V1 Purchase Invoice Automation for Sage X3 with OCR Data Capture Standard Solution Design

R12.1 plus Hotfix 4518
15 September 2017

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Document Control

Amendment History

Revision	Date Issued	Author	Description
1.0	9 March 2017	Richard King	Re-written for Release 12
1.1	29 June 2017	Richard King	Changes to Non-PO invoice handling
1.2	15 September 2017	Richard King	Hotfix 4518

Contents

1. Introduction

1.1 Purpose of the Document

The purpose of this document is to detail the V1 Purchase Invoice Automation (PIA) solution with OCR (DbCapture) for Sage X3.

The document describes the 'Standard' V1 solution for Sage X3. The purpose of the standard solution is to provide a comprehensive solution suitable for the majority of small to medium-sized Sage X3 users in a minimal timeframe. A greater degree of customisation is possible with a bespoke project, but that would entail additional scoping and specification and is beyond the scope of this document.

Site-specific configuration details will be captured in the Appendices to this document in order to provide a complete 'Handover' to the Professional Services team for implementation.

1.2 Overview

This document is based on Release 2.2 of the V1 Document Management suite of applications and on Sage X3 V11. This solution is specifically for the standard 'On Premise' edition of Sage X3 rather than the Cloud solution. The standard is suitable for Sage X3 version 6.5, PU8, PU9 and V11. For the latest compatibility, please refer the V1 portal at http://support.wearev1.com/software/x3

The details within the document set out the approach to providing a solution to capture and validate details from supplier invoices, to integrate with Sage X3, to reduce the amount of time required to check, match, approve, input, analyse, file and retrieve supplier invoices.

In most respects, throughout the document, the term 'invoice' can be taken to mean 'invoice or credit note'. It should be noted of course that there will be some differences in how credits are processed from invoices.

2. Solution Description

2.1 Introduction

The focus of this document is the capture, processing and secure archiving of purchase invoices and credit notes. The V1 Purchase Invoice Automation (PIA) solution is based on the V1 Electronic Document Management (EDM) solution for Sage X3 which handles many other types of documents in addition to purchase invoices. The V1 EDM solution for Sage X3 is covered in more detail in a separate document.

This solution covers processes for dealing with two types of invoice:

- **Purchasing Invoices** being invoices relating to Purchase Orders or to Product Items within Sage X3
- **Supplier BP Invoices** being invoices processed for payment without an order having been raised in Sage X3

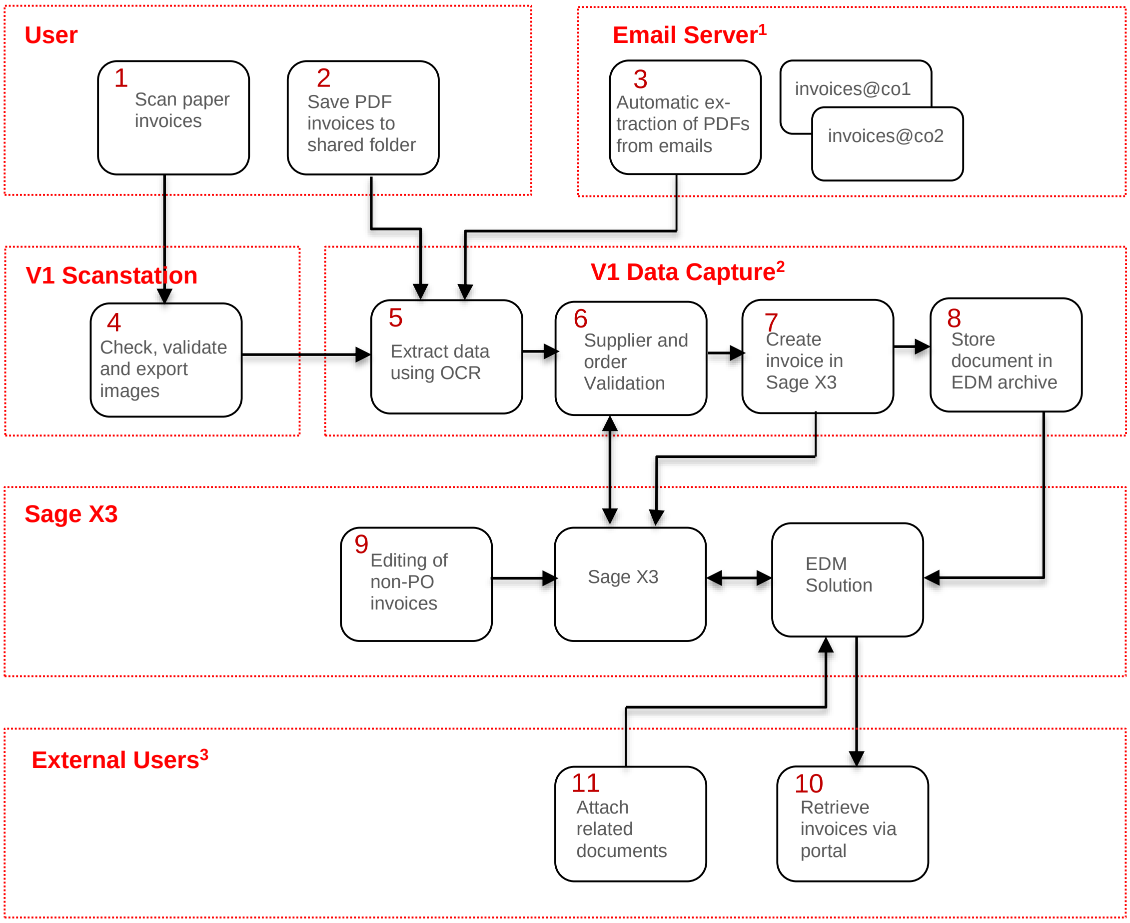
The features within the scope of this standard solution are:

- **Batch Scanning of Paper Invoices** using the V1 Scanstation software either with a dedicated scanner or images from a multi-function copier
- **Automated Import of PDF Invoices** from emails and shared folders
- **Invoice Data Capture using Optical Character Recognition (OCR)** with manual correction/completion where necessary
- **Matching of Purchasing Invoices** to receipts or order lines in Sage X3
- **Secure storage of invoices** using the EDM solution
- **Viewing of archived invoices** and related documents from Sage X3
- **Search and retrieval of invoices** and related documents outside of Sage X3 via the EDM portal (requires external user licences)

Related functionality provided by the EDM solution:

- **Automated storage and emailing of Purchase Order documents**
- **Scanning and archiving of supplier delivery notes / GRNs**
- **Scanning or manual depositing of related documents** using the V1 Scanstation or Deposit client
- **Automated emailing and archiving of Remittance Advices**

2.2 Solution Overview



Notes

1 Invoices are picked up from mailboxes using POP3 or POP3 over SSL. The solution supports local email servers such as Microsoft Exchange, Postfix, Domino, etc and hosted providers such as Google Mail and Microsoft Office365.

