

QR Read and Route



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1 Preface

This guide provides the details on how to use the QR Read and route workflow

About This Guide

This guide is divided into following primary sections:

1. Introduction

This section lays the foundation for understanding the workflow specification

2. Cloud Service Connection

This section describes how to do service Coordination with external cloud Services like Box, Dropbox, Google Drive, OneDrive for Business, SharePoint Online, RICOH Content Manager

3. Configuring Default Values

This section contains step-by-step instructions on how to configure default settings related to QR Read and Route Application in User Site

4. Operation of QR Read and Route Application

This section contains step-by-step instructions on how to operate QR Read and Route application on MFP Operation panel

5. Limitations

Product Limitations

6. Appendix

This section contains additional reference materials

Note: The operation panel screen shot images and User Site images provided in this document are for illustrative purposes only. These images may not reflect the exact image you experience on your multi-functional printer (MFP device).

2 Introduction

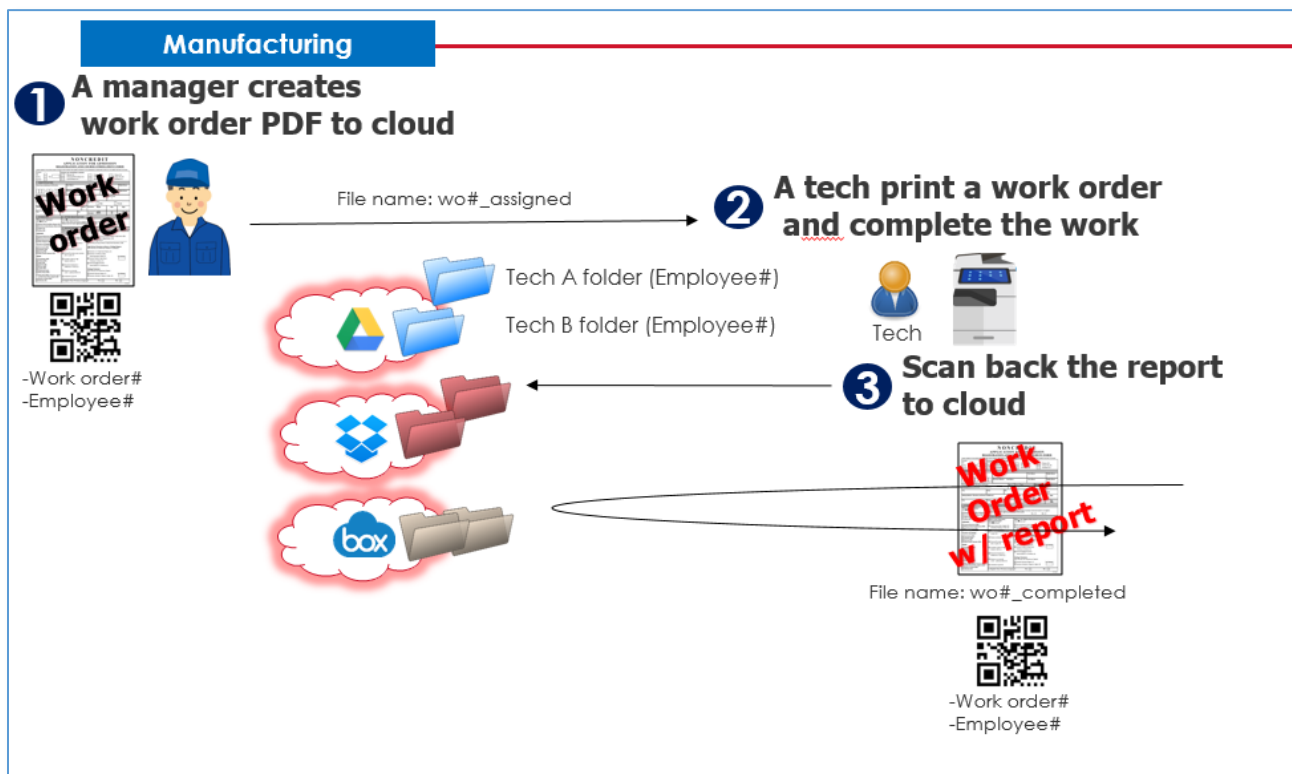
What is QR Read and Route workflow?

QR Read and Route is a workflow application developed on Ricoh Smart Integration Platform.

A typical use case for this workflow is displayed here:

This use case is related to manufacturing, Manager creates a Work Order, which also has a QR Code or Datamatrix Code. QR Code/Datamatrix code has Work Order number and Employee number. Employee then prints this workorder, after completing the workorder, he or she completes filling the work order. Then Employee scans the document using Smart QR Code Scan and Route application

Workflow uploads the document to cloud service of choice (Box, Dropbox, Google Drive, OneDrive for Business or SharePoint online) into the folder named Employee number. Also, filename is set as Workorder#_completed.



Note: Document with QR Code is generated by Customer's line of business application. Also make sure the data in QR Code matches the QR Code data format mentioned in the next page.

Workflow Specification

Folder	Folder Browse and select root folder
Bar Code Type	QR Code Datamatrix
Bar Code Data Format	Employee Number:Work Order Number Example: 12345:72828
OCR	Off, PDF, PDFA, WORD, EXCEL Default: Off
OCR Language	English, French, Spanish, Portuguese Brazilian
File Name	File Name is created using the Formula entered in the user Site. Default File Name Formula: _[workorder_number] & "_completed" Workorder_number is from QR Code.

Default values can be configured for Folder, Bar Code Type, OCR, File Name Formula and Scan Settings

3 Cloud Service Connection

What is Cloud Service Connection?

Before using QR Read and Route, user need to establish connection (authentication) with Cloud service of choice. As of now following Cloud Services are supported.

1. Box
2. Dropbox
3. Google
4. OneDrive for Business
5. SharePoint online

For each Cloud Service there is a separate QR Read and Route application available On MFP Operation Panel.

Refer to Smart Integration Cloud Service Coordination User Guide for step-by-step instructions.

