



BT-Work Remote

Wearable Remote Instruction and Work Support System

Version 3.2.0

Operating Manual

This system enables experienced instructors within a company to use a web browser to provide instructions to workers all over the world who are having problems at their worksites. By wearing a pair of smartglasses, the instructor can see what the on-site worker sees and thereby provide effective support.

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The first instructor user to create is the administrator.

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Instructor users operate a web browser window from a PC.

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* The contents herein may be changed without prior notice due to updates and improvements.

* MOVERIO BT-300/BT-350 is a registered trademark of Seiko Epson Corporation.



1. Create the administrator user.

The first instructor user to create is the administrator. The administrator user will be created by Digital Printing & Solutions Co., Ltd. The administrator can create users (within the contracted restrictions) and set/manage user information.

2. Create instructor users.

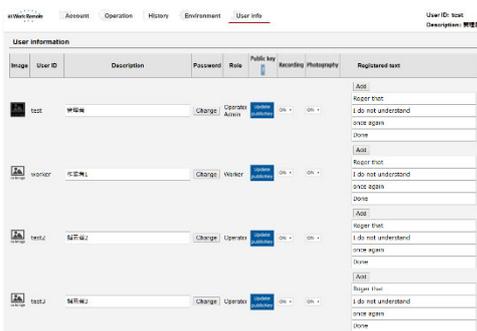
Instructor users operate a web browser window from a PC. Create as many users as are permitted by the restrictions. Passwords must be eight or more alphanumeric characters in length and must contain at least one capital letter.

3. Create worker users.

Worker users operate the windows on the wearable device side. Create as many users as are permitted by the restrictions. Passwords must be eight or more alphanumeric characters in length and must contain at least one capital letter.

4. Set user information.

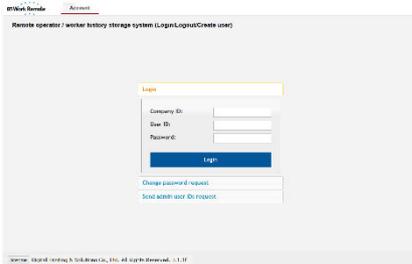
Set user information. Enter the recognition images and explanations (recognition names) for the users. Also, for use in chatting, (up to five) fixed phrases can be edited for each user on the worker side.





1. I forgot my password.

If you forget your password, specify and send your company ID and user ID. A confirmation email will be sent to the email address specified at the time you signed your contract.



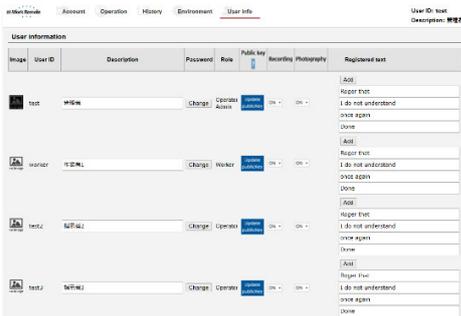
2. I forgot the administrator user ID.

If you forget the administrator user ID, contact Digital Printing & Solutions Co., Ltd.

3. Change your password.

To change a password, click “Change” on the User Information screen. A confirmation email will be sent to the email address specified at the time you signed your contract.

Password: 8 characters or more (alphanumeric characters + numbers + symbols)

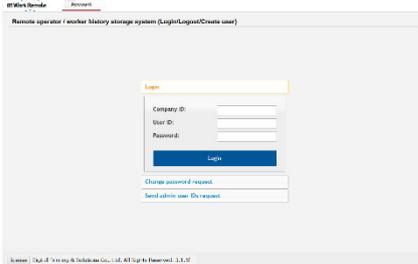




Connecting to Wearable Devices

1. Log in.

Enter the required items (Company ID, User ID, and Password) to log in.



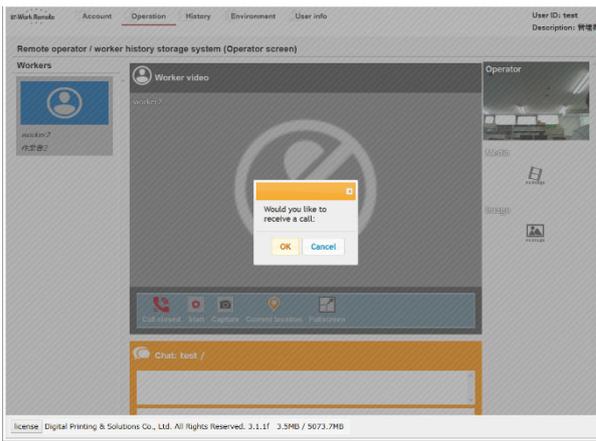
2. Connect to/disconnect from the worker.

Select the worker to connect to from the Worker list.

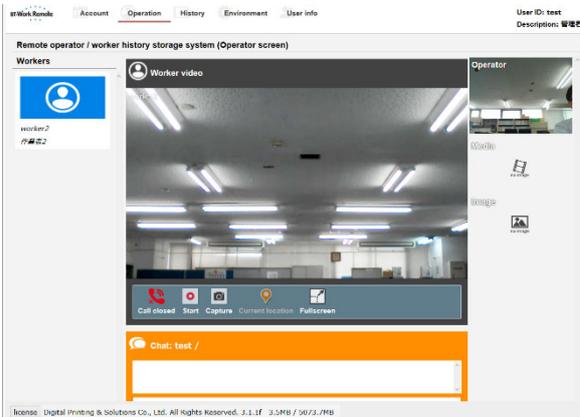
When the worker starts BT-Work Remote (the application) from the wearable device and is able to connect, a message indicating that the connection is possible is sent to the instructor, so click "OK." The worker's status changes to blue, and you are connected to the worker.

The selected worker is displayed in the main video area. To disconnect, click "Call closed."

Before connection

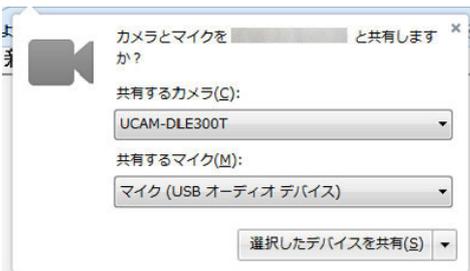


After connection



Web camera and earphone microphone

Depending on the environment, the web camera and earphone microphone settings may be displayed. Select and authorize the connected devices.



Full-screen video display

Click "Fullscreen" to switch to the full-screen display. Press the ESC key to return to the standard window.



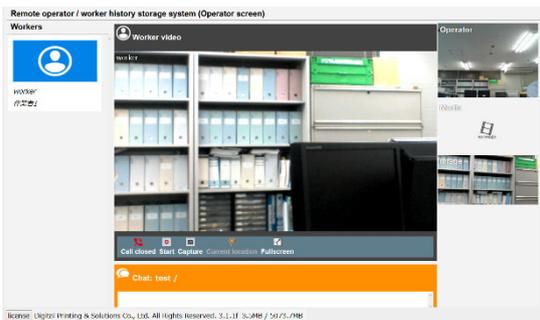
Providing Remote Instructions to Workers

1. Using video (audio) to send instructions.

After the connection starts, the video and audio on the instructor side is sent to the worker side.

The quality and smoothness of the video and audio are affected by the environment settings and the communication environment. Also, if the connection is disconnected due to a poor communication environment on the worker side, a program that automatically reconnects to the other side operates, so wait for the connection to be reestablished.

* Prepare a web camera and earphone microphone of the highest quality possible.