2 For small and medium-sized businesses, the V1 Data Capture system will be installed on the Sage X3 App server. The EDM Solution is always installed on the Sage X3 application server.

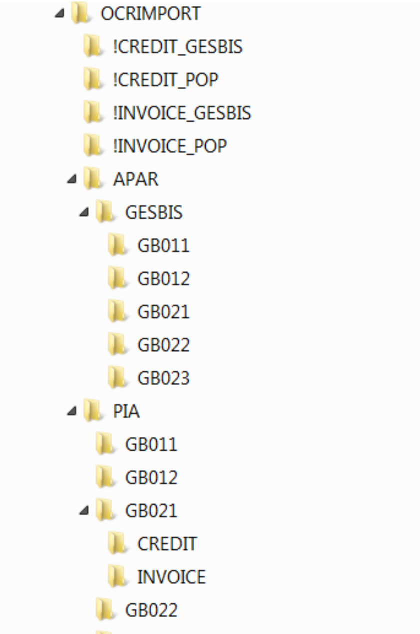
3 To retrieve invoices and attach related documents outside of Sage X3, External User licences for the EDM Solution are required.

2.3 Purchase Invoice Automation - Step by Step

1. Invoices received on paper will be scanned on receipt. For optimum OCR results and most efficient storage, it is recommended that the scanning be done using a dedicated workgroup scanner attached to a PC running the V1 Scanstation with VRS technology.

   Batches containing multi-page invoices or invoices with supporting documents can be scanned with separator sheets or barcode labels to avoid manual collation of pages in the Scanstation software. Where the majority of invoices consist only of a single page, the user may prefer to separate single-page and multi-page invoices into separate batches for scanning to save time inserting separators.

2. Invoices received via email as PDF files can be dropped into a shared folder for automated processing. A series of folders will be created automatically for each site defined in Sage X3.



The folders with names starting with an exclamation mark can be used for invoices for any site in the folder.

If the site is known, invoices can be dropped into the specific sub-folder. The folders under PIA should be used for Purchasing Invoices and the folders under GESBIS for Supplier BP Invoices.

If credits are inadvertently dropped into a folder for invoices, the document type can be changed later.

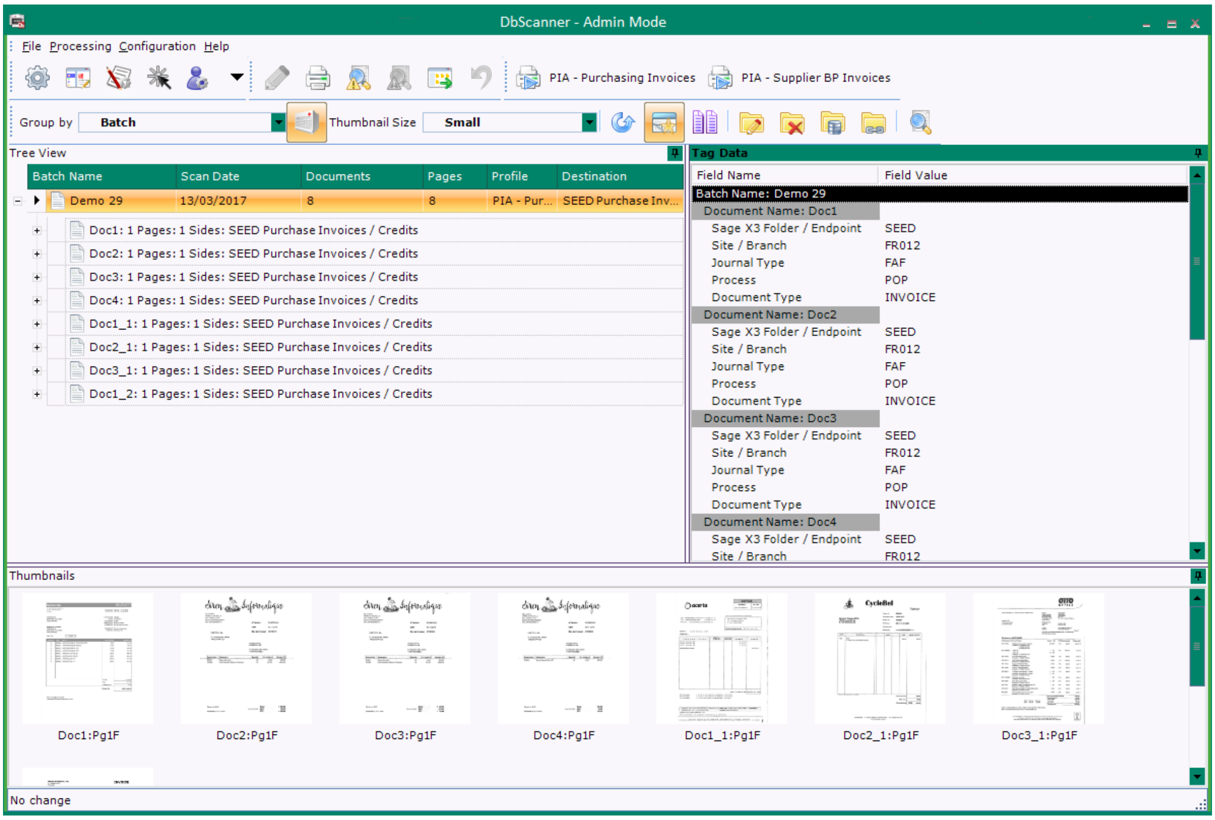
While the system only handles PDF invoice attachments, other formats such as Word .doc/.docx files and Excel files can be converted to PDF format using a printer driver. Care should be taken to use a consistent process for converting invoices so that the page size, etc does not vary from document to document. Ideally, you should ask your suppliers to supply invoices in PDF format as PDF is a well-established international standard for long-term document storage.

