SENTINEL

Implementation Guide

SENTINEL
Your pull printing solution

EPAPER

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Welcome to Sentinel

Sentinel is a print security, cost control and management solution. Document security can be improved in an organisation by using the pull printing and secure function lock features.

You can monitor and reduce your printing costs by implementing pull printing to reduce waste, assign quotas to limit what users can print, and assign budgets to departments to give them targets to meet.

Managing printing is easier with Sentinel as it using profiles to manage settings and apply them to groups of users or printers. Mail2Print brings secure monitored printing to tablets and smartphones whilst ScanDirect enables secure scanning without the need to deploy scanner drivers.

Using This Document

This implementation guide is intended for the Sentinel administrator or tester. It contains initial instructions on how to set up the Sentinel system. For more information about the Sentinel interface, read the context-sensitive online help by clicking the help buttons on each Sentinel screen.

Assumptions

This document assumes

- You have read the Sentinel Installation Guide and the Sentinel installation is complete.
- There is at least one printer set up according to Microsoft standards and functioning correctly via the server.
- You can access the main Sentinel Overview screen on the server.

Users

Sentinel makes it easy to manage multiple users in your organisation. You can create different profiles and apply them to groups of users to help cut down administration time. It is also possible to import users from a database such as [Active Directory](#).

In this section you will define two user profiles, one group, configure the default user and add a new user.

Setting Profiles

User profiles are sets of predefined user definitions.

Step 1: Define First Profile

1. Select Start ➜ All Programs ➜ Sentinel ➜ Sentinel web page.

2. Click Users.
   The Users tab is highlighted.

3. Click the Profiles tab.
   One default profile is already defined.

4. Click Add New.
   The Add New Profile screen opens.

5. Fill in the following fields:

Field	Value	Explanation
Profile Name	Admin	The name of the user profile.
Print Option	Use System Defaults	Takes the Print Option defined for the Default Profile.
Allow Web Release	Allow	Allows users to release print jobs via the Web interface.
Allow Keypad Release	Allow	Allows users to release print jobs by entering their keypad code on the device controller.
Budget	(leave blank)	When left blank, is unlimited.
Profile Permissions	(ensure all selected)	Allows all kinds of printing.

6. We will return to some of the fields later. Click Save.

Step 2: Define Second Profile

1.　　Configure another profile, with different values:

Field	Value
Profile Name	General
Print Option	Last document
Allow Web Release	Allow
Allow Keypad Release	Allow
Budget	100

2. Click Save.

Configuring a Group

Step 3: Define a Group

1. The Users tab (the top level) is highlighted. Click the Groups tab (lower level) and click Add New. The Add New Group screen opens.

2. The fields in the table are mandatory and you must fill them in:

Field	Value	Explanation
Group Name	Test	The name of the user group.
Group Profile	Admin	This is one of the profiles you defined above.

3. Click Save.

Setting up Users

NOTE: You can automatically add multiple users using the Auto Sync feature and Active Directory. This feature is explained later in this guide. For now, we will configure and add users manually.

Step 4: Configure the First User

1. The Users tab (the top level) is highlighted. Click the Users tab (lower level). The name of the user who performed the Sentinel installation is shown. You cannot change this user name.

2. Click the Edit button ✐ on the right of the user.
   The Edit User screen opens. Sentinel has already assigned some values to this user, as shown in the table.

3. Fill in the fields with the new values as shown in the table.

Field	Default Value	New Value	Explanation
User name	<user name>		Sentinel inserted the Windows login name of the person who installed Sentinel. Sentinel uses this name to identify the user in future activities. You cannot change this name.
Card ID	0000	12345678	Change the default value as shown. Mandatory (alphanumeric). The user's identification code. Sentinel uses this ID to track the print jobs as they move through the system. Users identify themselves with this ID when they pull their print jobs.
Keypad Code		12	Since card IDs can be very long, the keypad code is a convenient alternative for users who want to enter a code at the device controller rather than using a card. An alias for Card ID.
User Type	Administrator		An administrator can connect to the Sentinel Web interface from remote machines and see the full administrator menu whereas non-administrators only see their own print jobs.
Group		Test	If you use Sentinel reports to track print activity within groups, you must assign a group to each user.
Profile		Admin	Use the profile you defined above.
Mail		<email address>	**The user's email address** for receiving scanned documents (Scan Direct) and direct printing of email messages and attached files (Mail2Print).

4. Click Save.

Step 5: Add a Second User

Define another user, with different values.

1. Click Add New.
   The Add New User screen opens.

2. Type in the values shown in the table.

Field	Value	Explanation
User name	<user name>	Mandatory. Sentinel uses the user's Windows login name (to Active Directory or to the local workstation) to identify the user. Make sure you use the correct name of a person defined in the system who is not an administrator. The user name is not case sensitive.
Card ID	87654321	Mandatory (alphanumeric). The user's identification code. Sentinel uses this ID to track the print jobs as they move through the system. Users identify themselves with this ID when they pull their print jobs.

Field	Value	Explanation
Keypad Code	87	Since card IDs can be very long, the keypad code is a convenient alternative for users who want to enter a code at the device controller rather than using a card. An alias for Card ID.
User Type	Standard	An administrator can connect to the Sentinel Web interface from remote machines and see the full administrator menu whereas non-administrators only see their own print jobs.
Group	Test	If you use Sentinel reports to track print activity within groups, you must assign a group to each user.
Profile	General	Use the profile you defined above.
Mail	\<email address\>	**The user's email address** for receiving scanned documents (Scan Direct) and direct printing of email messages and attached files (Mail2Print).

3. Click Save.

Step 6: Test the Users

1. From another PC, log in to the Sentinel web interface with the user name that Sentinel created (and you configured in Step 4: Configure the First User).
   You should be able to view and access all the Sentinel data.