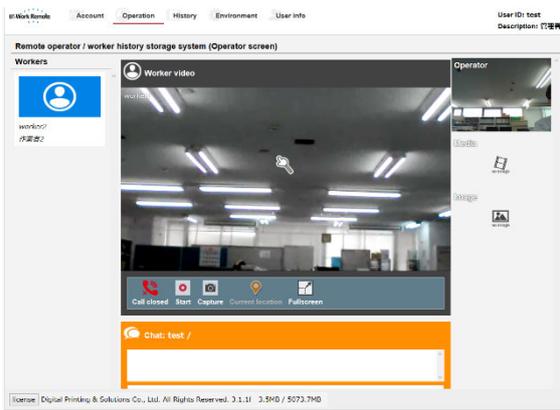


2. Using the pointer to send instructions.

Use the pointer in the main video. The pointer is also displayed in the worker's video, so you can use the pointer to indicate specific locations in real time. (The position of the pointer may be slightly offset due to delays in the video.)

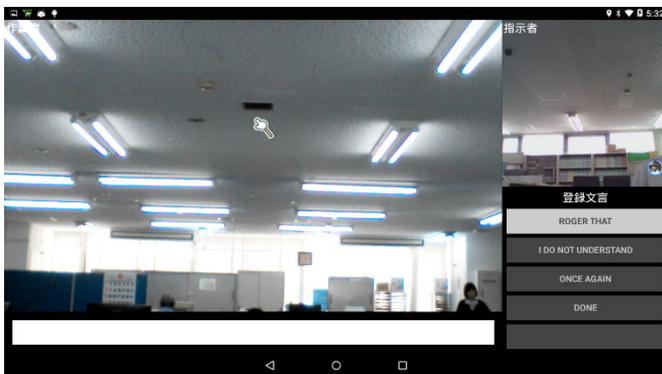
Instructor side

Move the pointer.



Worker side (wearable device side)

The pointer moves.

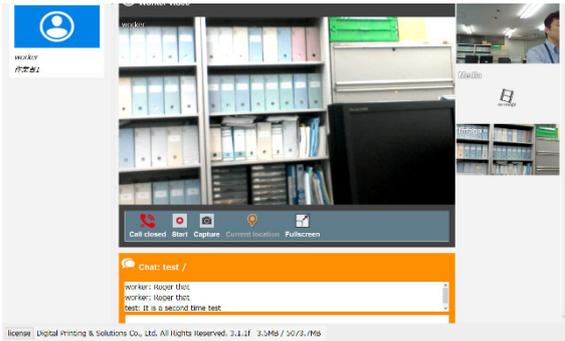


3. Using chat to send instructions.

If the worker is at a factory or some other location where it is difficult to hear the audio, you can use the chat function to communicate with the worker.

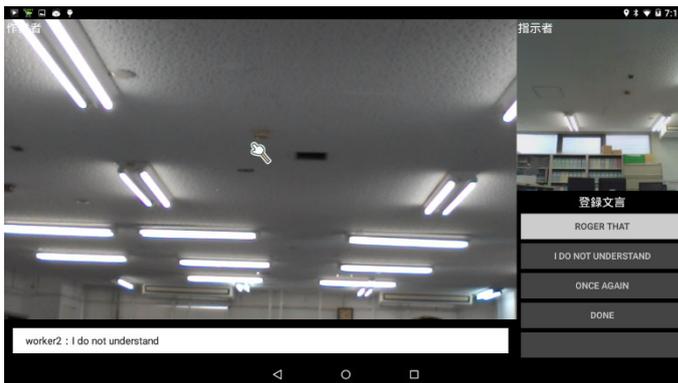
Instructor side

Send text by entering it in the chat input area.



Worker side (wearable device side)

Select and send fixed phrases.





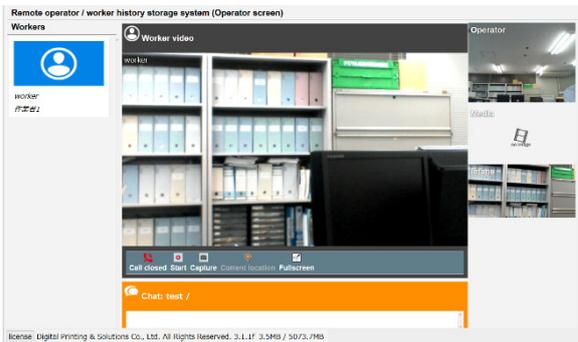
Capturing Images of Video from Workers

1. Capture and check images of video from workers.

Capture images of the video that represents what the worker sees.

Capture

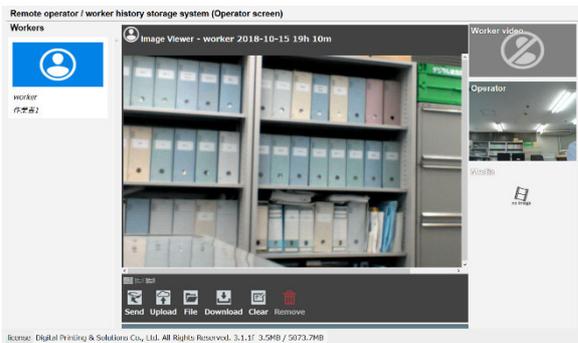
Click “Capture.” The worker's video is captured as an image.



Check captured images

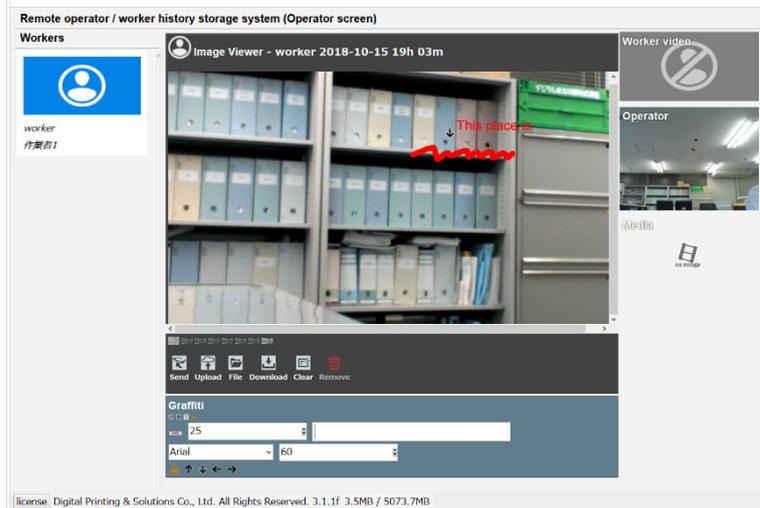
Select the image shown on the right. If you have captured multiple images, you can check all of them.

To delete unnecessary images, select the images and click “Remove.”



2. Write instructions on captured images.

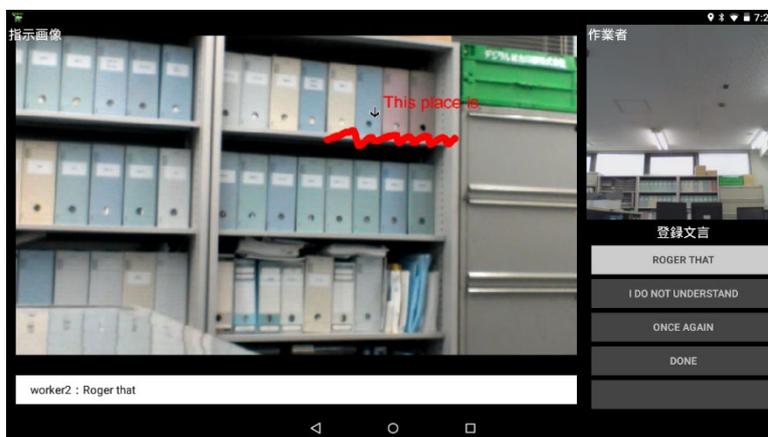
You can use the pen, text, and stamp tools to write instructions on captured images.



3. Send images to workers.

Worker side (wearable device side)

Click "Send." The image is sent to the worker.



