GLOC

Great Lakes Oracle Conference

What we can learn from Teenagers about Document Security?

MAY 15 & 16, 2019

CLEVELAND PUBLIC AUDITORIUM, CLEVELAND, OHIO

WWW.NEOOUG.ORG/GLOC

Ted Chappell

Director of Product Management
STR Software • Richmond, VA

p: 804.897.1600

e: ted.chappell@strsoftware.com

@TedChappell

/in/tedchappell/

Oracle Analytics, BI and Big Data
Special Interest Group

Agenda

1. **Introduction**
2. **Defining Digital Signatures**
   What they are & What they are not
3. **Digital Signatures & the Law**
   How Digital Signatures can support highly-regulated industries
4. **How to implement & the limitations of Digital Signatures**
5. **Additional tips for securing your email documents**

Digital Transformation

A buzzword, sure. Important nonetheless.

Communication

Digital Transformation

From Snail Mail to Fax to **Email** to Text

Project Planning

Digital Transformation

From Note Pads to Whiteboards to **Email** to SaaS

Collaboration

Digital Transformation

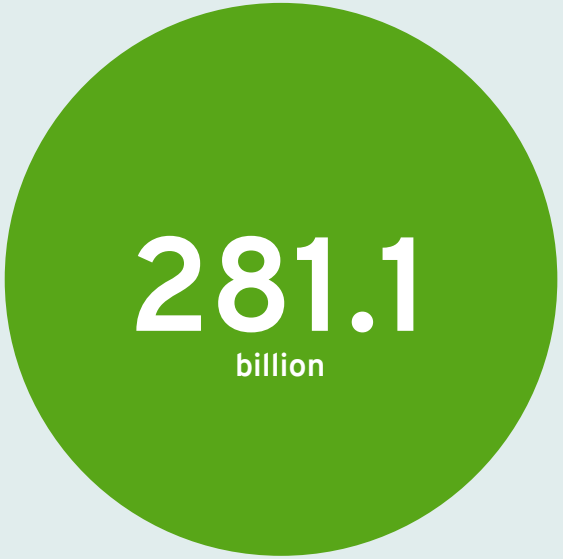
From Face-To-Face to Phone Calls to **Emails** to Chat Software

Email Still Reigns Supreme

Email is still the primary communication method used by businesses to communicate & deliver important business documents

Email by the numbers

business email statistics



Emails Sent Each Day

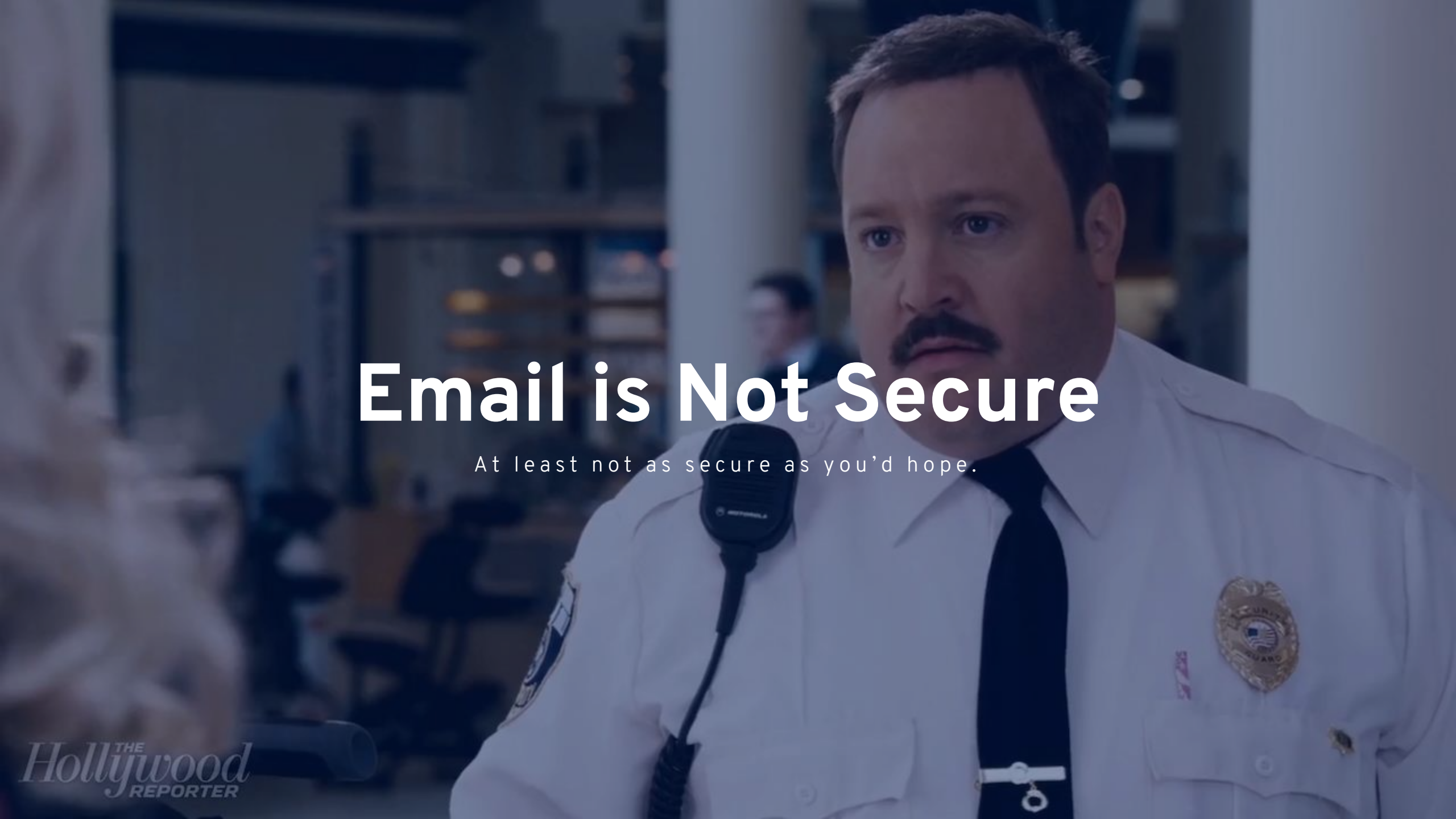
There are over **281.1 billion** emails sent and received in the working world each day

Sent or Received

Each business user sends and receives an average of **74 emails each day**

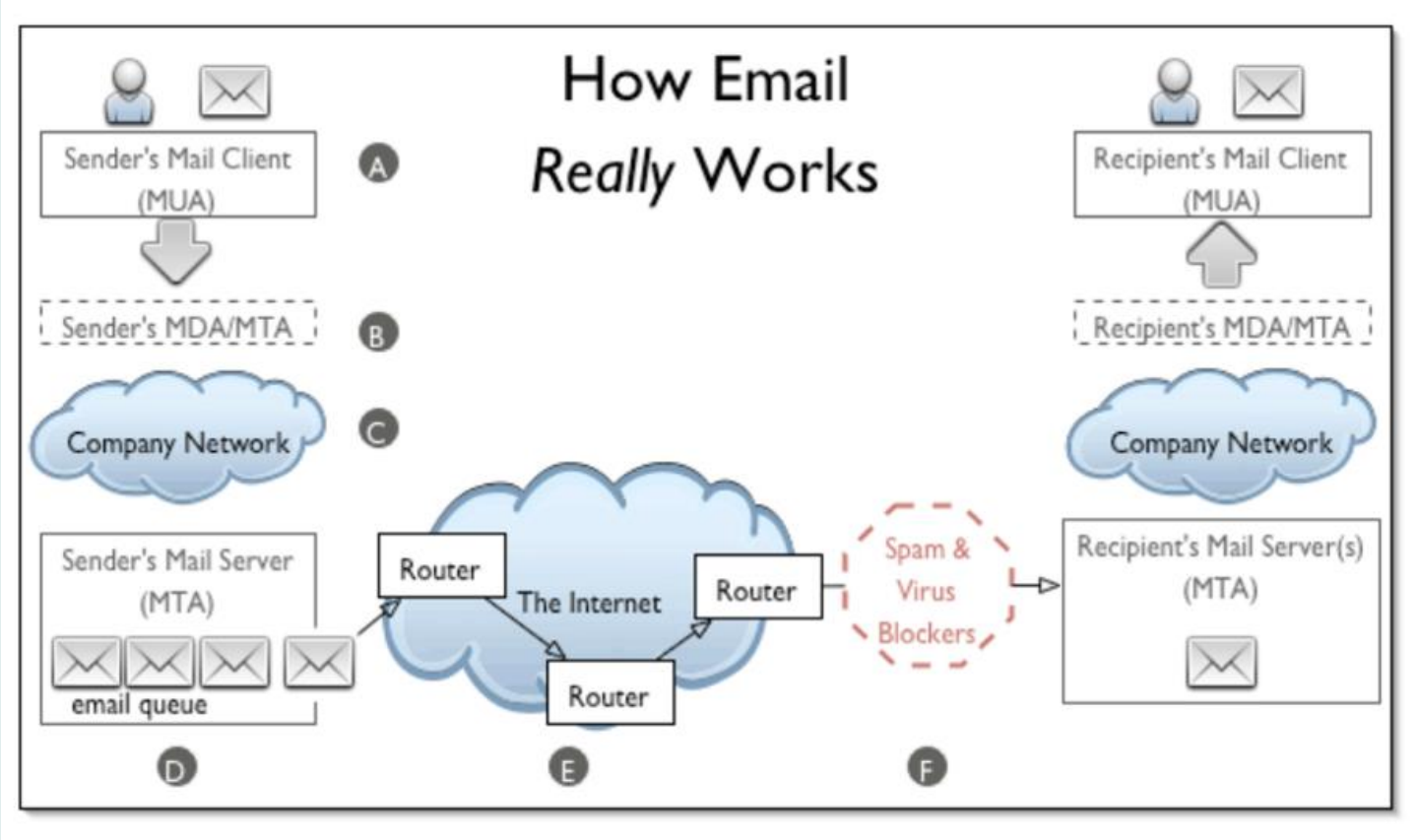
On Email Alone

The average employee spends over **81 working days per year** on email alone


Email is Not Secure
At least not as secure as you'd hope.
THE Hollywood REPORTER

How Email **Appears** to Work vs. How Email **Really** Works

https://www.oasis-open.org



So, what does this have to do with teenagers?

And what does it have to do with email?

According to a survey*

#1 Reason to Give a Child a Cell Phone

...Safety & Security

*Survey may or may not have been in informal polling of STR Software parents, like me, who have children approaching the appropriate age.

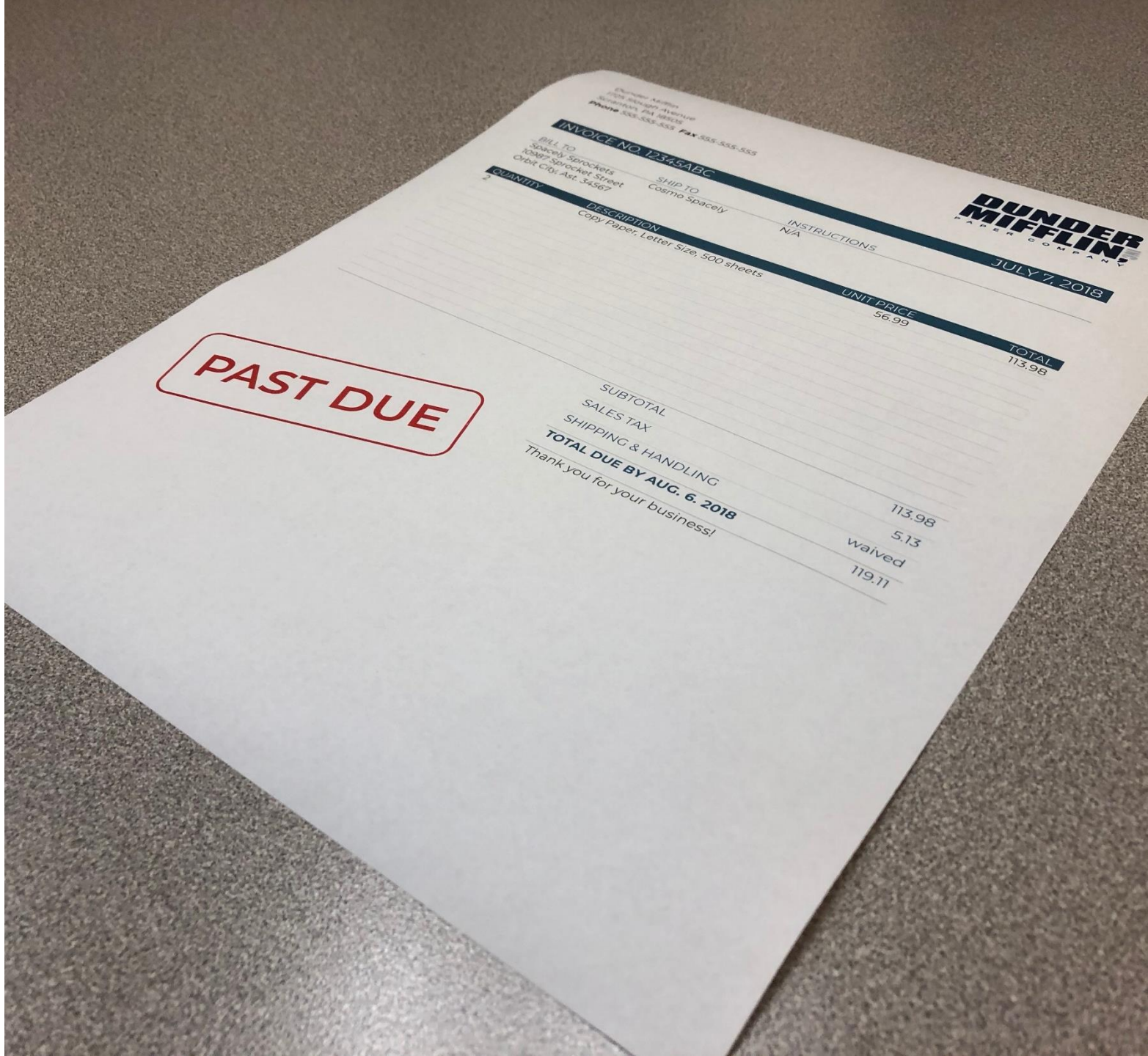
Do I need Document Security?

