

PaperCut MF - Kyocera Embedded Manual

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1 Version history

PaperCut MF version	Date	Details
18.2.3	14 August 2018	7.1 Config Editor, 7.5 Zero Stop, 9 Troubleshooting and frequently asked questions

2 Overview

This manual provides an overview of the installation, configuration and operation of PaperCut's embedded software Multi-Function Device (MFD) solution for Kyocera. For general documentation on PaperCut MF, please see the [PaperCut MF manual](#) (also available as online help in the PaperCut MF admin interface).

2.1 The solution

Today's MFDs are smarter – they have touch screens and offer the ability to run applications directly on the device. The goal of PaperCut's embedded MFD solution is to leverage these smart devices and provide walk-up MFD users with the same rich application features provided in the print control area. These include:

- Secure access to MFD functions
- End-user authentication including integration with single sign-on environments
- Monitoring and control of photocopying, scanning, faxing and on-device printing from device storage and USB drives to support quotas, charging, allocation and logging
- Allocation of all job types to accounts/departments/cost-centers/projects
- Account invoice and comment options are supported
- Release print jobs from a hold/release queue (Secure & Find Me Printing)
- Group based access control: Limit access to color copying or to the device as a whole to selected user groups.

Highlights of the embedded solution include consistency, integration, rate of development, vendor neutrality and security.

2.1.1 Consistency

The embedded solution is developed by the PaperCut software development team and the MFD interface is consistent with the workstation print interface, so users only have to learn one system.

2.1.2 Integration

PaperCut is a single integrated solution where print and copier control are all managed in the one system. Users have a single account and administrators have the same level of reporting and administration for all services. The embedded solution interacts with the PaperCut server using a Service Oriented Architecture (SOA) and web-services-based protocols.

2.1.3 Rate of development

PaperCut is developed under a release-often policy where new features are made available to users as soon as they are complete. Unlike hardware based solutions, new features can be delivered to users regularly as software updates.

2.1.4 Vendor neutrality

PaperCut remains true to its vendor-neutral stance. All embedded solutions are equal and support all server operating systems including Windows, Linux and Mac.

2.1.5 Security

A large percentage of PaperCut's user base is in education environments where security is important. All solutions are developed with a strong security focus. Where security objectives can't be satisfied, any known deficiencies are fully disclosed.

2.2 Support

Contact your reseller or Authorized Solution Center if you require assistance. You can find contact information on the **About** page in the PaperCut MF admin interface.

3 Installation

This section covers the installation of the PaperCut embedded application for compatible Kyocera MFDs. The embedded application will allow the control, logging and monitoring of walk-up off-the-glass copy, scan and fax usage and may serve as a print release station for network prints (for information on tracking network printing see the PaperCut user manual).

3.1 Supported models

PaperCut supports selected HyPAS-enabled Kyocera MFDs. For the latest list of supported models, see <http://papercut.com/kyocera#supported>.

NOTE: ECOSYS/FS devices must have a Compact Flash (CF) card (older models) or SD card (newer models) installed.

NOTE: For the purposes of this document, a large-panel MFD has a panel that is 7 inches (17.8 cm) or larger.

3.1.1 Integrated scanning

The PaperCut embedded application includes integrated scanning, which you can optionally enable per MFD. Integrated scanning has the following additional prerequisites:

- Large panel
- API 2.1.1-subset or later

NOTE: Once the MFD is successfully installed and configured, the API version is reported as part of its **Device Status** in the PaperCut MF admin interface.

3.2 Requirements

Before installing the PaperCut embedded application on to the Kyocera MFD, ensure that basic monitoring of network printing has been set up and tested for this MFD. The MFD should show up in the printer list in the PaperCut MF admin interface and have a few print jobs in its print history.

After that, ensure that the following points are checked off before getting started:

- ECOSYS/FS series devices only: Ensure that the Compact Flash/SD card is installed. Consult the device manual or your service technician for details.
- Have available the network name or IP address of the MFD.
- Have available the username and password for administrator access to the MFD's internal web interface.
- It is recommended that the MFD be configured with a *static IP address*.
- Verify that firewalls or other network restrictions don't prevent the MFD's access to the PaperCut server on ports 9191-9193.

3.3 Setup procedure

3.3.1 Enable external hardware integration

Ensure PaperCut is set up on your server and monitoring print activity before proceeding to install the embedded application.

1. Log in to the PaperCut MF admin interface using a web browser (e.g. `https://papercut-server:9192/admin`).
2. Go to the **Advanced** tab of the **Options** page and ensure the option **Enable external hardware integration** is enabled.
3. Click **Apply**.

3.3.2 Install the PaperCut embedded application

The PaperCut embedded application for Kyocera is provided in a file named `pc-kyocera.pkg`, located under your PaperCut installation directory on the server, in the subdirectory `[app-path]/providers/hardware/kyocera/`

1. Copy this file to a FAT32 formatted USB drive.
2. At the MFD, press the **System Menu** button on the panel, page down until you see the **Application** item and press it. At this point you may have to log in with the MFD's built-in device administrator account.
3. Press the **Add** button.
4. Insert the USB drive and wait for PaperCut to appear in the list.
5. Press the checkbox next to the PaperCut list item and press **Install** and confirm with **Yes**.
6. Press **Remove USB drive** and confirm with **OK**.
7. Press **Close**.
8. Select the new PaperCut list item and press **Activate**.
9. Now wait up to a minute until the PaperCut MF **Device Setup** screen shows.

