the display. You can configure setting items the same as those of the display in to a tag, then enable the settings of the attached tags as display settings.

- You can attach 0 or more tags to one display.
  - If multiple tags are attached, a previously attached tag is enabled.
    - You can change the order of the tags by dragging and dropping them in the display settings.
- You can attach tags to 0 or more displays.
- You can select to overwrite a display’s settings or use a tag’s settings when a tag is attached.

#### Bulk display control

You can control multiple displays at a time by clicking the checkboxes of the displays and clicking “Display control”.

#### Editing bulk tags

You can edit the tags of multiple displays at a time by clicking the checkboxes of the displays and clicking “Bulk tag edit”.

#### “Tag” tab

You can view/edit/add/delete tags.

#### “Settings” tab

You can configure the server settings, schedule integration settings and authentication settings.

## Home Screen

While the home screen or an external input is displayed, you can perform the following by remote control or by touching the touch panel.

### Remote Control Operations

Operation	Action
“←” button	Displays the switch external input menu.
“→” button	Displays the display tools menu.
“1” button	Switches external input to HDMI 1.
“2” button	Switches external input to HDMI 2.
“3” button	Switches external input to HDMI 3.
“4” button	Switches external input to HDMI 4.
“5” button	Switches external input to DSUB (when BRAVIA is equipped with a DSUB terminal),
“9” button	Displays the time setting dialog box.
“Play” button	Displays the setting dialog box.
“Red” button	Displays the presentation timer setting dialog.
“Yellow” button	Toggles display/hide of the presentation timer countdown.
“Green” button	Starts the annotation mode.
“Blue” button	Displays Help.

### Touch Operations

- If you touch the home screen, the touch panel appears on-screen.
- To return to the home screen, touch and hold on the home screen.

## Automatic Switching of Inputs

---

Connected inputs are automatically switched to if external equipment (e.g., PC) is connected to the HDMI terminal on BRAVIA.

- If an external equipment is connected when BRAVIA is OFF, BRAVIA is automatically turned ON and the newly connected input is automatically switched to.
- If additional equipment is connected when external equipment is already connected and an input already selected, the newly connected equipment is automatically switched to.
  - If the additionally connected external equipment is disconnected, the previously connected external input is automatically switched to.

## Presentation Timer

---

Display the presentation timer setting dialog using the following operations:

- Press the “→” button on the remote control, select “Presentation Timer” on the menu that is displayed, and press the “Apply” button
- Press the “Red” button on the remote control
- Touch the “Presentation Timer” icon on the touch menu

You can increase or decrease the timer in 1-minute increments by pressing the up/down buttons on the remote control or by touching the touch panel. To start countdown, select the “OK” button after setting the timer.

The countdown is displayed at all times at the bottom right of the screen, and you can display/hide the countdown by pressing the “Yellow” button on the remote control.

When the timer has counted down to “0” (zero) a notification is displayed on-screen.

## Annotation (draw function) Mode

---

The Annotation mode can be started using the following operations:

- Press the “→” button on the remote control, select “Annotation” in the displayed menu and press the “Apply” button
- Press the green button on the remote control
- Touch the “Annotation” icon on the touch menu.

When BRAVIA Meeting Client is in use, the mode automatically transitions to the Annotation mode when My Touch is connected.

If the mode is started up in the absence of external input, the screen background is white and can be used as a whiteboard. If the mode is started up with an external input present, drawing directly over the display screen of the external input is possible.

You can perform the following operations in the Annotation mode:

- Drawing tools
  - Switch to the mode for mouse operation of the PC connected by Me Touch (Can be selected only while Me Touch is connected)
  - Switch to the mode for touch operation of the PC connected by Me Touch (Can be selected only while Me Touch is connected and the PC supports touch operation)
  - Switch to draw operation
  - Select draw operation colors
  - Switch to rubber eraser operation
  - Undo
  - Redo
  - Clear entire screen
  - Save drawings to USB memory. USB memory must be inserted into BRAVIA. External inputs and non-saveable My Shot images cannot be saved.
  - Exit Annotation mode
- Move Annotation toolbar
  - Move Annotation toolbar up/down/left/right by dragging and dropping button-free area of toolbar
- Minimize Annotation toolbar
  - Minimize Annotation toolbar by touching button-free area of toolbar
    - Resize minimized toolbar by touching a spot nearby the toolbar