Please note: The standard solution requires PDFs which contain only a single invoice. Each invoice may contain multiple pages and any number of invoices can be attached to a single email. PDFs should not require a password to view.

3. If you have an email server that supports the POP3 protocol, PDF attachments can be automatically extracted from incoming emails and placed into one of the shared folders for automated processing. Suppliers should be given a dedicated email address to use just for PDF invoices. The mailbox polling software will automatically import all PDF attachments received in the nominated mailbox. Statements and copy invoices can be rejected during the data validation. Emails without PDF attachments will be left in the mailbox for manual checking.

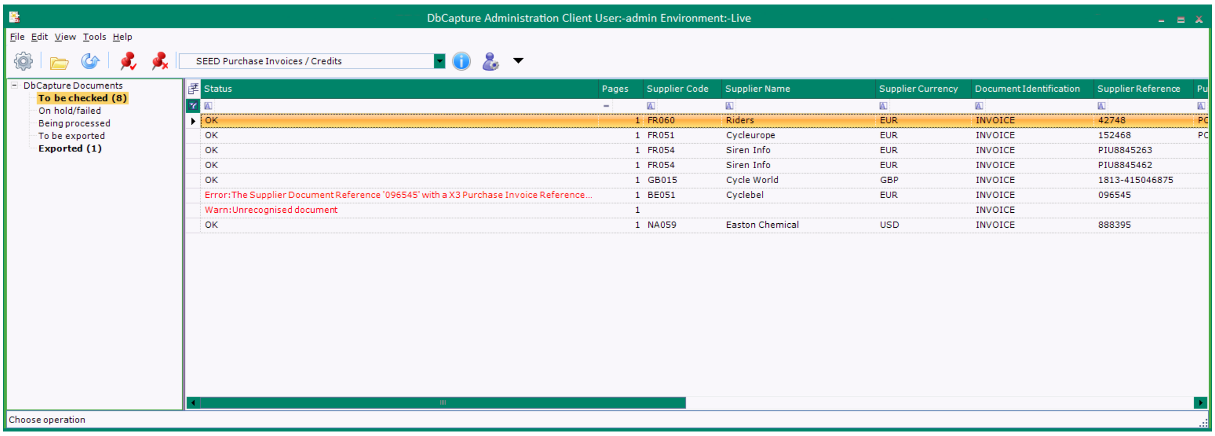
4. The V1 Scanstation software is designed to control a dedicated scanner with an Automatic Document Feeder (ADF) ensuring optimal image quality and allowing automated image clean-up, auto-rotation, de-skew, auto-crop, etc using the full capabilities of the scanner and ‘Virtual Re-Scan’ (VRS) technology.

   Images from networked scanners and multi-function copiers can be imported into the scanstation, but a reduced level of functionality will be available. This may mean images which take more space and less accurate OCR processing. Networked scanners and multi-function copiers will need to be configured to scan to a supported file format by the supplier or a trained administrator.

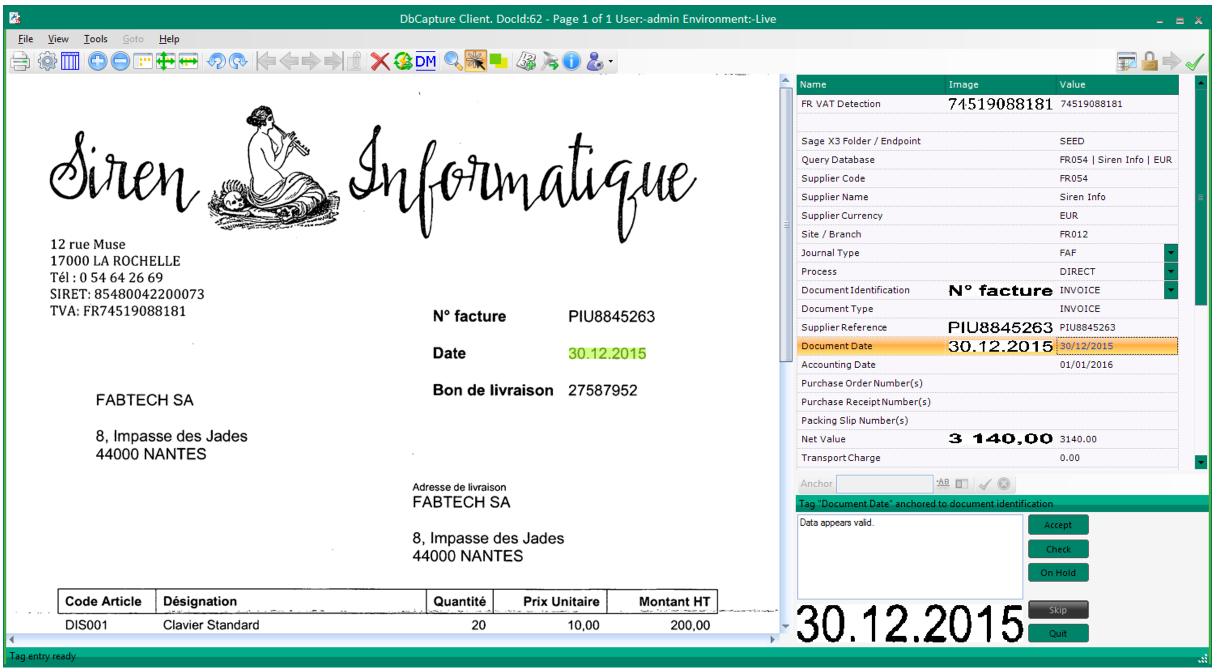


   The Scanstation allows images to be reviewed for quality prior to submission to the Data Capture system. If batches containing multi-page invoices or invoices with supporting documents, such as timesheets, receipts, certificates, PODs or copy orders, have been scanned, the user will need to ensure the pages are correctly collated.

