

Chapter – 4 (Appendix 1)

Background and Specification

1. Need for a Centralized Print Management Solution

The student community in universities often face great inconvenience due to the lack of a photocopy and printing facility at any of the academic campuses. Students need to take print outs and photocopies for various purposes such as printing resumes before interviews, assignments, lab submissions, travel tickets, forms etc. Moreover printing, scanning and photocopying is a basic facility which students of any prime technical institute must have. If these facilities are provided within the campus, especially, within the academic pods/hostels, it would be a boon to students.

Campus-wide printing and copying is an activity for any institute/university to manage. If one wishes to give students and faculty access to network printing, but without a chargeback mechanism the risk of overuse is quite high. Also, there should be an account of print outs taken or photocopies made in various section on the institute such as Academic Section, Finance and Account Section, Administration Section, Purchase Section, Estate section, etc. Security is another challenge, and restricting access to printers is at best inconvenient. At the same time, concerns about environmental sustainability and paper waste are growing.

A powerful and easy-to-use output management solution that takes on all of these challenges at the same time is required which is specifically designed to help universities regain control over campus-wide printing and copying, account for and recover costs, ensure convenience without sacrificing security, and encourage responsible printing that minimizes waste. A print management solution should -

- Enable unprecedented control of the output environment.
- Make it easy to set up campus-wide rules for output and enforce them, consistently and automatically, to promote responsible printing and minimize wasted paper and toner.
- Use a unique method of print distribution that enables extremely convenient “anyone, anywhere” printing and significantly improves the security of hard copy documents.
- Do what no other single solution can — track every print and copy job on the network. This helps universities eliminate “free” network printing, reduce total print volume and recover thousands in output costs.

- Should work with Campus Cards for automated payment for print/photocopy. This alleviates the inconvenience caused to students standing in queue in print/photocopy shops for low volume printing (< 50 pages).
- Should be able to integrate any printer make/brand.

2. Requirement of the print management solution

A print management solution should -

1. Be a tested, reliable system proven to work with a range of printing devices.
2. Be a 'one solution' that keeps track of output from all connected printers and copiers.
3. Generate the information one needs to perform accurate charge backs for all print and copy costs.
4. Discourage waste and abuse, and enforce rules for output.
5. Let users send files to print from one location — then pick them up across campus.
6. Securely releases documents for output after users authenticate at any device.
7. Set up page quotas for students, faculty, staff and visitors.
8. Use flexible pricing to give students a “spending limit” of free prints
9. Charge varying rates for faculty or guests.
10. Charge extra for any pages over a user’s quota or charge more for colour, encouraging users to print only what they need.
11. Redirect large jobs (+50 pages) to a high-volume multifunctional product (MFP)
12. Eliminate unnecessary printing by allowing users to delete jobs sent in error.
13. Automatically delete jobs that are abandoned in the print queue, so they are never printed.
14. Support campus-wide environmental sustainability effort.
15. Hold documents in a secure server and prints them only when users authenticate at the device of their choice via PIN code or campus card.
16. Prevent exams, evaluations and other confidential documents from sitting unattended in output trays.
17. Ensure security without restricting devices for faculty- or student-only use.
18. Enable users to collect print jobs from any device on the network, anywhere on campus — including satellite campuses.
19. Enable accurate chargeback to students, faculty, administrators, staff and guests.
20. Allow chargeback to departments or specific funding sources (e.g. grants).
21. Work with existing printers, MFPs and copiers.
22. Adapt to any size fleet, across multiple campus locations.
23. Enable reliable data collection for fleet management and cost optimisation.
24. Integrate easily with Windows®, NetWare, Macintosh and UNIX environments.
25. Connect with printers, copiers and MFPs from many manufacturers, so it works with the existing fleet.

26. Integrate with the most popular campus card systems.
27. Provide extensive control while reducing the burden on IT department.

Bidding firms should meet all the above mentioned requirement along with the technical and other requirements mentioned in Appendix- 4, 5 and 6.

3. Scope of Work

The scope of work for the eligible firms are as follows

a. Integration of print management solution with printers

- Currently five multifunction printers (**MFD's will be of different brand**) are to be integrated with the proposed print management solution. Soon after implementation and testing, this may be extended to more number of printers of different brand (**at least 10 to 15 top printers brands such as Xerox, Canon, HP, Lexmark, Ricoh, Epson, Samsung, Brother, Konica minolta, Kyocera, Sharp, Toshiba and other popular brands**) depending on the requirement.