Regulatory environment. Risk profile. Business requirements.

How do I secure my critical docs?

Securing docs with Digital Signatures

If email is not secure and you need to attach important files, as many of us often do, the best solution is Digital Signatures.



Digital Signatures

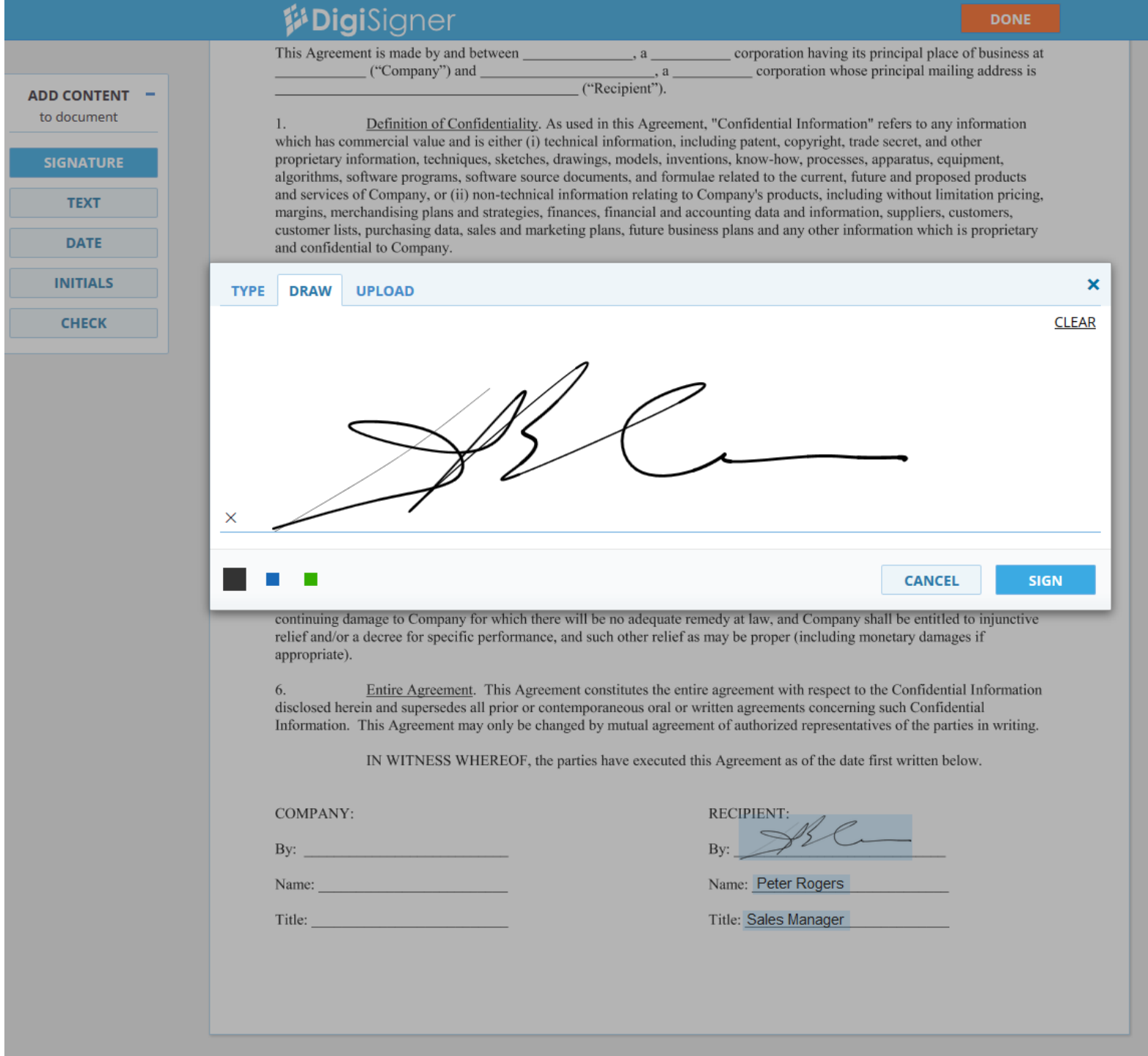
What are they?

What they aren’t

Electronic Signatures

Electronic Signatures (**eSignatures**) refer to any electronic process that indicates acceptance of an agreement or a record.

- Common authentication methods include
  - Email, Social ID, Passwords, PINs
- Proof of signing using a secure process and audit trail
- Electronic signatures mark a party’s intent to sign a document or contract

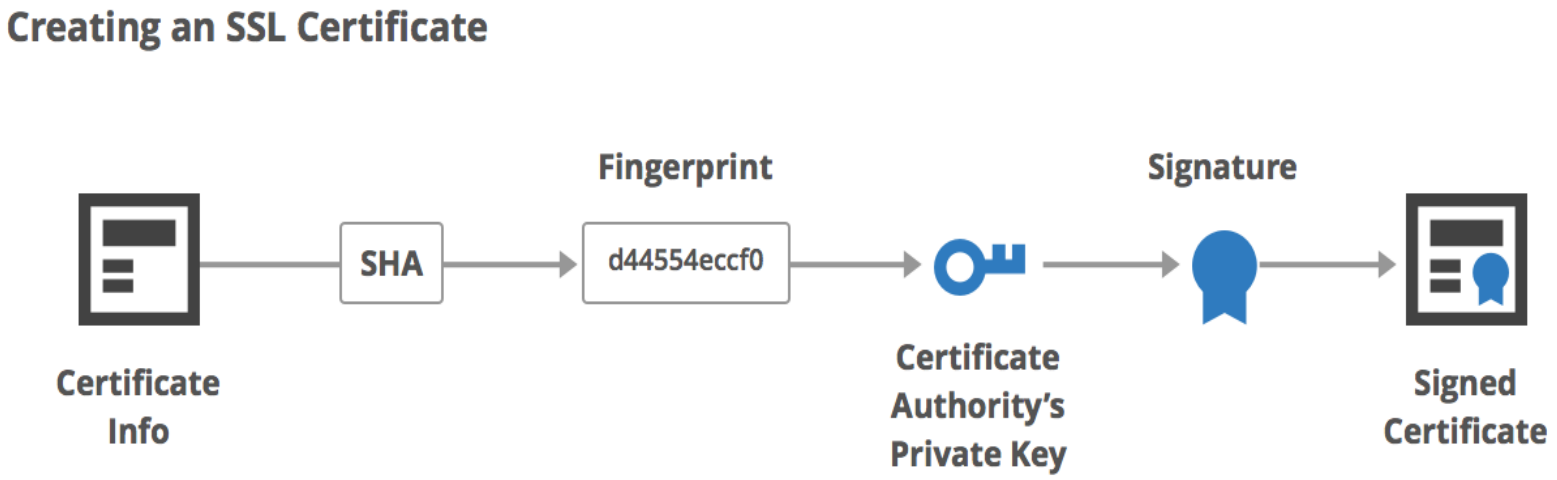


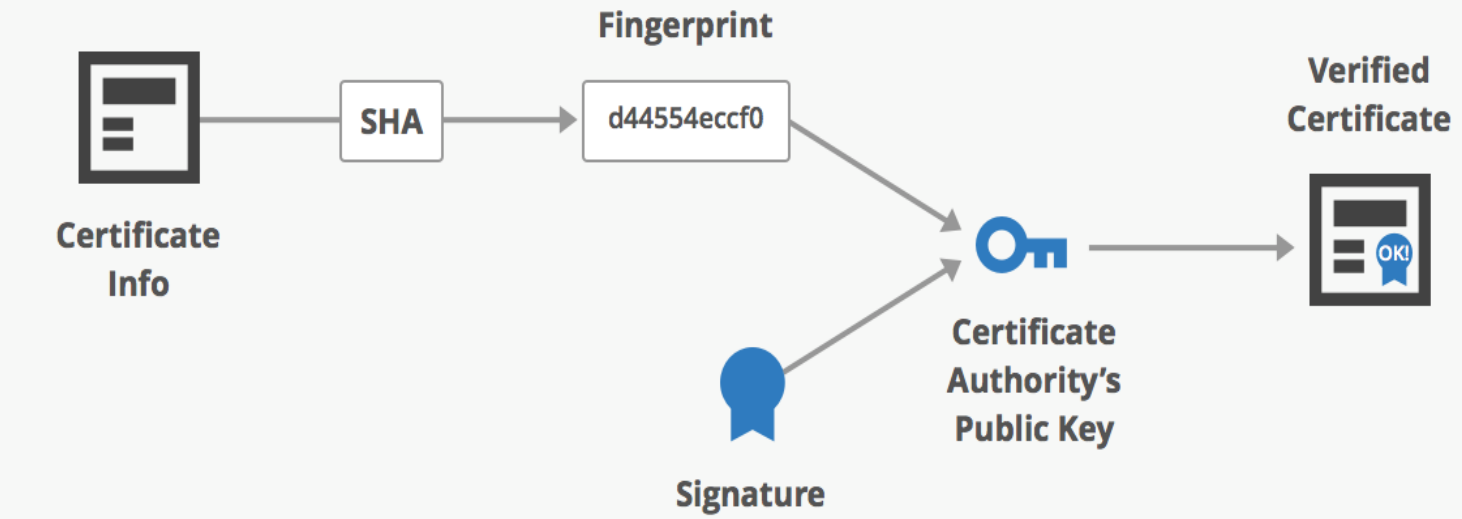
What they are

Digital Signatures

Digital Signatures use a specific method to sign documents electronically by authenticating data through cryptographic protocols.