4 Configuring default Values

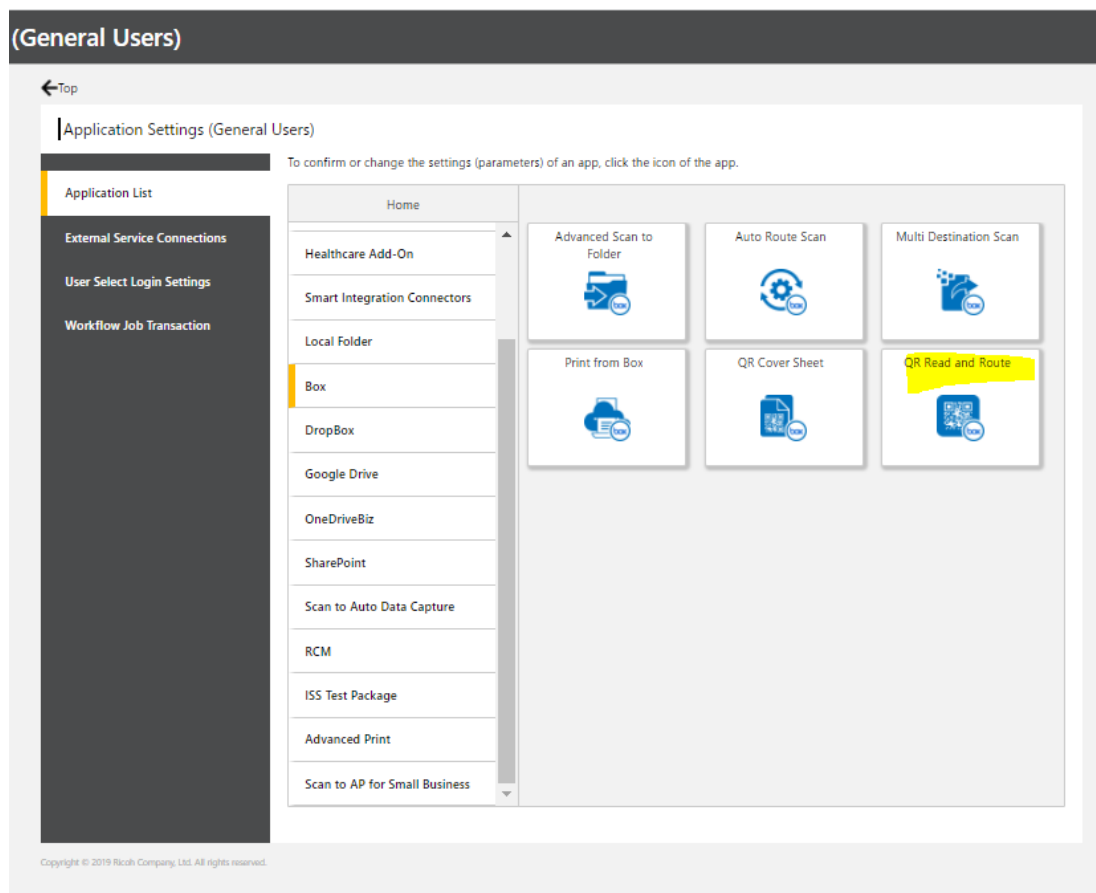
Smart Integration User Configuration Site URL

<https://na.accounts.ricoh.com/portal/login.html>

To configure QR Read and Route, it is necessary to login to workplace, if you are an admin, turn off 'Admin Mode', use the user mode to configure application settings.



Click on 'Set Personal application settings'



Click on 'Smart QR Read and Route'. This will display a page where all necessary parameters can be configured.

(General Users)

← Application List

QR Read and Route Cancel Save

* Mandatory field

Service Settings

Service: Box

Folder * All Files
[Open External Service Connections](#)

Folder - Missing/Bad QR Code Workflow * All Files
[Open External Service Connections](#)

Common Settings

Default Screen for Folder Browsing:

Default Layout for Folder Browse:

Default Parameter Settings

Bar Code Type:

OCR:

File Name Formula *

OCR Language:

Default Scan Settings

Scan Color Mode:

Original Sides:

Document Orientation:

Scan Resolution:

Document Size:

Manual Density:

Scan Method:

Settings available for Smart QR Read and Route

Bar Code Type

Default Parameter Settings

Bar Code Type:

Bar Code Types supported: QR Code and Datamatrix

Selecting Default Root Folders

QR Read and Route
Cancel Save

* Mandatory field

Service Settings

Service

Folder * Select Folder All Files

[Open External Service Connections](#)

Folder - Missing/Bad QR Code Workflow * Select Folder All Files

[Open External Service Connections](#)

Click on Select Folder to set default root folder for Scanned documents.

Root Folders

Label	Description
Folder	Root folder for Successfully scanned & processed documents
Folder – Missing/Bad QR Code Workflow	Root folder for a document, which contains invalid data format in QR code/Datamatrix. Failed document will be stored under ' temp ' directory under selected root folder.

File Name Formula

File Name Formula *

Check

Default Formula:

_[workorder_number] & "completed"

Note: Refer to Appendix for Functions related to formula. Click on 'Check' button to validate the formula.

OCR & OCR Language

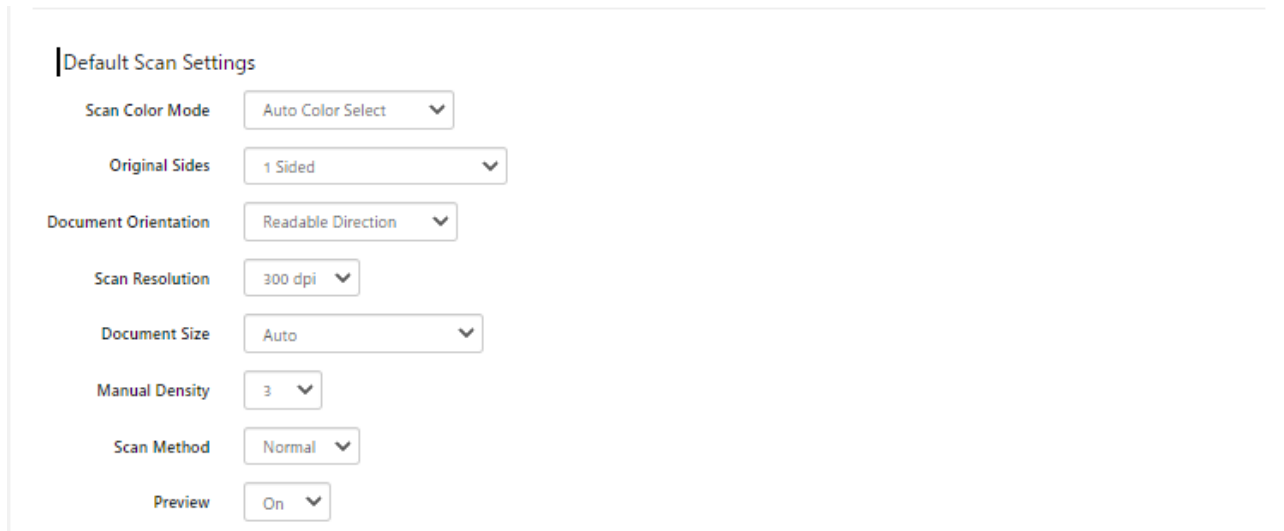
Default value for OCR and OCR Language can be configured.



The screenshot shows a configuration form titled "Default Parameter Settings". It includes several dropdown menus: "Bar Code Type" is set to "QR Code"; "OCR" is set to "OFF"; "OCR Language" is set to "English"; and "File Name Formula" contains the text "[workorder_number] & '_completed'". A blue "Check" button is located to the right of the File Name Formula field.

Scan Settings

Default Scan settings can be configured here



The screenshot shows a configuration form titled "Default Scan Settings". It includes several dropdown menus: "Scan Color Mode" is set to "Auto Color Select"; "Original Sides" is set to "1 Sided"; "Document Orientation" is set to "Readable Direction"; "Scan Resolution" is set to "300 dpi"; "Document Size" is set to "Auto"; "Manual Density" is set to "3"; "Scan Method" is set to "Normal"; and "Preview" is set to "On".