2. You are defined as an administrator with IIS, so from your computer you cannot see what the standard user you defined in Step 5: Add a Second User sees. To do so, make a note of the URL from the top of your browser window, and type it in at another computer. E.g., http://129.169.4.24/Sentinel/.

3. If prompted for a user name and password, type in the Windows name you used for the second user. Note that you can only see a limited set of information. You might want to save this URL so that users can save their own accounts, create a temporary ID, etc.

You now have two defined users; the next step is to define a printer.

Devices

Sentinel makes it easy to manage multiple printers in your organisation. You can create different profiles and apply them to groups of printers to help cut down administration time.

Let's set up some printers.

Step 1: Determine Print Modes

Before you can add printers to the Sentinel system, you must decide which mode of printing the system is going to use. You may deploy a combination of the following modes within your system; they are not mutually exclusive.

Virtual Printing

One or more virtual printers (e.g., B/W, color) are defined on the network. All the users send their print jobs to one of these printers. The user may then go and "pull" their printout from any printer throughout the organization (that matches the print type), wherever they personally enter their ID code.

Each workstation that uses this mode must be configured to use the virtual printer. This is done only once, as part of the system's initial setup. Printer settings are not managed at the level of the workstation.

Advantages:

- All workstations can use the same printer settings, no matter where the users collect their printout.
- The user needs to install only one printer driver per printer type. The type can be color, black and white, cheques, copy, color copy, or scan.
- If a printer is out of service, the user can release print jobs on other printers.
- Sentinel balances the load on the servers by moving print jobs from one print server to another.

Virtual Pull Printing

With pull printing, print jobs are not released until the user releases the job for printing by standing next to a printer and self-identifying. The physical printer that prints the job is the user's default printer, defined by the administrator in the Sentinel management interface.

Advantages of pull printing:

- **Print jobs are more secure; no one can read the printout without the user's permission.**
- Paper is saved, as jobs are only printed when the user goes to collect them.

Pull Printing via BSI-Enabled Printer

Steps:

1. The user sends the job.
2. The user goes to the BSI-enabled printer and self-identifies using the built-in Sentinel controller.
3. The job prints.

Pull Printing via External Device

Steps:

1. The user sends the job.

2. The user goes to any printer throughout the organization and self-identifies using the external Sentinel controller.

3. The job prints.

Virtual push printing

Push printing means that when the user sends a job to print, it prints immediately (assuming the printer is working).

Advantages of push printing:

- The user has only one printer driver for each type of printer. The type can be color, black and white, cheques, copy, color copy, or scan.
- If a printer is out of service, the job can be printed at a similar type of printer.
- Jobs are printed as soon as the user sends them to print.

Non-virtual push printing

The user must install a printer driver for each printer. The user has permissions for automatic release or manual release using the web-based Sentinel management interface.

Advantages:

- Large print jobs can be printed without the user having to wait next to the printer.
- Special users such as managers prefer this option as they want to print without waiting.

Steps:

1. The user sends the job to the usual printer.

2. The job prints out immediately. The user collects the printed pages.

Step 2: Configure a Printer

You can define a profile and a group for printers. These are more advanced options and it is worthwhile exploring the available options at a later stage. We do not address device profiles and groups here. If a profile and group are not defined, Sentinel uses default options for these parameters.

In this section, you will define two printers — one for virtual pull printing and the other for non-virtual push printing.

BSI-enabled Device

If you have a BSI-enabled device:

1. Verify the printer device is attached to the network and that you have installed a driver.

2. Select Start →   All Programs →   Sentinel →   BSI Configuration Utility.

3. Insert the BSI-enabled printer's IP address.

4. Select a printer from the list. Make a careful note of this printer name as you will need it for Mail2Print.

5. The printer server's IP address should appear automatically. You can change the default IP.

6. Select Enable for Sentinel. This action adds the device to the Sentinel devices list.

7. Click OK and Close to close the BSI Configuration Utility.

8. Go to Step 3: Test the Printer.

External Sentinel Controller

This section only applies if you have an external Sentinel Touch Screen Controller.

Run the external device manager and then configure the device:

1. Verify the printer device is attached to the network and that the driver is installed.

2. Select Start → All Programs → Sentinel → External Device Manager.
    The External Device Manager launches and looks for new devices.

3. From the device list, double-**click the device you want to configure. The device's Settings window appears.**
    Set up the specific definitions to match your network environment and your Sentinel system. These
    settings include Device IP Address, Gateway IP Address, Subnet Mask, and Destination IP Address (print
    server's address).

4. Select Start → All Programs → Sentinel → Sentinel web page.

5. On the Sentinel web page, click the Devices tab.

6. If the device is in the list of all currently configured devices, select the device that you just added and click
    Edit. The Edit Printer screen opens.

7. If the device is not listed, add it by clicking Add New. The Add Printer screen opens.

8. Fill in the parameters as shown in the table.

Field	Value	Explanation
Device Type	External	Assumes pull printing.
Printer Type	<B&W/Color/ Cheques/Copy/Color Copy/ Scanner/ undefined>	Select the type of the printer relevant for your device.
IP Address	<XXX.XXX.XXX.XXX>	The fixed IP address of the new device.
External Controller	<YYY.YYY.YYY.YYY>	For a Sentinel external controller combined with a BSI-enabled device: the IP address of the controller.
Printer	<printer name>	Select the printer from the list of printers attached to the device.

Field	Value	Explanation
Print or Copy	Multifunction (assuming the device allows printing, copying, and scanning)	Specify the device type relevant for your device: • Printer **–** The waiting print job is released according to the defined print and user options. This device type does not allow scanning or copying. • Copier **–** Sentinel opens the copier machine for a predefined period of time (see the Time-Out Copy field) in which the user can make copies. When the time period ends, or after the user presses the <ESC> button on the device, the machine is locked again and the number of copies printed is written to **the server's database.** This device type does not allow scanning or printing. • Multifunction **–** The controller on the device asks which function to perform (usually "Print" or "Copy"). This is the only device type that allows scanning.
Scan Direct	Select	Allows you to scan documents to a particular folder or email address. See Scan Direct. The print type must be multifunction.