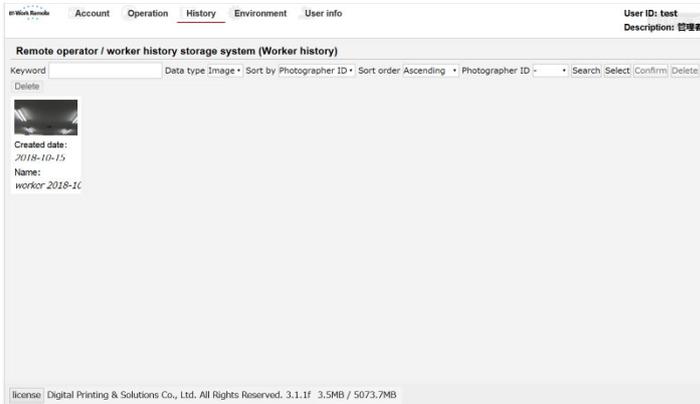
4. Download images.

Click the "Download" button.

If you do not want to save the image to the server for security,
Click the "Download" button to save to the instructor's PC.

5. Save images to the work history.

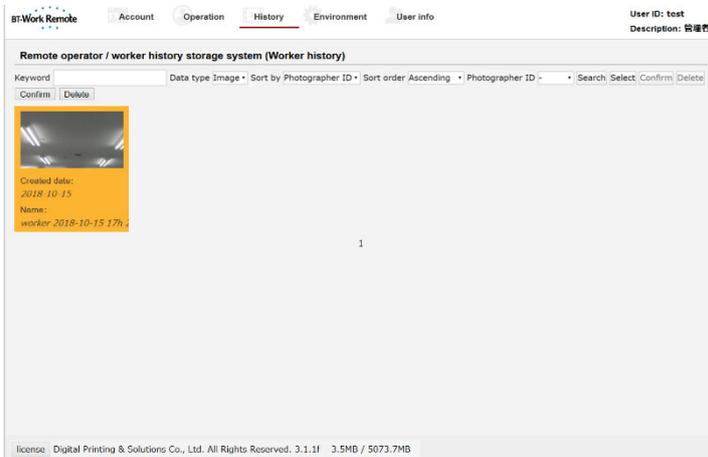
Click “Save.” The image is saved in the work history.



Please refer to page 18 for searching the work history.

6. Delete images from the work history.

Only the administrator is permitted to delete data. Click “Select,” and then click an image to select it (display it in orange). To delete the selected image, click “Delete.” To clear the selection, click “Deselect.”





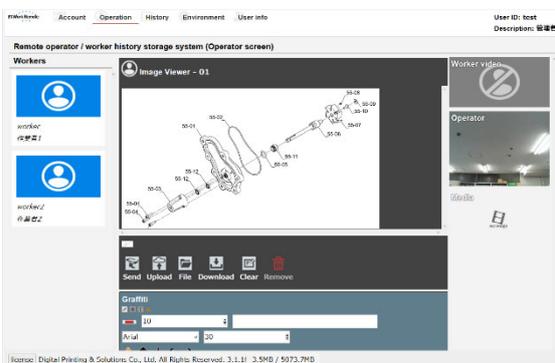
Importing Local Materials

1. Import local materials.

Import local files as images.

Materials

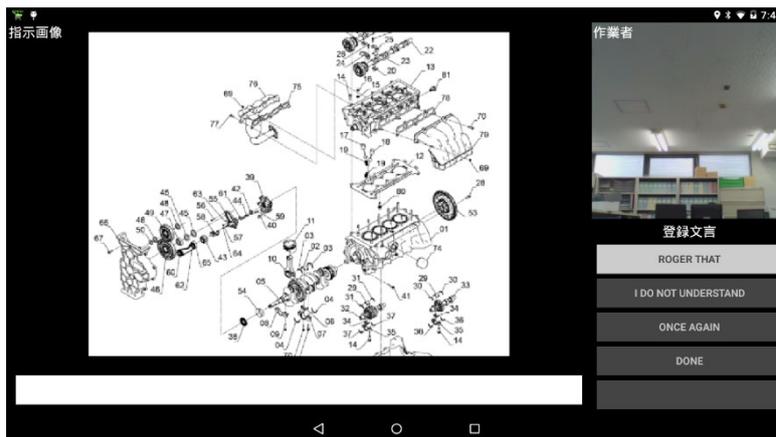
After change material format into images (PNG, JPG), drag and drop the files to the image viewing area to import data on the PC.



2. Send materials to workers.

Worker side (wearable device side)

Detailed text such as sentences cannot be read on the wearable device side, so send materials as images to assist in communication.

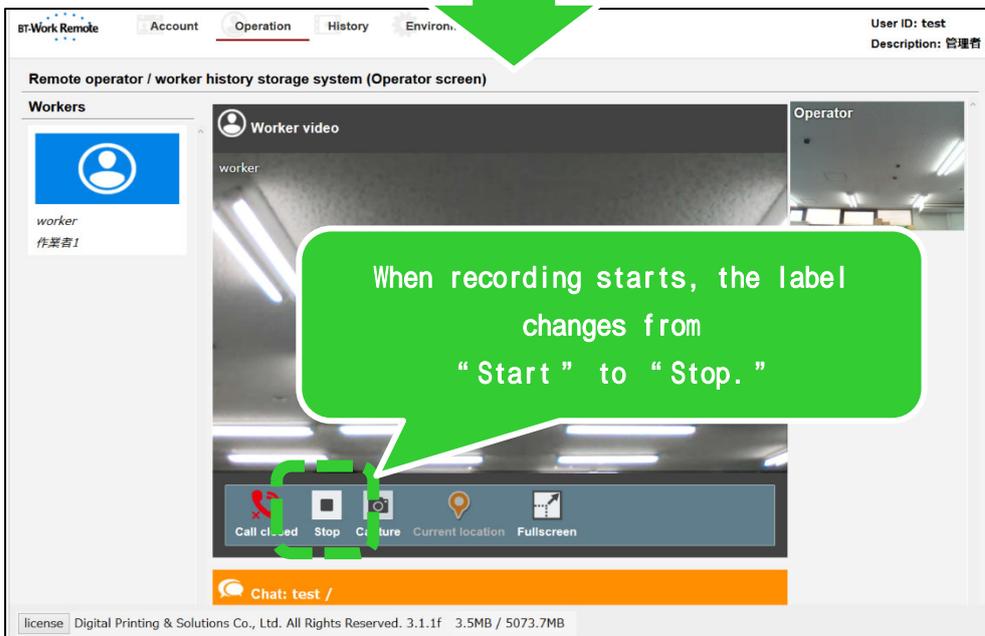
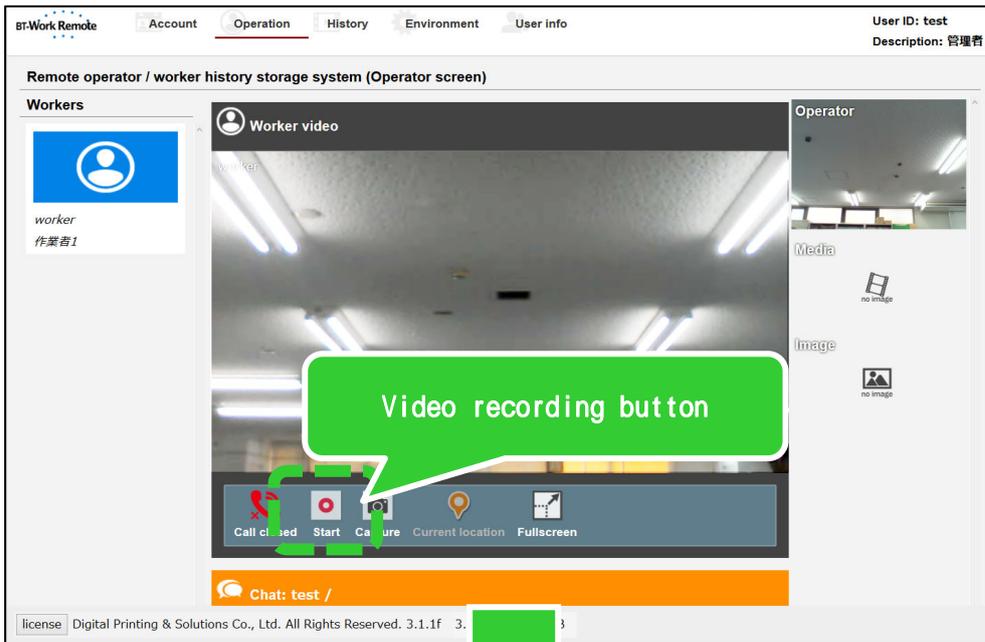