Note: For a better QR Code/Datamatrix recognition, set the Manual Density to 3

5 Operation of QR Read and Route Application

Smart Integration MFP BrowserNX URL

<https://www.na.smart-integration.ricoh.com/si-apps/pub/index.html>

Ricoh Smart Integration Initial Login

Above URL is available as Bookmark ICON on MFP. Very first time, administrator need to login to the site either using Tenant ID, User ID and Password or Email address and password.

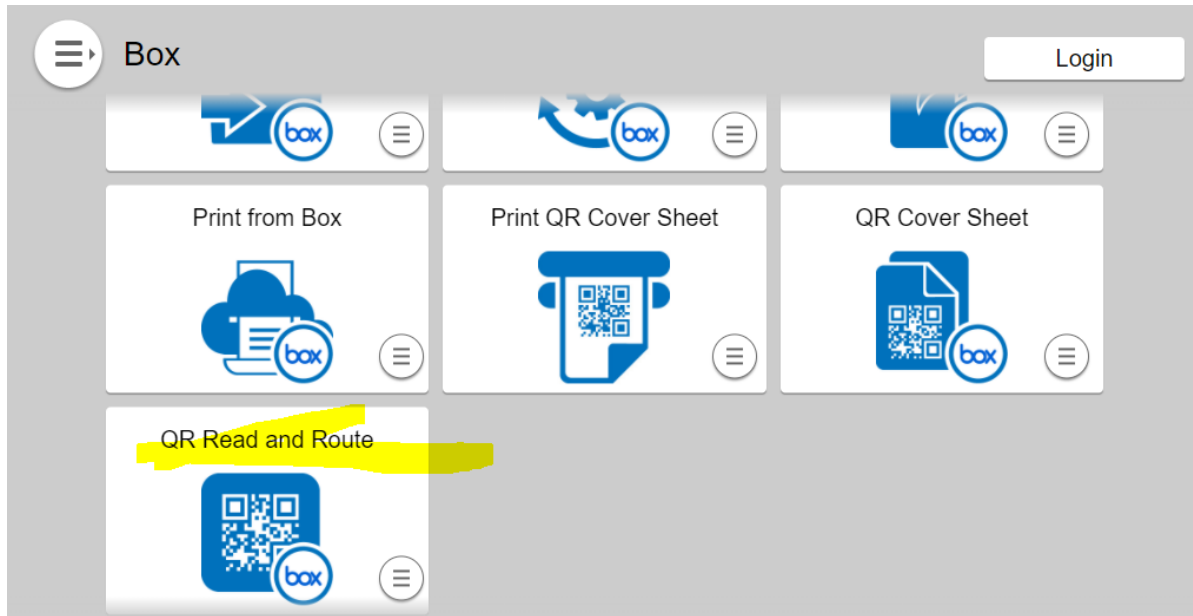
Option 1: Login with Tenant ID

The screenshot shows the login interface for Ricoh Smart Integration. At the top left, there is a back arrow icon and the text "Login to RICOH Smart Integration". Below this is a dropdown menu with the text "Login with Tenant ID". Underneath the dropdown are three input fields: "Tenant ID", "User ID", and "Password". At the bottom of the form is a blue "Login" button.

Option 2: Login with Email Address

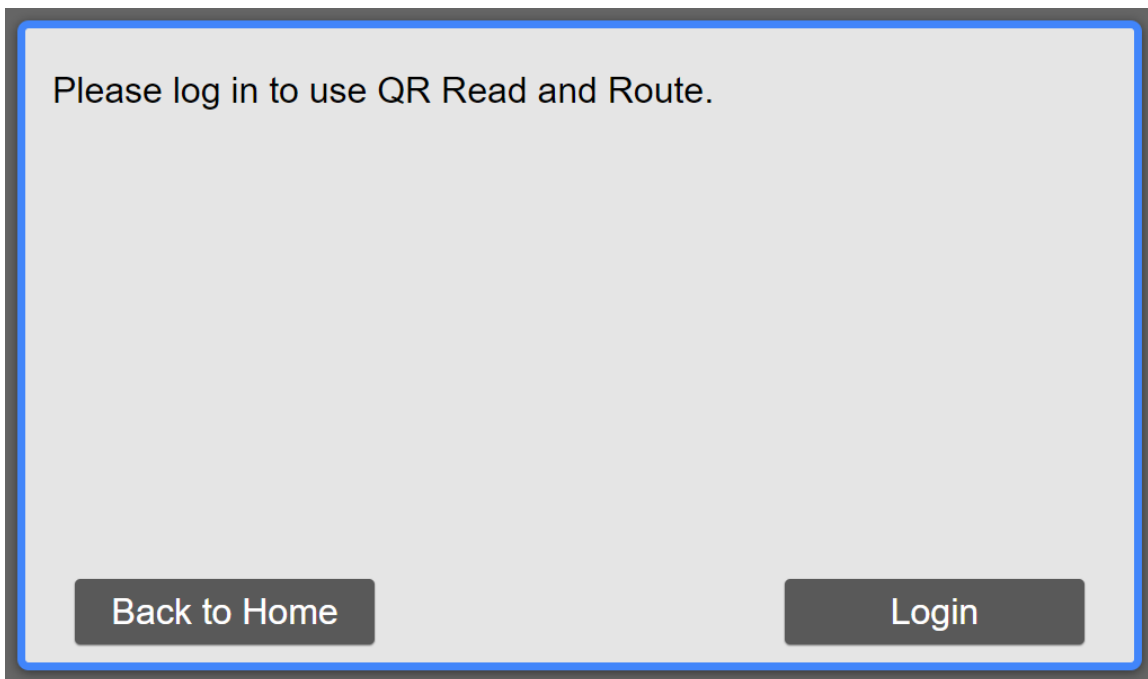
The screenshot shows the login interface for Ricoh Smart Integration. At the top left, there is a back arrow icon and the text "Login to RICOH Smart Integration". Below this is a dropdown menu with the text "Login with Email Address". Underneath the dropdown are two input fields: "Email Address" and "Password". The "Email Address" field contains the text "user @gmail.com". At the bottom of the form is a blue "Login" button.

After administrator login subscribed application will be displayed



Select 'QR Read and Route' application.

End User is requested to Login. Press 'Login' Button to Login.



Users need to login to the site either using Tenant ID, User ID and Password or Email address and password.

Option 1: Login with Tenant ID

The screenshot shows a login interface titled "Login to RICOH Smart Integration". At the top left is a back arrow icon. Below the title is a dropdown menu currently set to "Login with Tenant ID". The form contains three input fields: "Tenant ID", "User ID", and "Password". At the bottom of the form is a blue "Login" button.