9. Click Save.

Step 3: Test the Printer

1. Send a print job to the printer you set up in Step 2: Configure a Printer.
   You configured the printer driver for pull printing so the print job does not print because it is held in the Sentinel print queue.

2. On the Sentinel web page, click the History tab to see print jobs that are waiting to be printed.
   You should see the print job you submitted earlier.

3. Go to the Brother BSI-enabled printer and follow the on-screen instructions on the control panel of the printer. When prompted for an ID number, use your keypad code (12) to release the print job.

4. Return to the Sentinel screen.
   The History tab now shows that the job you just printed is no longer on the server.

Step 4: Configure a Push Printing Device

In this step you will set up a printer for non-virtual push printing.

1. Set up the parameters as shown.

Field	Value	Explanation
IP Address	0.0.0.0	The fixed IP address of the new device.
Device Type	Push Printing	The system does not hold the jobs, just monitors them, and jobs are printed as soon as they are sent
Printer	<printer name>	Select the printer from the list of printers attached to the device.

Field	Value	Explanation
Printer Type	<B&W/Color/ Cheques/Copy/Colo r Copy/ Scanner/ undefined>	Select the type of the printer relevant for your device.

Step 5: Test Push Print

1. Send a print job to the printer you set up in Step 4: Configure a Push Printing Device.
   You configured the printer driver for push printing, so Sentinel prints the job immediately.

2. Go to the printer and collect your printout.

You have now tested two different types of printing (virtual pull and non-virtual push). The next step is to scan and send printed documents directly to email using Scan Direct.

Scan Direct

The Scan Direct feature allows your users to scan printed documents and have them sent directly to the users' email addresses. You define these parameters once for the whole Sentinel system; not just for a specific user.

Step 1: Define Scan Direct Settings

1. On the Sentinel web page, if you have not already done so, click the Settings icon ⚙ (on the top right of the screen).

2. Click the Scan Direct tab.

3. Type in the following values. These fields are all mandatory.

Field	Value	Explanation
Sender Email	<email address>	Email sender's address as you want it to appear in the received email message delivering the scanned document. Must be a valid and existing email address.
SMTP Server	<SMTP ID>	SMTP server's IP address or name.
Port	<port number>	Outgoing email SMTP port. Default: 25.
Incoming folder	(Keep the default)	The main folder on the Sentinel server where the metadata (information about print jobs) and scanned documents are stored temporarily. Subfolders are created, automatically named with the scanner's device name.
Authentication Settings		The Sentinel printer needs this information for the network scan profile.
Sentinel Server IP		Scanned docs go to this server.
User name		Sentinel treats the printer as if it is a user, identified by this (new) user name.
Password		The password for the user name.

4. Click Save.

Step 2: Test Scan Direct

1. At any pull printing printer, identify yourself using the keypad code 87 you defined for the second user. (Note that your user configuration included enabling Scan Direct.)

2. Scan in a document by pressing the Scan button on the control panel.

3. Check that you received the document in an email, sent to the email address you defined when setting up the user.

Quotas and Budgets

You will now determine how much it costs to print different page types (B/W, color, etc.) for a specific type of printer.

Later, you will configure the quota and budgetary limits for different user groups. The quota is the frequency with which you reset or add to the defined budget for a user group. The quota policy enables Sentinel to update the budget figure automatically, at predefined intervals.

Printer Pricing

In this section you define prices per page for each of the page types. While each printer type has a base price for printing a standard page, you can add or subtract a fixed amount from the base price to get a more accurate accounting of printing costs. These prices are used in Sentinel reports and to determine budget utilization.

Let's add prices.

Step 1: Check the Base Price

1. Click the Accounting tab and the Printer Pricing tab.

1. Click the Edit button on the right of the Color (or Mono, if that is what you have) printer type.

2. Set the Base Price for printing on this type of printer to 1.17.

3. Click Save.
   The base price for that printer type is displayed.

Step 2: Set Page Type Prices

1. Click the plus sign on the left of the Color printer type.

2. Type the values as shown in the table.

Field	Value	Explanation
A4Price		The prices you add here are increments to the base price. So A4DupPrice printing will cost (1.17 + .9) 2.07 EUR total per page.
A3Price	.3	
A4DupPrice	.9	
A3DupPrice	1.7	

3. Click Save.

Step 3: View Actual Printing Costs

In this step, you will send a few jobs to pull printing, and run a standard report that shows how much it costs to print them.

1. In any software application, print a page or two to the pull printer you defined in <u>Step 2: Configure a Printer</u>. Repeat.

2. Go to any Sentinel printer and release your print jobs.

3. In the Sentinel web page, click the Accounting tab.
   The Report Type screen opens.

4. Click User Summary.

5. In Filter Results By, select User and type in your user name (as recognized by Sentinel).

6. Click Execute.
   The Report Viewer opens.

7. Examine the report to see how many pages in total were printed and how much they cost. Click Close.

Quota for a User

In this section you define a quota policy and assign it to a particular user.

In the following sections, you will <u>define a new policy and assign it to a user profile</u> and see the <u>budget utilization per group</u>.

Step 1: Define a Quota

1. In the Sentinel web page, click the Accounting tab and the Quotas tab.

2. Click Add New.
   The Add New Quota Policy screen opens.

3. Type in the following values.

Field	Value	Explanation
Policy Name	Quota for Admin	The name of the policy.
Update quota policy on day [X] of the month, and perform update every [Y] months	1 2	The day ([X]) of the month and the frequency (every [Y] months) that the policy rules are performed.
Quota Budget	50	The budget figure for this policy. The figure applies to the [Y] months you set in the previous field. If blank, the budget is unlimited and quota policy has no effect. Default: blank.
Increment/Reset to	Increment	The method of fixing the budget (select one). If increment, any remaining budget will be added to the additional budget allocated every [Y] months. If reset, any remaining budget is removed.