5. Once the scanned images have been checked, they will be uploaded to the Data Capture server along with any PDF invoices. From this point the process will be the same for both paper and PDF invoices.

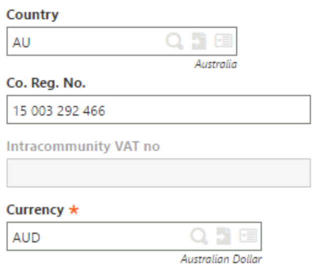


The Data Capture system uses Optical Character Recognition (OCR) to extract the data from the invoice. This means it works with almost all PDF invoices as well as scanned paper documents. The first time a new invoice layout is received a user will highlight with the mouse the data that should be extracted and the system will retain this as a 'template' in order to extract the data automatically in future. The system learns on-the-fly, so there is no need to create templates before starting to use the system. For invoices where references or totals are not always in the same place, the user can create an 'anchor' so that the location of the data is associated with key text on the document rather than fixed position. For example, the invoice total might be anchored to the words 'Total Payable' or the PO number might be anchored to the words 'Your Ref'.



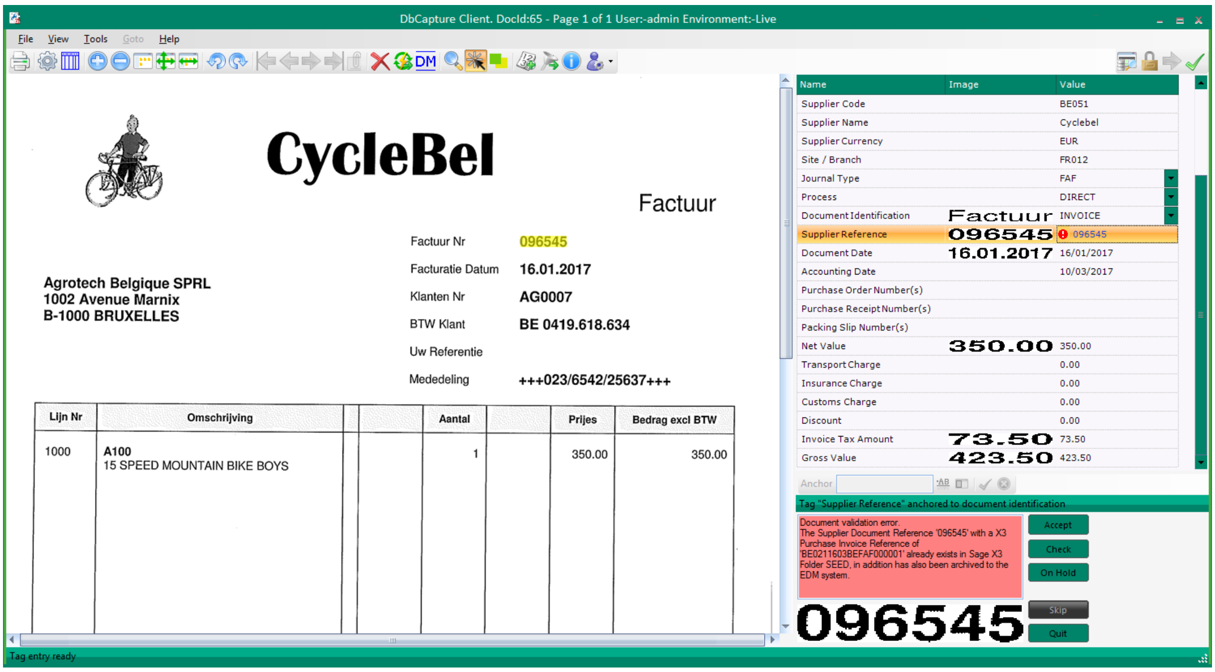
6. The system can normally recognise VAT registration numbers from the UK and several EU countries without the need for a template, so if you have VAT numbers entered in the Intracommunity VAT No field (EECNUM) in Sage X3, the correct account can usually be identified automatically. Australian suppliers will normally be recognised from their ABN number if that is entered in the Company Registration No field (CRN). For other suppliers the system will learn to associate other text such as trading names, telephone numbers, postcodes, etc with particular accounts in Sage X3, so it's not essential to have VAT numbers in the database or even to have the supplier name entered with the same spelling.