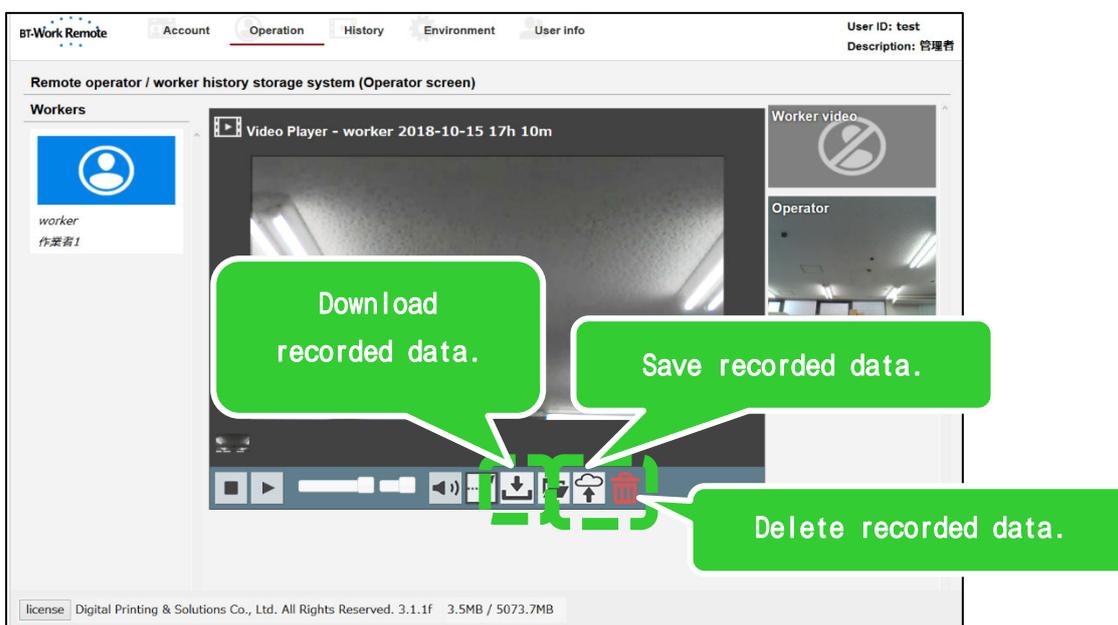
Capturing Video from Workers

1. Capture and check video from workers.

The recording procedure is shown below.



When recording is finished, the following screen is displayed.

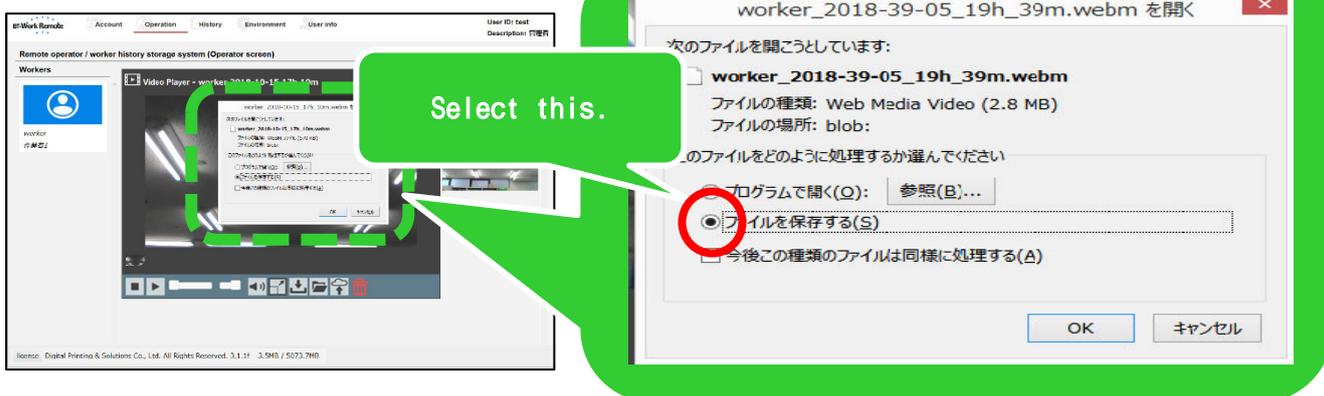


Files with sizes up to 15 MB (1 minute) of recorded data can be saved on the server.

For recorded data larger than 15 MB, download and save the data on the instructor's PC.

* The maximum recorded data size is 500 MB (approximately 30 minutes).

When you click "Download," the following window is displayed. Select "Save file."



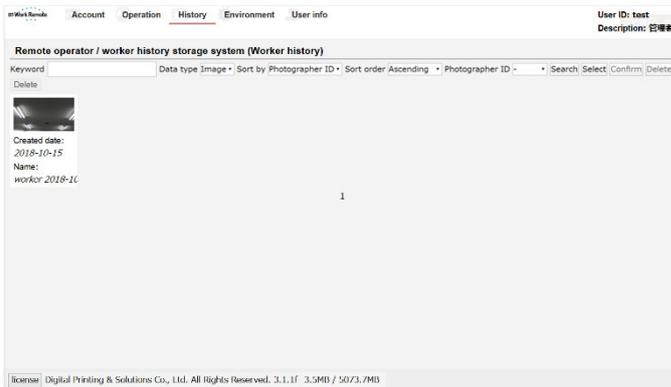
2. Download the video.

Click the "Download" button.

If you do not want to save the video to the server for security,
Click the "Download" button to save to the instructor's PC.

3. Save video on the server.

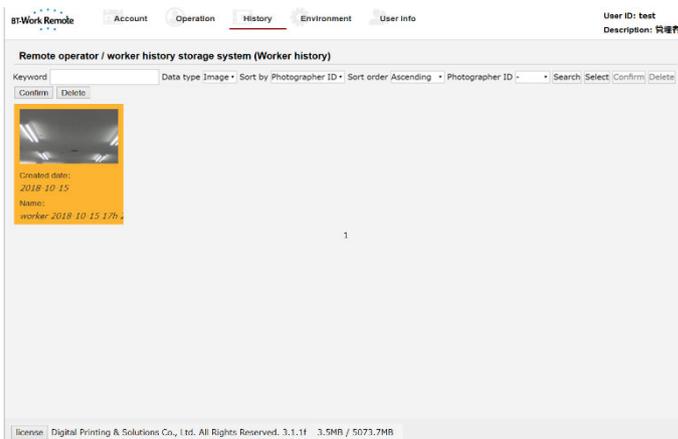
Click "Save." The video is saved in the work history.



Please refer to page 18 for searching the work history.

4. Delete video from the server.

Only the administrator is permitted to delete data. Click "Select," and then click a video to select it (display it in orange). To delete the selected video, click "Delete." To clear the selection, click "Deselect."





Search work history

1. Search items for images and videos.

- Keyword (arbitrary) Enter part of the file name, creation date, etc.
- Data type (required) Image,Video
- Sort by (default:PhotographerID) PhotographerID,
Created date,User description,Name
- Sort order (default: ascending order) ... Ascending,Descending
- Photographer ID (default: not specified)

The screenshot shows a search interface for work history. At the top right, it displays 'User ID: test2c' and 'Description: 管理者'. Below this is a search bar with the following options: 'Keyword' (with a callout 'Keyword (arbitrary)'), 'Data type' (set to 'Image', with a callout 'Data type (arbitrary)'), 'Sort by' (set to 'Photographer ID', with a callout 'Sort by (default: Photographer ID)'), 'Sort order' (set to 'Ascending', with a callout 'Sort order (default: ascending order)'), and 'Photographer ID' (with a callout 'Photographer ID (default: not specified)'). There are 'Search' and 'Deselect' buttons. Below the search bar, there are four image thumbnails. The first thumbnail is labeled 'Created date: 2020-02-03 test2d 2020-02-03 13h 45m'. The second is 'Created date: 2020-03-12 sagyo1 2020-03-12 11h 56m'. The third is 'Created date: 2020-03-17'. The fourth is 'Created date: 2020-04-01 test2d : 20m'. At the bottom left, there is a license notice: 'license Digital Printing & Solutions Co., Ltd. All Rights Reserved. 3.1.1h 13MB / 1073.7MB'.