4. Click Save.

Step 2: Assign the Quota Policy to User

1. Click the Users tab.

2. Click the Edit button on the right of the user you configured in <u>Step 4: Configure the First User</u>.

3. In the Quota Policy field, select Quota for Admin.

4. In the Budget field, type 100.

Quota for a Profile

<u>In the previous section</u> you defined a policy and assign it to a particular user.

In this section, you will define a new policy and assign it to a user profile.

Step 1: Define a New Quota

1. Click the Accounting tab and the Quotas tab.

2. Click Add New.
   The Add New Quota Policy screen opens.

3. Type in the following values.

Field	Value
Policy Name	Quota for General Profile
Update quota policy on day [X] of the month, and perform update every [Y] months	1 1
Quota Budget	30
Increment/Reset to	Increment

4. Click Save.

Step 2: Assign the Quota Policy to a Profile

1. Click the Users tab and the Profiles tab.

2. Click the Edit button on the right of the General profile.

3. In the Quota Policy field, select Quota for General Profile.

4. In the Budget field, type 50.

Now, all users (in this case, <u>the second user you defined</u>) assigned to this profile inherit this quota and budget. You can still change the quota and budget for a specific user as we saw in <u>the previous section</u>.

Step 3: See the Effect of Printing on the Budget

Print a couple of pages to see that the user credit is reduced.

Budget Utilization

You have already determined the pricing policy and set yearly budgets for a user profile and a specific user, and limited that budget by defining quotas. Once the users start printing their jobs, you will be able to see how much of those budgets have been utilized.

1. Click the Accounting tab and the Budgets tab.
   The screen shows how much of the budget for the different user groups has been utilized so far this year, broken down by month.
   The percentage figure on the right indicates how much of the yearly budget has been used.

2. (Optional) You can change the yearly budget by clicking the Edit button on the far right and typing a new figure.

3. Print some pages.

4. To verify that the budgets are being used, go to the Accounting tab and the Budgets tab.

When a user exceeds the defined budget, Sentinel prevents the jobs from being printed. Instead, the user sees an error message on the printer console and Sentinel posts a notification to the log.

Reports

Once the system has been running for a while, you can generate reports to understand and improve your organization's **printing resources.** For example, in the Quotas and Budgets section you generated a standard report. In addition, you can customize and schedule your own reports.

Running Standard Reports

There are several types of reports that can be generated. Each report can be filtered according to dates, job status, and additional data fields such as printer, user, and bill code.

1. Click the Accounting tab.
2. Select a report type and the filters as described in the table.

Parameter	Explanation
Filter Date	A range of dates for the report: • All **–** All information from the database with no date limitations. • Last **–** Data from the last day, week, month, or year. • From/To **–** A date range for the data (either from a starting point or to an ending point). Click the calendar icons to select dates.
Filter Status	Generates data for specific statuses. See History for an explanation of all statuses. For example, a useful report shows only Deleted and Cleared jobs. This allows you to see how many pages are sent to the printer but not picked up or deleted before they are released.
Filter Results By	Filters the desired report only to a specific parameter (or combination of parameters): • Printer **–** Generates data for a specific printer. To specify more than one printer, use a semicolon (;) between printer names, with no spaces before or after. • User **–** Generates data for a specific user. To specify more than one user, use a semicolon (;) between user names, with no spaces before or after. • Bill Code **–** Generates data for a specific bill code. To specify more than one bill code, use a semicolon (;) between bill codes, with no spaces before or after. • Group **–** Generates data for a specific user group. To specify more than one group, use a semicolon (;) between group names, with no spaces before or after.
Page Types	Generates data only for specific printer types. Enabled only if you select one of these reports: • User Summary • Bill code by User • Bill code by User Table • Group Summary

3. Click Execute.
   Sentinel generates the selected report in the Report Viewer.

4. Click Close (on the top right of the screen) to return to Sentinel.

Printer Reports (Summary and Detailed)

The summary report shows you the total number of pages printed on a specific printer.

The detailed report gives you more detailed information about each of the print jobs printed on each printer.

User Reports (Summary and Detailed)

The summary shows you the total number of pages a specific user printed.

The detailed report gives you more detailed information about each of the print jobs printed by each user.

Bill Code Reports (Summary and Detailed)

The summary report shows the total amount of pages printed for a specific bill code.

The detailed report gives detailed information about each of the print jobs printed for each bill code.

Bill Code Reports (By User and By User Table)

These reports show you the total number of pages a specific user printed for a specific bill code, but in two different types of presentation.

Group Summary Reports

The distribution of usage per group.

Number of Jobs by Page Count Reports

The number of pages on average that are printed for each print job.

Top 50 Jobs by Page Count Reports

The fifty print jobs with the largest number of pages.

Designing Custom Reports

In this section you will design your own report using software called Sentinel Report Designer.

Step 1: Download the Report Designer

The first time you use custom reports, you must install the software:

1. In the Sentinel web page, click the Accounting tab, the Reports tab, and the Custom Report tab.

2. Click Download Designer and follow the prompts.

Step 2: Design a report

To create a custom-designed report stating how many color pages were printed over the last month:

1. Select Start ➔ All Programs ➔ FastReports ➔ FastReport Designer.
   The FastReport designer opens. (You only need to do this step when creating a new report.)

2. Write a title for the report:

   a. Click the Text icon on the far left and click the white area next to Report Title.

   b. Double click, type My First Report, and click OK.

   c. Enlarge the display area for the report title by dragging the outline. Enlarge the text via the Font Size icon.

3. Connect to a database table:

   a. Click the white area next to Data. Open the Data tab on the far right of the screen. Under Actions select New Data Source.

   b. If you are using an Access database, click New Connection.

   c. Enable Always use this connection. In Database file, if necessary, type the server name (e.g., \\199.166.4.28\c$), navigate to \inetpub\wwwroot\Sentinel\App_Data (or equivalent), and select the MDB file.

   d. If necessary, type a user name and password. Click Test connection. When you get a success message, click OK twice.

   e. Click Next. From the list of tables in the database, select Archive and click Finish.