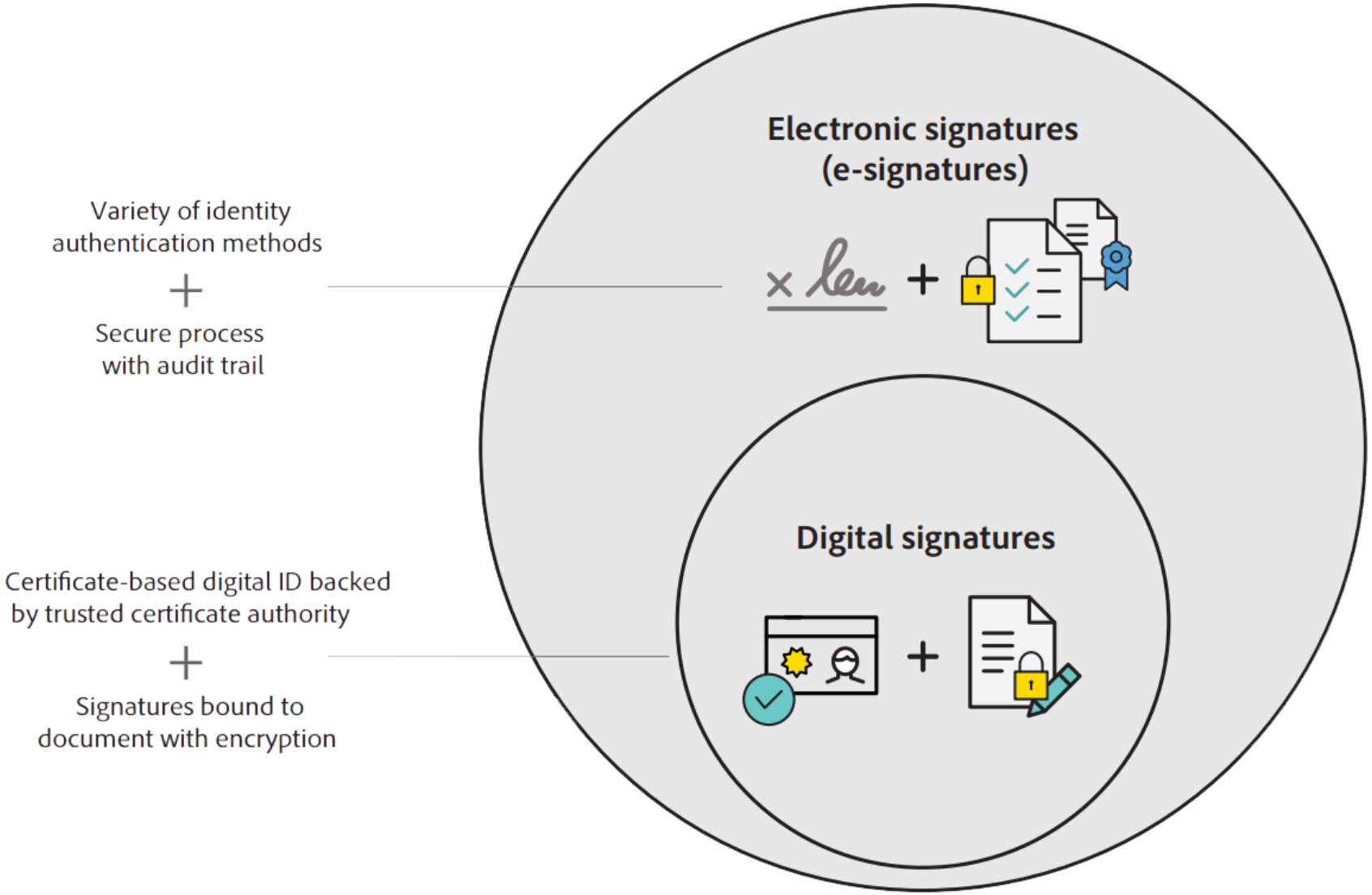
- Signer authentication uses a certificate-based digital ID
- Signatures are bound to the document with encryption and validated by Certificate Authorities (CAs) or Trust Service Providers (TSPs)





Electronic Signatures vs. Digital Signatures

www.adobe.com



eSignatures & the Law

A non-comprehensive guide

Legally Binding

In almost every industrialized nation

At least 47 countries have some type of law covering Electronic & Digital Signatures.

Two Types of Laws

- **Minimalist Laws**
  - Provide eSignatures the same legal status as handwritten signatures. Broadly enforceable with few restrictions.
    - United States — Electronic Signatures in Global and National Commerce Act [ESIGN] (2000)
    - Australia — Electronic Transactions Act (1999)
    - Canada — Personal Information Protection and Electronic Documents Act [PIPEDA] (2000)
- **Multi-Tier Laws**
  - Permit eSignatures, but provide great evidentiary weight to Digital Signatures (certificate-based Digital IDs) to authenticate signers
    - European Union — Electronic Identification and Trust Services regulation [eIDAS] (2016)
    - China — Electronic Signature Law of the People's Republic of China (2004)
    - India — The Information Technology Act [ITA-2000] (2000)

Understanding Digital Signatures

Stricter Requirements. Robust Authentication.

Robust Authentication

Signer's certificate bound to document

Digital IDs are issued and accredited by Certificate Authorities (CAs) and Trust Service Providers (TSPs) to meet defined requirements.

Validation Process applying a digital signature

1. User applies a unique or corporate provided Digital Signature
2. Document is delivered by electronic means (email) to recipient
3. Recipient opens file and is presented with Digital Signature
    - Using Public Key Infrastructure, the sender's unique private key is validated against reciprocal public key. This process does multiple things:
        1. Authenticates signer's identity
        2. Provides proof that the document has not changed since it was signed
        3. Provides audit trail with information like Signer's IP address or geolocation

Digital Signatures & Oracle

Securing your Documents with Oracle BIP

Document Security

The #1 Benefit

Like providing a Cell Phone to a Teenager, applying Digital Signatures to Outbound Documents provide both the sender and recipient with guaranteed security measures

Implementing A Digital Signature with BI Publisher

Significant Limitations

BI Publisher supports digital signatures on PDF output documents. BI Publisher can access your digital ID file from a central, secure location and at runtime sign the PDF output with the digital ID.

Prerequisites and Limitations

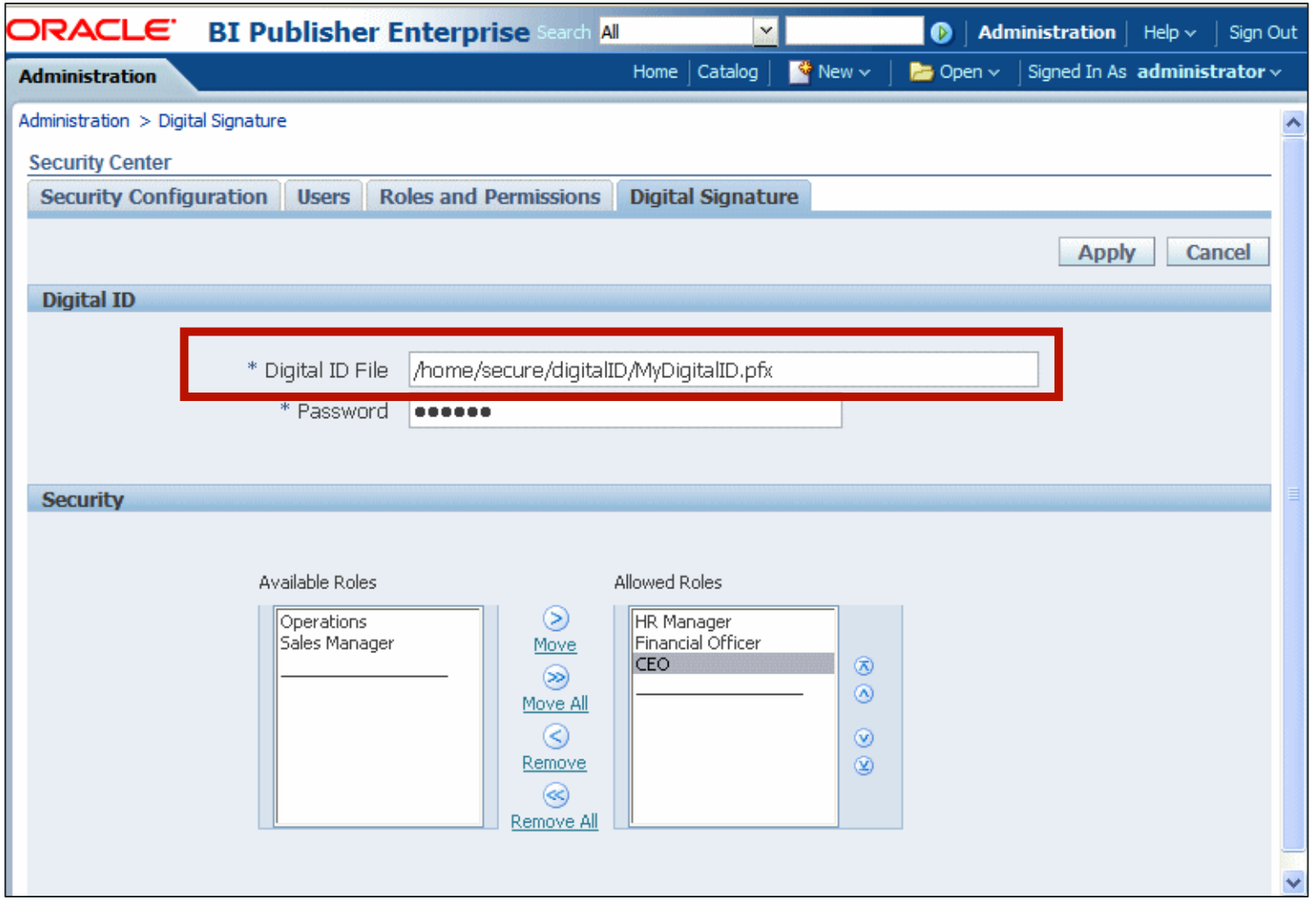
Use of digital signatures with Oracle BI Publisher output documents has the following limitations:

- Only a single digital ID can be registered with BI Publisher.
- Only reports submitted through BI Publisher's Schedule Report Job interface can include the digital signature.
- The digital signature (singular) is defined globally for the instance, so every report has to share the same digital signature properties.

Implementing A Digital Signature with BI Publisher

How To

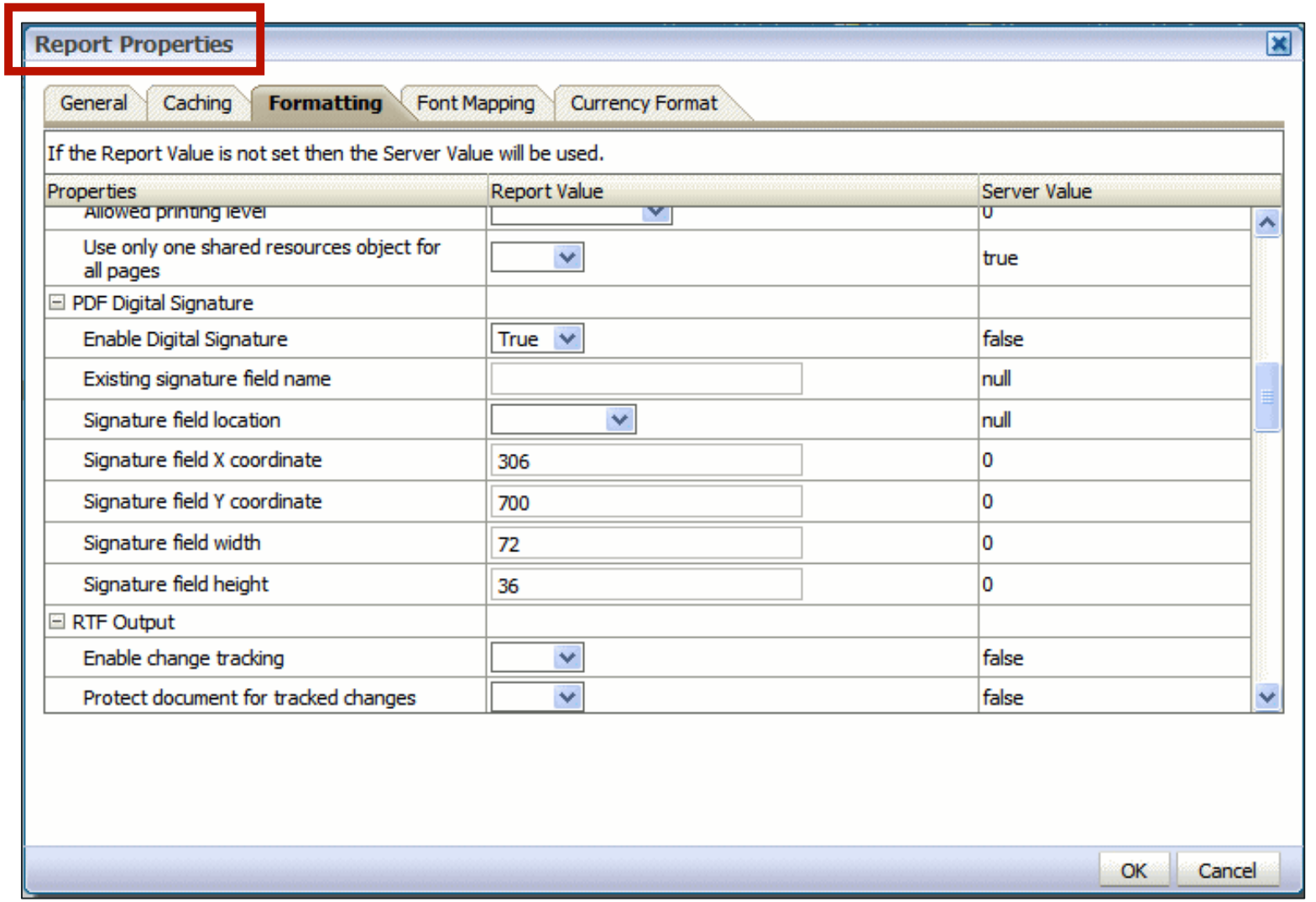
Path to single digital signature file.



Implementing A Digital Signature with BI Publisher

How To

Digital signature placement for a single report.



Implementing A Digital Signature with BI Publisher

https://docs.oracle.com/cd/E28280_01/bi.1111/e22255/digital_sig.htm#BIPAD225

6.6 Running and Signing Reports with a Digital Signature

Users assigned a role with the digital signature privilege can attach the digital signature to their generated reports configured to include the digital signature. The digital signature can be inserted only on scheduled reports.