Option 2: Login with Email Address

The screenshot shows a login interface titled "Login to RICOH Smart Integration". At the top left is a back arrow icon. Below the title is a dropdown menu currently set to "Login with Email Address". The form contains two input fields: "Email Address" and "Password". The "Email Address" field contains the text "user@gmail.com", with the "@gmail.com" portion highlighted by an orange border. At the bottom of the form is a blue "Login" button.

After successful user login 'QR Read and Route' Application Screen is displayed

Following Settings are available:

- A. Folder [Root Folder for Scanned Documents, a sub folder under the root folder is created based on the data in QR Code]
- B. Barcode Type: QR Code, Datamatrix
- C. OCR [Off, PDF, PDFA,WORD,EXCEL]
- D. OCR Language [English, French, Spanish, Portuguese Brazilian]

QR Read and Route Jayasimha Nuggehalli Logout Job log

* Mandatory field.

Folder * All Files

Bar Code Type * QR Code

OCR * OFF

OCR Language * English

Auto Colo... 1 Sided Readable ... 300 dpi

Scan Settings

Start

Folder

QR Read and Route Jayasimha Nuggehalli Logout Job log

* Mandatory field.

Folder * All Files

Bar Code Type * QR Code

OCR * OFF

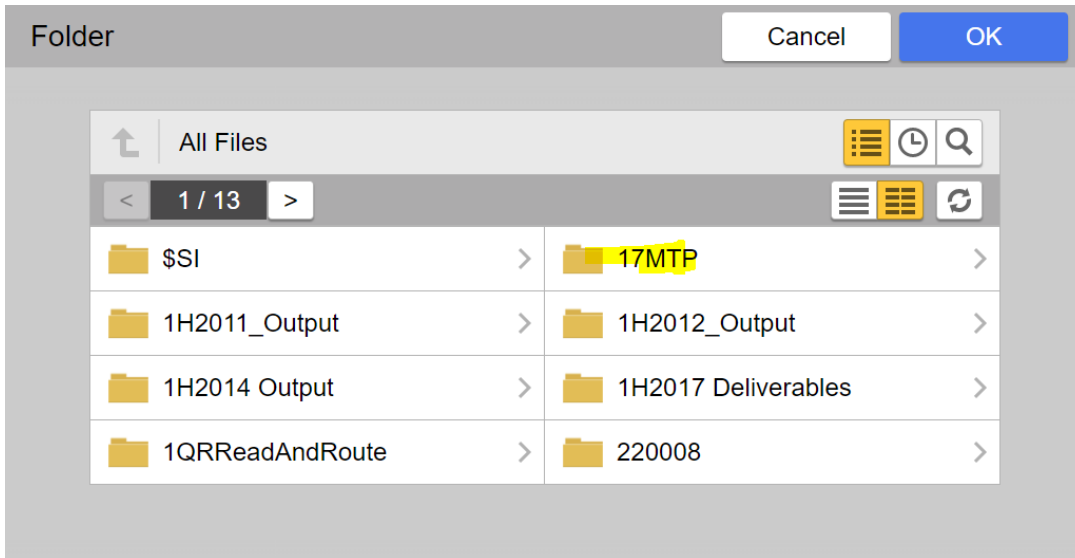
OCR Language * English

Auto Colo... 1 Sided Readable ... 300 dpi

Scan Settings

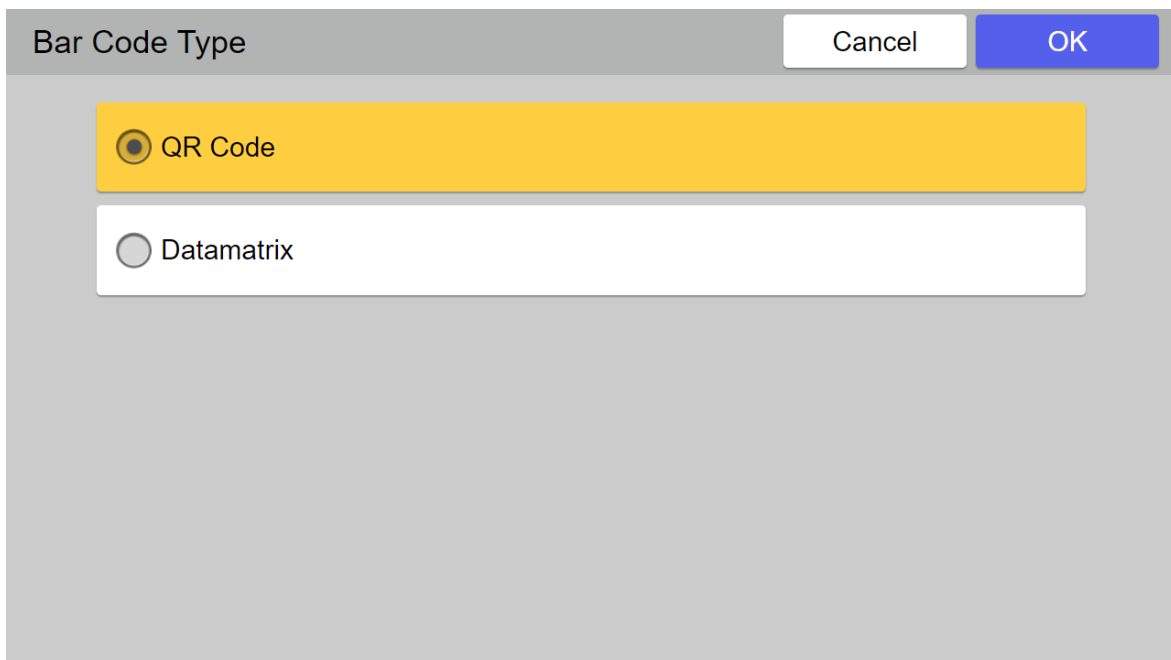
Start

Touch on 'All files' to open folder browsing dialog and then select desired folder



Bar Code Type

Touching on Bar Code Type, selection field displays available Bar Code Options



Select the desired Barcode type which is available on the document to be scanned.

OCR

QR Read and Route Jayasimha Nuggehalli Logout Job log

* Mandatory field.