3.3.3 Configure PaperCut embedded settings

1. At the **Device Setup** screen, enter a descriptive device name and the IP address or hostname of the PaperCut server.
NOTE: The device name should be chosen to uniquely identify this Kyocera MFD among all devices controlled by PaperCut, including devices from other manufacturers. E.g. `Kyocera 1` or `Library Copier`.
2. Optionally specify an override for the MFD's locale (language setting) in the form `xx` or `xx_XX`, e.g. `fr` for French or `zh_HK` for Chinese (Hong Kong).
3. Press **Apply**.
4. The PaperCut application then attempts to connect to the PaperCut server. At this point you may be asked if you want to accept the server's certificate. Press **Accept** if the SHA-1 fingerprint matches that of the server's certificate. For steps on how to view the server's certificate, see the Troubleshooting SSL section of the [PaperCut MF manual](#).

Alternatively, you can configure the embedded application via a web browser from your desktop workstation. Go to `http://<device-ip>:8080/papercut/admin` and log in as the "Admin" user. This is the MFD's "Admin" user, not PaperCut's "admin" user. Then proceed as above.

3.3.4 Additional network security (optional)

The MFD communicates with the PaperCut server over the network (e.g. to authenticate users or release print jobs). To provide an additional level of security, PaperCut may be configured to only allow device connections from a restricted range of network addresses. This ensures that only approved devices are connected to the PaperCut server.

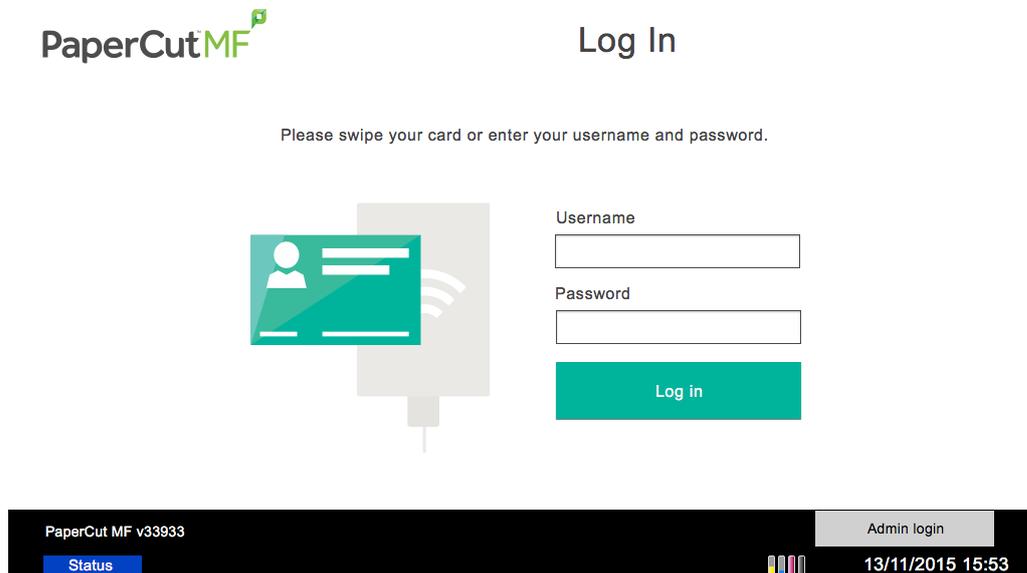
By default PaperCut will allow device connections from any network address. To restrict this to a subset of IP addresses or subnets:

1. In the PaperCut MF admin interface, go to the **Options** → **Advanced** tab and find **Security**.
2. In the **Allowed device IP addresses** field, enter a comma-separated list of device IP addresses or subnets (in the format `<ip-address>/<subnet-mask>`).
3. Click **Apply**.

Test the devices to ensure they can continue to contact the PaperCut server.

3.4 Verify installation and configuration

On the MFD screen you should see a login prompt.



In the PaperCut MF admin interface, on the **Devices** page, you should see the MFD listed with the name chosen in section 3.3.3.

You should now proceed to configure page costs, the authentication methods you will allow and other settings relating to the MFD.

3.5 Bypassing PaperCut

It is important that administrators take care to prevent users from bypassing PaperCut and directly accessing the MFD. Likewise, it's also important that administrators know how to bypass/disable the system if direct MFD access is required, i.e. to change advanced system settings. Administrators should take the following precautions:

- Change the MFD's built-in administrator password and always keep it secure.
- Securely connect the power and network cable. PaperCut is designed to be robust and record MFD usage if power is lost during copying, but it is possible to start copying before the embedded application starts after restarting the MFD.

To allow for uncontrolled access to the MFD, deactivate the embedded application or remove it completely:

1. At the MFD, press the **System Menu** button on the panel, page down until you see the **Application** item and press it. At this point you might have to log in with the MFD's built-in device administrator account.
2. Select the PaperCut application and press the **Deactivate** button to deactivate it (which will retain the stored configuration) or **Remove** to remove the application completely.

4 Upgrading to a newer version

The procedure for upgrading an existing embedded application to a newer version is similar to the initial installation. Please note that only the device-level installation needs to be performed, and you shouldn't have to perform any additional configuration within the PaperCut MF admin interface.

After upgrading, it's worth quickly checking the embedded application's version number now matches the expected value.

5 Post-install testing

After completing installation and basic configuration, testing of the common usage scenarios is recommended. This important for two reasons:

1. To ensure that the embedded application is working as expected.
2. To familiarize yourself with the features and functionality of PaperCut MF and the embedded application.

This section outlines test scenarios that are applicable for most organizations.

5.1 Test preparation

To complete these tests it is recommended you use two test users so that each can be configured differently. These users are:

- `testusersimple`, to perform basic copier monitoring and control and to perform print release tests
- `testuseradvanced`, to perform copier monitoring and control with account selection enabled (i.e. to charge copying to accounts/departments/cost centers)

To set up these users in PaperCut:

1. Create the `testusersimple` and `testuseradvanced` users in your Active Directory or LDAP directory.
2. In the PaperCut MF admin interface, go to the **User/Group sync** tab of the **Options** page and click **Synchronize Now**.
3. Once synchronization is complete, the users will be added to PaperCut.