4. Add a calculation to determine how many pages were printed for each job:

   a. On the right, click the Data tab, open Data Sources and Connection. Right click Archive and select New Calculated Column.

   b. A new field called Column is created. Select it and click the Properties tab on the far right of the screen. Change (Name) to TotalPages.

   c. In Expression, click the icon on the right to open the Edit Expression dialog.

   d. Open Archive and double click Pages.

   e. **In the edit box, type an asterisk ("*").**

   f. Under Archive, double click Copies. (It should now contain this string: [Archive.Pages]*[Archive.Copies]). Click OK.

5. Add fields to the report:

   a. Double click Data on the left of the screen. In Data Source, select Archive. Click OK.

   b. Drag JobName to the white area on the right of Data: Archive.
      JobName also appears in the Page Header.

   c. Drag User, Released, and TotalPages to the right of JobName in the white area.

6. Limit the view to color pages printed during the last month:

   a. Double click Data: Archive on the left and select the Filter tab.

b. In Filter expression, type this string: [Archive.PageType]==3 &&
[Archive.Released]>AddMonths([Date],-1). Click OK.

c. Preview the report by clicking the Preview icon . Click Close.

7. Save the design by clicking File ➔ Save As and calling your report MySavedReport.

8. Close FastReport (you must close it completely and not simply minimize it).

Step 3: Run the Report

Make the design available on the server by registering the report, and run it:

1. In Sentinel, click Register Report.

2. Type Color Pages Report for the report name.

3. Navigate to the saved report and click Open and Register.
   The report name appears in the list on the left of the Sentinel screen.

4. Run the report by highlighting it in the list and clicking Run.
   The generated report appears in the Report Viewer on the right of the screen.

5. Manipulate the view of the report using the icons on the top right of the screen (e.g., Next Page).

Step 4: Edit the Design

Edit the report design and then run it:

1. Highlight ColorPagesReport in the list on the left and click Re-Design. In the dialog, click OK and save the report.
   FastReport opens automatically.

2. Add a name for the value:

   a. Click the Text icon on the far left and move the mouse to the white area to the right of Data.

   b. Double click, type Total Color Pages, and click OK.

3. Add a total for all color pages printed:

   a. On the right, click the Data tab, highlight Totals, right click, and select New Total.

   b. Change the value in Total name to Total Color Pages Printed.

   c. In Data column or expression, open Connection and Archive, and select TotalPages. Click OK.

   d. Drag the Total Color Pages Printed field into the white area on the right of Page Footer.

4. Click File ➔ Save. Close FastReport.

5. In Sentinel, delete the ColorPagesReport report by highlighting it and clicking Delete.

6. Register the report on the server by clicking Register Report, typing ColorPagesReport for the report name, navigating to the saved design, and clicking Register.

7. Run the report by clicking Run.

Scheduling Custom Reports

In this section you will schedule the ColorPagesReport report to run at a particular time.

To add a new scheduled report:

1. In the Sentinel web page, click the Accounting tab, the Reports tab, and the Schedule Report tab.

2. Click Add New.

3. Select a monthly report by clicking Add Monthly Schedule.

Field	Value	Explanation
Schedule Name	Monthly Color Report	
Report Name	ColorPagesReport	
Start Date	<tomorrow's date>	
Recur every [X] months	1	
To File	<path>SentinelMonth lyReport	Allows saving the report as one or more files: Add a file location by typing an existing path and a file name (without an extension, which Sentinel adds automatically) and clicking Add Path.
Export Format	PDF	

4. Click Save.

5. Run the report right now by selecting Monthly Color Report and clicking Run Now.

Monitoring and Administration

Several screens in Sentinel allow you to monitor print activities. You can see jobs that have been spooled but not printed, events that occurred in the system over a specified period of time, and errors and warnings.

Waiting Jobs

Click the History tab and the Waiting Jobs tab.

This screen lists print jobs that were sent to Sentinel, but have not yet been released.

Only administrators can see everyone's print jobs. Non-administrators can only see their own jobs.

You can use the search options to narrow the display to only print jobs answering specific criteria.

Each print job shows the job ID number, the print job name, the name of the user who sent it, the printer it was sent to, the type of printing (B/W, color, etc.), the current job status, the number of pages and copies, and the time it was spooled.

The available job statuses (shown in the Status column) are explained in the table.

Status	Explanation
Wait	The print job is waiting for a user to release it.
Held	The print job is held in the queue and will not be released, even when the Delete unprinted jobs after time period expires (defined for the user).
Resume	The job was held temporarily and is now waiting for the user to release it.

You can control the displayed print jobs. Select one or more jobs and click the relevant button.

Parameter	Explanation
Release Now	Releases selected print jobs to the printer immediately. Useful if there is a very **large print job that was sent and the user doesn't want to wait by the printer.** This option is not available if Allow Web Release is not selected in your user definitions.
Resume	Stops the hold.
Hold	Holds the print job and does not release it.
Delete	Deletes the print job.
Change selected jobs printer to:	Changes the destination printer to a different printer than the one to which the print job was sent. Select a printer and click Change. Since this action is performed automatically when identifying with an ID card at a different device than the one to which the print job was sent, this option is only useful when planning to release a print job with Release Now to a different printer.

History

Click the History tab (on the top menu level) and the History tab (on the lower menu level).

This screen displays all the events that occurred in the system within the defined period of time (defined in Settings).

The information displayed here depends on the level of permission you have. Administrators **can see everyone's** print jobs. Non-administrators can only see their own jobs.

You can use the search options to narrow the display to print jobs answering specific criteria.

Each print job shows the job ID number, the print job name, the user who sent it, the printer it was sent to, the type of job it is (B/W, color, etc.), the current job status, the number of pages and copies, and the time it was spooled.