You can exit the Annotation mode using the following operations:

- Touch “x” button on Annotation toolbar
- Press “Apply” or “Back” button on remote control
- Turn BRAVIA power OFF

## Appendix I. settings.json

settings.json is written in JSON format. The formats are as follows:

- title ... *<string>* (optional) Title
- subtitle ... *<string>* (optional) Sub-title
- autoEndAlarm ... *<boolean>* (optional) Automatic end alarm based on the schedule. Enabled when “true”.
- autoPowerOff ... *<number>* (optional) Automatic power OFF function. Unit is (minutes). Function is disabled by “-1”.
- clock ... *<boolean>* (optional) Home screen clock display flag. The clock is displayed when this flag is “true”.
- inputs
  - hdmi1
    - icon ... *<string>* (optional) “hdmi”, “dsub”, “pc”, and “vc” icons that are displayed at the No.1 port of the external input menu
    - label ... *<string>* (optional) Text that is displayed at the No.1 port of the external input menu
  - hdmi2
    - icon ... *<string>* (optional) “hdmi”, “dsub”, “pc”, and “vc” icon that are displayed at the No.2 port of the external input menu
    - label ... *<string>* (optional) Text that is displayed at the No.2 port of the external input menu
  - hdmi3
    - icon ... *<string>* (optional) “hdmi”, “dsub”, “pc”, and “vc” icon that are displayed at the No.3 port of the external input menu
    - label ... *<string>* (optional) Text that is displayed at the No.3 port of the external input menu
  - hdmi4
    - icon ... *<string>* (optional) “hdmi”, “dsub”, “pc”, and “vc” icon that are displayed at the No.4 port of the external input menu
    - label ... *<string>* (optional) Text that is displayed at the No.4 port of the external input menu
  - dsub
    - icon ... *<string>* (optional) “hdmi”, “dsub”, “pc”, and “vc” icon that are displayed at the No.5 port of the external input menu
    - label ... *<string>* (optional) Text that is displayed at the No.5 port of the external input menu
- webFrame
  - enabled ... *<boolean>* (optional) Display of WebFrame. “true”: display, “false”: hide
  - size ... *<string>* (optional) WebFrame display position. This is mandatory when “enabled” is “true”. “half” or “full”.
  - url ... *<string>* (optional) URL that is displayed in WebFrame. This is mandatory when “enabled” is “true”.
- helpUrl ... *<string>* (optional) External collaboration URL of Help screen. If this is not specified or is left blank, the standard Help screen is displayed.
- serverConnection ... *<boolean>* (optional) The server connection is enabled when this flag is “true”. The default is “false”.
- serverUrl ... *<string>* (optional) Server URL (Display Management or Collaboration Server)
- canvasColor ... *<string>* (optional) The annotation mode canvas color. The value is “white” or “black”. The default is “white”.
- pincode
  - enabled ... *<boolean>* (optional) Enable flag for setting protection function using a PIN code. This function is enabled when this flag is “true”. The default is “false”.
  - code ... *<string>* (optional) PIN code. This is mandatory when “enabled” is “true”. Specify a 4-digit number. The default is ‘0000’.
- version ... *<number>* (mandatory) Version of setting data. Specify “1” at all times.

Ex)

```
{
  "title": "101",
  "subtitle": "Meeting Room",
  "autoPowerOff": 30,
  "clock": true,
  "inputs": {
    "hdmi1": {
      "icon": "hdmi",
      "label": "HDMI 1"
    },
    "hdmi2": {
      "icon": "hdmi",
      "label": "HDMI 2"
    },
    "hdmi3": {
      "icon": "vc",
      "label": "VC"
    },
    "hdmi4": {
      "icon": "vc",
      "label": "VC"
    }
  },
  "helpUrl": "http://help.example.com",
  "webFrame": {
    "enabled": false,
  },
  "pincode": {
    "enabled": true,
    "code": "5577"
  },
  "version": 1
}
```

```
{
  "serverConnection": true,
  "serverUrl": "https://example.com"
  "version": 1
}
```

## Appendix II. custom.zip

This zip archive contains settings, icon images and other content for customizing the UI design of BRAVIA Meeting.