The next step is to configure the users. To configure `testusersimple`:

1. Select the **Users** page.
2. Select the `testusersimple` user.
3. Set the user's balance to **\$50.00** and verify the account is set to **Restricted**.

Account Details To set the user's balance enter the value here. To adjust the amount, select the 'adjust' link. Making the user 'restricted' means that they will not be able to print when their account has no credit.	Balance <input type="text" value="\$50.00"/> (adjust) <input checked="" type="checkbox"/> Restricted Overdraft <input type="text" value="Use default overdraft (\$0.00)"/>
--	--

4. Verify that this user is set to **Automatically charge to personal account** in the **Account selection** options.
5. Click **OK** to save.

To configure `testuseradvanced`:

1. Select the **Users** page.
2. Select the `testuseradvanced` user.
3. Change the **Print account selection** option to **Show the standard account selection popup** and enable all the account selection options.

Account Selection

Account selection can be used to allow the user to select what account is charged, or even to confirm print jobs before they are sent to the printer. These options require running the user client tool on workstations.

Print account selection

Show the standard account selection popup ▾

⚠ This setting requires this user to run the client software at all times.

Information to show in popup

- Allow user to charge to their personal account
- Allow user to select shared accounts (from list)
- Allow user to select shared accounts (using PIN/code)
- Allow user to perform printing as another user

- Click **OK** to save.

5.2 Test scenarios

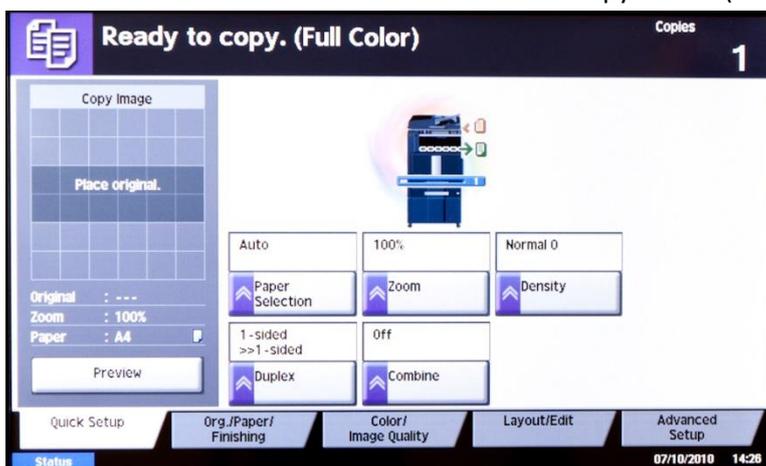
Three common test scenarios are included: standard copying, copying with account selection, and print release.

5.2.1 Scenario 1: Standard copying

Standard copying involves monitoring/charging printing to a user's personal account. This is most commonly used for student printing or basic staff monitoring. Users can also be configured for unrestricted printing, which is commonly used for staff/employee use.

At the MFD:

- On the **Log In** screen, enter the testusersimple username and password and press **Log in**.
- If you see the **Account Confirmation** screen, press **Next**.
- You will now see either the home screen or the copy screen (below).



- At this point, the MFD functions will be enabled for usage.
- Perform some test copying, i.e. press the green button on the MFD button panel and perform a copy as normal.
- Once completed copying press the **Logout** button on the MFD button panel.

Verify that the MFD activity was recorded and the user's account deducted:

- In the PaperCut MF admin interface, select the MFD from the **Devices** page.

2. Select the **Job Log** tab.

This page lists all recent activity on the MFD. The copying just performed as the test user should be listed.

Date	User	Charged To	Pages	Cost	Document Name	Attribs.	Status
Sep 12, 2014 1:59:35 PM	testusersimple	testusersimple	2 (Color: 0)	\$0.20	[copying]	A4 (ISO_A4) Duplex: No Grayscale: Yes	Printed [refund] [edit]

3. Verify the details of the copy job that was just performed.

5.2.2 Scenario 2: Copying with account selection

Copying can be allocated to shared accounts that represent departments, projects or cost centers. This is commonly used by staff in academic organizations to allocate printing to departments.

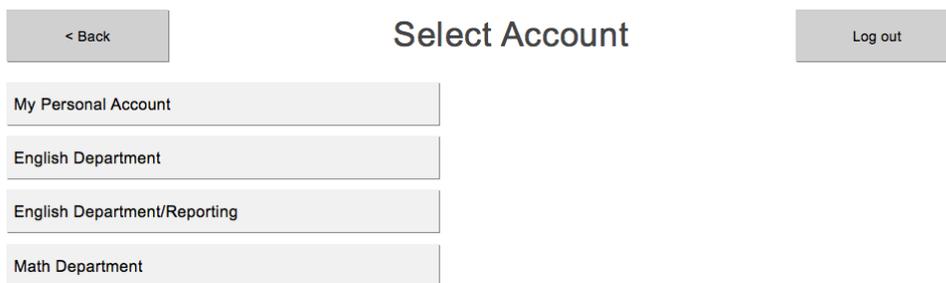
First, some test accounts should be created:

1. In the PaperCut MF admin interface, select the **Accounts** page.
2. In the **Actions** menu, select **Create a new account**.
3. Enter the account name Test Account 1.
4. Click **Apply**.
5. Select the **Security** tab and allow all users to access that account by adding the **[All Users]** group.
6. Click **OK**.
7. Repeat the process to create a few more accounts.

At the MFD:

1. Log in as testuseradvanced.

You will see something like the following:



2. Select the account to allocate copying to, e.g. Test Account 1.
3. The confirmation screen will show that Test Account 1 has been selected. Acknowledge by pressing **Next**.
4. Perform some test copying. Once you have completed copying, press **Logout**.