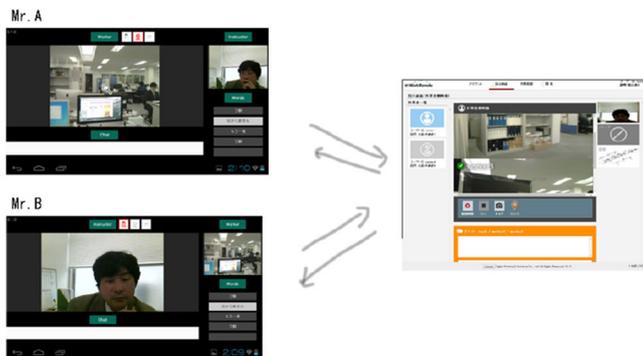


Simultaneous Connections

1. Connect one instructor to multiple workers at the same time.

One instructor can be connected to multiple workers at the same time.

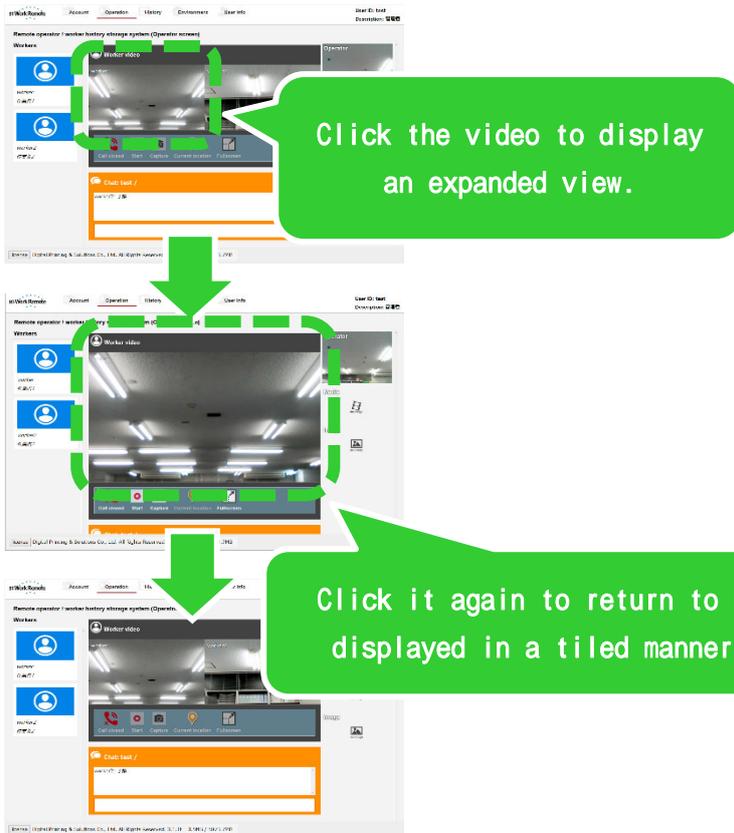
The upper limit on the number of simultaneous connections is four workers per instructor.



When connected to multiple workers

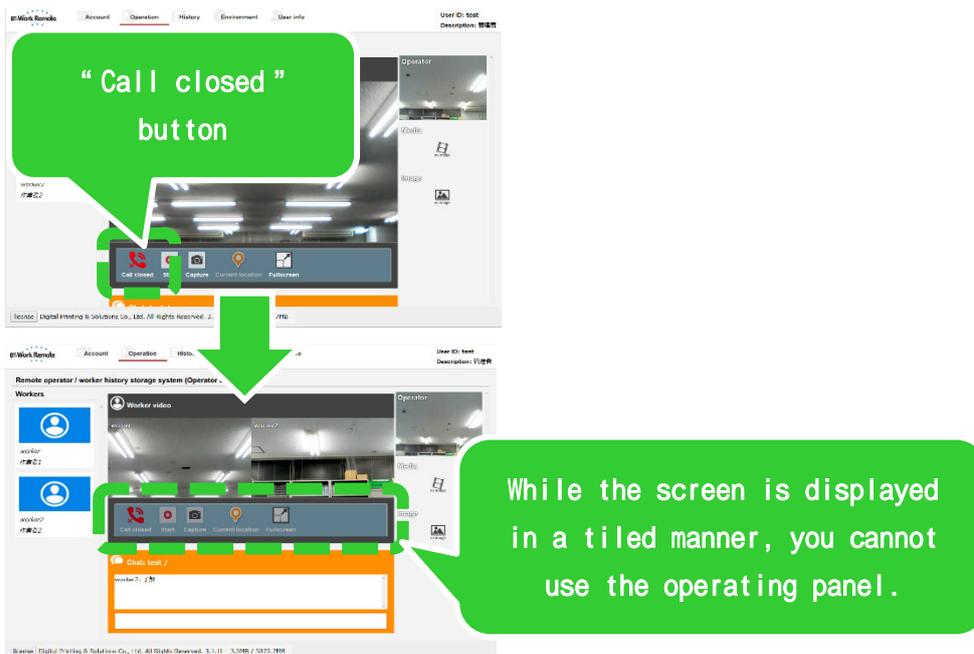
A video feed from each connected instructor is displayed in the main video area.

Click the video from each worker, which are displayed in a tiled manner, to display an expanded view of this video on the screen.



Click “Call closed” to end the communication with the worker of the selected video.

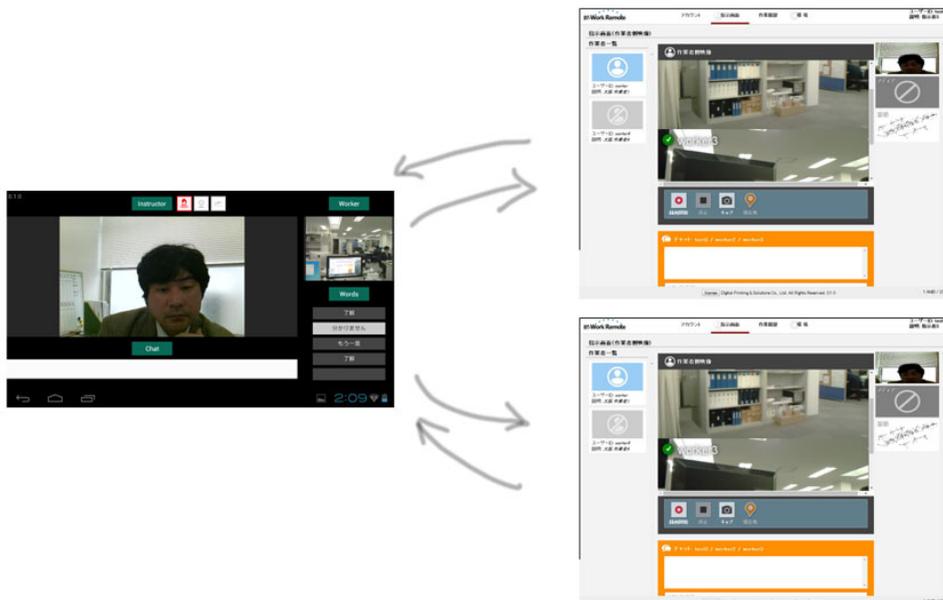
*While the screen is displayed in a tiled manner, you cannot use the operating panel.