Zip the “custom” folder in the following configuration as “custom.zip”. (When zipping, include the “custom” folder. The “custom” folder must be generated when unzipping the zipped folder.)

```
custom/
  i18n/
    locale*.json
  images/
    *.{png,jpg}
  style/
    style.css
  fonts/
    *.{woff2,woff,eot,ttf,svg}
  custom.json
```

### locale.json (optional)

You can customize all UI messages. Program messages are written in the following JSON formats:

- Files named locale-<language name>.json, are used when the language in the file name matches the language setting on BRAVIA.
  - Specify the “language name” section in ISO 639-1 format. Example) `locale-en.json`, `locale-ja.json`
- Files named locale.json, are used when the corresponding message is not included in the locale-<language name>.json file.
  - locale-<language name>.json messages have higher priority than locale.json messages.
- When messages are not set in locale-<language name>.json or locale.json format, default messages are used.

```
{
  "COMMON":{
    "MESSAGE_AUTH_ERROR":"Please confirm authentication of IP control",
    "BUTTON_OK":"OK",
    "BUTTON_CANCEL":"Cancel",
    "BUTTON_BACK":"Back",
    "CONFIRM_DIALOG_HEADER":"Confirm",
    "LABEL_PASSCODE":"Passcode",
    "LABEL_PASSCODE_DELIMITER":":"
  },
  "HOME":{
    "BUTTON_HOME":"HOME",
    "BUTTON_TOOLS":"Tools",
    "BUTTON_INPUTS":"Input",
    "BUTTON_PRESENTATION_TIMER":"Presentation Timer",
    "BUTTON_ANNOTATION":"Annotation",
    "BUTTON_HELP":"Help"
  },
  "END_ALARM": {
    "MESSAGE_SET_END_ALARM":"Set End alarm to ",
    "MESSAGE_FINISH_BEFORE_15_MIN":" 15 min left",
    "MESSAGE_FINISH_BEFORE_5_MIN":" 5 min left",
    "MESSAGE_FINISH":" End time",
    "DIALOG_HEADER":"End alarm Setting",
    "DIALOG_HEADER_AUTO":"Auto setting",
    "LABEL_CURRENT_TIME":"Current time",
    "LABEL_CURRENT_ALARM":"Current alarm"
  },
  "PRESENTATION_TIMER":{
    "MESSAGE_TIMEOUT":" Presentation time is up.",
    "DIALOG_HEADER":"Presentation Timer Setting",
    "LABEL_PRESENTATION_TIME":"Presentation Time",
    "LABEL_MINUTES":"min."
  },
  "ANNOTATION":{
    "MESSAGE_CONFIRM_CLOSE":"Are you sure to quit annotation mode?",
    "MESSAGE_CONFIRM_SAVE":"Are you sure to save screen data on USB storage?",
    "MESSAGE_SAVE":"Successfully saved as on USB storage.",
    "MESSAGE_SAVE_ERROR":"Failed to save. Confirm USB connection.",
    "MESSAGE_SAVE_ERROR_FORBIDDEN": "Saving the display image is not allowed."
  },
  "HELP": {
    "DIALOG_HEADER":"Help"
```



```

"DIALOG_HEADER": "help",
"ITEM_LABEL_HDMI": "External Input Switching ([1] - [5] button)",