To sign reports with a digital signature:

1. Log in to BI Publisher as a user with a role granted digital signature privileges.
2. In the catalog, navigate to the report that has been enabled for digital signature and click **Schedule**.
3. Complete the fields in the **Schedule Report Job** page, selecting PDF output, and then submit the job.

   The completed PDF displays the digital signature.

Implementing A Digital Signature with BI Publisher

https://docs.oracle.com/cd/E28280_01/bi.1111/e22255/digital_sig.htm#BIPAD225

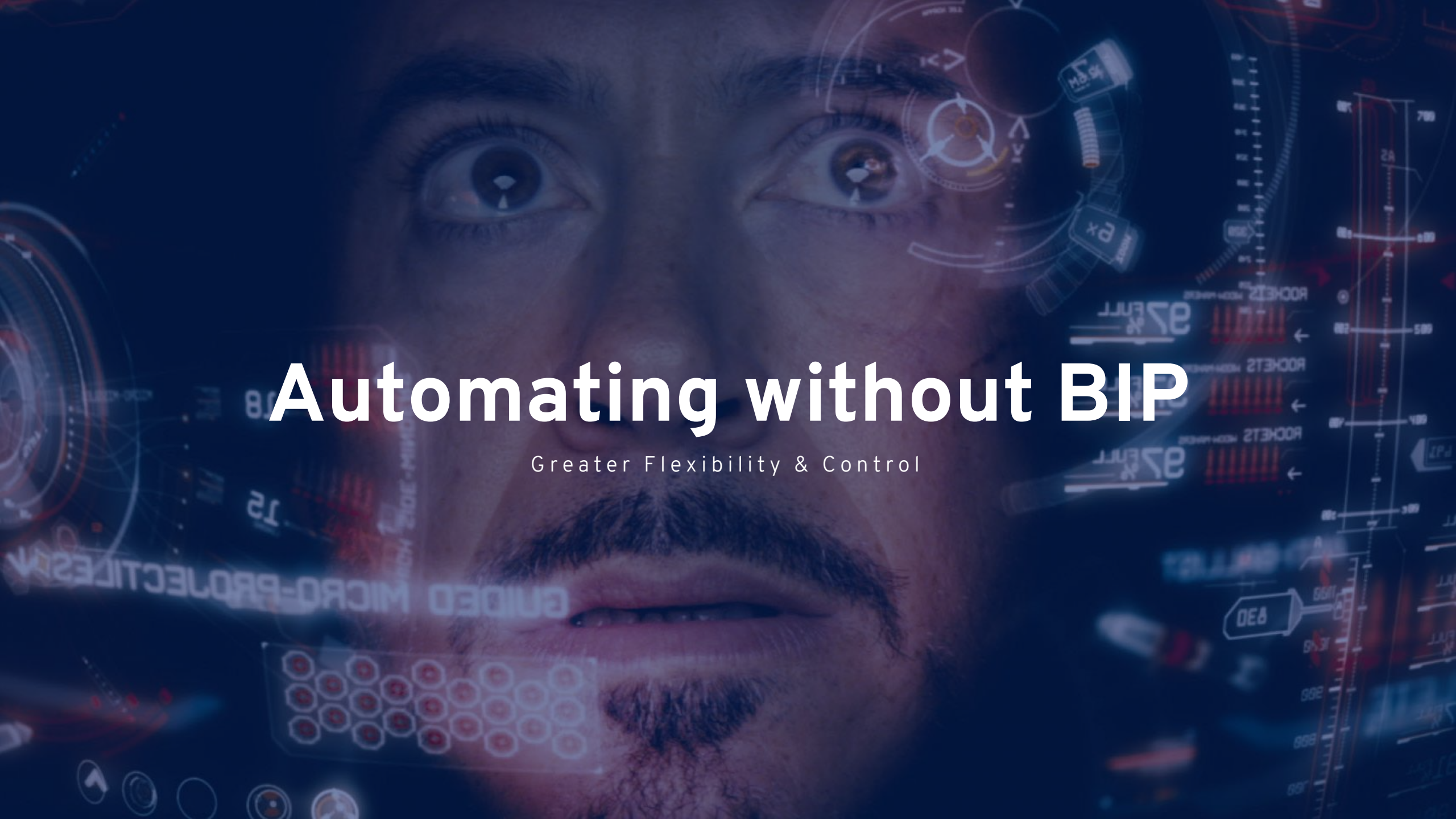
6.2 Prerequisites and Limitations

Before you can implement digital signatures with Oracle BI Publisher output documents, you need the following:

A digital ID obtained from a public certificate authority or from a private/internal certificate authority (if for internal use only). You must copy the digital ID file to a secure location of the file system on the server that is accessible by the BI Publisher server.

Use of digital signatures with Oracle BI Publisher output documents has the following limitations:

- Only a single digital ID can be registered with BI Publisher.
- Only reports submitted through BI Publisher's Schedule Report Job interface can include the digital signature.
- The digital signature is enabled at the report level; therefore, multiple templates assigned to the same report share the digital signature properties.



Automating without BIP

Greater Flexibility & Control

Implementing Dynamic Digital Signature

Dynamic Digital Signatures with AventX

Dynamically insert your global and/or individual Digital Signatures using flexible logic.

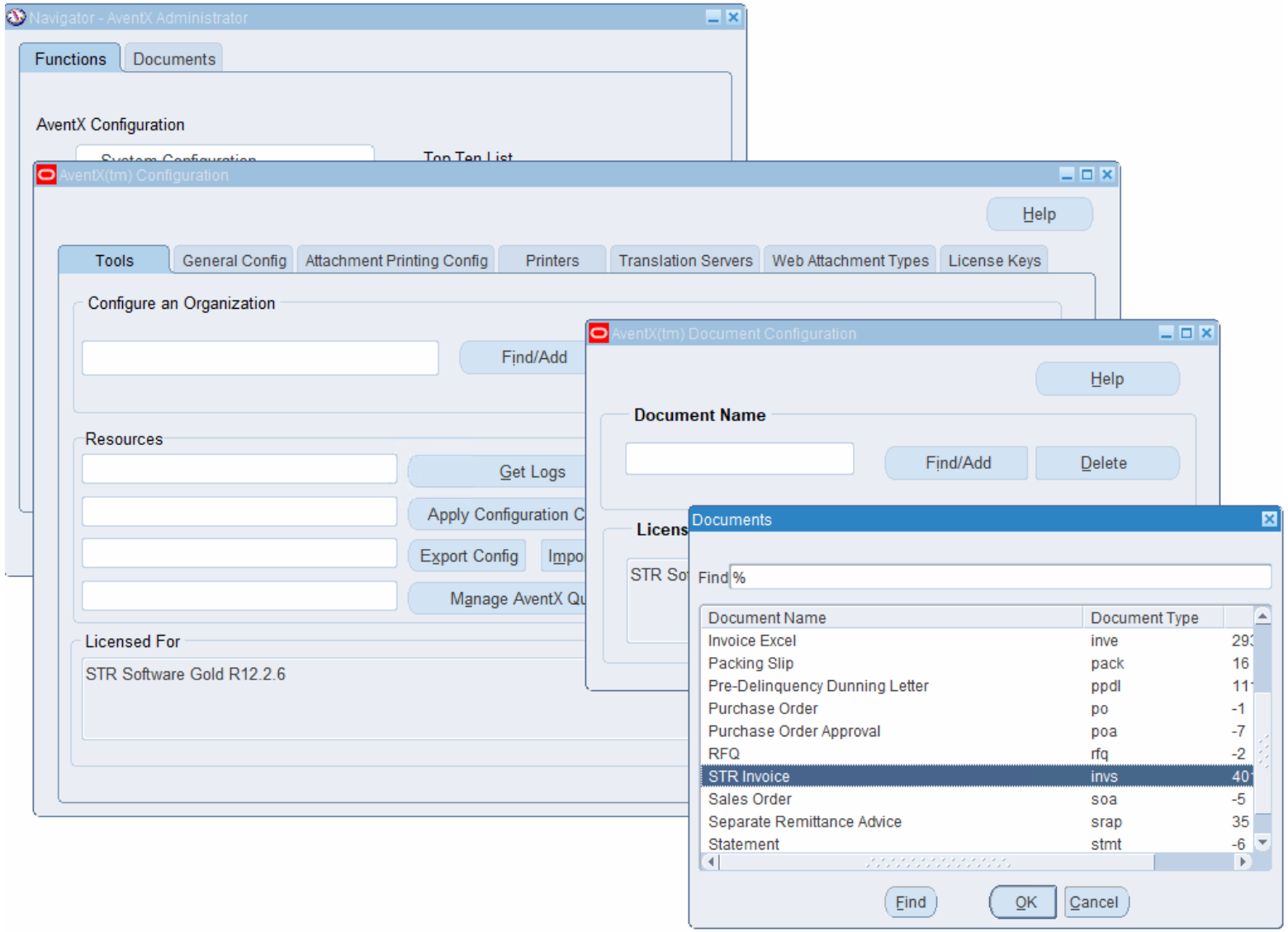
Dynamic Digital Signatures provide organizations a secure mechanism to address complex regulatory and legal requirements associated with emailing documents.

AventX's flexible logic queries to accurately apply the correct digital signature to every file:

- Multiple Global or Individuals can be registered.
- Scheduled and One-off jobs can include the digital signature.
- The digital signature is applied using flexible queries after the report is generated.

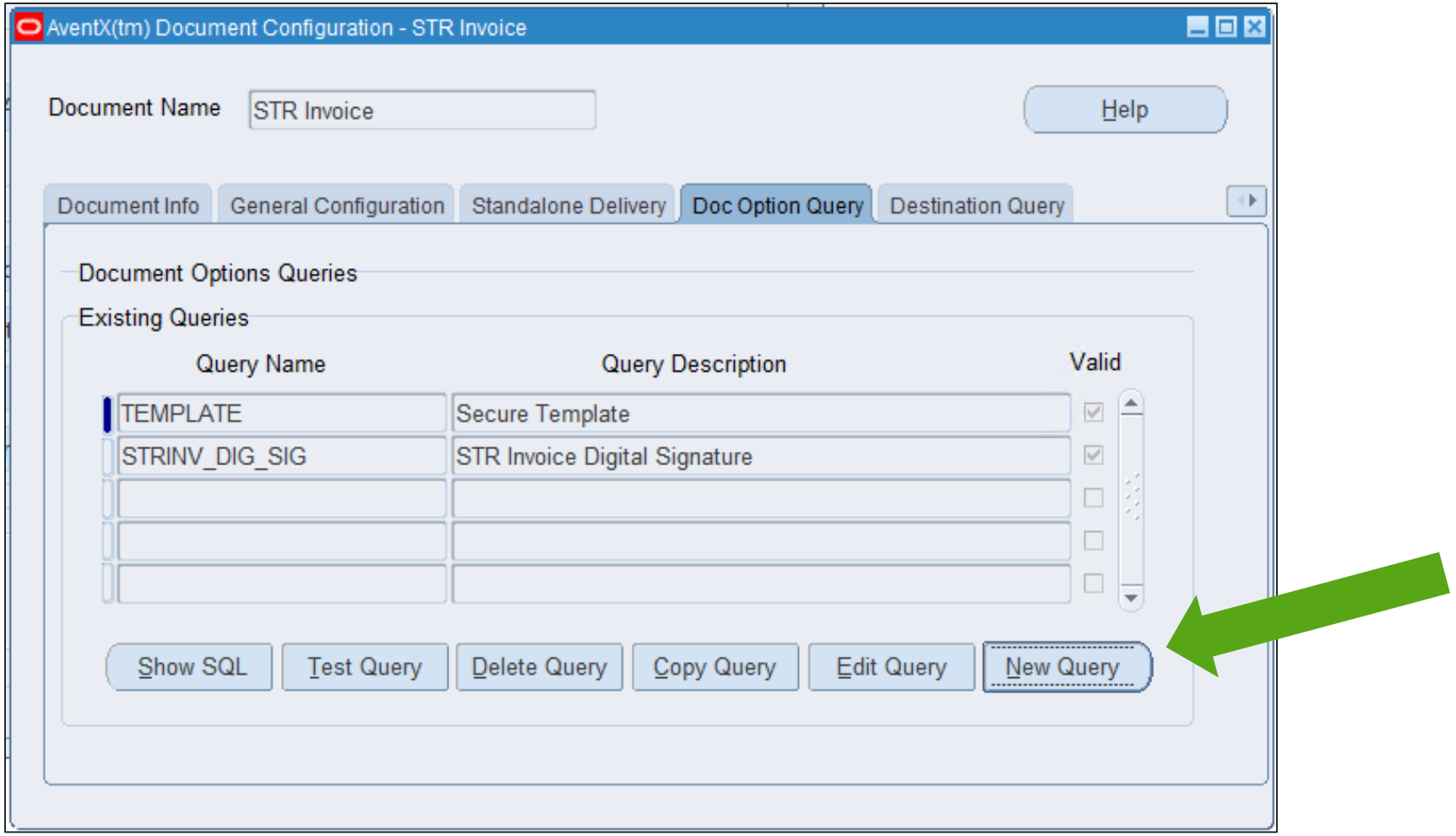
Setting Up Digital Signatures with AventX