Verify that the MFD activity was recorded and the user's account deducted:

1. In the PaperCut MF admin interface, select the MFD from the **Devices** page.
2. Select the **Job Log** tab. This page lists all recent activity on the MFD. The copying just performed as the test user should be listed.
3. Verify the details of the job, i.e. that the job was charged to the selected account.
4. Click on the account name in the **Charged To** column to view the account's details.
5. Select the **Job Log** tab.
A list of all activity for the account is displayed, and will show the test copying that was performed.

5.2.3 Scenario 3: Print release

The embedded application may also be used for print release. For a full description of PaperCut hold/release queues and release stations, please see the Hold/Release Queues & Print Release Stations chapter of the [PaperCut MF manual](#).

To perform print release testing a hold/release queue must be enabled:

1. In the PaperCut MF admin interface, select the **Printers** page.
2. Select the print queue for the MFD that will be used for testing.
3. Select the **Enable hold/release queue** option.

4. Click **OK** to save the changes. All printing to this queue is now held until released by a user.

The MFD must also be enabled as a print release station:

1. In the PaperCut MF admin interface, select the **Devices** page.
2. Select the MFD you will use.
3. Under **Print release**, select **Enable print release**.
4. Select the print queue that was enabled for hold/release above. The MFD will allow jobs on the selected queues to be released.
5. Click **OK** to save.

At a computer workstation:

1. Log in as `testusersimple`.
2. Print a few jobs to the print queue that was configured above. The jobs will be held in the hold/release queue.
3. Confirm that the jobs are held, by checking in the PaperCut MF admin interface that the jobs are listed on the **Jobs Pending Release** tab of the **Printers** page.
4. Confirm that the username is `testusersimple`.

At the MFD:

1. Log in as `testusersimple`.
2. A list of print jobs will show. Select a print job to see its details.

The screenshot displays the PaperCut MF admin interface. At the top left is the PaperCut MF logo. The main heading is 'Held Print Jobs'. Below this, two document titles are listed: 'Microsoft Word - PaperCut MF - Sharp OSA Embedded Manual.docx' and 'Microsoft Word - PaperCut MF - Kyocera Embedded Manual.docx'. On the right side, there is a 'Log out' button. At the bottom of the interface, there are three buttons: 'Device functions', 'Refresh', and 'Print all'. A status bar at the very bottom shows 'Status' on the left, a battery icon in the middle, and the date and time '13/11/2015 15:53' on the right.

3. Press the **Print** button to add the print job to the queue for printing and a confirmation screen will show briefly.
4. To cancel a print job, select the print job and press **Cancel job**.
5. Remember to log out using the **Log out** button.

6 Configuration

After completing installation and registering the MFD with PaperCut, it will have been configured with reasonable default settings that are suitable for most environments. This section covers how to change the default settings.

6.1 Device details

The settings in this section are in the PaperCut MF admin interface on the MFD's **Device Details** page which can be accessed by clicking on the MFD in **Devices** → **External Device List**. For information about settings in the **Advanced Config** tab, see section 7.1.

6.1.1 Authentication methods

PaperCut MF supports several different ways to authenticate users who walk up to the MFD to use it. These authentication methods are configured in the **Summary** tab and are documented in the Copier Integration chapter of the [PaperCut MF manual](#).

Tip: If the input field (e.g. ID number) at the MFD panel has a blue border, you can use the keys **0 – 9** while **C** clears the field and **Enter** advances to the next field.

6.1.2 Offline mode

Offline mode enables the MFD to continue being used when the PaperCut server is unavailable. See the Copier Integration chapter of the [PaperCut MF manual](#) for details.

6.1.3 Tracking

The **Tracking** settings in the **Summary** tab for the MFD define which functions will be tracked and controlled at the MFD. Not all settings are supported on all MFDs.

6.1.4 Print release

The MFD performs as a print release station when you enable print release in the **Summary** tab. Print release configuration is documented in the Copier Integration chapter of the [PaperCut MF manual](#).

6.1.5 Integrated scanning

The embedded application can provide a simple scanning interface. See section 3.1.1 for MFD requirements and refer to the Integrated Scanning chapter of the [PaperCut MF manual](#) for more information.

6.2 Shared accounts

Shared accounts (configured in the PaperCut MF admin interface) apply throughout PaperCut and are not specific to the MFD.

6.2.1 Shared account selection

Shared account selection options at the MFD mirror the options presented in the PaperCut client print popup. The options available include:

- select from a list of shared accounts
- search for shared accounts by keyword
- select account using PIN/Code

The options available to each user, as well as account security access, will mirror the options available when the user prints. Selection from a list or using PIN/code are controlled at the user level via the **User Details** page. Account security/access is controlled at the account level via the **Security** tab on the **Account Details** page.

6.3 Changing the PaperCut server or the MFD's name

The **Device Setup** screen on the MFD allows the administrator to change the PaperCut server or the MFD's name (see section 3.3.3).

To access the **Device Setup** screen, press **Admin login** in the lower-right corner of the **Initialization** or **Log In** screens and enter the administrator credentials.

6.4 Customizing text and messages

PaperCut MF allows some text that appears on MFD screens to be customized. The custom text might include instructions or terminology that is more appropriate for the site. An example of text that is customizable is the "welcome text" that displays before the user logs in to the MFD.

The text can be customized by editing the **Advanced Config** for the MFD in the PaperCut MF admin interface. For more details see section 7.1.

7 Advanced configuration

The common configuration options for an MFD in PaperCut are available on its **Summary** tab, and are discussed in more detail in section 6. This section covers the more advanced or less common configuration options.

7.1 Config Editor

The following options are available via the **Advanced Config** tab of the **Device Details** page.