Folder * All Files

Bar Code Type * QR Code

OCR * OFF

OCR Language * English

Auto Colo...
1 Sided
Readable ...
300 dpi

Scan Settings

Start

Touch on OCR to select available options

OCR Cancel OK

OFF

PDF

PDFA

WORD

EXCEL

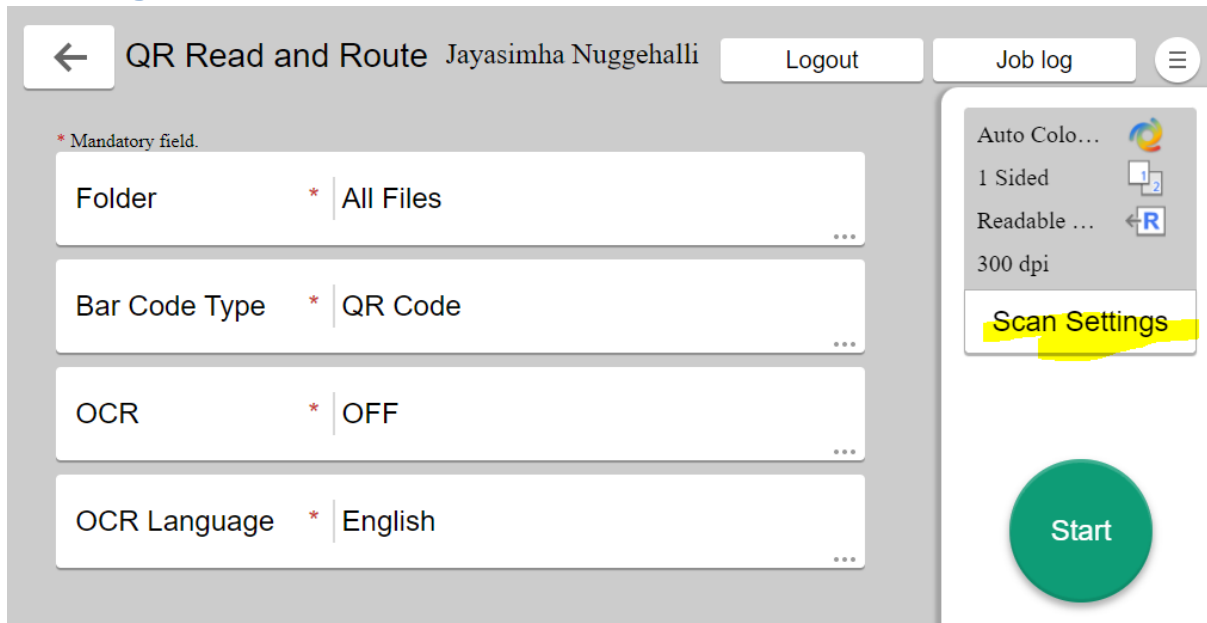
OCR Language

The screenshot shows the 'QR Read and Route' application interface. At the top, there is a navigation bar with a back arrow, the text 'QR Read and Route Jayasimha Nuggehalli', a 'Logout' button, and a 'Job log' button. Below the navigation bar, there are four input fields, each with a red asterisk indicating a mandatory field. The fields are: 'Folder' with the value 'All Files', 'Bar Code Type' with the value 'QR Code', 'OCR' with the value 'OFF', and 'OCR Language' with the value 'English'. To the right of these fields is a 'Scan Settings' panel with options for 'Auto Colo...', '1 Sided', 'Readable ...', and '300 dpi'. Below the 'Scan Settings' panel is a large green circular button labeled 'Start'.

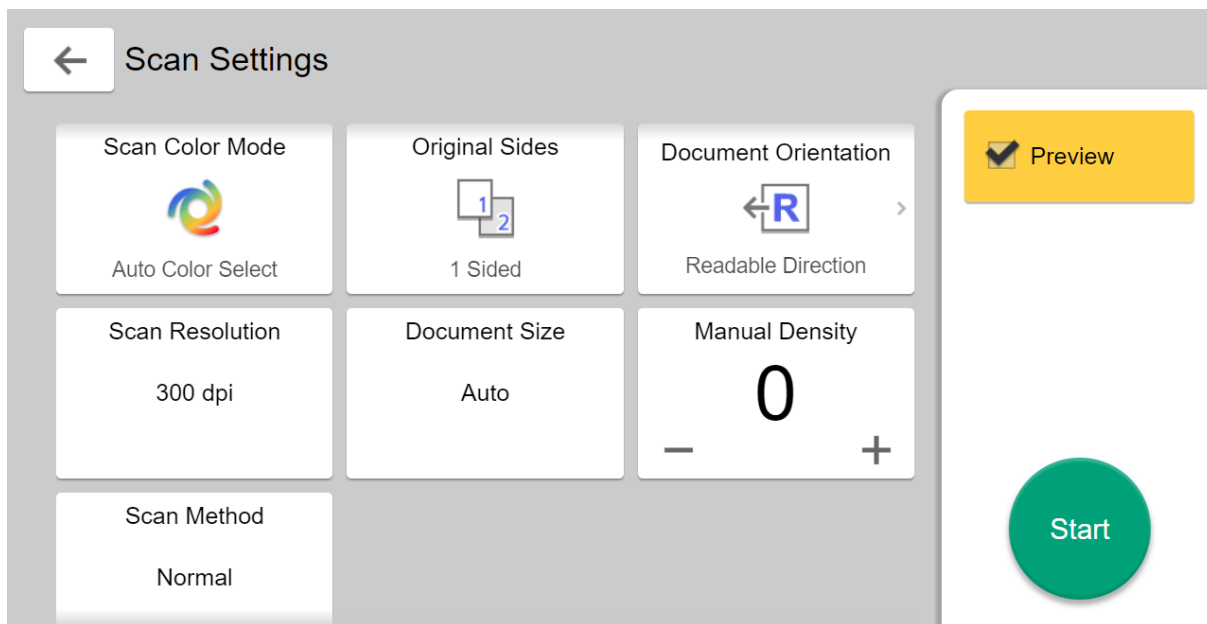
Touch on OCR Language to select available options

The screenshot shows a dialog box titled 'OCR Language'. At the top right of the dialog are 'Cancel' and 'OK' buttons. The dialog contains four radio button options: 'English' (which is selected and highlighted in yellow), 'French', 'Spanish', and 'Portuguese Brazilian'.

Scan Settings



Touch on 'Scan Settings' to display Scan Settings Screen



Scan Settings	Available Options
<p>Scan Color mode</p>	<p>← Scan Color Mode</p> <p> <input checked="" type="radio"/> Auto Color Select <input type="radio"/> B&W (Binary) Text </p> <p> <input type="radio"/> B&W (Binary) Text/Photo <input type="radio"/> B&W (Binary) Text/Line Art </p> <p> <input type="radio"/> B&W (Binary) Photo <input type="radio"/> Gray Scale </p> <p> <input type="radio"/> Full Color Text/Photo <input type="radio"/> Full Color Photo </p> <p>Preview</p> <p>Start</p>
<p>Original Sides</p>	<p>← Scan Settings</p> <p> Scan Color Mode: <input checked="" type="radio"/> Auto Color Select </p> <p> Scan Resolution: 300 dpi </p> <p> Scan Method: Normal </p> <p> 1 Sided <input checked="" type="radio"/> 2 Sided (Open to Right/Left) <input type="radio"/> 2 Sided (Open to Top) <input type="radio"/> Spread <input type="radio"/> </p> <p> Document Orientation: <input checked="" type="radio"/> Readable Direction </p> <p> Manual Density: 0 </p> <p>Preview</p> <p>Start</p>
<p>Document Orientation</p>	<p>← Document Orientation</p> <p> <input checked="" type="radio"/> Readable Direction <input type="radio"/> Unreadable Direction </p> <p>Preview</p> <p>Start</p>
<p>Scan Resolution</p>	<p>← Scan Resolution</p> <p> <input type="radio"/> 100 dpi <input type="radio"/> 200 dpi </p> <p> <input checked="" type="radio"/> 300 dpi <input type="radio"/> 400 dpi </p> <p> <input type="radio"/> 600 dpi </p> <p>Preview</p> <p>Start</p>