2. Connect multiple instructors and workers at the same time.

Multiple instructors can be connected to one worker at the same time.

The upper limit on the number of simultaneous connections is two instructors per worker.





1. Set the environment.

Obtain the optimal environment by setting it.

Text

You can switch the environment's language between English and Japanese.

Connection (This can only be set by the administrator.)

You can set the instructor and worker video. (The default values are shown below.)

- Instructor-side video [4:3] (administrator), Frame rate (fps): 30, Resolution Width (px): 320, Height (px): 240
- Worker-side video [16:9] (administrator), Frame rate (fps): 16, Resolution Width (px): 1440, Height (px): 810

Changed settings will be applied the next time you log in.

The minimum instructor frame rate is 30 fps.

The maximum worker resolution is 1920 × 1080 px.

The resolution width is corrected to a multiple of 4 for instructors and a multiple of 16 for workers.

(Note) To keep instructor-side video within 1 Mbps, set the resolution to 320 × 240 px.

To keep worker-side video within 1 Mbps, set “Restrict worker-side video to 1 Mbps?” to “Yes.” This will restrict the video to 1 Mbps or less regardless of the size of the resolution.

Don't send video from operator (Administrator)

Yes (default value): Instructor-side video is sent.

No: Instructor-side video is not sent.

You can reduce communication traffic by not sending instructor-side video. Even if you select “No,” the instructor-side PC requires a camera and microphone.

Worker-side video [16:9] (administrator)

Yes (default value): The worker-side video is restricted to 1 Mbps or less at all times regardless of the frame rate and the size of the resolution.

No: The worker-side video is adjusted so that its communication traffic matches the size in accordance with the speed of the communication line.

Use external TURN server at all times? (Administrator)

No (default value): P2P connection (If a P2P connection cannot be established, the connection will automatically be established through the TURN server.)

Yes: Pseudo-P2P connections will be established through the TURN server at all times.

We recommend P2P communication, which is not affected even if the number of workers increases.

“Add workers automatically?” function setting

No (default value): The instructor can select to connect after the worker logs in.

Yes: When a worker logs in, the connection is automatically established with the instructor.

The screenshot shows a settings page for 'Remote operator / worker history storage system'. The 'Environment' tab is selected. Under the 'Connection' section, the following settings are visible:

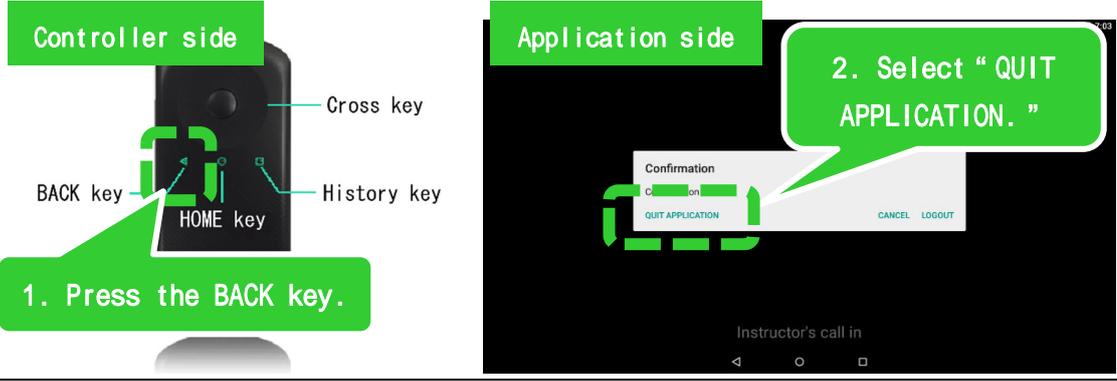
- Language: English
- Operator media[4:3](Admin): Frame rate 30, Resolution Width 320, Height 240
- Dont send video from operator(Admin): No
- Worker media[16:9](Admin): Frame rate 16, Resolution Width 1440, Height 810
- Restrict operator video to within 1 Mbps(Admin): Yes
- Always use of external TURN server(Admin): No

Under the 'Worker' section, 'Automatically add workers' is set to 'No'. A blue button at the bottom says 'Return to default connection settings and restart page'. The footer contains license information: 'license | Digital Printing & Solutions Co., Ltd. All Rights Reserved. 3.1.1F 3.5MB / 5073.7MB'.

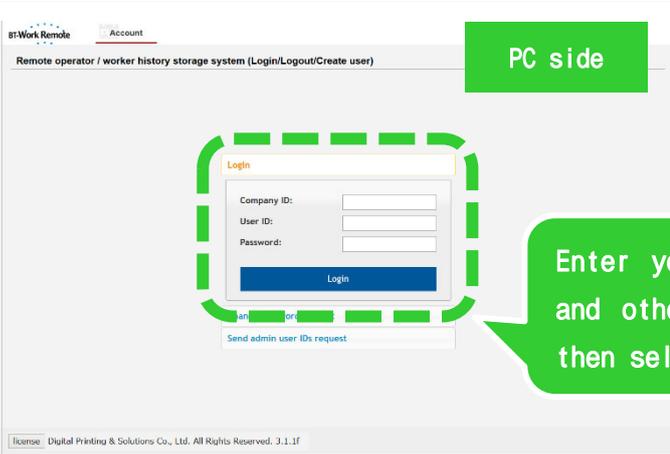
2. Reconnection procedure when a line error occurs

Obtain the optimal environment by setting it.

1. Log out with the following order: worker, instructor.

Worker side	<p>[Step] 1-1 Press the BACK key. -> Select "QUIT APPLICATION."</p> 
	Instructor side

2. Log in with the following order: instructor, worker.

Instructor side	<p>[Step] 2-1 (*PC) Check the Internet connection, and then log in to BT-Work. * Enter the company ID, user, and password.</p> 
Worker side	<p>[Step] 2-2 Check the Wi-Fi connection from the terminal, start BT-Work (log in automatically), and then finish logging in.</p> 

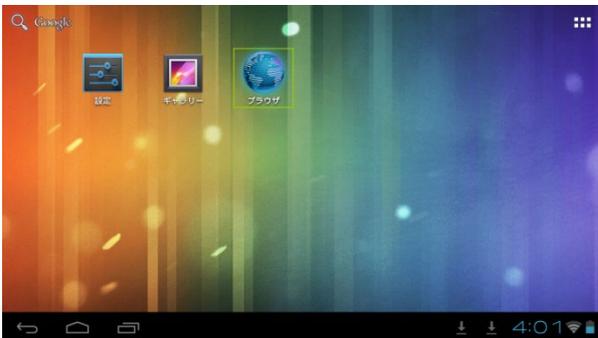


Wearable Application

1. Start the application and log in.

Put on the EPSON MOVERIO, and then start “BT-Work Remote.” (* Before starting this application, configure the Wi-Fi and other such settings.)

Home screen (The screen image will vary slightly depending on the EPSON MOVERIO series.) Open the application folder in the upper-right corner of the screen.



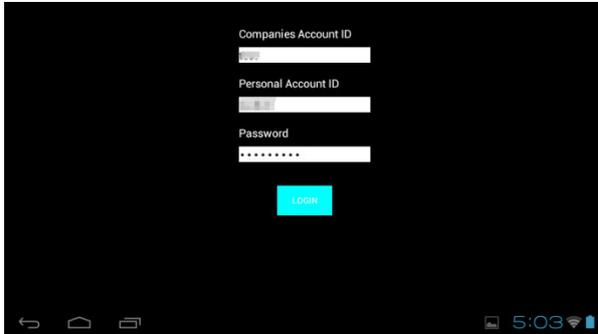
Application folder

Start “BT-Work Remote.”