The existing brand of Printers are : Canon, Xerox, Ricoh etc. However, the firm should be able to integrate the existing Canon, Xerox and Ricoh printers available in the institute. Kindly note that it is not necessary to mention the brand name (although there is not harm if included) as the firm should be ready to integrate any printer brand as per the scope of work.

Centralized print management solution means that all the printers are managed through a central software that can control all the printers in the institute. This is possible only when printers are network printers. Again, a central facility is for everyone to use and not for individual user. The entire document talks about this

b. Integration with existing campus card software for access and payment through campus cards.

The institute currently has a campus card facility. The print management solution has to be integrated with the campus card software so that the users (**1500 users**) can access and pay for the print/photocopy services through their smart card. Technical specification of the Campus Card is given in [Appendix 2](#) and the API for integration with the existing Campus Card Software for payment through smart card is provided in [Appendix 3](#).

c. Training to users

After successful implementation the firm has to give a demo/presentation to all the users.

(Appendix 2)

Technical Specification of Campus Card to be used for access and payment

Technical Specification
MIFARE 14443A Contactless Smart Card

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(Appendix 3)

API for Campus Card Switch

(To be used for integration with the existing Campus Card Software for payment through Campus Card)

1. Introduction

This document briefly explains about the version 4 switch process and the parameters need to be integrated with it.

2 Switch Process

For integrating to Carry cash in card (C3) switch, We have to pass the someparameters along with the request. They are

Business transaction code , Amount, card number, card balance, transaction mode, date time of the transaction, transaction number, Terminalid, database, Mac ip of the terminal.

At the time of getting request from the device, Switch Application validates the business transaction, Transaction number, terminal id and macip. Each and every transaction logs will maintained in the database.

Example Request URL:

https://192.168.0.122:450/Switch/Process.aspx?BT=11&AMT=0&SCID=9001100000010510&CBAL=0.0&MODE=O&DT=2015-07-04_11:29:03&TNO=00001&TID=1&DB=7&MAC_IP=7C:F0:BA:00:12:8B

https://192.168.0.122:450/Switch/Process.aspx: Describes the Website URL

BT: It describes the registered business transaction code.

Only C3 registered business transactions are allowed to do the transactions. Ifunregistered business transaction id came, switch will give the response like

Status code:1013

Status Description: Invalid Business transaction

Example Business transactions:

BT=1 for Recharge request

BT=11 for load balance into card

BT=28 for Read Card Number

BT=92 for PACL Library etc..

Amount: Amount parameter describes the transaction charged amount.

Once the request URL is validated, it will validate the card amount and account balance, If there is no sufficient balance, it will not process the request. It will give the response as

Status code:1015

Status Description: In sufficient balance

Example:

AMT=10.00

SCID: It describes the smartcard number of the account holder. If the card number id invalid, it will give the response as

Status code:1014

Status description: Invalid card number

Example:

SCID=9001100000010510

Mode: C3 supports both online and offline transactions. So we have to give the transactions mode in the request parameter.

Mode=O for online

Mode=F for Offline

DT: Describes the date and time of the transaction

Example:

DT=2015-07-04_11:29:03

TNO: It describes the transaction number. Each and every transaction have one uniquenumber. We have to Pass the Unique number from the device to switch. If we pass the multiple time same transaction number, that transaction will not be processed on the switch side. Switch will send the response as like

Status code:1010

Status Description: Transaction already processed

Example:

TNO: 00001

TID: It describes the id of the C3 registered terminal(device). Only registered terminals are allowed to process the request. If The terminal id not matches, the transactions will not process on switch side. It will send the response as like

Status code:1011

Status Description: Invalid Terminal

If the terminal id is exists, then it will process the request

Example:

TNO=1

DB: It describes the database id of the device.

Example: DB=7

MAC_IP: It describes the MAC Ip of the registered terminal, If the mac ip is not existis in the C3 system, then switch will give the response as,

Status Code:1011

Status Description: Invalid Terminal

Example : MAC_IP=7C:F0:BA:00:12:8B

If the transaction is processed successfully, It will update the balance of the account holder into the database and it will log the transaction details into the database & switch will give the response as

Staus code=1000

Status Description= Transaction Successful

If the transaction is not successful, it will give the appropriate message as a status description along with the status code.