Config name	Description
<code>ext-device-msg.busy-on-release</code>	Message to display when <code>ext-device.kyocera-mita.release.show-busy.job-timeout</code> is enabled. Specify <code>DEFAULT</code> for the default text.
<code>ext-device-msg.card-association</code>	Message to display when users are requested to associate their swipe card with an existing user account. See section 6.1.1 for details. Specify <code>DEFAULT</code> for the default text.
<code>ext-device-msg.welcome</code>	Specify two lines of text to be displayed on top of the login screen in place of the default message. These can include instructions on which username and password are valid for the MFD. Specify <code>DEFAULT</code> for the default text.
<code>ext-device-msg.welcome-offline</code>	Specify two lines of text to be displayed on top of the offline login screen in place of the default message. Specify <code>DEFAULT</code> for the default text.
<code>ext-device.block-release-on-error.snmp-error-list</code>	Defines the error types that will block the release of jobs from the MFD Print Release. Valid values: <ul style="list-style-type: none"> <code>DEFAULT</code>—includes <code>noPaper</code>, <code>doorOpen</code>, <code>jammed</code>, <code>offline</code>, <code>inputTrayMissing</code>, <code>outputTrayMissing</code>, <code>markerSupplyMissing</code>, <code>outputFull</code> A comma-separated list of error types. Valid error types include <code>lowPaper</code>, <code>noPaper</code>, <code>lowToner</code>, <code>noToner</code>, <code>doorOpen</code>, <code>jammed</code>, <code>offline</code>, <code>serviceRequested</code>, <code>inputTrayMissing</code>, <code>outputTrayMissing</code>, <code>markerSupplyMissing</code>, <code>outputNearFull</code>, <code>outputFull</code>, <code>inputTrayEmpty</code>, <code>overduePreventMaint</code>

<code>ext-device.card-no-converter</code>	See section 7.3.3. Default: GLOBAL (defer to the global configuration)
<code>ext-device.card-no-regex</code>	See section 7.3.2. Default: GLOBAL (defer to the global configuration)
<code>ext-device.card-self-association.use-secondary-card-number</code>	Select whether user self-association should occupy the primary or secondary card number. It overrides the global setting unless the keyword GLOBAL is specified. This is useful when there is a mix of different non-configurable card readers that read different numbers from an ID card. Set to 'Y' to use the secondary card number, or 'N' to use the primary card number. Default: GLOBAL (defer to the global configuration).
<code>ext-device.inactivity-timeout-secs</code>	Defines how long (in seconds) to allow a user to interact on a PaperCut screen between before they are automatically logged out. Default: 60. NOTE: Interactions on the MFD's native screens are governed by the MFD's native timeout mechanism.
<code>ext-device.kyocera-mita.email.personalized-sender</code>	Set to 'Y' to take the user's email address as stored in the user's PaperCut profile and use it as the "From"/"Sender" address when scanning to email. NOTE: ECOSYS/FS series MFDs may need a firmware upgrade for this to work. NOTE: Integrated scanning email addresses are configured as part of the scan action.
<code>ext-device.kyocera-mita.extra-app-button.label</code>	Set to a value other than NONE to display an extra button with this label on the print release screen. Pressing this button will enable access to MFD functions and show a specific MFD function, defined by <code>ext-device.kyocera-mita.extra-app-button.target</code> (see below). Example: Scanner NOTE: This applies to large-panel MFDs only.

<code>ext-device.kyocera-mita.extra-app-button.target</code>	<p>The MFD function to show when pressing the button labeled using <code>ext-device.kyocera-mita.extra-app-button.label</code> (see above).</p> <p>Options are: APPLICATION, COPY, CUSTOM_BOX, FAX_BOX, JOB_BOX, PROGRAM, REMOVABLE_MEMORY_BOX, SEND, STATUS, UD_COPY and UD_SEND.</p> <p>NOTE: This applies to large-panel MFDs only.</p>
<code>ext-device.kyocera-mita.guest-access.label</code>	<p>Customize the text of the "Guest access" button. This button appears on the device login page when the guest access authentication option is enabled in conjunction with any of the other authentication options.</p> <p>Default: Guest</p>
<code>ext-device.kyocera-mita.header.color</code>	<p>See section 7.2.2.</p>
<code>ext-device.kyocera-mita.header.textcolor</code>	<p>See section 7.2.2.</p>
<code>ext-device.kyocera-mita.limit-reference.duplex</code>	<p>When configuring Strict Zero Stop, specify whether the reference page used for cost estimation is a simplex page or a duplex page.</p> <p>This is a device-specific config key.</p> <ul style="list-style-type: none">• Values: N (simplex), Y (duplex)• Default: N <p>Note: For more information, see 7.5.1 Strict Zero Stop.</p>
<code>ext-device.kyocera-mita.limit-reference.grayscale</code>	<p>When configuring Strict Zero Stop, specify whether the reference page used for cost estimation is a color page or a grayscale page.</p> <p>This is a device-specific config key.</p> <ul style="list-style-type: none">• Values: Y (grayscale), N (color)• Default: Y <p>Note: For more information, see 7.5.1 Strict Zero Stop.</p>
<code>ext-device.kyocera-mita.limit-reference.paper-size</code>	<p>When configuring Strict Zero Stop, specify the paper size of the reference page used for cost estimation.</p> <p>This is a device-specific config key.</p> <ul style="list-style-type: none">• Values: Any valid paper size, DEFAULT

- Default: DEFAULT (North America: Letter, worldwide: A4)

Note: For more information, see [7.5.1 Strict Zero Stop](#).

`ext-device.kyocera-
mita.limit.strict`

Disable or enable Strict Zero Stop.

This is a device-specific config key.

- Values: Y (enables Strict Zero Stop), N (disables Strict Zero Stop)
- Default: N

Note: For more information, see [7.5.1 Strict Zero Stop](#).

`ext-device.kyocera-
mita.log.max-size`

The maximum size (in bytes) of the debug log file.

Default: 20480.

`ext-device-kyocera-
mita.login.device-
admin-users`

Specify which users are given device admin rights when logged in. Device admin rights allow editing the address book and other advanced functions available in the System Menu. As device admin rights offer full MFD access, including the ability to deactivate the PaperCut embedded application, only trusted users should be given device admin rights.