Forms-Based UI



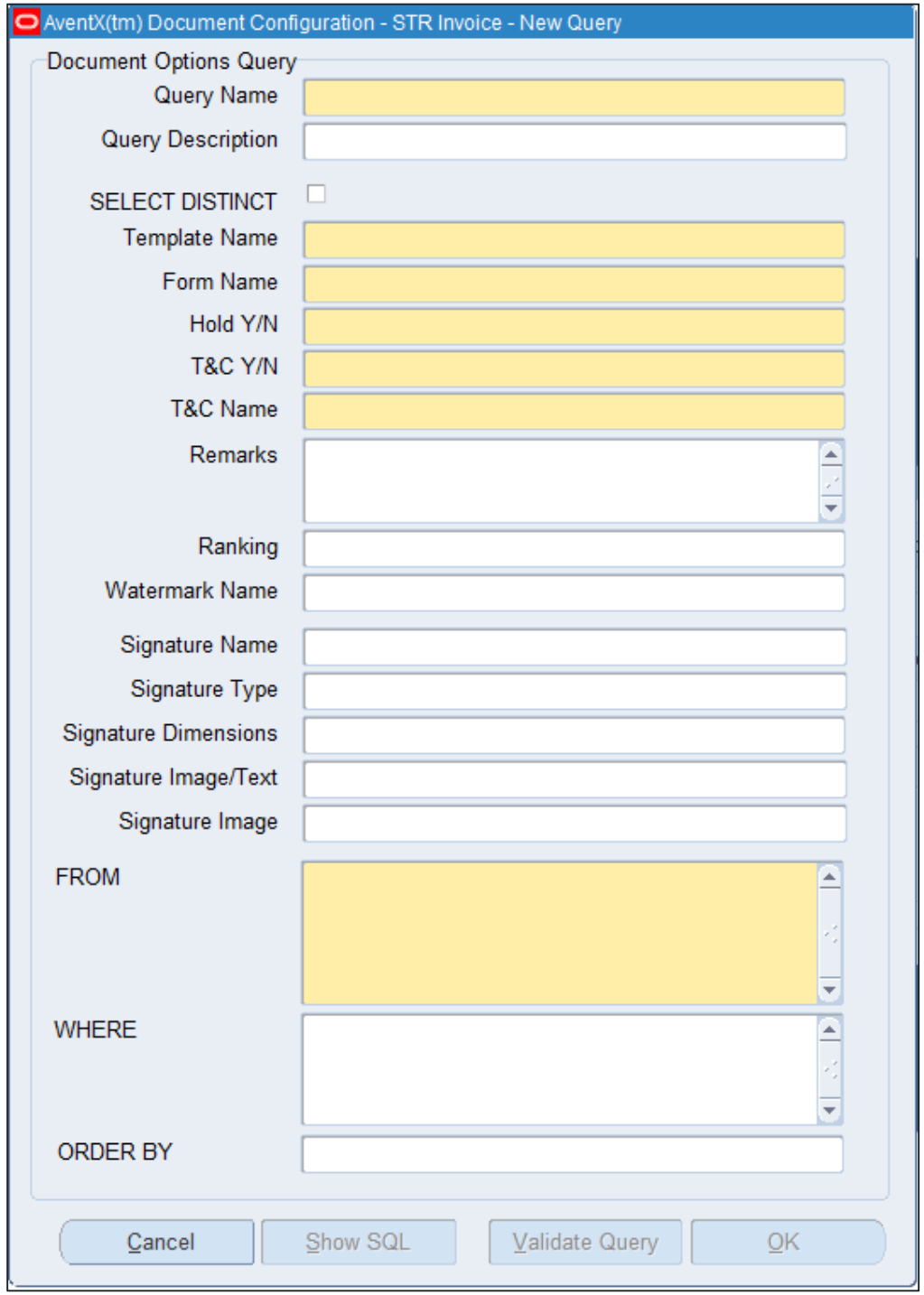
Setting Up Digital Signatures with AventX

Doc Options Query



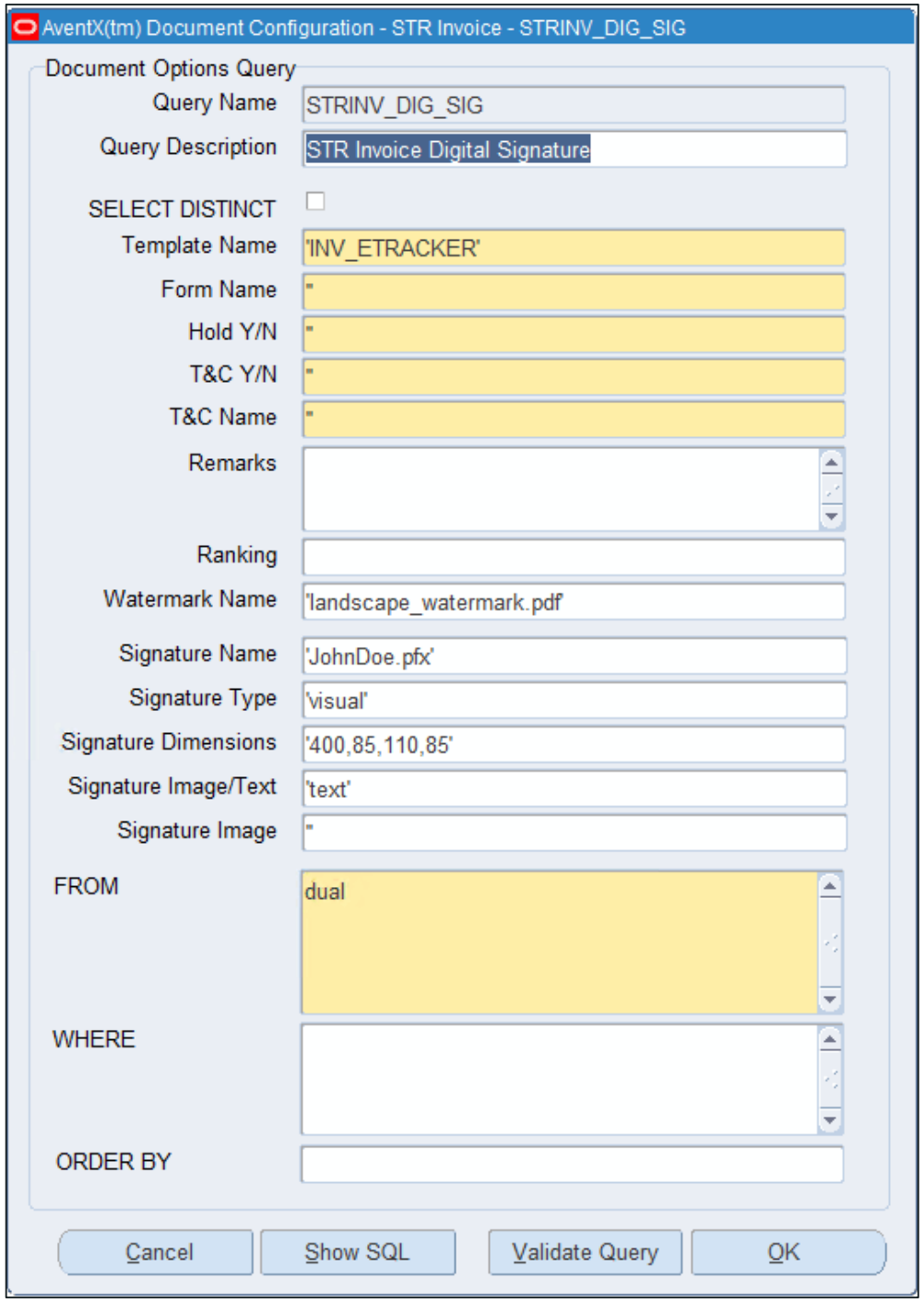
Setting Up Digital Signatures with AventX

Doc Options Query Canvas



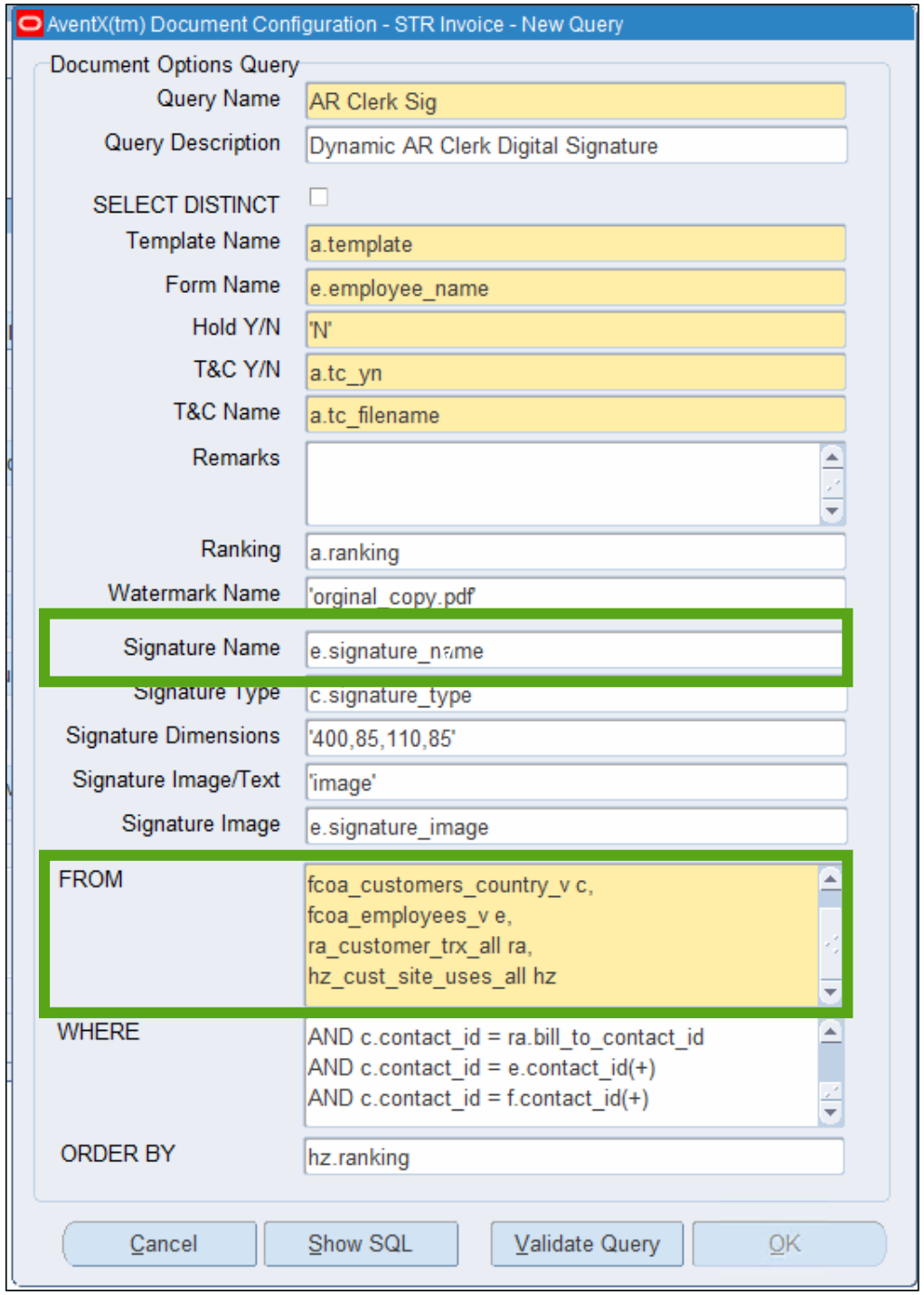
Setting Up Digital Signatures with AventX