Document size	 <p>The screenshot shows two instances of the 'Document Size' settings screen. The top instance has 'Auto' selected, with other options including Mixed, A3 (Horizontal), JIS B4 (Horizontal), A4, A4 (Horizontal), JIS B5, JIS B5 (Horizontal), and A5 (Horizontal). The bottom instance has 'A5' selected, with other options including A5 (Horizontal), 11 x 17 (Horizontal), Legal (Horizontal), 8 1/2 x 13 (Horizontal), Letter, Letter (Horizontal), Invoice (Half Letter Size), and Invoice (Horizontal). Both screens feature a 'Preview' button and a 'Start' button.</p>
Manual Density	Range -3 to +3
Scan Method	 <p>The screenshot shows the 'Scan Settings' interface. It includes fields for 'Scan Resolution' (300 dpi), 'Document Size' (Auto), and 'Manual Density' (3). Below these are two scan method options: 'Normal' (selected) and 'Batch'. A 'Preview' button and a 'Start' button are also visible.</p>

6 SharePoint QR Read and Route

Note: Box, Dropbox, Google Drive, OneDrive for Business services, have a root folder. So, if user does not select folder, document gets scanned to root folder or default folder set in User Site. In the case of SharePoint, it is necessary to Select a Site and Library/Folder under the site, by browsing.

QR Read and Route Jayasimha Nuggehalli Logout Job log

* Mandatory field.
 ⚠ This folder cannot be selected.

Folder * (Unnamed folder) ...

Bar Code Type * QR Code ...

OCR * OFF ...

OCR Language * English ...

Auto Colo...
 1 Sided
 Readable ...
 300 dpi

Scan Settings

Start

Touch on '(unnamed Folder)

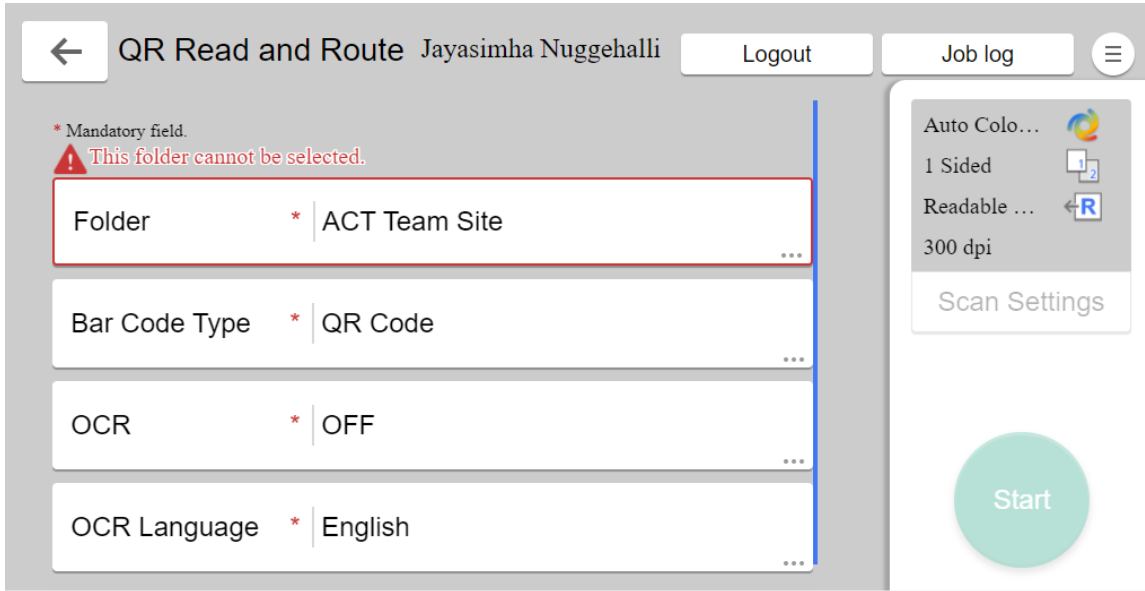
Folder Cancel OK

↑ (Unnamed folder) [List View] [Clock] [Search]

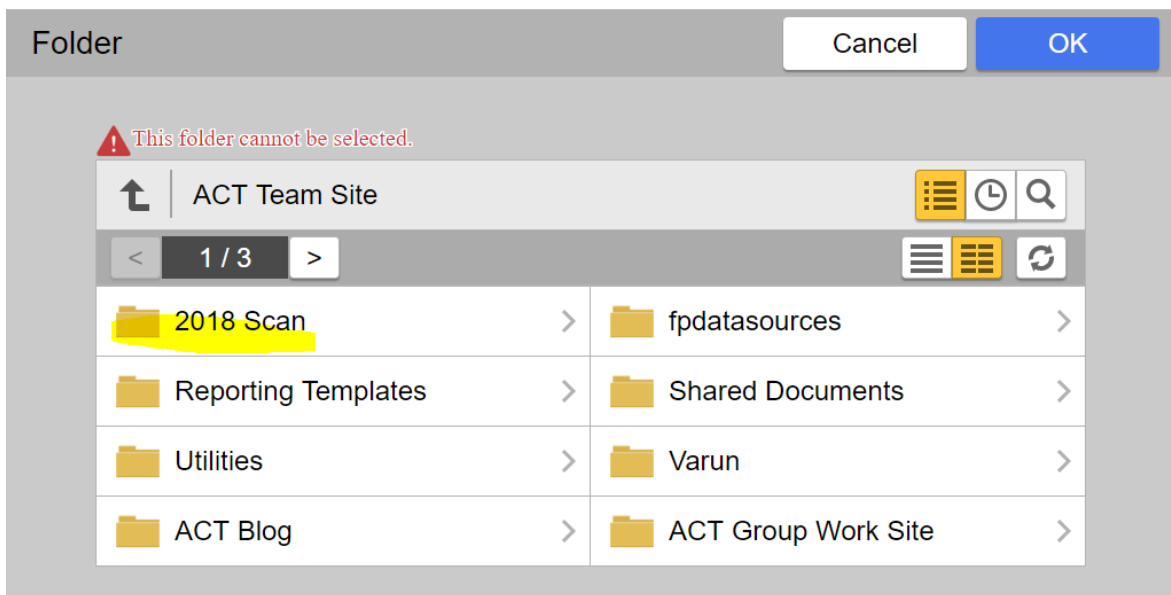
< 1 / 1 > [List View] [Grid View] [Refresh]

ACT Team Site >	Saguaro >
PointPublishing Hub Site >	Test >
Team Site >	Community >
TestSC >	