Specify NONE for no users to receive device admin rights (default).

Specify a comma-separated list of usernames identifying the users to receive device admin rights. This list is case-sensitive.

Specify * to give device admin rights to all users.

`ext-device.kyocera-
mita.login.show-release`

Set to 'N' to skip the print release screen during the login process even with print release enabled. The print release screen will then only be accessible by choosing PaperCut from the MFD's Application menu. See section 7.4 for recommended settings for this workflow.

NOTE: This has no effect when integrated scanning is available.

`ext-device.kyocera-
mita.persistence.secs`

This setting has no effect.

`ext-device.kyocera-
mita.release.list-
format`

Change this to change the displayed list of print jobs pending release to include details in addition to or in place of the document name. Use the following place holders for document

 details:

- %document% - document name
- %user% - username
- %pages% - number of pages
- %time% - time of printing
- %cost% - print job cost
- %client% - the machine from which the print job was sent

Example: %user% - %document% would show jobs in the form
jsmith - Tax Form.pdf.

`ext-device.kyocera-mita.release.show-busy`

Set to 'Y' to show a warning message when users are releasing documents while the MFD is still busy printing or copying.

`ext-device.kyocera-mita.release.show-busy.job-timeout`

When `ext-device.kyocera-mita.release.show-busy` is enabled, jobs that have been paused (paper jam, out of paper) for this time are considered not to be keeping the printer busy.

`ext-device.kyocera-mita.release.show-cost`

Set to 'N' to remove the cost display from the print release details screen. Suitable for "release only" or "silent tracking" environments.

`ext-device.kyocera-mita.restricted.allow-busy-login`

Set to 'Y' to allow users to log in and charge jobs to a restricted account (user account or shared account) if any other job – charged to the same or another account – is still in progress. This may cause cost overruns with users going into negative balance.

`ext-device.kyocera-mita.restricted.allow-multiple-txn`

Set to 'Y' to allow users to charge jobs to a restricted account (user account or shared account) if another job charged to the same account is still in progress. This may cause cost overruns with users going into negative balance.

`ext-device.kyocera-mita.swipe-to-logout`

Set to 'Y' to allow users to log out using a card swipe (when swipe card authentication is enabled).

`ext-device.kyocera-mita.timeout.scan-prompt-send.secs`

When using integrated scanning and the user is prompted to scan more or send (or cancel), if no choice is made in this time, the scan will be sent and the user will be logged out. Default: 30.

`ext-device.kyocera-`

Set to 'Y' to use the time zone of the server when displaying job

<code>mita.timezone.use-server</code>	creation times in the PaperCut print release job list. This overcomes some shortcomings with respect to daylight savings that have been observed with Kyocera MFDs.
<code>ext-device.self-association-allowed-card-regex</code>	Only card numbers matching this regex are allowed to be associated with existing accounts. See section 7.3.2 for more information about regexes. Default: <code>.*</code> (dot-star; include all card numbers).

7.2 Customizing the header

7.2.1 Logo

The embedded application header includes a logo. This logo can be replaced with your organization's logo.

The image must be saved as PNG files with the filename `logo.png` and should be no more than 55 pixels high and 300 pixels wide, and less than 50 kB in file size.

This image should be saved on the PaperCut application server in the PaperCut application directory under the subdirectory `server\custom\web\device\kyocera-mita`. Create the subdirectory if necessary. The embedded application will fetch the image from the server to display it on the MFD screen.

Verify the correct layout on the MFD screen after producing the image.

7.2.2 Colors

The header colors are defined in the MFD's **Advanced Config** (see section 7.1). The options to change are:

- `ext-device.kyocera-mita.header.color` – the background color (type DEFAULT for the default)
- `ext-device.kyocera-mita.header.textcolor` – the text color (type DEFAULT for the default)

The colors are specified using the hexadecimal web/HTML notation (`#RRGGBB`) where RR is the red component, GG is the green component and BB is the blue component.

7.3 Swipe card readers

Supporting card reader authentication is as easy as:

1. Connecting a supported card reader to the MFD via the USB port. For a list of supported card readers, see section 10.
NOTE: On some MFDs the USB port is hidden under a sticker on the side panel.
2. Enabling **Swipe card** under **Authentication methods** in the MFD's configuration in the PaperCut MF admin interface.
3. Ensuring the card number, as read by the reader, is loaded into the Card Number field in the PaperCut database (or consider using user self-association).

Swipe cards contain numbers used to identify users according to the card number configured under **Card/Identity Numbers** on each user's **User Details** page of the PaperCut MF admin interface. Some readers report information in addition to the number encoded on the card, such as checksums. PaperCut can treat these cases in three ways:

- no conversion required
- regular expression filter
- format conversion

7.3.1 No conversion required

A typical case is the checksum being reported after the card number, separated by an equals sign, such as in 5235092385=8. PaperCut can handle this case by default; it will extract the number before the equal sign as the card number: 5235092385.

7.3.2 Regular expression filter

For some cases, a regular expression (regex) that will filter the card number from the complete string of characters reported by the card reader might be required. You can find more information about regexes on the Internet, for example, www.regular-expressions.info.

The regex must be fashioned so that the card number is returned as the first match group.

Usually one regex is used for all the devices managed by PaperCut. To enter this, select **Options**, then **Config editor (advanced)** under **Actions**. The key is called `ext-device.card-no-regex`.

You can, however, override the global setting on a per-device basis using the `ext-device.card-no-regex` key on the **Advanced Config** tab of the **Device Details** page. This setting overrides the global setting unless the keyword `GLOBAL` is specified.

PaperCut support (see section 2.2) will gladly assist in producing a regular expression when supplied with a few sample outputs from your card reader.