"ITEM_LABEL_PRESENTATION_TIMER": "Presentation Timer",
"ITEM_LABEL_ANNOTATION": "Annotation",
"ITEM_LABEL_HELP_INFO": "Information",
"LABEL_IP": "IP address",
"LABEL_VERSION": "Version",
"LABEL_LICENSES": "Open source licenses",
"LABEL_BLUE": "Blue",
"LABEL_GREEN": "Green",
"LABEL_RED": "Red",
"LABEL_YELLOW": "Yellow",
"LABEL_BUTTON": "button",
"MESSAGE_HDMI": "Switching external input to HDMI 1 - 4 and D-Sub.",
"MESSAGE_PRESENTATION_TIMER": "Sets the timer to count down. This is useful when the discussion time for topics
is predetermined. The count down timer display can be toggled. ",
"MESSAGE_ANNOTATION": "Draw characters and graphics on the external input. You can also save the contents you dr
ew to a USB storage."
},
"RESERVATION": {
  "LABEL_EVENT_STATUS_VACANT": "Open"
},
"SETTINGS": {
  "DIALOG_HEADER": "Settings",
  "ITEM_LABEL_SERVER_CONNECTION": "Server connection",
  "ITEM_LABEL_TITLE": "Title",
  "ITEM_LABEL_SUBTITLE": "Subtitle",
  "ITEM_LABEL_AUTO_POWER_OFF": "Auto power off",
  "ITEM_LABEL_AUTO_REBOOT": "Auto reboot",
  "ITEM_LABEL_CLOCK": "Clock",
  "ITEM_LABEL_AUTO_END_ALARM": "End alarm",
  "ITEM_LABEL_CANVAS_COLOR": "Canvas color",
  "ITEM_LABEL_WEB_URL": "Web URL",
  "ITEM_LABEL_SERVER_URL": "Server URL",
  "ITEM_LABEL_HELP_URL": "Help URL",
  "ITEM_LABEL_PINCODE": "PIN code",
  "ITEM_VALUE_CUSTOM": "Custom",
  "ITEM_VALUE_WHITE": "White",
  "ITEM_VALUE_BLACK": "Black",
  "MESSAGE_CONFIRM_IMPORTING": "A USB memory with valid data to import has been detected. Do you want to import t
his data?",
  "MESSAGE_IMPORTING": "Importing... \nDo not remove USB memory.",
  "MESSAGE_IMPORTING_COMPLETED": "Import completed successfully. You can remove the USB memory.",
  "MESSAGE_IMPORTING_ERROR_FORMAT": "Failed to import. Failed to parse .",
  "MESSAGE_IMPORTING_ERROR_UNZIP": "Failed to import. Failed to extract .",
  "MESSAGE_IMPORTING_ERROR_NOT_FOUND": "Failed to import. is required.",
  "MESSAGE_IMPORTING_ERROR_COPY": "Failed to import. Failed to copy .",
  "MESSAGE_IMPORTING_ERROR_IN_PROGRESS": "Import is in progress. Please retry later.",
  "MESSAGE_IMPORTING_ERROR": "Failed to import.",
  "MESSAGE_PINCODE_ENTER": "Enter PIN code.",
  "MESSAGE_PINCODE_INCORRECT": "PIN code is incorrect. Enter PIN code.",
  "BUTTON_IMPORT_OK": "Import"
},
"TIME_SETTINGS": {
  "DIALOG_HEADER": "Set current date & time"
},
"NOTIFICATION": {
  "MESSAGE_REBOOT_1MIN": "Display will reboot in 1 minute.",
  "MESSAGE_REBOOT_NOW": "Display rebooting.",
  "MESSAGE_AUTO_POWER_OFF": "Powering off due to inactivity.",
  "MESSAGE_POWEROFF_NOW": "Powering off."
}
}