Query Definition



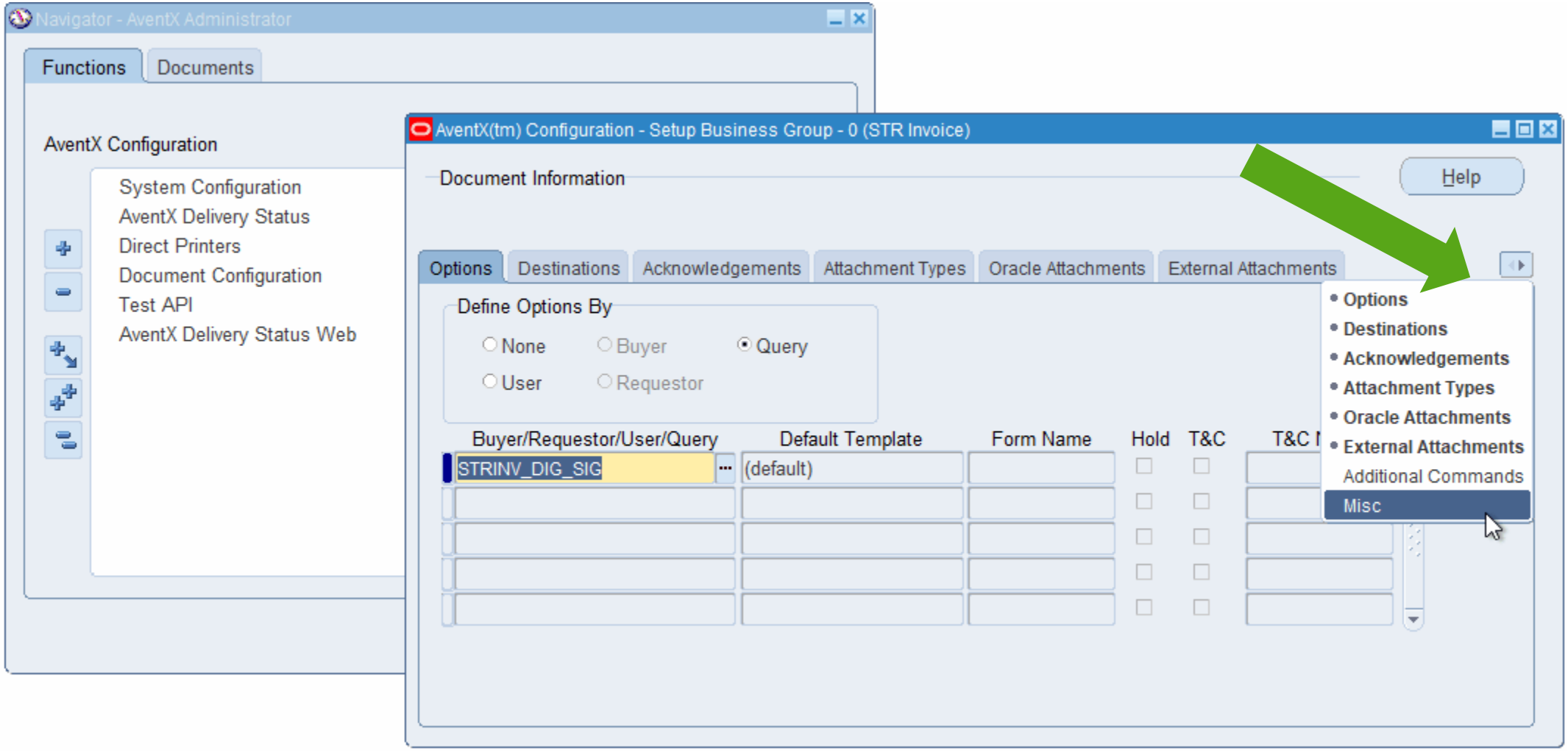
Setting Up Digital Signatures with AventX

Advanced SQL for Dynamic Insertion



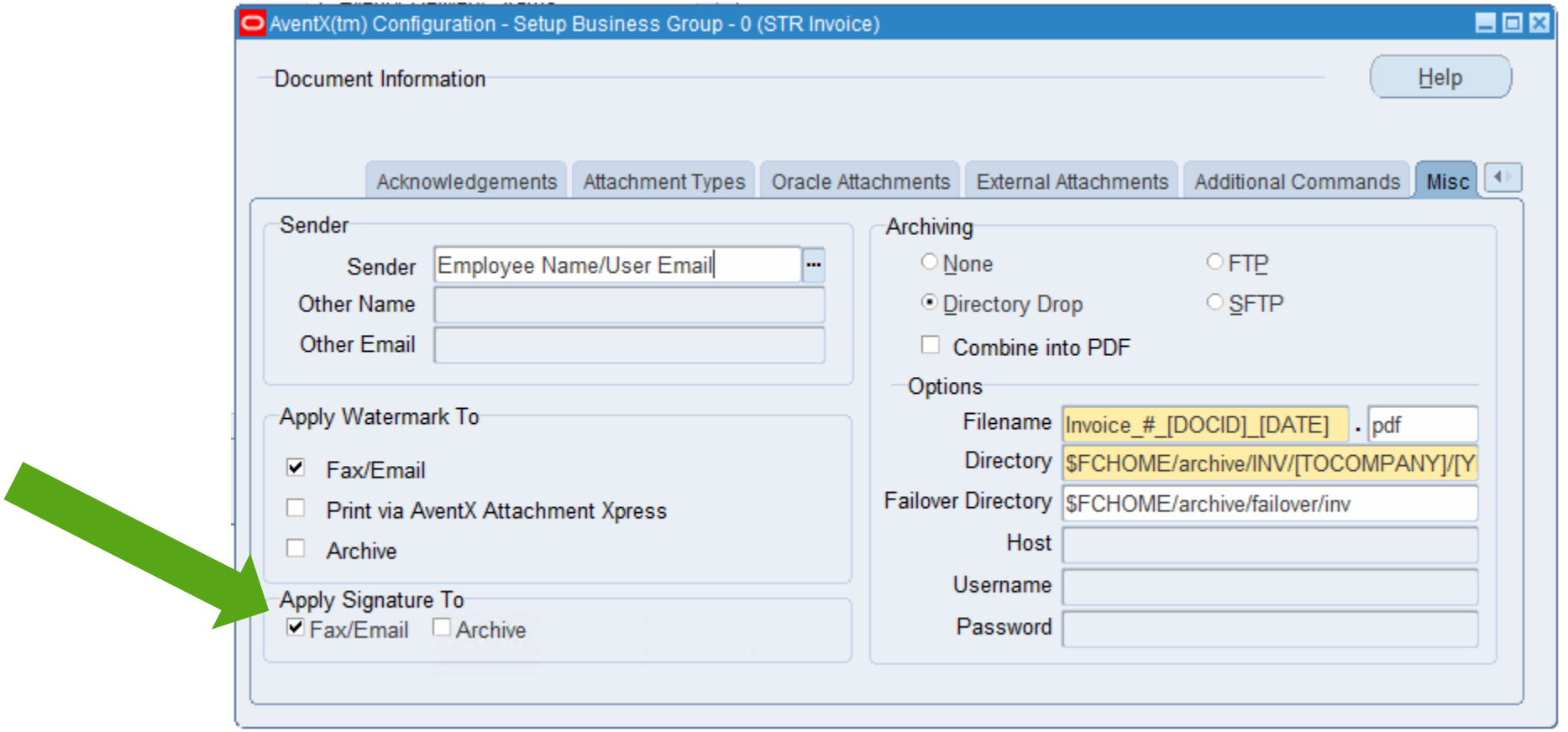
Setting Up Digital Signatures with AventX

Dynamic Application



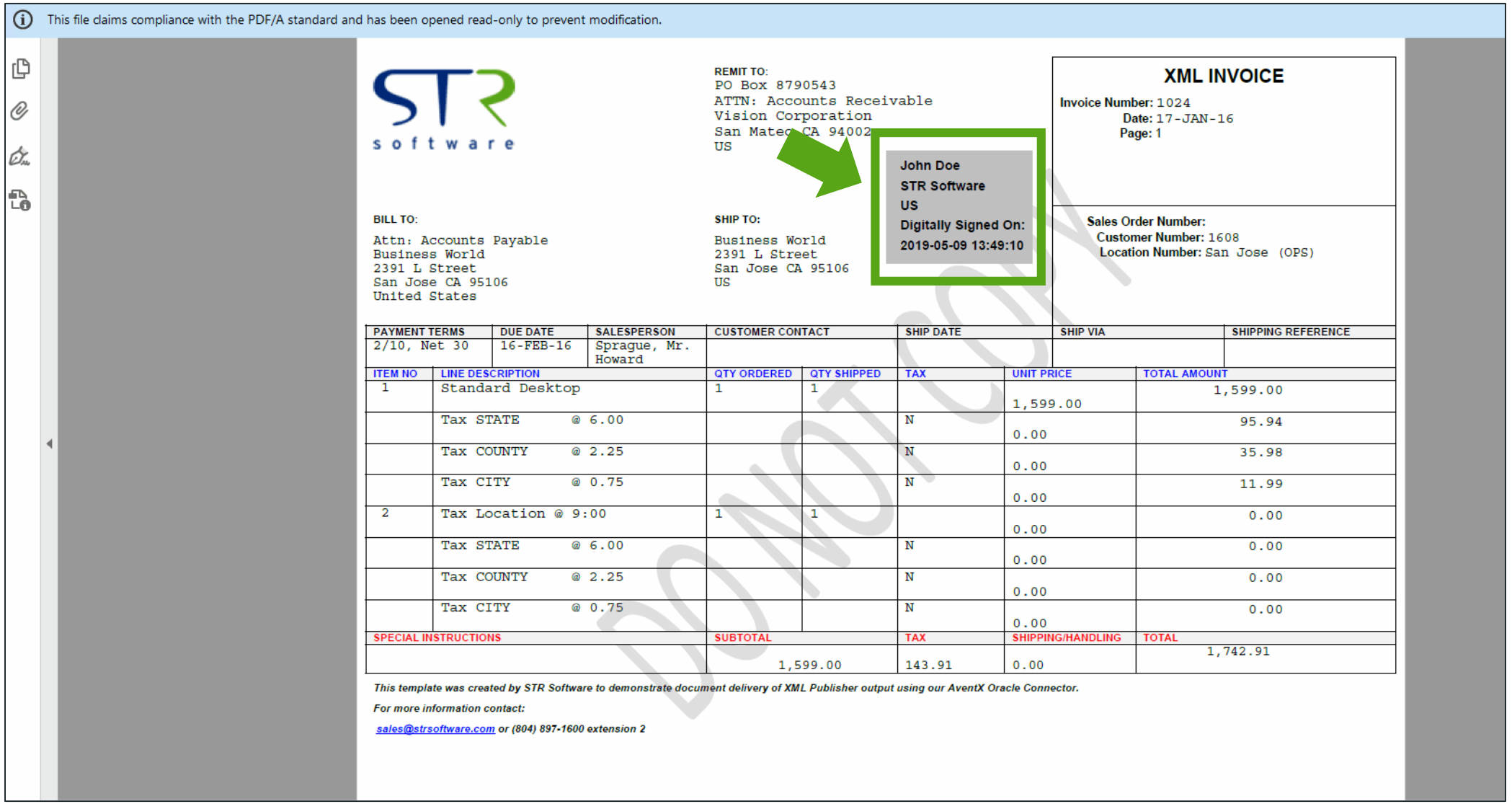
Setting Up Digital Signatures with AventX

Dynamic Application



Setting Up Digital Signatures with AventX

Digital Signature In Action



This file claims compliance with the PDF/A standard and has been opened read-only to prevent modification.

STR software

REMIT TO:
PO Box 8790543
ATTN: Accounts Receivable
Vision Corporation
San Mateo CA 94002
US

John Doe
STR Software
US
Digitally Signed On:
2019-05-09 13:49:10

XML INVOICE

Invoice Number: 1024
Date: 17-JAN-16
Page: 1

BILL TO:
Attn: Accounts Payable
Business World
2391 L Street
San Jose CA 95106
United States

SHIP TO:
Business World
2391 L Street
San Jose CA 95106
US

Sales Order Number:
Customer Number: 1608
Location Number: San Jose (OPS)

PAYMENT TERMS	DUE DATE	SALESPERSON	CUSTOMER CONTACT	SHIP DATE	SHIP VIA	SHIPPING REFERENCE
2/10, Net 30	16-FEB-16	Sprague, Mr. Howard				

ITEM NO	LINE DESCRIPTION	QTY ORDERED	QTY SHIPPED	TAX	UNIT PRICE	TOTAL AMOUNT
1	Standard Desktop	1	1		1,599.00	1,599.00
	Tax STATE @ 6.00			N	0.00	95.94
	Tax COUNTY @ 2.25			N	0.00	35.98
	Tax CITY @ 0.75			N	0.00	11.99
2	Tax Location @ 9:00	1	1		0.00	0.00
	Tax STATE @ 6.00			N	0.00	0.00
	Tax COUNTY @ 2.25			N	0.00	0.00
	Tax CITY @ 0.75			N	0.00	0.00

SPECIAL INSTRUCTIONS	SUBTOTAL	TAX	SHIPPING/HANDLING	TOTAL
	1,599.00	143.91	0.00	1,742.91

This template was created by STR Software to demonstrate document delivery of XML Publisher output using our AventX Oracle Connector.