The available job statuses are explained in the table.

Status	Explanation
Printed C	The job was released by a user using an ID card at a device.
Printed K	The job was released by a user typing a keypad code at a device.
Printed W	The job was released by selecting the job and releasing it from the Web interface.
Printed A	The job was released automatically either because the job was sent to a virtual device (IP = 0.0.0.0) or the user sent this print job defined as Auto Print for the user.
Printed P	The job was released after the user confirmed the printing via a popup window at the user station, or the user supplied a bill code.
Printed T	The job was released by a user using a temporary ID card at a device.
Copied	The job from a copier or a multifunction device was released.
Scanned	The job from a scanning station was released.
Deleted	The job was sent and manually deleted from the jobs menu.
Cleared	The job was sent and was not released when the Delete unprinted jobs after time period expired (defined for the user), and therefore was automatically cleared from the system.

System Events

Click the History tab and the System Events tab.

This screen displays the all events, errors, and warnings that occur in the system.

Synchronization with Active Directory

The Sentinel system offers several ways to connect and synchronize user details.

The Auto Sync settings control options related to synchronizing the User Table (Sentinel's own internal database of users) with external resources, such as the Active Directory (AD) or external SQL databases. Rather than having to manually enter information for each user, you can easily synchronize with existing information. This is useful when organizations maintain detailed user information in their Windows AD.

1. In the Sentinel web page, click the Settings icon (on the top right of the screen).

2. Click the Databases tab.
   The Auto Sync screen opens.

3. Select Enable Auto Sync.

NOTES:

- All field values are case sensitive.
- You cannot make changes to the values on this screen if Enable Auto Sync is not selected.

LDAP Synchronization

4. Select Use LDAP to get users from active directory.

5. Define values as shown in the table.

Parameter	Value	Explanation
Domain Name	<domain>	The domain name that has permission to access the AD.
Card ID field name	<field>	You can use any LDAP field; for example, if your organization doesn't use pagers, the Pager field (from AD) can be used as a Card ID field. If this were the case, you would type Pager here. If Use LADP Server to get users from active directory is selected, this field is the minimal required setting.
AD user	<user name>	The user name with permission to access the AD.
AD Password	<password>	The password associated with this user name.

You can match field names existing in your AD database with field names defined in Sentinel:

1. In From LDAP field, type the AD field name, e.g., extensionattribute1.

2. In To Field, type the corresponding Sentinel field name, e.g., KeypadCode.

3. Click Add.
   The new correlation is shown.

4. Add as many field name pairs as you like, clicking Add after each pair.

5. Click Save.
   Users are added into the system once they print. Users do not appear automatically unless they send a print job.

AD and SQL Synchronization

You may need to get data from more than one AD database:

1. Select AD and SQL Sync.

2. Type the Card ID field name under Use LDAP.

3. Type the User field name under Use SQL Server.

4. Type the Card ID field name under Use SQL Server.

5. Click Save. Synchronization begins.

6. Reminder: When you finish configuring, select Enable Auto Sync.

Mail2Print

Use Mail2Print to print email messages and attached files (documents and images). You can print by sending an email message, without connecting to your organization's intranet. You can also choose to allow guest printing for users who do not have direct access to the network. In addition, Mail2Print allows you to track printing jobs from mobile devices, tablets, and any device with access to e-mail.

Mail2Print is capable of processing and printing up to 2000 pages per hour, depending on the configuration of server hardware, available resources, and printed file types.

In this section you will set up Mail2Print for a user you defined earlier.

Later, you will set up Mail2Print for a guest user.

Mail2Print for a Recognized User

Let's set up Mail2Print for the second user you defined earlier.

If you want to manage the server load distribution, you can install Mail2Print on another server (not necessarily the Sentinel server).

Step 1: Install Mail2Print

1. Start the Sentinel setup and select Install Mail2Print.
   The Mail2Print wizard starts. Follow the prompts.

2. You will use the free version of Foxit Reader, so do not register it.

3. When prompted for the Database Server Connection String, insert the details (IP address or server name, database name, user ID, password) for the Sentinel database server as shown.
   Sentinel creates a printer driver for you called Mail2PrintPrinter.
   WARNING: Do not change any of the printer settings; in particular, the sharing settings.

4. Click Test Connection.

5. Select a printer driver from the list.

6. Click Done and restart the computer when prompted.

7. Verify that the Mail2Print service is active: Select Start → Run → services.msc.
   You should see Mail2Print in the list of services, with Status: Started.

Step 2: Define Mail2Print Settings

1. In the Sentinel web page, click the Settings icon (on the top right of the screen).

2. Click the Mail2Print tab.

3. Type the following values.

Field	Value	Explanation
Shared Queue	\<printer name\>	The Microsoft Windows share name of the printer that will be used to print Mail2Print jobs (case sensitive). NOTE: Do not select Mail2PrintPrinter. You can find the name in the printer properties (Start → Devices and Printers, select the printer, right click Printer properties, click the Sharing tab, Share name). It can be a physical or virtual printer and you must have configured it in the printers list before defining it as a Mail2Print shared queue.
Server IP Address	\<XXX.XXX.XXX.XXX\>	The Sentinel print server's IP address. This might not be the same server where Sentinel is installed if you are concerned about server load distribution.
Email Account	E.g., print@gmail.com	Name of the email account that receives the Mail2Print messages for processing. Must be a valid, existing address and should be dedicated to this purpose. (Users send the emails from their own email accounts, defined in the user settings.)
Incoming Server	\<YYY.YYY.YYY.YYY\>	IP address or name of the incoming mail server. E.g., imap.gmail.com.
Incoming Port	\<port\>	Port used at the incoming mail server. Default: 993. (993 is the port used by Gmail.)
Account Type	\<type\>	IMAP or POP3.
This server requires an encrypted connection (SSL)		Depends on the encryption of the incoming mail server settings.
Outgoing Server	*\<ZZZ.ZZZ.ZZZ.ZZZ\>*	IP address or name of the outgoing mail server.
Outgoing Port	\<port\>	Port used by the outgoing mail server.
User	E.g., mail@gmail.com	User name (often an email address) used by Sentinel to log into the incoming mail server.
Password	\<password\>	Password used by Sentinel to log into the incoming mail server.
Activate domain accounts only	Deselect	Allows Sentinel to only process email messages that are sent from email addresses from the organization's domain name. Default: selected.
Notify me when ready	Select	Allows sending response messages to the user indicating the status of the job.
\<Enable printing attached files of these types\>	Select Print PDF files	The file types that are allowed to be printed (when attached to an email). To print the message body, you must select Print TXT files.