```

## images (optional)

You can customize all UI icon images.

Image files with the specified file names are placed in the “images” folder. The file names and resolution of each icon are as follows.

Place	Icon	File name	Default resolution
HOME	Inputs menu trigger (left arrow)	icon-menu-inputs_trigger.png	80x80
HOME	Tools menu trigger (right arrow)	icon-menu-tools_trigger.png	80x80
HOME	Me Shot ban	icon-home-meshot_ban.png	48x48
Menu	HOME	icon-menu-input_home.png	180x120
Menu	HDMI 1	icon-menu-input_hdmi1.png	180x120
Menu	HDMI 2	icon-menu-input_hdmi2.png	180x120
Menu	HDMI 3	icon-menu-input_hdmi3.png	180x120
Menu	HDMI 4	icon-menu-input_hdmi4.png	180x120
Menu	End Alarm	icon-menu-endalarm.png	100x100
Menu	Presentation Timer	icon-menu-timer.png	100x100
Menu	Annotation	icon-menu-annotation.png	100x100
Menu	Help	icon-menu-help.png	100x100
Touch Menu	HOME	icon-touch_menu-input_home.png	72x48
Touch Menu	HDMI 1	icon-touch_menu-input_hdmi1.png	72x48
Touch Menu	HDMI 2	icon-touch_menu-input_hdmi2.png	72x48
Touch Menu	HDMI 3	icon-touch_menu-input_hdmi3.png	72x48
Touch Menu	HDMI 4	icon-touch_menu-input_hdmi4.png	72x48
Touch Menu	End Alarm	icon-touch_menu-endalarm.png	72x72
Touch Menu	Presentation Timer	icon-touch_menu-timer.png	72x72
Touch Menu	Annotation	icon-touch_menu-annotation.png	72x72
Touch Menu	Help	icon-touch_menu-help.png	72x72
Annotation	Close	icon-annotation-close.png	72x72
Annotation	Mouse Mode	icon-annotation-mouse_mode.png	72x72
Annotation	Touch Mode	icon-annotation-touch_mode.png	72x72
Annotation	Clear	icon-annotation-clear.png	72x72
Annotation	Undo	icon-annotation-undo.png	72x72
Annotation	Redo	icon-annotation-redo.png	72x72
Annotation	Eraser	icon-annotation-eraser.png	72x72
Annotation	Pen - Red	icon-annotation-pen_red.png	72x72
Annotation	Pen - Blue	icon-annotation-pen_blue.png	72x72
Annotation	Pen - Green	icon-annotation-pen_green.png	72x72
Annotation	Pen - Yellow	icon-annotation-pen_yellow.png	72x72
Annotation	Pen - Magenda	icon-annotation-pen_magenda.png	72x72
Annotation	Pen - Orange	icon-annotation-pen_orange.png	72x72
Annotation	Pen - White	icon-annotation-pen_white.png	72x72
Annotation	Pen - Black	icon-annotation-pen_black.png	72x72
Annotation	Palette - Red	icon-annotation-palette_red.png	50x50

Place	Icon	File name	Default resolution
Annotation	Palette - Blue	icon-annotation-palette_blue.png	50x50
Annotation	Palette - Green	icon-annotation-palette_green.png	50x50
Annotation	Palette - Yellow	icon-annotation-palette_yellow.png	50x50
Annotation	Palette - Magenta	icon-annotation-palette_magenta.png	50x50
Annotation	Palette - Orange	icon-annotation-palette_orange.png	50x50
Annotation	Palette - White	icon-annotation-palette_white.png	50x50
Annotation	Palette - Black	icon-annotation-palette_black.png	50x50
Annotation	Save	icon-annotation-save.png	72x72
Annotation	My Touch Pointer	icon-mytouch-pointer.png	64x64
Notification	End Alarm	icon-notification-end_alarm.png	60x60
Notification	Presentation Timer	icon-notification-presentation_timer.png	60x60
Notification	Information (i mark)	icon-notification-information.png	60x60
Notification	HDMI 1	icon-notification-input_hdmi1.png	72x48
Notification	HDMI 2	icon-notification-input_hdmi2.png	72x48
Notification	HDMI 3	icon-notification-input_hdmi3.png	72x48
Notification	HDMI 4	icon-notification-input_hdmi4.png	72x48
Help	Input	icon-help-input.png	60x60
Help	End Alarm	icon-help-end_alarm.png	60x60
Help	Presentation Timer	icon-help-presentation_timer.png	60x60
Help	Annotation	icon-help-annotation.png	60x60
Help	Information (i mark)	icon-help-information.png	60x60

## style.css (optional)

You can customize the style (font, text color, text size, background color) of the main parts of the UI.

Write customization files in CSS file format. The classes of each customizable section are defined as follows.