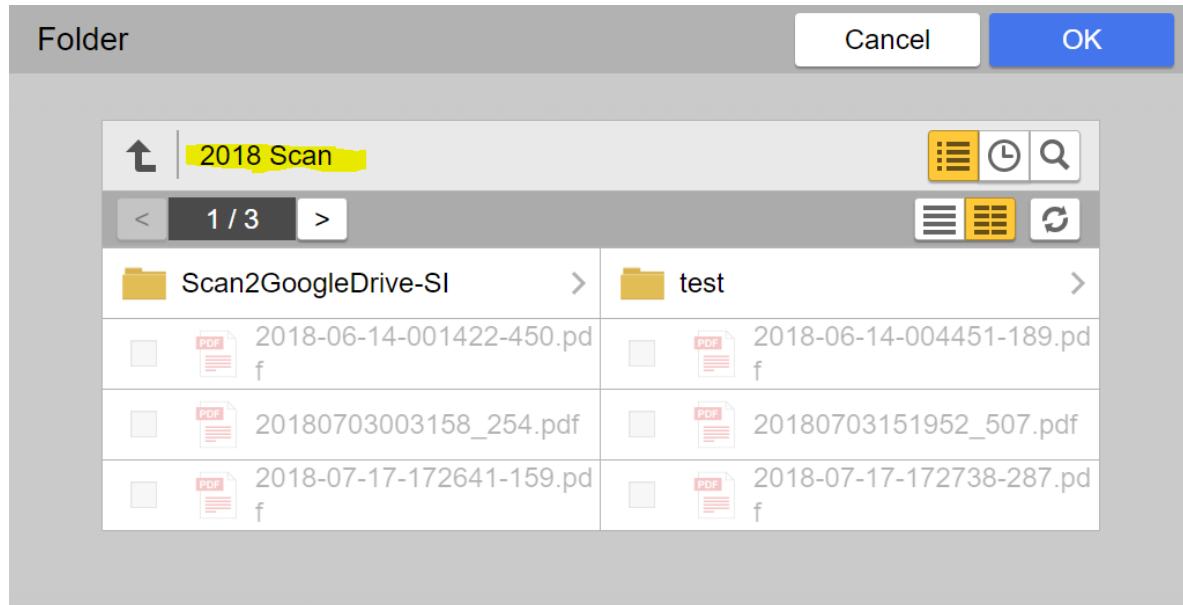
The first level listed here are sites. Document cannot be uploaded to Site; users need to select a Library/folder under a site. If users select a site, following message is displayed.



Please select a Folder listed under a site.



Touch on one of the folders, then touch on 'OK'

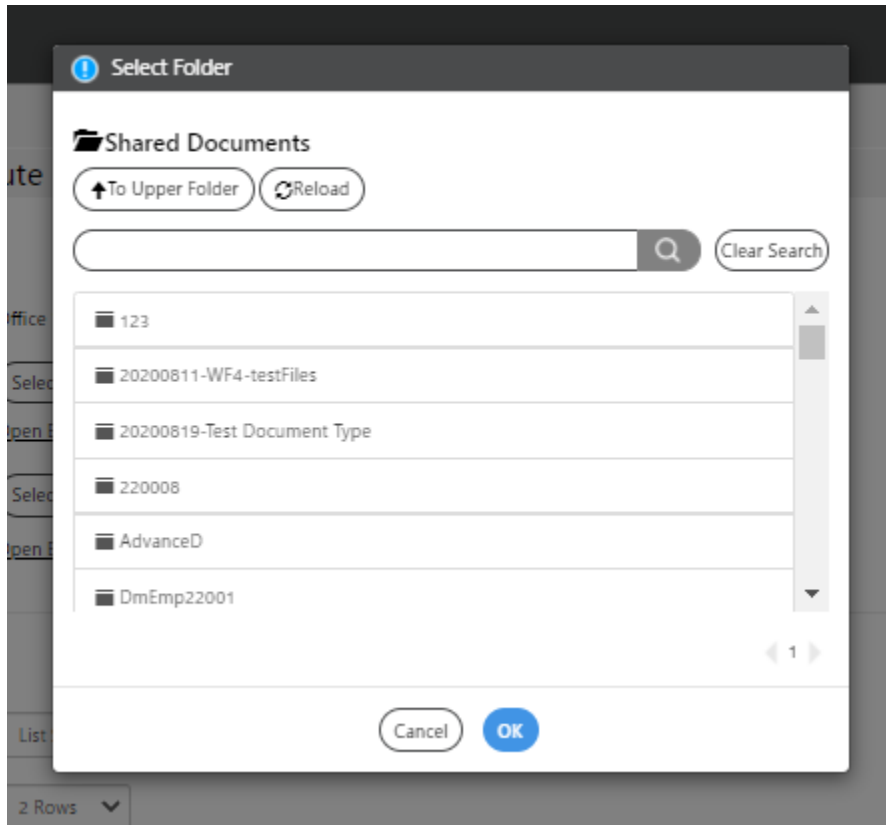


Configuring Default Error Folders in User Site

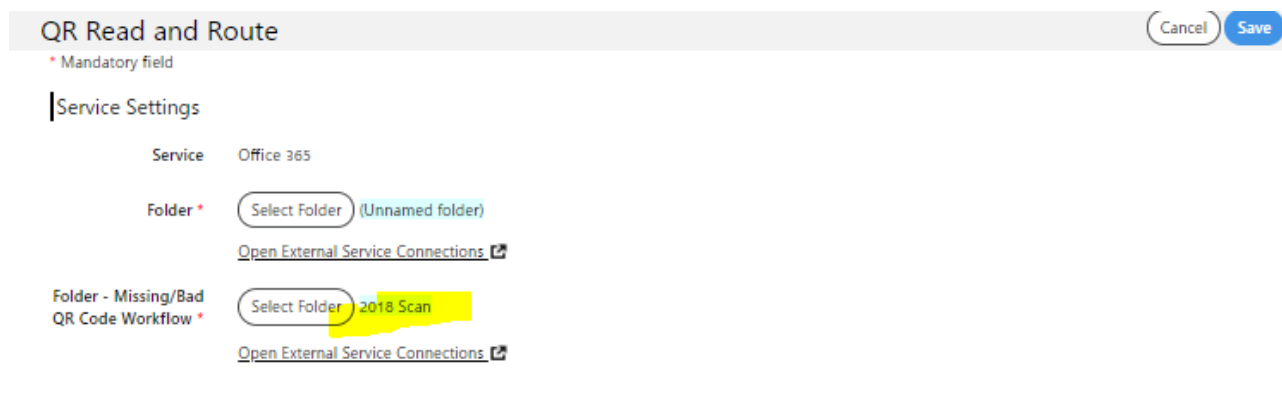
Since there is no root folder in SharePoint, it is mandatory to configure the Folders for documents, when they fail process due to invalid QR code data format or Missing/Bad QR Code. This is done in User Configuration Site.

<https://www.na.smart-integration.ricoh.com/>

Click on 'Select Folder' to open Folder Browsing Dialog. Click on Site and then a desired folder and Click 'OK' to select folder.



Once Configured, Selected folder is displayed.



7 Limitations

QR Read and Route Limitations

- Following characters are not supported for folder and filename creation. Using these characters in employee number and work order number in QR code data is invalid. Since these values are used to create folder and filename.