EU Supplier



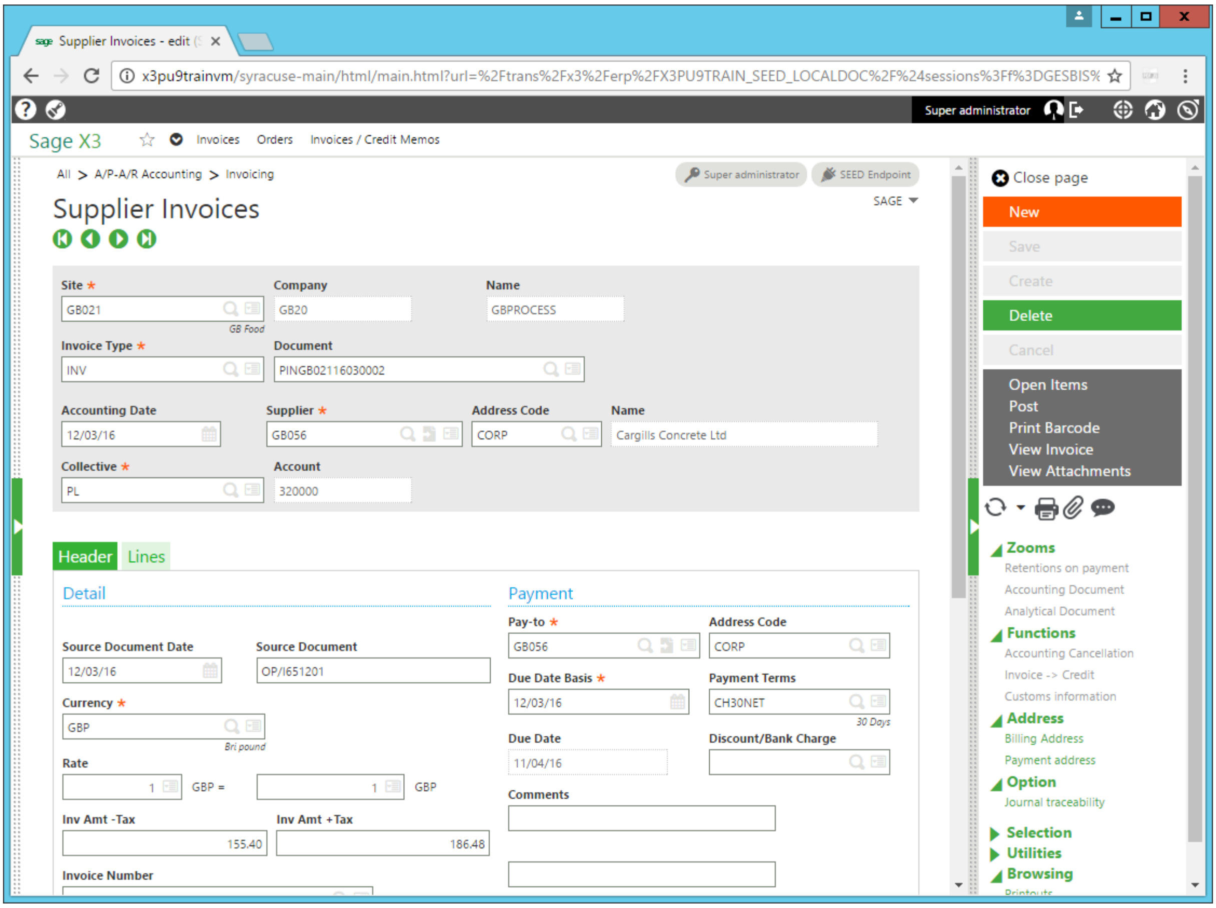
Australian Supplier

The data extracted from the invoices is validated and checked against Sage X3. Supplier details, orders, receipts, currencies, exchange rates, General Ledger codes, etc are all taken from the Sage X3 database. Among many other checks, the system will check for duplicate invoices in both Sage X3 and the EDM archive. It will equally only match to order lines have not already been invoiced.



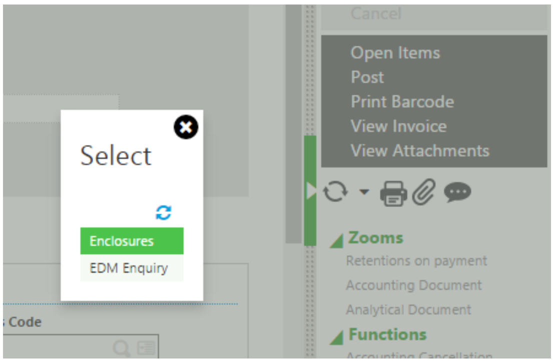
Invoices for new suppliers and for goods not yet received can be placed 'on hold' pending the entry of supplier details or the receipting of the orders in Sage X3. If necessary, invoices can be rejected and deleted from the system at this stage.

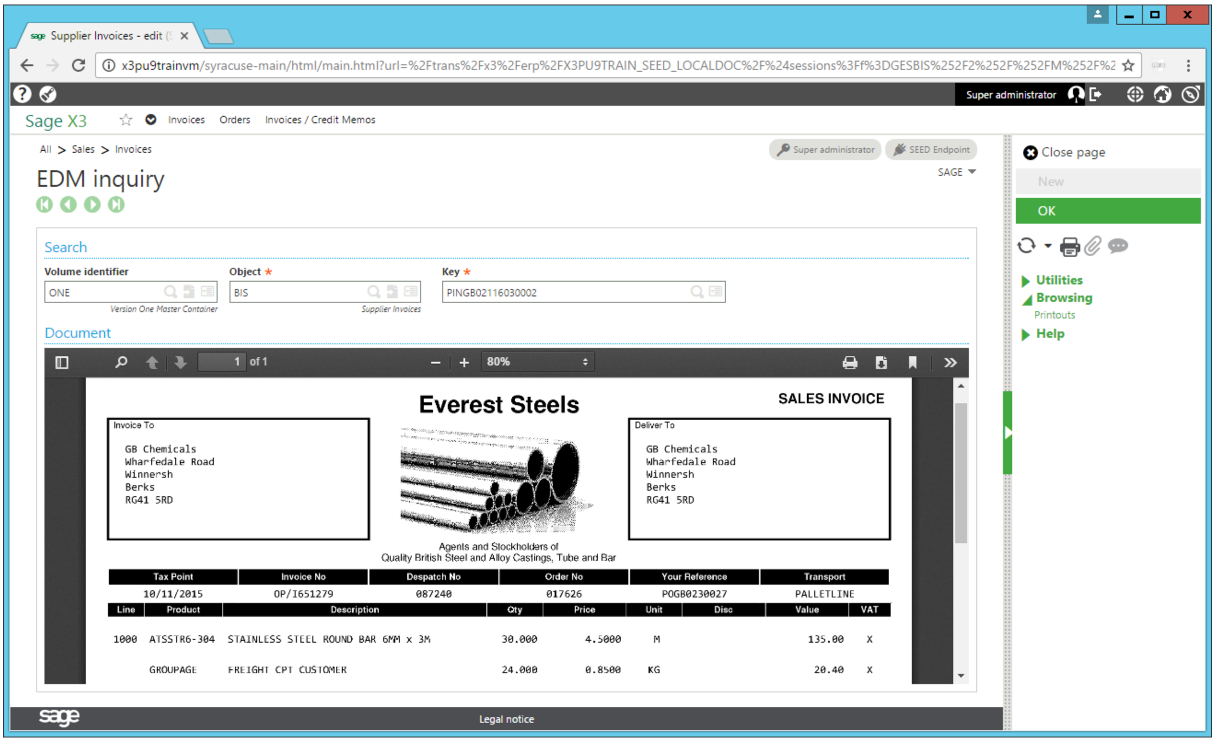
7. Once the details of the invoice are ‘accepted’ by the operator, the invoice will be created in Sage X3. While the invoice entry is created, it is not posted. Invoices may be subject to on-line approval through the X3 Workflow system before they are posted. Invoices without POs may need coding after creation.