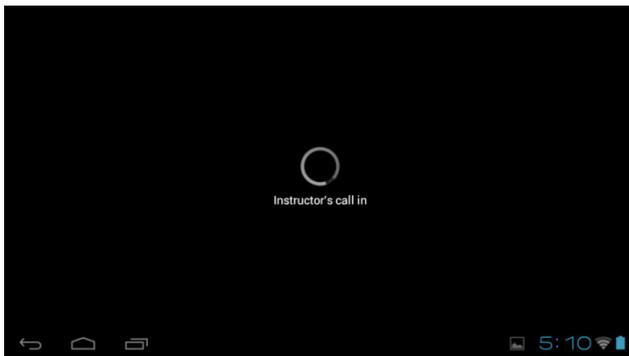
Log in.

Log in to the application. The entry of this information can be omitted from the second login.



Wait for a response.

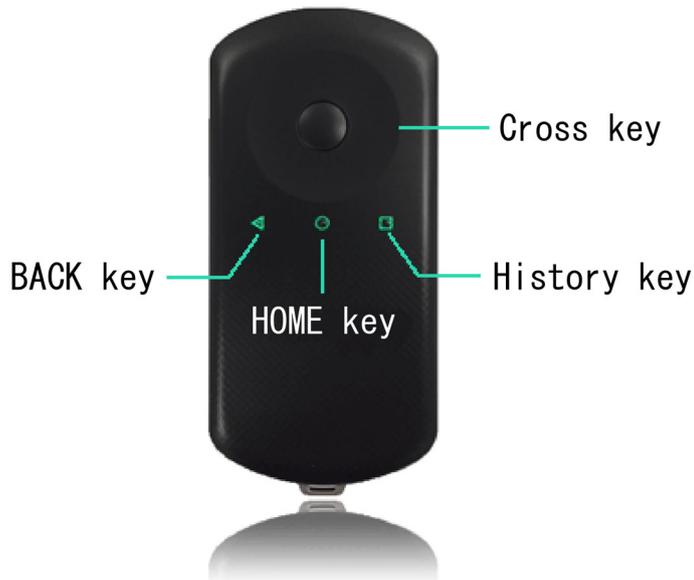
The connection notification is sent to the instructor. Wait for the instructor to respond.



2. Operate the application.

Put on the earphone microphone. The operations shown below are supported by the controller.

(BT-300/BT-350)



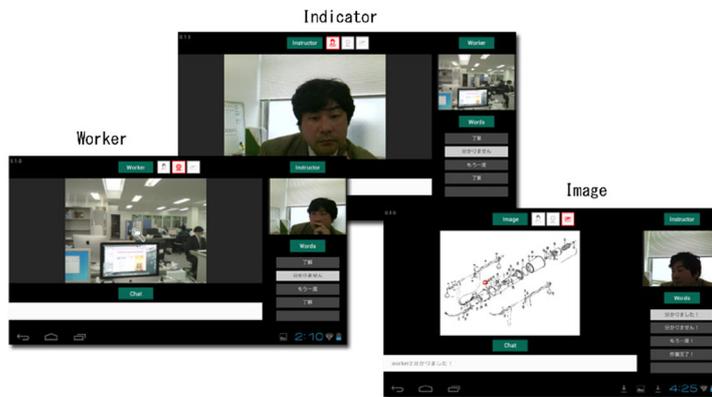
BACK key

Exits and logs out from the application.

- **CANCEL:** Cancels the operation.
- **QUIT APPLICATION:** Exits the application. Select this option if you want to omit the login information next time.
- **LOGOUT:** Log out from the application. Select this option if you want to log in with a different user ID.

Cross key(Left and right directional keypad buttons)

Switch the video on the main screen.



Cross key(Up and down directional keypad buttons)

Select the fixed phrase for the chat text. Press the center button to finalize the selection.



HOME key

Switches to the home screen.

After you switch to the home screen, the application runs in the background.

History key

Displays a list of the screens of the application that is running.

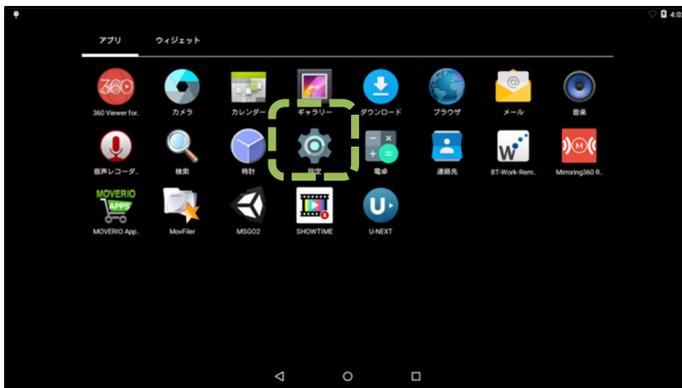


Installation (Preprocessing)

Enabling applications from unknown providers

Before installing the application, access “Settings” -> “Security” -> “Applications from unknown providers” on the wearable terminal and set the installation permission to “ON.”

1. Start “Settings.”



2. Select “Security.”



3. Set “Applications from unknown providers” to “ON.”



Installation

Application installation

- Download the application from the PC and install it on the wearable terminal.
 - * See [Procedure] A.
- Download and install the application by operating the wearable terminal directly.
 - * See [Procedure] B.

[Procedure] A: Download the application from the PC and install it on the wearable terminal with a USB connection.

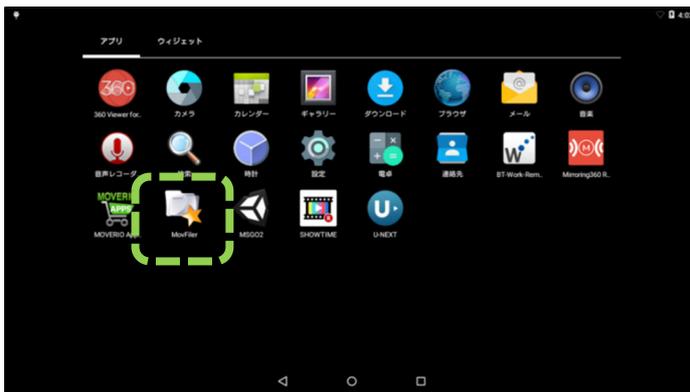
Application download URL:

https://www.bt-work.com/remote/moverio_ver/download/btwork.php

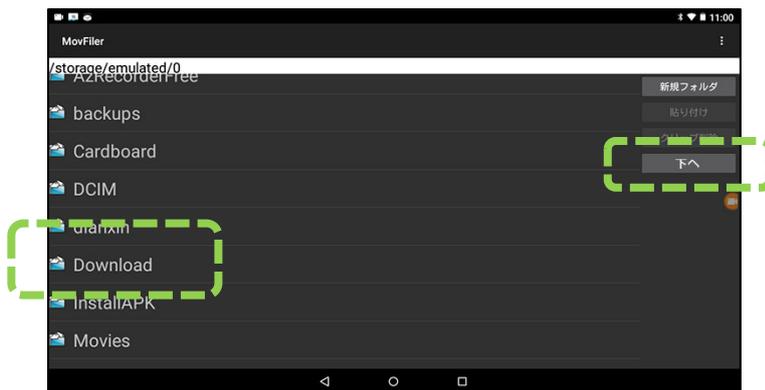
Password: ***** (Contact Digital Printing & Solutions Co., Ltd.)

Select "bt-work-remote_vXXX.php" and download "bt-work-remote_vXXX.apk".

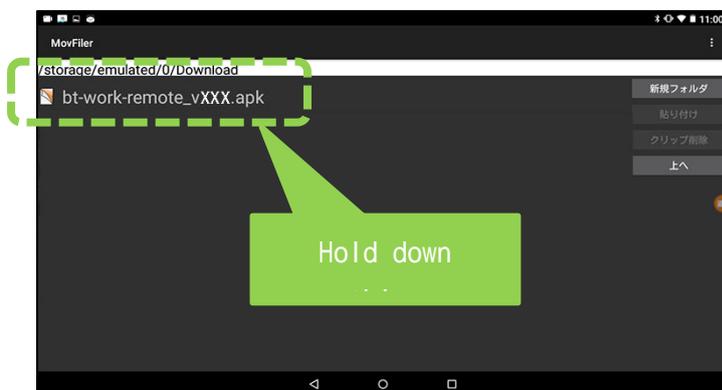
1. Start the BT-300/350, and then connect the controller and the PC with a USB cable.
2. Open the portable devices from the PC.
3. Copy the file to “ Internal Storage ” -> “ Download. ”
4. Start “ MovFiler ” (the file manager) on the BT-300/350.