If you would like to write your own regexes, here are some examples:

- use the first 10 characters (any character): `(.{10})`
- use the first 19 digits: `(\d{19})`
- extract the digits from between the two equal signs in 123453=292929=1221:
`\d*=(\d*)=\d*`

7.3.3 Format conversion

In addition to extracting parts of the card numbers using regular expressions, converting numbers from one format to another is a common requirement. For example, a card reader may report in hexadecimal format, while the number stored in the source (e.g. Active Directory) is in a decimal format. PaperCut includes a number of inbuilt converters to assist here.

NOTE: Many card readers are configurable – you can change the number format at the hardware level via utility or configuration tools. PaperCut's software-level converters are there to support card readers that don't offer this level of configuration, or where a global software-level conversion is a better choice. For example, it may be quicker to do the conversion in PaperCut rather than manually reprogram 100+ readers!

Like regexes, you can define the converters in the PaperCut MF admin interface either globally (for all devices) or on a per-device basis.

To set globally:

1. On the **Options** page, click **Config Editor (advanced)**.
2. Search for `ext-device.card-no-converter`.
3. Enter the name of the required converter (see the table below) then click **Update**.

To set at the device level:

1. Go to the **Advanced Config** tab of the **Device Details** page for the device.
2. Search for `ext-device.card-no-converter`.
3. Enter the name of the required converter (see the table below) then click **Update**.

7.3.3.1 Standard Converters

The following table lists the converters available.

Converter	Description
hex2dec	Convert a hexadecimal (base 16) encoded card number to decimal format. Hexadecimal numbers usually contain 0-9 and A-F. This will convert 946EBD28 to 2490285352.
dec2hex	Convert a decimal encoded card number to hexadecimal format. This will convert 2490285352 to 946EBD28.
ascii-enc	Unpack an ASCII encoded card number string. E.g. given the number 3934364542443238, the ASCII code 39 is converted to 9, 34 to 4, 45 to E, with the entire number resulting in 946EBD28.
javascript:<path>	Define a custom conversion function in JavaScript (see section 7.3.3.2).

It is possible to chain or pipeline converters by delimiting with a pipe (|). For example, `ascii-enc|hex2dec` will first unpack the encoded ASCII number then convert it to a decimal.

Tip: Not sure which converter to use? Often trial and error is a good approach. After presenting a card, the number will appear in an application logger message with conversions applied (assuming the card is unknown to the system). Try different converters and inspect the resulting numbers in the application log.

7.3.3.2 Using custom JavaScript

If the inbuilt converter functions are unable to meet the requirements, it is possible to define your own function using JavaScript. This is an advanced exercise and it is expected that any implementer be familiar with programming and JavaScript. To implement your own converter:

1. Create a file text file `[install-path]/server/custom/card.js`

2. Define a single JavaScript function in this file called `convert`. It should accept and return a single string. Here is a trivial example:

```
function convert(cardNumber) {  
    return cardNumber.substring(3,10).toLowerCase();  
}
```
3. Enter a converter in the form: `javascript:custom/card.js`

Tip: Check the file `[install-path]/server/log/server.log` when testing. Any scripting errors will be displayed as warning messages in the log.

Tip: A JavaScript script may also be included in the pipeline. For example

```
ascii-enc|hex2dec|javascript:custom/card.js
```

7.3.3.3 Advanced notes

If *both* a regular expression and a converter are defined, the regular expression is applied first. This means a regular expression can be used to clean up the input (e.g. remove checksum or delimiters) before passing to a converter.

In some special situations a custom JavaScript implementation may not be enough. For example there may be a requirement to use a third-party system to decrypt the number. PaperCut includes an advanced plugin architecture that the PaperCut Software development team uses to implement these advanced converters. Contact support (see section 2.2) to discuss development options and costs.

7.4 Release-only expedited workflow

NOTE: This workflow is not available when using integrated scanning.

In environments where all or most users do not use account selection (for instance in larger corporate environments where PaperCut is used purely for monitoring purposes), the following settings result in an expedited workflow that requires fewer key presses to access all essential functions:

- In the PaperCut MF admin interface, on the MFD's **Device Details** page, deselect **Show account confirmation**.
- In the PaperCut MF admin interface, on the MFD's **Advanced Config** tab, set `ext-device.kyocera-mita.login.show-release` to N.
- At the MFD, in the System Menu, select **Common** → **Default Application** and choose PaperCut as the default application.

This will result in the following workflow:

- The user logs in at the MFD.
- The user can directly switch to Copy/Send/Fax/Document Box functions by pressing the corresponding button on the left of the panel.
- The user can display print release by pressing the Application button on the panel.
- The user logs out using the Logout button.

Users that do have account selection enabled for them will see an additional account selection step on login that will display even when they only log in to release prints. For this reason the above configuration is only recommended in “release only” or “silent tracking” scenarios where users’ activity is automatically logged to their personal or a shared accounts.

7.5 Zero Stop

PaperCut MF’s Zero Stop prevents restricted account balances from dropping below zero.

By default, as a user’s job proceeds, PaperCut MF recalculates the restricted account’s available balance after each sheet of paper is produced, based on its specific characteristics (paper size, duplex or simplex, color or grayscale). As soon as the account’s balance reaches zero, PaperCut MF attempts to stop the job. However, depending on the MFD’s capabilities, the job could overrun a few pages, causing the account’s balance to drop below zero.

7.5.1 Strict Zero Stop

If you require a more rigorous Zero Stop, you have the option of configuring Strict Zero Stop, which uses the device’s Job Accounting feature.

With this method, PaperCut MF calculates the cost of a single page (known as the reference page cost) based on the cost specified in the PaperCut MF Admin web interface for the following configurable attributes:

- simplex or duplex
- grayscale or color
- paper size.

Using this reference page cost, PaperCut MF calculates the number of reference pages that the account balance will allow and stops the job if that page count is reached during the job.