Appendix - 4: Functionality Statement

A - Status of Requirement (Weightage); **B**- Supplier's response compliance to requirements (Yes/No);
C- Suppliers response (Maximum 200 words). Please avoid providing yes/no only answer.

S.No	Print Management Software Requirements	A	B	C
1.1	Printing Controls and Options			
1.1.1	Renowned software solution: The PMS should be an established system with a demonstrable market presence worldwide. Be a tested, reliable system proven to work with a range of printing devices.	M		
1.1.3	Document type: Printing of common types of documents, for example spreadsheets, word, presentations, project, PDF's and internet pages	M		
1.1.4	Print controls: Support a range of print options including but not limited to: <u>print to a nominated MFD</u> and print to <u>any MFD</u> , colour, choice of paper size, print current page or range of pages, number of copies and print preview.	M		
1.1.5	Available options will be managed by the System Administrator. Devices will print mono and duplex as the default settings. Selected options can be locked down by a System Administrator if required	M		
1.1.6	Restrict colour printing: Allow administrator to restrict colour printing to specific users.	M		
1.1.7	Restrict number of prints per job and controls around duplicate requests to prevent users circumventing the restrictions	M		
1.1.8	Rules and Restrictions: Where the number of prints exceed a specified threshold, option to re-route the job to a central print unit.	M		
1.1.9	Sending print jobs to students account: The PMS should allow faculty members to send print jobs (class notes/syllabus) to students account.	M		
1.1.10	Any PC to any Printer: Allow users to print from any PC in the institute	M		
1.1.11	Preview cost: Allow students (<u>around 1000</u>) to preview print cost while submitting the job	M		
1.1.12	Let users send files to print from one location — then pick them up across campus.	M		
1.1.13	Charging according to coverage area: In case of color printing, charge users according to the print coverage area	M		
1.1.14	Page Quota: Set up page quotas for students, faculty, staff and visitors.	M		
1.1.15	Charge extra for any pages over a user's quota or charge more for colour, encouraging users to print only what they need	M		
1.1.16	Charge varying rates for different category of users (students, guests, etc).	M		

1.1.17	Eliminate unnecessary printing by allowing users to delete jobs sent in error.	M		
1.1.18	Automatically delete jobs that are abandoned in the print queue, so they are never printed.	M		
1.1.19	Redirect large jobs (+50 pages) to a high-volume multifunctional product (MFP)	M		
1.1.20	Allow charge back to specific departments or specific funding sources (grants).	M		
1.2 Accounting				
1.2.1	Be a 'one solution' that keeps track of output from all connected printers and copiers. Internal cost charging/monitoring/reporting available at various levels: Department, cost centre or individual user.	M		
1.2.2	Remote management activity including consumables or device fault monitoring	M		
1.3 Confidential Printing				
1.3.1	Print to a nominated device without secure printing controls	M		
1.3.2	Print to a nominated device with secure printing controls. Enter a PIN code/fingerprint specific to a service area.	M		
1.3.3	Print to a nominated device using a unique PIN code. The print request is restricted and can't be accessed by any other user from the print queue list	M		
1.3.4	Print to any device (any printer, any brand) using NFC Card with PIN/fingerprint to release the job. The print request is protected and can't be accessed by any other user from the print queue list.	M		
1.4 Scanning				
1.4.1	Supports scan to email – apply restrictions to authorised end users if required	M		
1.4.2	Supports scan to a network file –apply restrictions to authorised end users if required	M		
1.5 Infrastructure				
1.4.1	<i>Please supply minimum hardware requirements which your solution is required to run on including but not limited to: -Server Platform -Database Type -Database Size (estimated) -Hard disk Capacity -Minimum System Memory Also suggest what should be the Hard Disk Capacity for around 3000 users who would be using around 100MB as file storage quota.</i>	PI		