8. The image or PDF will be permanently archived in the EDM solution and accessible from the transaction screen in Sage X3 by selecting the ‘View Invoice’ button on the right-hand side of the screen (V7 onwards) or bottom of the screen (V6.5).

   Even if ‘View Document’ buttons have not been enabled, documents can be retrieved by clicking the paperclip icon and selecting ‘EDM Enquiry’.

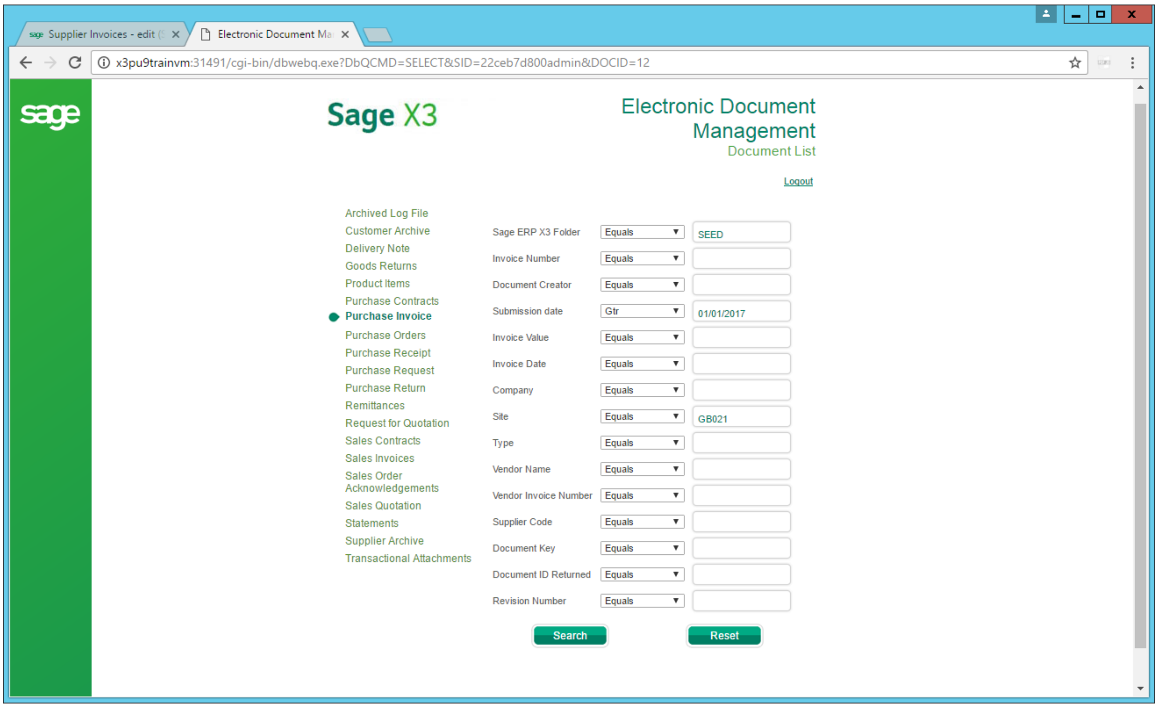




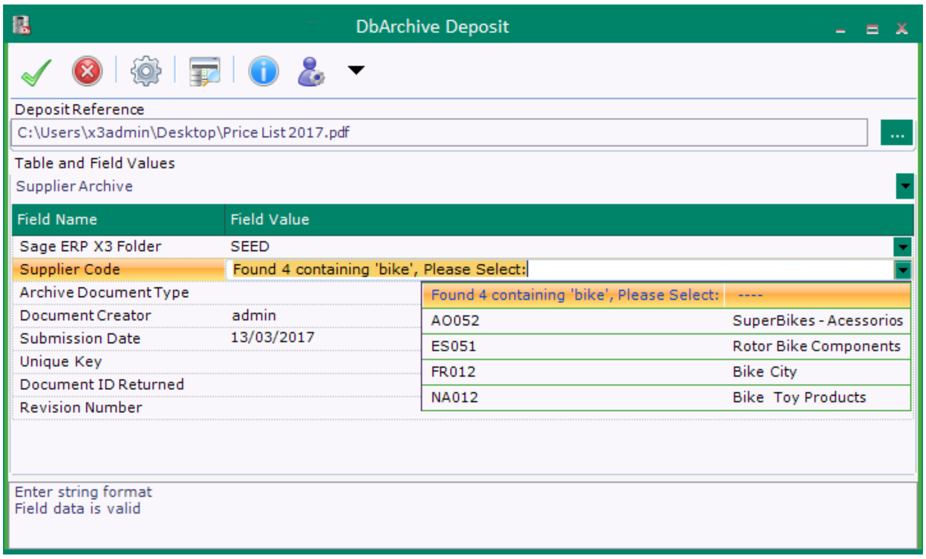
9. Invoices which don’t relate to Purchase Orders raised in Sage X3 will need to be coded. An ‘Account Structure’ can be defined for each non-PO supplier in Sage X3. This allows default coding lines to be generated automatically. If different goods or services have been purchased, the coding can still be edited in Sage X3 before the invoice is posted. Non-PO or Direct invoices will normally be processed using the Supplier BP Invoices profile and appear under A/P-A/R Accounting. Alternatively with the Purchasing Invoices profile, you can change the Process from POP to Direct and create a Purchasing Invoice without an order. In this case a single line will be created with a Source of ‘Miscellaneous’.