4. Click Save.

Step 3: Test Mail2Print

1. Locate a PDF file.

2. Open your email account using the [email address defined for the second user](#).

3. Create a new message and attach the PDF file. Type a subject.

4. Send the email to the incoming email address defined in the table above, e.g., print@gmail.com. Mail2Print opens the attachment and prepares it for printing. Within a minute or two, Mail2Print sends you an email message indicating success or failure of printing.

5. Go to any pull printing printer and collect your printout.

Mail2Print for a Guest

Now, let's set up Mail2Print for a guest user.

Step 1: Define Mail2Print Settings

1. In the Sentinel web page, click the Settings icon ⚙ (on the top right of the screen).

2. Click the Mail2Print tab.
   You will see the configuration you defined earlier.

3. In addition, define in the following values.

Field	Value	Explanation
Guest Budget	100	The print cost limit per guest. If Sentinel cannot recognize the email of the sender, Sentinel treats the sender as a guest, so it is wise to set a budget limit for guests. (Each guest has their own budget.)
Key Size	5	The number of numeric characters that the unregistered users (e.g., guests) should use in the subject field of the email message as an identification code. The subject field must not contain anything else. Default: 5.
Allow Mail2Print Temp User	Select	Allow guests to use Mail2Print.

4. Click Save.

Step 2: Test Mail2Print

1. Locate a PDF file.

2. Open email using an email address that is not recognized by Sentinel.

3. Create a new message and attach the PDF file.

4. Type 55555 as the subject of the email.

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5. Send the email to the incoming email address defined earlier, e.g., print@gmail.com.
Mail2Print opens the attachment and prepares it for printing. Within a minute or two, Mail2Print sends an email message to the guest email address, indicating success or failure of printing.

6. Go to any pull printing printer. On the control panel, type 55555 as the keypad code. Collect the printout.

Now you have used Sentinel to perform the major functions. Continue working with Sentinel, and read the online help where necessary by clicking the Help button .

Troubleshooting

This section covers errors or problems that can arise when operating Sentinel. If the suggested solution does not solve the problem, or if you experience a problem not listed here, contact your Sentinel technical support provider.

For problems relating to installing Sentinel or starting the Sentinel web page, refer to the Troubleshooting section in the Sentinel Installation Guide.

For explanations related to daily Sentinel operation, refer to the on-line help in the software by pressing the Help icon .

Wrong username appears in the web interface	
Symptoms	When running the Sentinel web page, the same user name always appears (usually starting with the prefix "IUSR_").
Cause	This error occurs when IIS uses Anonymous access instead of Integrated Windows authentication.
Resolution	1. Go to IIS Settings (Start → Settings → Control Panel → Administrative Tools → Internet Information Services). 2. Expand Local Computer\Web Sites\Default Web Site. Right click Sentinel and select Properties. 3. In the Directory Security tab, click Edit. The Authentication Methods dialog box opens. 4. Ensure that Anonymous access is not selected and Integrated Windows Authentication is selected, and click OK twice.

Error message on device: "Aborting 0201/0400" or "Connection Error 03"	
Symptoms	On a BSI-enabled printer, the user tries to enter the ID and gets the **error: "Connection failed to server. Check network settings."**
Cause	The Sentinel server is not active or the device is configured with the wrong IP address.
Resolution	Check network settings and that the Sentinel service is active.

Could not use "; file already in use	
Symptoms	When trying to start the Sentinel web page, you get the error: "The database is currently locked by the Sentinel **service because the right permissions haven't been set** for it."
Cause	Verify this by stopping Sentinel: 1. Go to Windows Services (Start → Settings → Control Panel → Administrative Tools → Services). 2. Stop the Sentinel service by right clicking Sentinel and selecting the Stop option. 3. Refresh the Sentinel web page. It should load without the problem.
Resolution 1	1. Make sure the service is running. If you stopped it, start it again (in Windows Services, select Sentinel and click Start) 2. Open File Explorer and navigate to C:\Inetpub\wwwroot\Sentinel\App_Data\. 3. Right click Sentinel.mdb and click Properties. 4. Click the Security **tab. If you don't see a** Security tab, close the Properties window, and from the Tools menu, select Folder Options. Click OK, confirm, and go back to

the folder. Right click Sentinel.mdb and select Properties. This time, you should see a Security tab.

5. Select the Security tab and click Add.
6. In the textbox, type Everyone and click OK.
7. Click Everyone and select the checkbox Full Control under Allow. It automatically marks all other checkboxes under Allow. Click OK.
8. Repeat these actions with Sentinel.ldb.

Resolution 2	If the previous steps did not resolve the problem, do this: 1. Open IIS Manager and expand the master server node (the Servername node). 2. Under Web Sites → Default Web Site, right click Sentinel and select Permissions. 3. Click Everyone and select the checkbox Full Control under Allow.

Service unavailable error

Symptoms	When trying to start the Sentinel **web page, you get the error: "Service Unavailable".**
Cause	This may occur if the server running Microsoft Internet Information Services (IIS) 6.0 is also a domain controller. The problem occurs because the Application pool is using the NT Authority\Network Service account, and the account does not have permission to access the required folders.