1.4.2	Please provide details of how the solution is licenced	PI		
1.4.3	Does your solution require any 3 rd party software? Please provide details of licences and cost in the pricing schedule	PI		
1.4.4	The solution must be compatible with a popular card reading systems, especially, NFC Cards (Mifare 14443a Cards) for access, and payment (once integrated with the existing campus card system).	M		
1.6 Reporting				
1.6.1	Browser based reporting tool to produce a range of reports in various formats including but not limited to spreadsheet, word and PDF. The type of reports will include but not restricted to number of copies and spend by: device, Service Area, user, mono and colour, paper size, number of individual jobs submitted, image type (print/scans/faxes) against a specified frequency (day, week, month)	M		
1.6.2	The software must be capable of reporting failed print and scan to email jobs	M		
1.7 Security				
1.7.1	Describe how the product can provide secure authentication protocols and accessibility levels for the Normal User, Privileged User (System Administrator), Supplier System Administrator and Public User.	PI		
1.7.2	Describe if and how the system is capable of disabling unnecessary management protocols and how this can be achieved.	PI		
1.7.3	Describe how the non-volatile storage/memory is handled (in accordance with Information Security Standard No: 5 Secure Sanitisation of Protectively Marked Information) to dispose of any data prior to leaving authority premises for replacement or repair.	PI		
1.7.4	Describe how the patching and security updates will be performed.	PI		
1.7.5	Where a device requires remote connectivity from the Supplier for repair and/or maintenance, please describe how this can be achieved securely over the internet and within the boundary of the network.	PI		
1.8 System Administration				
1.8.1	The system must permit different access levels for individual users and groups, e.g. System Administrator, Super User	M		
1.8.2	The System Administrator must be able to resolve problems with print queues.	M		
1.8.3	The System Administrators should be able to set-up or disable users and if possible the system should maintain a history of previous users with start and end dates	M		
1.8.4	Please provide info on server back-up.	PI		

1.9 Integration multiple printer brands			
1.9.1	IIT-I is seeking a universal software solution that will work with a range of different devices. That is, the print management software solution must be compatible with majority of the manufacturer's equipment (at least 10 to 15 major printer brands) and should be able to integrate more than 100 printers.	M	

M - Mandatory, PI- Provide Information

Appendix - 5: Implementation Statement

A - Status of Requirement;

B- Supplier's response compliance to requirements (Yes/No);

C- Suppliers response (Maximum 200 words). Please avoid providing yes/no only answer.

M - Mandatory; PI- Provide Information

S.No	Print Management Software Requirements	A	B	C
1 Implementation timescales				
1.1	Please provide info on how implementation is of the print management solution is going to be done.	PI		
1.2	Is the team from the firm going to visit IIT-I for installation? or the installation would be done by the partner of the supplier.	PI		
1.3	The project should go live (integration of all printers and integration with smart card facility) within one month from the date of deliver of software and devices.	M		
2 Training				
2.1	Training has to be provided to all the users of the Print Management System to be implemented. Please explain how you are going to train (a) the users (b) IT Administrators Is the training going to on-site/online?	M, PI		
3 License				
3.1	Is the software license perpetual or should be renewed after a specified no. of years?	PI		
3.2	Does the software allow infinite number of users to be added?	PI		
4 Renewal of licence				
4.1	How can the software be licenced after a period of 5 years? and what are the licence costs if the no. of users exceed 1500 (and devices, if any)?	PI		

Appendix - 6: Support Statement

A - Status of Requirement;

B- Supplier's response compliance to requirements (Yes/No);

C- Suppliers response (Maximum 200 words). Please avoid providing yes/no only answer.

M - Mandatory; **P**- Provide Information

S.No	Print Management Software Requirements	A	B	C
1 Support				
1.1	Helpdesk support must be available during working hours of institute (IIT-I). Please describe response and resolution times and escalation procedures for the following types of problems:- 1) Critical Fault (Business critical) 2) Material Fault (Interruption to normal services) 3) Cosmetic Fault (non- serious) Provide details of out-of hours support available	M,PI		
1.2	Is remote support available?	M, PI		
1.3	On-site support must be provided should the problem require this level of help. Is this chargeable, and on what basis?	M, PI		
2 Continuous Improvement				
2.1	Please supply details on who installs new releases? If they have to be installed by the supplier is this chargeable?	PI		
2.2	Where a device requires remote connectivity from the Supplier for repair and/or maintenance, please describe how this can be achieved securely over the internet and within the boundary of the network.	PI		
3 Future system development				
3.1	There must be an active development programme for the system and all statutory/legislative changes must be provided for in the future. Please confirm that this is the case:-	PI		
3.2	Please provide details on how often new releases are provided? Is there a charge for releases containing new functionality, and what is the basis of the charge?	PI		

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