Class name	Target	Recommended property	Note
.custom-font	All	font-family	Use @font-face to add font definition.
.custom-menu	Menu	background, font-size, color	
.custom-menu-inputs	Inputs menu	background, font-size, color	
.custom-menu-tools	Tools menu	background, font-size, color	
.custom-menu-inputs-trigger	Inputs menu trigger	background, font-size, color, text-shadow	
.custom-menu-tools-trigger	Tools menu trigger	background, font-size, color, text-shadow	
.custom-menu-inputs-item	Inputs menu item	border	Use :focus class for focused.
.custom-menu-tools-item	Tools menu item	border	Use :focus class for focused.
.custom-touch-menu	Touch menu	background	
.custom-touch-menu-label	Touch menu label	font-size, color	
.custom-dialog-header-footer	Dialog header and footer	background, font-size, color	
.custom-dialog-body	Dialog body	background, font-size, color	
.custom-dialog-button	Dialog button	border	Use :focus class for focused.
.custom-dialog-input	Dialog text input field	background, font-size, color	Use :focus class for focused.
.custom-dialog-input-active	Dialog text input field (active)	background, border, color	Use :focus class for focused.
.custom-dialog-select	Dialog select box	background, font-size, color	Use :focus class for focused.
.custom-dialog-select-active	Dialog select box (active)	background, border, color	
.custom-dialog-select-left	Dialog select arrow (left or up)	color	
.custom-dialog-select-right	Dialog select arrow (right or down)	color	
.custom-countdown-timer	Countdown timer	background, font-size, color	
.custom-notification	Notification	background, font-size, color	
.custom-title-main	Title	background, font-size, color	
.custom-title-sub	Subtitle	background, font-size, color	
.custom-home-clock	Clock of home screen	background, font-size, color	
.custom-passcode	Passcode	background, font-size, color, text-shadow	
.custom-annotation-toolbar	Annotation toolbar	background	
.custom-annotation-toolbar-item	Annotation toolbar item	border	Use :active class for selected.
.custom-schedule	Shedule	background-color: #202124, top: 0, left: 1302px, width: 618px	
.custom-schedule-item	Shedule item	background-color: #40688F, left: 128px, color: #F1F1F1, font-size: 28px	
.custom-schedule-time-scale-label	Schedule time scale label	top: -12px, left: 45px, color: #EDED, font-size: 24px	

Class name	Target	Recommended property	Note
.custom-schedule-time-scale-line	Schedule time scale line	left: 118px, border-top: solid 1px #999999	
.custom-schedule-current-time-line	Current timeline of schedule	left: 0px, border-top: solid 2px #51AAFF	
.custom-schedule-past-rect-dimmer	Dimmer of past rectangle on schedule	background-color: rgba(33,33,33,0.7)	

Ex)

```
@font-face {
  font-family: orangejuice;
  src: url("../fonts/orangejuice2.0.ttf") format('truetype');
}

.custom-font {
  font-family: orangejuice, serif;
}

.custom-menu {
  background: #3e8f3e;
  color: #204d74;
}

.custom-menu-inputs {
  background: #e0e0e0;
}

.custom-menu-tools {
  font-size: 40px;
}
```

## fonts (optional)

You can set any font file to the text to be used in the UI.

The default file is placed in the “fonts” file. Specify the font family in “style.css”.

## custom.json (optional)

Write custom.json in JSON format. The formats are as follows:

- webFrame ... *<object>* (optional)
  - top ... *<number>* (optional) WebFrame display X coordinate Default: 0
  - left ... *<number>* (optional) WebFrame display Y coordinate Default: 0
  - width ... *<number>* (optional) WebFrame display width Default: 1920
  - height ... *<number>* (optional) WebFrame display height Default: 1080
  - zoom ... *<number>* (optional) WebFrame enlargement ratio Default: 1.0
- clock ... *<object>* (optional)
  - format ... *<string>* (mandatory) Format of home screen clock [moment.js](#) Compliant character string
- canvasColor ... *<object>* (optional)
  - white ... *<string>* (optional) “White” canvas color, Default: “0xFFFFFFFF”
  - black ... *<string>* (optional) “Black” canvas color, Default: “0x000000FF”
- version ... *<number>* (mandatory) Version of setting data. Specify “1” at all times.

Ex)

```
{
  "webFrame": {
    "top": 0,
    "left": 0,
    "width": 1920,
    "height": 1080,
    "zoom": 1.0
  },
  "clock": {
    "format": "YYYY/MM/DD HH:mm:ss"
  },
  "canvasColor": {
    "white": "0xFFFFFFFF",
    "black": "0x000000FF"
  },
  "version": 1
}
```

## Appendix III. backgrounds.zip

This zip archive contains the background still images and videos to be set to the home screen.

Include the “backgrounds” folder in the zip file. (The “backgrounds” folder must be generated when unzipping the zipped folder.)

Example of hierarchy structure after unzipping)

```
backgrounds/  
image1.png  
image2.png  
video1.mp4
```