However, since the cost of the reference page is calculated based on a set of attributes that are configurable, this reference page cost could be higher or lower than the actual per page cost of a user’s job. As a result, if the reference page cost is lower than the actual per page cost of a user’s job, the restricted account’s balance could drop below zero. But, if the reference page cost is higher than the actual per page cost of a user’s job, the job could be prematurely stopped even if the restricted account actually has enough funds to cover the user’s actual job.

Example 1 – Reference page cost is lower than actual job cost

The following table shows an example of what could happen if the reference page cost is based on a grayscale page (which costs less than color), but the actual job is a color page. The job is allowed, and the account balance drops below zero.

	<i>Calculation based on reference page (grayscale)</i>	<i>Calculation based on actual page (color)</i>
Cost of page	\$0.50	\$3.00
Account’s opening balance	\$2.00	\$2.00

Account's closing balance	$\$2.00 - \$0.50 = \$1.50$	$\$2.00 - \$3.00 = -\$1.00$
---------------------------	----------------------------	-----------------------------

Example 2 – Reference page cost is higher than actual job cost

The following table shows an example of what could happen if the reference page cost is based on a color page (which costs more than grayscale), but the actual job is a grayscale page. The job is not allowed although the account balance has sufficient funds to cover the job without dropping below zero.

	<i>Calculation based on reference page (color)</i>	<i>Calculation based on actual page (grayscale)</i>
Cost of page	\$3.00	\$0.50
Account's opening balance	\$2.00	\$2.00
Account's closing balance	$\$2.00 - \$3.00 = -\$1.00$	$\$2.00 - \$0.50 = \$1.50$

To configure Strict Zero Stop:

1. Set the config key **ext-device.kyocera-mita.limit.strict** to **Y**. For more information, see [7.1 Config Editor](#).
2. Use the following config keys to set the attributes of the reference page that PaperCut MF uses to calculate the estimated cost:
 - **ext-device.kyocera-mita.limit-reference.duplex**
 - **ext-device.kyocera-mita.limit-reference.grayscale**
 - **ext-device.kyocera-mita.limit-reference.paper-size**

For more information, see [7.1 Config Editor](#).

Note: Since the calculated cost of the reference page is based on the values configured for the above keys, this reference page cost could be much higher or lower than the actual per page cost of a user's job.

3. Configure the Job Accounting setting on the device's web interface:
 - a. Log in to the device's web interface as an administrator.
 - b. Navigate to: **Management Settings > Job Accounting**.
 - c. Click **Settings**.
 - d. In **Job Accounting**, select **On**.

Note: This could cause some problems on older devices. For more information, see [9.4 Why does my device behave erratically?](#)
 - e. In **Job Accounting Access**, select **Network**.
 - f. In **Action Settings > Apply Limit** select **Immediately**.
 - g. Click **Submit**.

7.6 Integrated scan job file settings

The image quality of an integrated scan job is set to medium unless its file type matches the MFD's default file type, in which case the MFD's default file settings apply. You can configure these file settings by logging in to the MFD's web interface as the administrator:

- in Command Center RX, navigate to **Function Settings** → **Common/Job Defaults** → **File Default Settings**
- in Command Center, navigate to **Scanner** → **Defaults**

If the MFD has the Scan Extension Kit installed, PDFs created when using integrated scanning are searchable (if the scanned text is in the correct orientation) unless disabled in the above file settings.

7.7 Block the release of jobs to a device in error

If you enable the “Block the release of jobs when this device is in error” check box in the PaperCut MF admin interface for a device, you should also hide the warning message displayed when users are releasing documents while the device is still busy printing or copying. This will minimize user confusion, because the message suggests that the user can force the release of jobs, however, if the “Block the release of jobs when this device is in error” check box is enabled, they cannot release the job until the error is fixed.

To hide this message, change the configuration option labeled `ext-device.kyocera-mita.release.show-busy` to 'N'. See section 7.1 for more details regarding how to change a configuration option.

8 Known limitations and security

Kyocera MFDs have some limitations that have an impact on functionality and security.

8.1 Job restrictions on restricted accounts

Users are prevented from logging in with a restricted account (user account or shared account) if another job charged to the same account is still in progress. Jobs in progress can be viewed using the **Status/Job cancel** button on the MFD panel. Once the previous job has finished, users can log in again and charge to the restricted account. This behavior can be overridden using the `ext-device.kyocera-mita.restricted.allow-multiple-txn` configuration key (see section 7.1).

9 Troubleshooting and frequently asked questions

9.1 What is the IP address of my PaperCut Server?

Use operating system command-line tools such as `ipconfig` or `ifconfig` to determine this.

9.2 The embedded application shows Unable to configure HTTPS when connecting to the server.

The MFD does not support HTTPS. To connect to the server via HTTP, in **Device Setup**, change **Server port (binary)** to 9193 then press **Apply**.

9.3 I have thousands of accounts representing my clients. Will the system handle this?

Yes. We have designed the system to handle thousands of Shared Accounts. Users with many accounts will also be presented with some “power options” to help them find accounts including keywords based search.

9.4 Why does my device behave erratically?

On some older devices, setting **Job Accounting** to **On** can cause some of the following problems:

- difficulties when attempting to log in to the device
- print jobs disappearing, preventing them from being tracked correctly

To resolve this, ensure the device’s **Job Accounting** setting is **Off**. However, doing so disables Strict Zero Stop. For more information, see [7.5.1 Strict Zero Stop](#).

10 Appendix: Supported authentication card readers

The PaperCut embedded solution for Kyocera MFDs currently supports the following card reader manufacturers:

- RF IDEas (USB), tested using RDR-6081AKU and MS3-00M1AKU but may support others
- Elatec (USB), tested using TWN3 Mifare USB but may support others
- SCM (USB), tested using SCL010 and SCL011

NOTE: The Kyocera Card Authentication Kit is required – this is an optional component that will have to be purchased separately.

Other keyboard emulating USB card readers may work, but should be tested prior to deployment. Please contact your Kyocera dealer for assistance.