Resolution	Manually set permissions on the folders for the IIS_WPG group, and then set permissions on the folders for the NT Authority\Network Service account.
	To set permissions on the folders for the IIS_WPG group and the NT Authority\Network Service account:
	1. Start Windows Explorer, and then open the folder **%**systemroot%\Help\iisHelp.
	2. In the right pane, right click the Common folder, and click Sharing and Security.
	3. Click the Security tab, click Add, type IIS_WPG, and click OK.
	4. With IIS_WPG selected, select the following checkboxes under the Allow column, and click OK:
	  • Read and Execute
	  • List Folder Contents
	  • Read
	5. Repeat the previous step with NETWORK SERVICE instead of IIS_WPG.
	6. Open the folder **%**systemroot%\system32\inetsrv. In the right pane, right click the ASP Compiled Templates folder, and click Sharing and Security.
	7. Click the Security tab, click the IIS_WPG group, and select the Full Control checkbox under the Allow column. Click OK.
	8. Repeat the above step with NETWORK SERVICE instead of IIS_WPG.
	9. Open the folder %systemroot**%**. In the right pane, right click the IIS Temporary Compressed folder, and click Sharing and Security.
	10. Click the Security tab, click the IIS_WPG group, and select the Full Control checkbox under the Allow column. Click OK.
	11. Repeat the previous step with NETWORK SERVICE instead of IIS_WPG.
	12. Restart the IIS Admin service from the Services snap-in or from the Computer Management snap-in.

Sentinel menu options not showing (Internet Explorer)

Symptoms	Some versions of Internet Explorer (IE) consistently do not display Sentinel menu options or the Report Viewer correctly.
Cause	Browser incompatibility.

Resolution	Change the IE option for Compatibility View by clicking the icon 🖻 on the IE toolbar.

Job ID number is inconsistent or not advancing

Symptoms	Job IDs appear incorrect or the same for several jobs.
Cause	Sentinel saves the last job number as a key in the registry. This key must have write access permission for all the users using the system. If not defined for all users (usually full control for everyone for this specific registry key), then Sentinel cannot advance the last job ID and the job numbers remain the same. Another possibility is that Sentinel **can't access the** registry key at all. In this case, Sentinel assigns a random number as a job ID, but if there are many jobs, the numbers can sometimes collide.
Resolution	Add write permission to the Sentinel registry key.

Error in file C:\WINDOWS\TEMP when trying to make reports

Symptoms	When trying to make any (standard) report from the Sentinel system, you get the error: **"Error in File C:**\WINDOWS\TEMP\SumPrinter{<ID>}.rpt: Access to file denied. Another program may be using it**".**
Cause	Sentinel is using Crystal Reports to create its reports, and it requires access to the Windows temp folder to make temporary calculations before generating the reports. This error occurs when Crystal Reports does not have access to the Windows temporary folder (usually c:\windows\temp).
Resolution	Add write permission to the Windows Temp folder.

New print jobs don't appear in the Waiting Jobs list

Symptoms	When printing from the server where Sentinel is installed, the new print jobs appears in the Sentinel web page, but when printing from other workstations using other user logins, the jobs do not appear in the Waiting Jobs screen.
Cause	When printing from other workstations to Sentinel, two actions are performed: • F and H files are created in the folder c:\Sentinel\queue. • A process (Submitter.exe) is run on these files. The process inserts the information about these files into the database. **There are two variations for this error: either the files don't appear in the queue folder at** all, or the files appear in the queue folder but the information is not recorded in the database.
Resolution	• **If the files don't appear in the queue folder, add permissions for this folder to** Everyone and give Full Control to the folder (usually c:\Sentinel\queue). • If the files appear in the queue folder but are not recorded in the database, manually record them into the database using the command: c:\Sentinel\submitter.exe c:\Sentinel\queue\Hxxx (where xxx is the file number). If the file is recorded now, then it means that the print **process which runs under the user's login name do**es not have permission to run the submitter process. Give permissions for Everyone as Full Control in the folder c:\Sentinel. • If you cannot manually submit the file (i.e., running the DOS command as described above) fails, check that the connection string to the database is correct in the registry (key: HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Sentinel\ secure\DbConnectionString).

Unnecessary values in Temp Card ID and Keypad Code

Symptoms	You want to delete old values of the fields Temp Card ID and Keypad Code from the user table.
Cause	Typical Sentinel system use.
Resolution	Run from the folder where Sentinel is installed (default: c:\Sentinel). Syntax: • DelKeypad.exe –dt – Deletes the Temp Card ID values for all users. • DelKeypad.exe –dk – Deletes the Keypad Code values for all users. For example, putting DelKeypad.exe –dt in a scheduler that runs each night deletes all temporary cards assigned during the day.

User names not synchronized with Active Directory

Symptoms	You want to delete users existing in the Sentinel database but not existing in the Active Directory/SQL server from where the automatic synchronization is performed.
Cause	Typical Sentinel system use.
Resolution	Run ADUserSync.exe or SQLUserSync.exe from the folder where Sentinel is installed (default: c:\Sentinel). Use the utility appropriate for the defined synchronization type. If you want some users not to be deleted from the Sentinel database even though they **don't exist in the Active Directory/SQL server, select the** Exception User checkbox in the User Properties screen. For more information about automatic synchronization, see the Sentinel online help (click the Help button).

Cannot create LUA scripts

Symptoms	When trying to create scripts using the LUA scripting language, an error message appears saying LUA has not been installed.
Cause	LUA is the scripting language of Sentinel. It must be installed for you to be able to compile and execute scripts. Before first use, you must install LUA installation manually.
Resolution	1. Run the LUA setup file located in the Sentinel installation directory (default C:\Sentinel\). 2. Follow the instructions. Upon completion, Sentinel starts its configuration wizard, to make sure that the essential settings and configuration for Sentinel are correct and available. The wizard also sets up the proper permissions and security details.