5. When it starts up, press "Down" to move to "Download" and select it.



6. Hold down “ bt-work-remote_vXXX.apk. ”



7. Select “Install” -> “Install.”



Communication settings

If the Wi-Fi settings have not been configured on the wearable device side, select “Settings” and configure the Wi-Fi settings.

[Procedure] B: Install the application by operating the wearable terminal directly.



Application download URL:

https://www.bt-work.com/remote/moverio_ver/download/btwork.php

Password: ***** (Contact Digital Printing & Solutions Co., Ltd.)

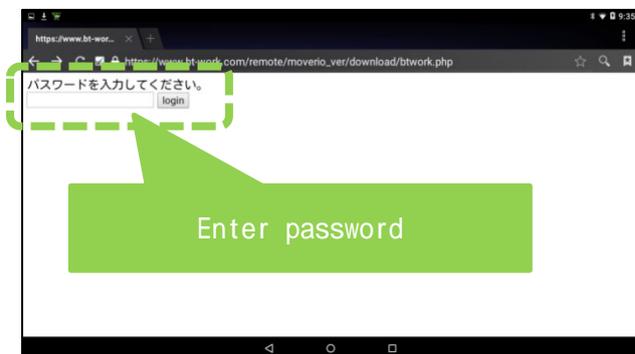
When downloading the application from the QR code

1. From the BT-300/350, download “QR Code Reader” from “MOVERIO Apps Market.”
2. Read the QR code from “QR Code Reader.”

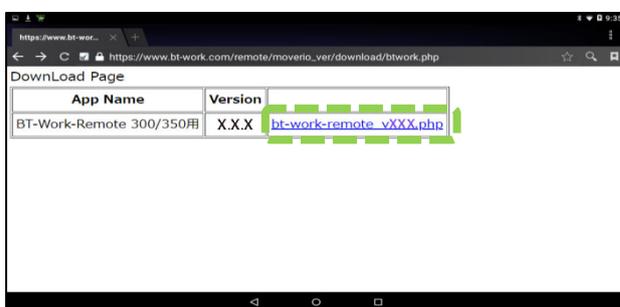


3. Enter the password.

Password: ***** (Contact Digital Printing & Solutions Co., Ltd.)



4. Select and download “bt-work-remote_vXXX.php.”



When downloading the application from the website

1. Enter the URL in the address bar of your web browser to download the application.

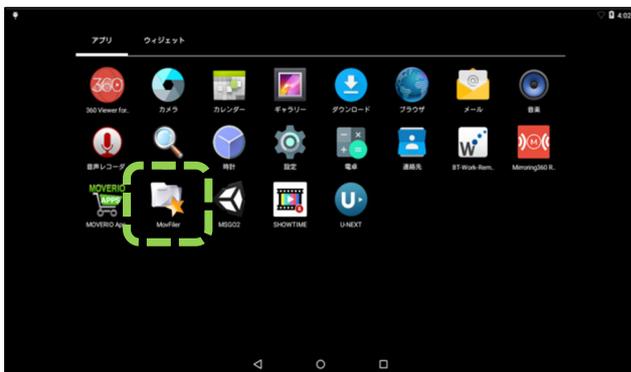
Application download URL:

https://www.bt-work.com/remote/moverio_ver/download/btwork.php

Password: ***** (Contact Digital Printing & Solutions Co., Ltd.)



3. Start “MovFiler” (the file manager) on the BT-300/350.



4. When it starts up, press "Down" to move to "Download" and select it.



5. Hold down “bt-work-remote_vXXX.apk.”



6. Select “Install” -> “Install.”



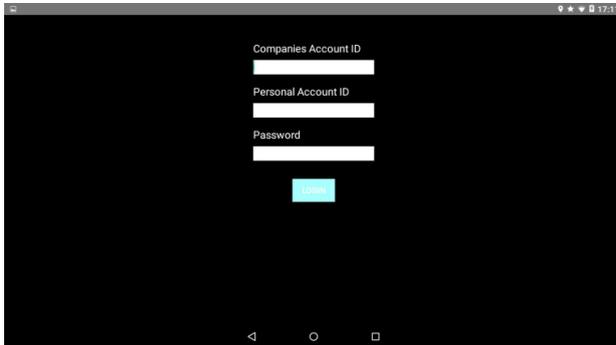
Version Update Procedure

The version of BT-Work Remote is checked upon server login, and the software is updated automatically if a version update is detected. Follow the procedure shown below to update the version. Before updating the version, check that “ON” is specified for the following setting.

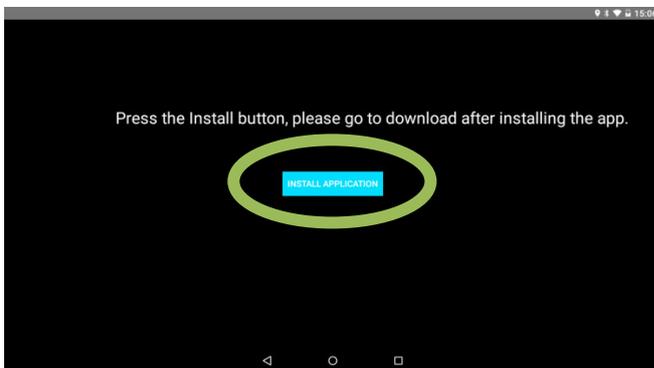
1. Access “Settings” -> “Security” -> “Applications from unknown providers” and set the installation permission to “ON.”
2. Check the Wi-Fi connection, and then start BT-Work Remote.



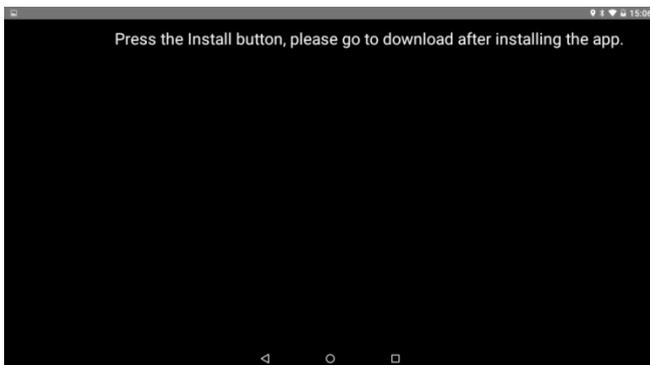
3. Log in. If you have already entered the account information, you will automatically proceed to (3).



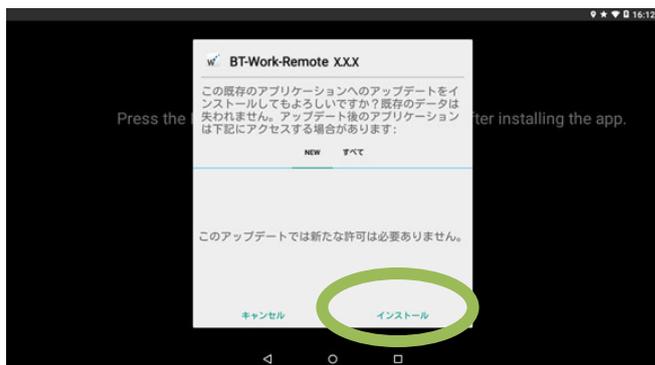
4. Click "INSTALL APPLICATION" to install the version update.



5. The version update is downloaded.



6. An update confirmation screen is displayed. Select “INSTALL.”



7. When the version update finishes, you are returned to the first screen. Start the new version of BT-Work Remote.