Supplier BP Invoices are normally created with the Pay Approval field set to 'Not Approved'. X3 Workflow can be used to prompt relevant staff to check, code and approve invoices.

10. Outside of Sage X3 it is possible to search for invoices in the EDM portal. The query screen allows users to search for invoices using any of the stored metadata including supplier name, account code, supplier's invoice number, invoice date and value.



11. The Deposit client can be used to archive miscellaneous documents and to associate them with suppliers, orders or individual transactions without needing to access Sage X3. Documents which relate to specific invoices can be viewed within Sage X3 using an optional button which can be enabled on the invoices screen.



2.4 Data Capture Profiles

2.4.1 Purchasing Invoices – Header-Level Data

No	Description	Acquired	Data Type	Validation
	Primary ID	OCR	String	Primary identifier used to recognise template. Typically this will be a VAT registration number or ABN number.
	Secondary ID	OCR	String	Additional identifier used where multiple AP accounts or invoice layouts are used by a single supplier company.
F1	Endpoint	Derived from the scanning profile or mailbox	String	Identifies the X3 endpoint (folder) the invoice relates to (eg PILOT, PROD, TEST, etc). Normally hidden when only one endpoint is used.
F2	Query Database	Lookup to X3	String	Allows entry of wildcards to retrieve supplier details when supplier is not recognised from the ID fields above. Data returned may be stored with the template if VAT numbers, etc are not held in Sage X3.
F3	Supplier Code	Lookup from X3 using IDs or F2	String	Read only
F4	Supplier Name	Lookup from X3 using IDs or F2	String	Read only
F5	Supplier Currency	Lookup from X3 using IDs or F2	String	Read only
F6	Site / Branch	Derived from scanstation or import folder, looked up from Sage X3 based on PO number, or selected from Drop Down List.	String	If blank, it must be selected from the Drop Down List. A valid site is required to create an invoice. The Drop Down List will only display sites the current user has permission to access.
F7	Invoice Type	Derived from scanstation or import folder or selected from Drop Down List.	String	If blank, the default invoice type or default credit type for the profile will be used. To change the type, the user can enter a '?' and select from a list of available types.

No	Description	Acquired	Data Type	Validation
F8	Process	Derived from scanstation or import folder or selected from Drop Down List.	String	Defaults to POP but may be changed to DIRECT to create a Purchasing Invoices without an order. Hidden when Supplier BP Invoices profile is used for non-PO invoices.
F9 Hidden is not used	Document Identification	OCR	String	Used to check that the document is an invoice or a credit note. The system will show a warning if the text is not equivalent to F10 or a an error if it is the opposite to F10.
F10	Document Type	Derived from scanstation or import folder or defaulted to “INVOICE”	String	INVOICE or CREDIT
F11	Supplier Reference	OCR	String	Checked against X3 database and EDM solution for duplicate entries
F12	Document Date	OCR	Date	May not be a future date. Warning given if >90 days old.
F13	Accounting Date	Derived from scanstation or defaults to today’s date	Date	May be manually changed. Will give an error if the period is already closed.
F14	Purchase Order Number(s)	OCR	String	If POP is selected above, a PO number or supplier’s delivery number is required to identify the order lines or receipts to match to. If valid, the order lines will be imported into the grid. If no PO number or delivery reference is provided on the invoice, the user can enter ‘?’ to enable a Drop Down List of open orders in Sage X3. Invoice lines can be generated from multiple POs if necessary.
F15	Purchase Receipt Number(s)	Lookup from X3	String	

No	Description	Acquired	Data Type	Validation
F16	Packing Slip Number(s)	OCR	String	A supplier's delivery number – if available and if entered during receipting - may be an easier way to identify the receipts to match to. If valid, the receipt lines will be imported into the grid.
F17	Goods Value	OCR	Floating Point	For Australian suppliers, if Goods Value is blank and Gross Value and Tax Amount are > 0 value will be calculated. Values F17 to F22 must equal F23.
F18	Transport Charge	OCR	Floating Point	Used when Transport Charge is not included as a line item. Creates an invoicing element in Sage X3. Values F17 to F22 must equal F23
F19 Hidden if rarely used	Insurance Charge	OCR	Floating Point	Used when Insurance Charge is not shown as a line item. Creates an invoicing element in Sage X3. Values F17 to F22 must equal F23
F20 Hidden if rarely used	Customs Charge	OCR	Floating Point	Used when Transport Charge is not shown as a line item. Creates an invoicing element in Sage X3. Values F17 to F22 must equal F23
F21	Discount	OCR	Floating Point	Forced -ve Value. Values F17 to F22 must equal F23
F22	Invoice Tax Amount	OCR	Floating Point	Values F22 to F26 plus F28 must equal F29
F23	Gross Value	OCR	Floating Point	Values F22 to F26 plus F28 must equal F29
F24	Document Currency	OCR	String	May be blank. If blank, use F5. If not blank and not the same as F5, give a warning, but use this field rather than F5.
F25 Hidden	Batch	Derived (Scan profile)	String	Read only
F26 Hidden	Scan User	Scan user	String	Read only
F27 Hidden	Scan Date	Scan date	Date	Read only

2.4.2 Purchasing Invoices – Line-Level Data

No	Description	Acquired	Data Type	Validation
L1 Hidden	Include	Manual entry	Checkbox	
L2	Source	Derived from Order or Receipt	String	Order or Receipt – Read Only.
L3	Number	Derived from Order or Receipt	String	PO or Goods Receipt Number – Read Only.
L4	Product	Derived from Order or Receipt	String	Product Code – Read Only.
L5	Description	Derived from Order or Receipt	String	Product Description – Read Only.
L6	Quantity	Derived from Order or Receipt	Numeric	Quantity to be invoiced. Defaults to quantity on Order or Receipt. May be edited.
L7	Line Value	Calculated	Floating Point	Defaults to L6 x L9 but may be overridden.
L8 Hidden	Line Number	Derived from Order or Receipt	Numeric	Line Number from Order or Receipt – Read Only.
L9	Price	Derived from Order or Receipt	Floating Point	Net Price from Order. May be edited.