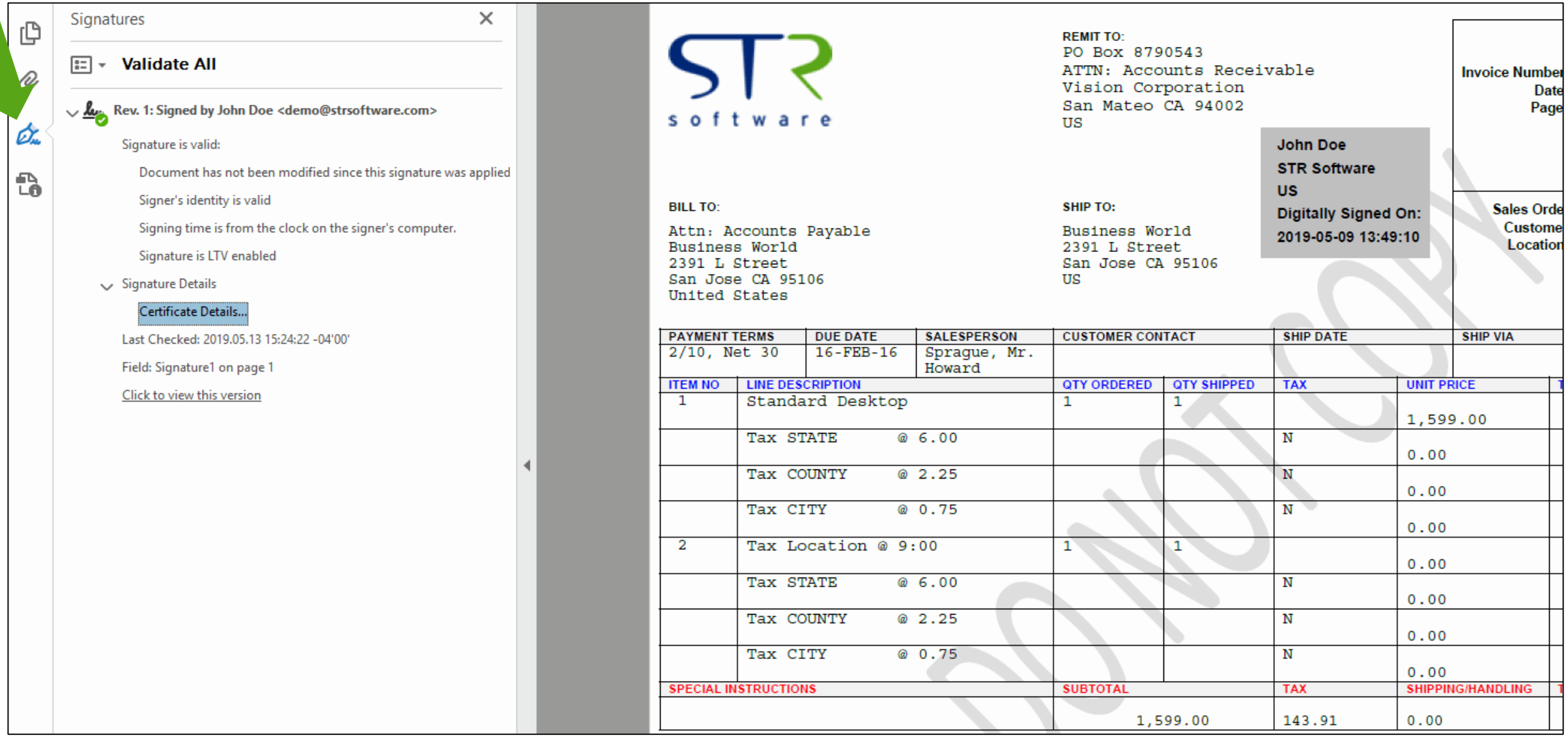
For more information contact:

sales@strsoftware.com or (804) 897-1600 extension 2

DO NOT COPY

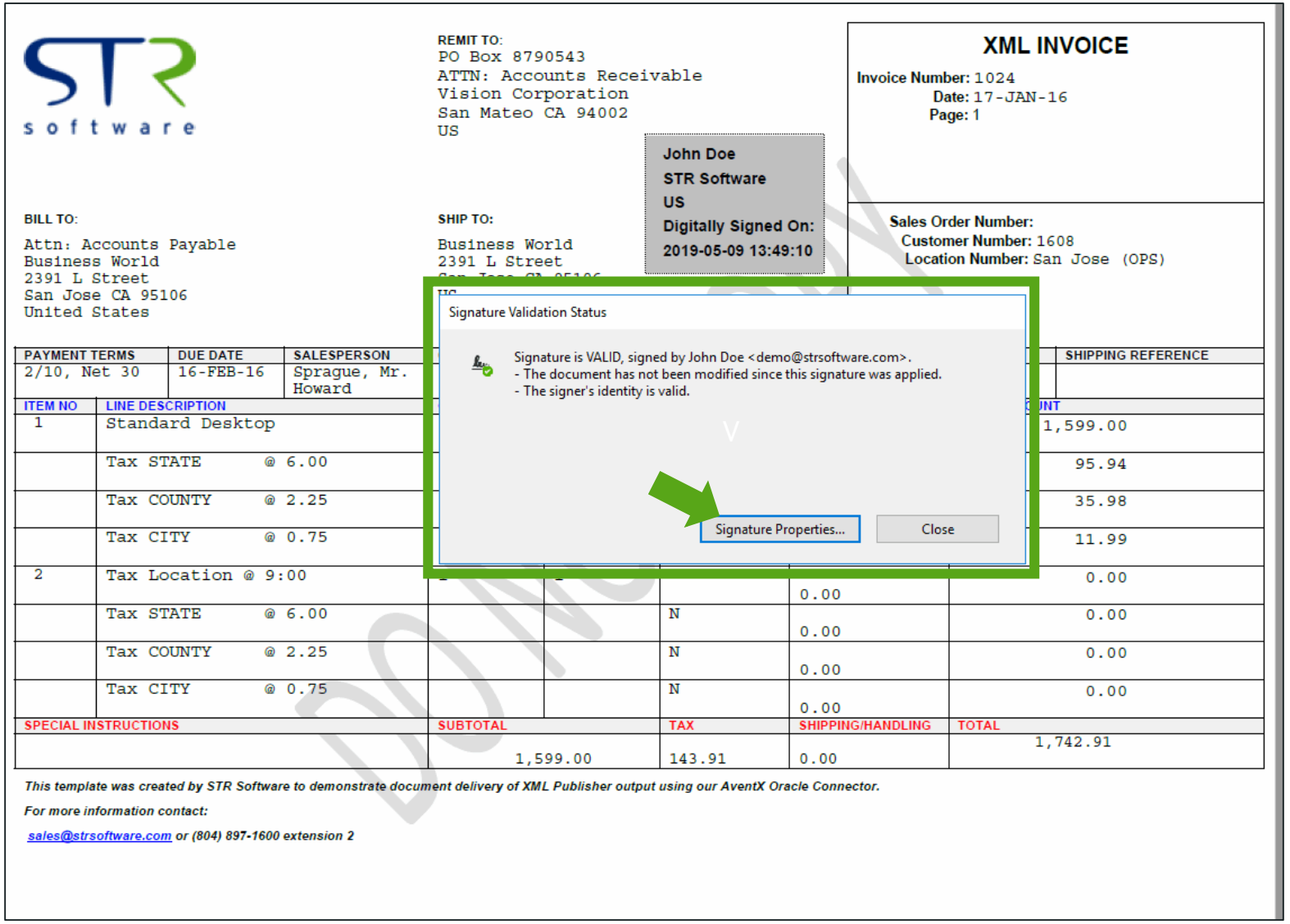
Setting Up Digital Signatures with AventX

Digital Signature Validation



Setting Up Digital Signatures with AventX

Digital Signature Validation



REMIT TO:
PO Box 8790543
ATTN: Accounts Receivable
Vision Corporation
San Mateo CA 94002
US

XML INVOICE

Invoice Number: 1024
Date: 17-JAN-16
Page: 1

John Doe
STR Software
US
Digitally Signed On:
2019-05-09 13:49:10

BILL TO:
Attn: Accounts Payable
Business World
2391 L Street
San Jose CA 95106
United States

SHIP TO:
Business World
2391 L Street

Sales Order Number:
Customer Number: 1608
Location Number: San Jose (OPS)

Signature Validation Status

Signature is VALID, signed by John Doe <demo@strsoftware.com>.
- The document has not been modified since this signature was applied.
- The signer's identity is valid.

Signature Properties... | Close

PAYMENT TERMS	DUE DATE	SALESPERSON	SHIPPING REFERENCE
2/10, Net 30	16-FEB-16	Sprague, Mr. Howard	

ITEM NO	LINE DESCRIPTION					
1	Standard Desktop					1,599.00
	Tax STATE @ 6.00					95.94
	Tax COUNTY @ 2.25					35.98
	Tax CITY @ 0.75					11.99
2	Tax Location @ 9:00				0.00	0.00
	Tax STATE @ 6.00			N	0.00	0.00
	Tax COUNTY @ 2.25			N	0.00	0.00
	Tax CITY @ 0.75			N	0.00	0.00

SPECIAL INSTRUCTIONS	SUBTOTAL	TAX	SHIPPING/HANDLING	TOTAL
	1,599.00	143.91	0.00	1,742.91

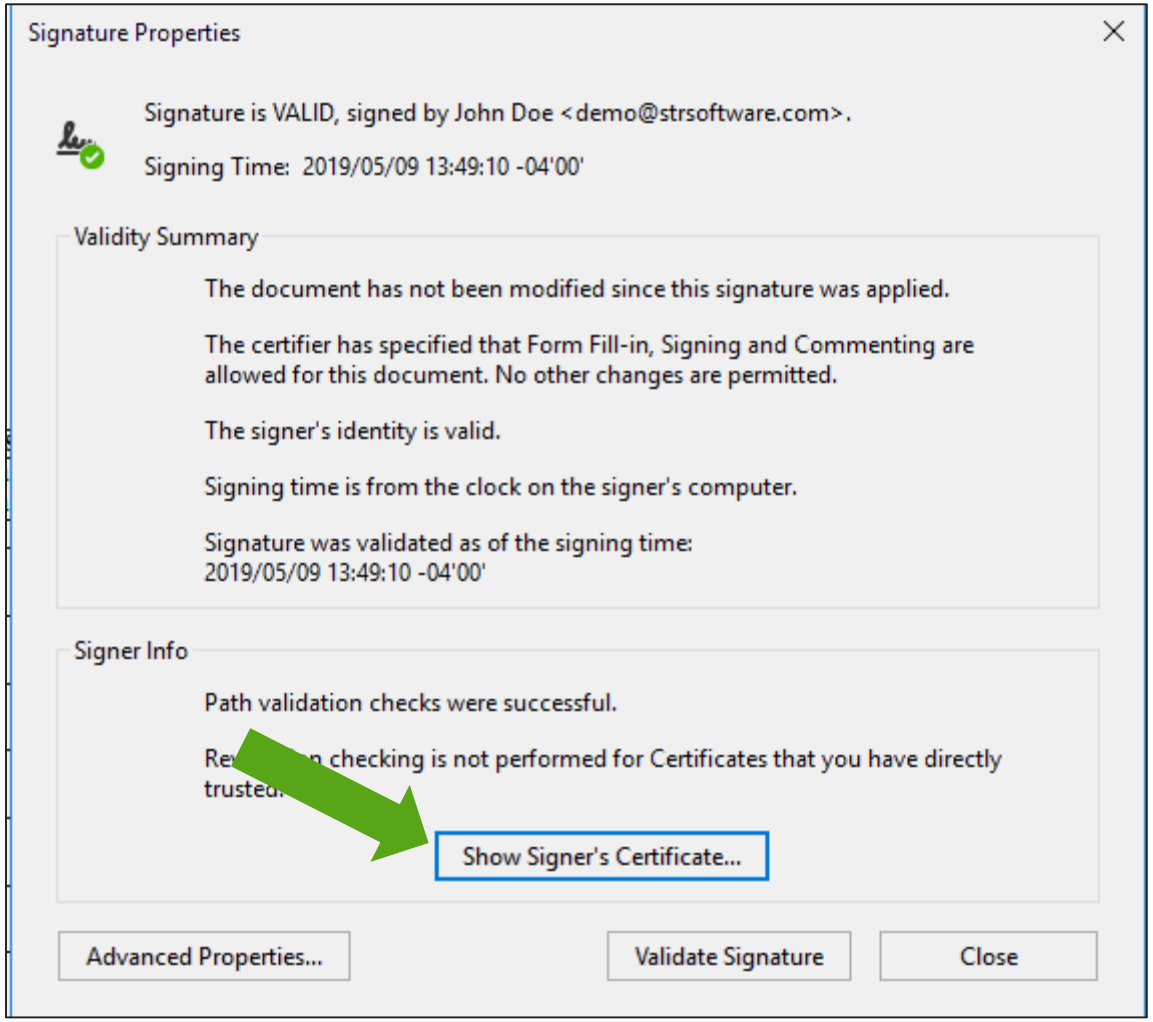
This template was created by STR Software to demonstrate document delivery of XML Publisher output using our AventX Oracle Connector.