~"#%&*:;<>?/\{|}

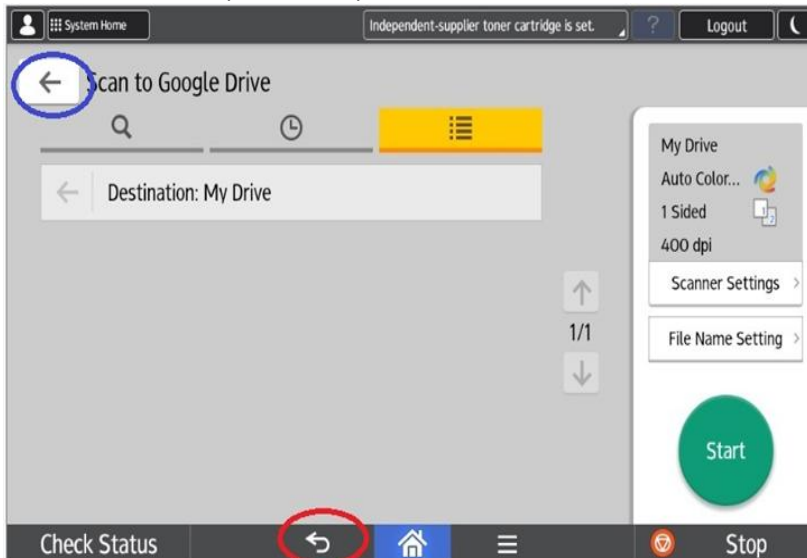
- If Scanned document is missing QR Code or QR code has invalid data, scanned document is uploaded to 'temp' folder.
- QR Read and Route supports up to 200 MB of Scan file size or 500 Pages whichever is lower. This is due to file size limitation in Bar Code recognition module

User Site Limitations

- Supported Browsers for User Site are:
 - Internet Explorer: 11 or later
 - Edge: Latest Version
 - Chrome: Latest Version
 - Firefox: Latest Version
- Limitations for Home Screen/Applications
 - Home: Maximum 20 for each profile, Max 32 characters for the name.
 - Applications: Maximum 18 for each home screen, Max 32 characters for the name
- User Management
 - Email address is unique in the system; same Email address cannot be used even if user belongs to different Tenants
 - Users belong to same tenant cannot set different time zones
 - User cannot change their login Email address, need admins assistance to change email address

General Limitations

- Once Administrator has logged in to a Tenant on MFP, administrator from another tenant cannot login to same MFP. Refer to guide on 'How to remove registered device'
- Back button inside application display screen must be used, instead for 'Back' button on the operation panel.



- Folder and File Search results varies from Cloud Service to Cloud Service, this depends on the Search API for each service.

OCR Limitations

Category	Phenomenon	Description
Upside-down image rotation	Sometimes misrecognized	We identify the top and bottom from the image as pre-processing of OCR. We use information such as the direction of arrangement of letters, letter / picture / chart layout, ruled line position, etc. to infer which is upper. In the case of the following manuscripts, the OCR may also fail because the top / bottom discrimination fails. <ul style="list-style-type: none"> · Manuscript with only few letters · Manuscript with characters written diagonally · Documents with a dark background / background such as photos
OCR	Unusual fonts cannot be recognized	In OCR, it is based on standardly used fonts such as Arial / Verdana / Times New Roman for foreign languages, MS Ming Dynasty / MS Gothic / MS UI Gothic for Japanese. Therefore, recognition may fail in the following cases. <ul style="list-style-type: none"> · Using a special font · Using extremely large / small font size
	Input image is not clear	Although 200 dpi to 600 dpi is recommended for engine specifications, if the recognition rate is bad at 200 dpi, please raise the resolution and scan again. Also, if the input images are blurred or are not enough contrast, the recognition rate will not improve. Please use clear images.
PDF output	Output size is different	Due to the limitation of the current engine, the size of the output PDF page may increase by about 0.3 to 1.7 mm.

	Sometimes impossible to print with EXP machine	When you print PDF with Japanese OCR by EXP machine, if alternative font is not installed in MFP, it may not be printed correctly.
Word output	Layout collapse	The OCR engine writes the character string of the recognition result as Word text and uses the font size / font type / line spacing / text width etc. to try to make it as close to the original as possible, but it is difficult to match with the original perfectly. Therefore, the following phenomena may occur. <ul style="list-style-type: none"> · Although the manuscript was 2 pages, it became 3 pages / 1 page · Margins increase or decrease
	The number of blank pages increases	If you input multiple pages and try to output them in Word, blank pages sometimes increase.
	Sometimes the footer's page number is incorrect	When outputting a document with a page number in the footer section as an input, Word automatically counts the page count and may be out of alignment with the page number of the document. Example: Manuscript: 2 pages of 3/8, 4/8 Word output result: 2 pages of 1/2, 2/2 (Since there are only 2 pages, Word automatically judges 2 pages, 8 replaces 2 and redoes the page)
	Doc format, that is created by OCR, cannot be displayed in iOS UIWebView	It is said that iOS does not officially support doc / xls etc., it may not be displayed normally on iOS machines. This is because the OCR function creates data in RTF format and then outputs it to doc format. Please use docx / xlsx.

	Sometimes blank page is removed	In decision of the current OCR engine, blank page is sometimes removed. So, for example, 4 pages sometimes become 3 pages.
	Cell color/ Frame border are lost	For Word output, the color of the cell or the frame border of the table are lost during the transfer.
Excel output	Color / figure / photo are lost	For Excel output, the color of characters is not reflected. Also, figures and photographs are not reflected. With regard to the part recognized as table, OCR engine uses the cell ruled line / cell combination to create table.

8 Appendix

File Name Formula

Formula functions are similar to Microsoft Excel Formulas. Not all Excel functions are relevant and supported.

Following variables from the workflow application are available to use in the formula

1. TenantId [Smart Integration Tenant ID]
2. UserId [Smart Integration User ID]
3. employee_number [From QR Code]
4. workorder_number [From QR Code]

Data format in QR Code:

employee_number:workorder_number

Sample Formulas

Formula	Result
YEAR(NOW()) & "-" & MONTH(NOW()) & "-" & DAY(NOW()) & "-" & HOUR(NOW()) & MINUTE(NOW()) & SECOND(NOW())	2018-12-21-102657
YEAR(NOW()) & "-INVOICE"	2018-INVOICE
_[UserId] & "-" & YEAR(NOW()) & "-" & MONTH(NOW()) & "-" & DAY(NOW())	TOM-2018-12-21
_[workorder_number] & "_" & "completed"	220100_completed
_[workorder_number] & "_" & _[employee_number]	220100_33001
_[workorder_number] & "_" & TEXT(TODAY(), "mm-dd-yyyy")	220100_01-08-2019

Formula Functions

Formula Evaluation is based on Open Source, Apache POI

Note: Please see link below. All formulas listed may not be relevant to workflow application. Here is list of formulas.

<http://poi.apache.org/components/spreadsheet/eval-devguide.html>