2.4.3 Supplier BP Invoices

No	Description	Acquired	Data Type	Validation
	Primary ID	OCR	String	Primary identifier used to recognise template. Typically this will be a VAT registration number or ABN number.
	Secondary ID	OCR	String	Additional identifier used where multiple AP accounts or invoice layouts are used by a single supplier company.
F1	Endpoint	Derived from the scanning profile or mailbox	String	Identifies the X3 endpoint (folder) the invoice relates to (eg PILOT, PROD, TEST, etc). Normally hidden when only one endpoint is used.
F2	Query Database	Lookup to X3	String	Allows entry of wildcards to retrieve supplier details when supplier is not recognised from the ID fields above. Data returned may be stored with the template if VAT numbers, etc are not held in Sage X3.
F3	Supplier Code	Lookup from X3 using IDs or F2	String	Read only
F4	Supplier Name	Lookup from X3 using IDs or F2	String	Read only
F5	Supplier Currency	Lookup from X3 using IDs or F2	String	Read only
F6	Site / Branch	Derived from scanstation or import folder or selected from Drop Down List.	String	If blank, it must be selected from the Drop Down List. A valid site is required to create an invoice. The Drop Down List will only display sites the current user has permission to access.
F7	X3 Invoice Type	Derived from scanstation or import folder or selected from Drop Down List.	String	If blank, the default invoice type or default credit type for the profile may be used. To change the type, the user can enter a '?' and select from a list of available types.

No	Description	Acquired	Data Type	Validation
F8	Collective	Lookup from X3 based on the supplier or selected from a Drop Down List.	String	If blank, the collective (sub-ledger/control account) must be selected from the Drop Down List.
F9 Hidden if not used	Document Identification	OCR	String	Used to check that the document is an invoice or a credit note. The system will show a warning if the text is not equivalent to F10 or an error if it is the opposite to F10.
F10	Document Type	Derived from scanstation or import folder or defaulted to "INVOICE"	String	INVOICE or CREDIT
F11	Supplier Reference	OCR	String	Checked against X3 database and EDM solution for duplicate entries.
F12	Document Date	OCR	Date	May not be a future date. Warning given if >90 days old.
F13	Accounting Date	Derived from scanstation or defaults to today's date	Date	May be manually changed. Will give an error if the year is not yet open or the period is already closed.
F14	Net Value	OCR	Floating Point	Values F17 and F18 should sum to F19.
F15	Invoice Tax Amount	OCR	Floating Point	Values F17 and F18 should sum to F19.
F16	Gross Value	OCR	Floating Point	Values F17 and F18 should sum to F19.
F17 Hidden	Pay Approval	Calculated	String	Defaulted to 'Not Approved'.
F18	Comment	OCR	String	OCR or enter comment. First 30 characters appear in Sage X3 as the first line of the comments on the invoice header.
F19 Hidden	Scan User	Scan user	String	Read only
F20 Hidden	Scan Date	Scan date	Date	Read only
F21 Hidden	Batch	Derived (Scan profile)	String	Read only

Note: No line level data is sent to Sage X3 for Supplier BP Invoices. Sage X3 will create default line items itself based on an account structure.

3. Pre-requisites

3.1 Technical Pre-requisites

General

The standard V1 Purchase Invoice Automation (PIA) solution for Sage X3 only supports the Sage X3 ‘on premise’ solution not the ‘Cloud’ solution, although it may be hosted by a third-party in a ‘private cloud’ scenario.

The solution is compatible with Sage X3 version 6.5, PU8, PU9 and V11. For the latest compatibility, please refer the V1 portal at http://support.wearev1.com/software/x3. The V1 Electronic Document Management (EDM) solution for Sage X3 is a pre-requisite. Please refer the Platform Requirements for the EDM solution.

Application Server

While the PIA solution is normally installed with the EDM solution on the Sage X3 Application Server, for large users the PIA solution can be installed on a separate Windows server. In this case the minimum requirements for the server would be Windows Server 2008 R2 or later with at least two cores, 8GB RAM and at least 5GB of free disk space. For a company processing 100,000 invoices per annum four cores and 24GB RAM would be recommended. The Microsoft .NET Framework 3.5 must be installed. A SQL Server database is required, but does not need to be hosted on the same server.

Email Server

To import PDF-format invoices directly from mailboxes, POP3 will need to be enabled on the email server. POP3 can be used over SSL to support hosted email servers including Microsoft Office365 and Google Mail. Note: that the email server used for this purpose does not necessarily need to be the end-user’s normal email server.

Workstations

Users validating or coding invoices will need a Windows desktop in order to run Windows client applications. Windows Terminal Services, Citrix and XenApp may be used as an alternative to installing client software on local desktops. Where invoices are checked and validated over a Wide Area Network (WAN), a thin client environment should always be used. Local Area Network (LAN) connections should be 100MB minimum.

Windows versions supported for V1 client applications are:

- Windows 7 (32 & 64 bit)
- Windows 8.x

- Windows 10

Note: The Microsoft .NET Framework 3.5.1 is required for all V1 applications.

Windows PCs should have at least 2GB RAM, a 1 GHz processor and 200MB of free disk space. 4GB RAM and a 3 GHz processor would be preferable.

Database Server

The PIA solution will typically use the same Microsoft SQL Server database server as Sage X3. If Sage X3 and the EDM solution are using an Oracle database, a separate Microsoft SQL Server will be required for the PIA solution. Please note that the documents themselves are stored in the database, so storage requirements on the database server should reflect the expected document volume. Allow at least 20GB of storage per 10,000 invoices per annum.

Database versions supported are:

- SQL Server 2008
- SQL Server 2012
- SQL Server 2014

3.2 Software Requirements

This solution is based on release 2.2 of the V1 Document Management suite.

The following V1 modules are provided for the PIA solution:

V1 Data Capture Server
V1 Data Capture Client
V1 Data Capture Admin Client
V1 Mail Extractor

The EDM solution for Sage X3 is required to support the PIA solution along with at least one scanstation. The Deposit client and external user licences are required to store supporting documents with the invoices.