For more information contact:

sales@strsoftware.com or (804) 897-1600 extension 2

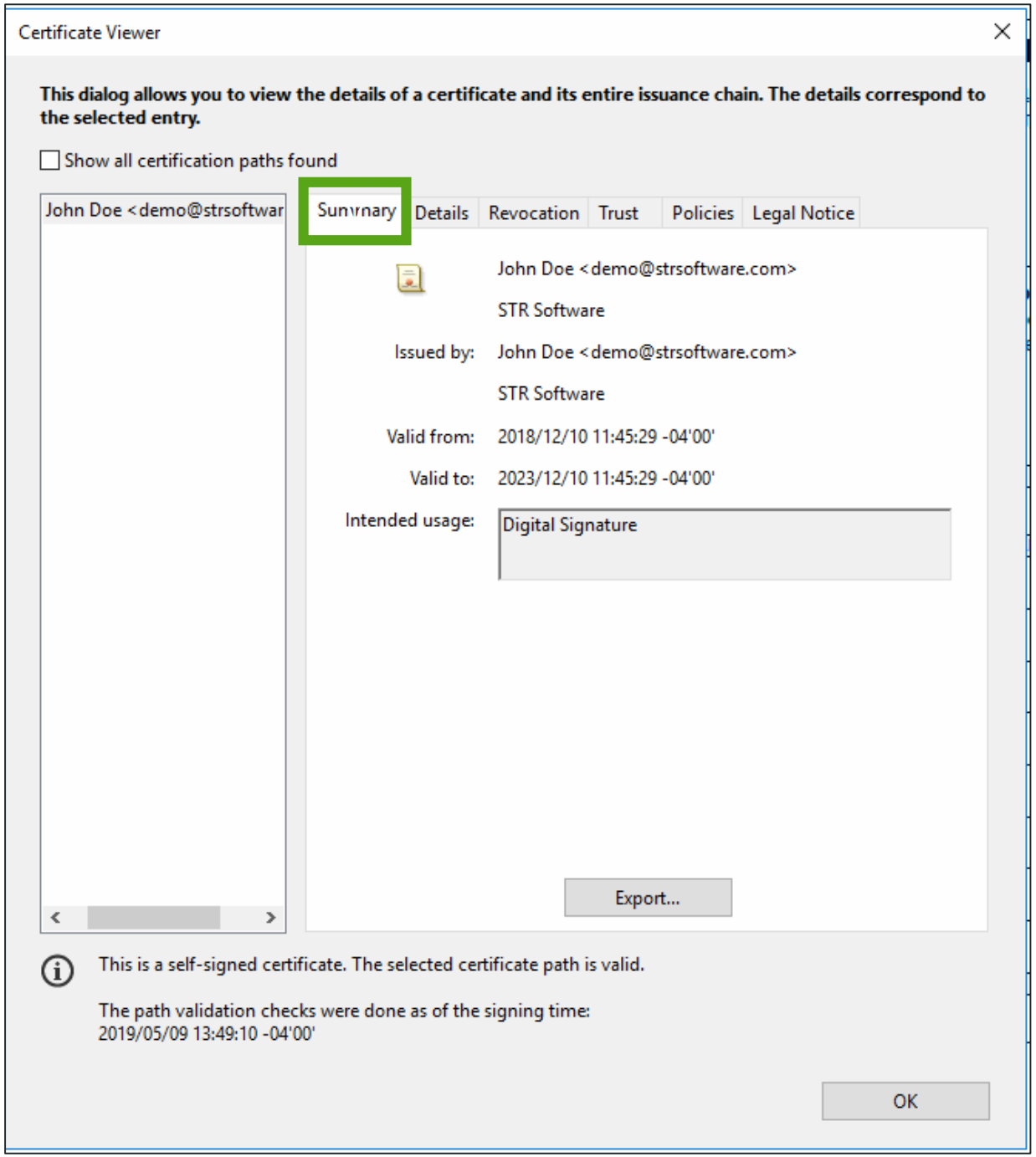
Setting Up Digital Signatures with AventX

Digital Signature Validation



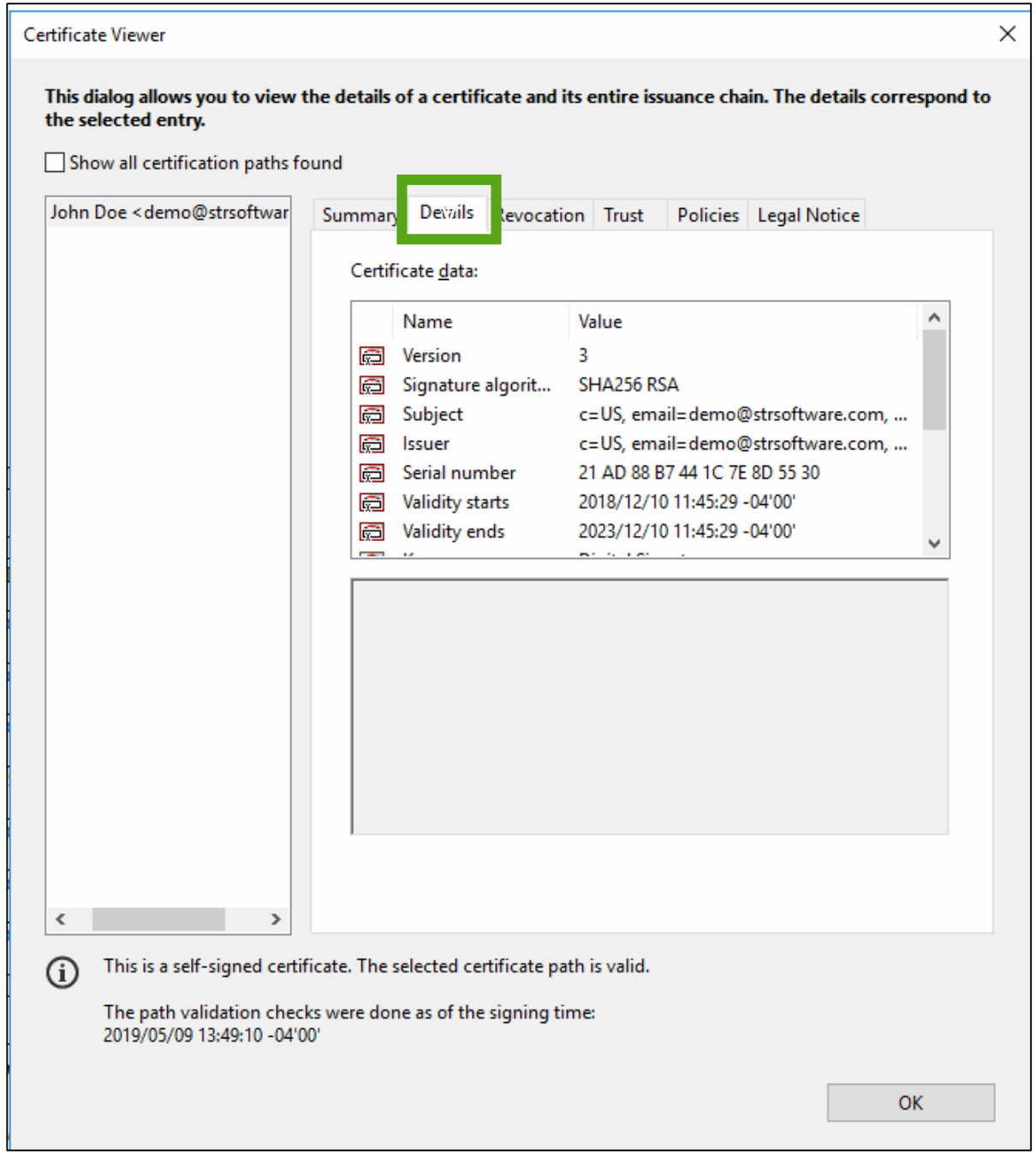
Setting Up Digital Signatures with AventX

Digital Signature Validation



Setting Up Digital Signatures with AventX

Digital Signature Validation



Comparison

BIP vs AventX

Comparing the application of Digital Signatures using BI Publisher and AventX

	Oracle BIP	AventX
Number of Unique Digital Signatures	1	∞
Schedule Jobs	✓	✓
One-Off Jobs	–	✓
Signature Embedded to Report	✓	✓
Signature Embedded to Template	–	–
Signature Embedded Dynamically	–	✓
Applied based on Document Type	–	✓
Applied based on User	–	✓
Applied based on Custom Query	–	✓

Additional Security Features

Deliver documents with even more security.

Additional Security

1

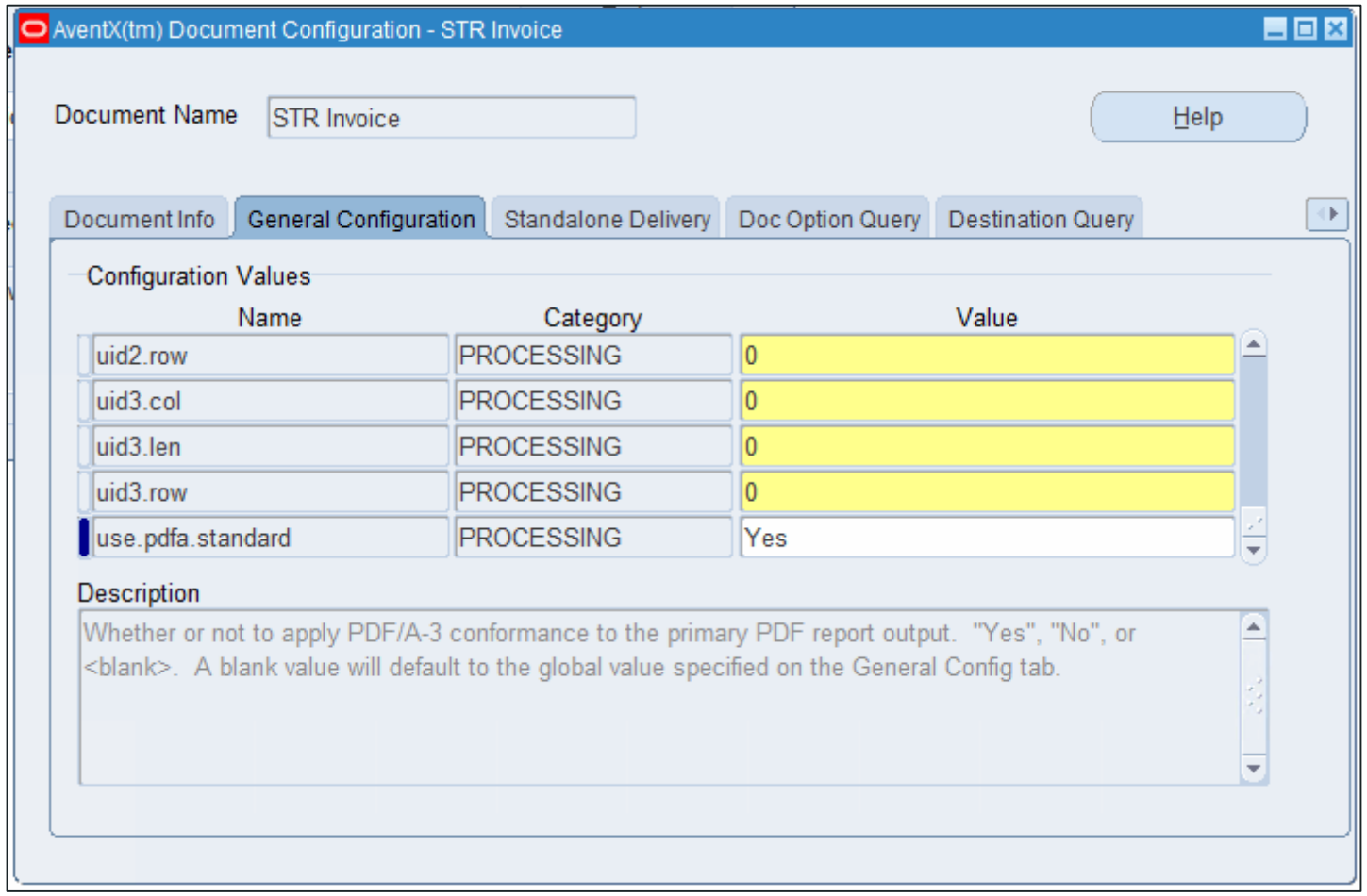
PDF/A Format
Widely becoming the standard across all industries for archiving digital files. In simple terms, PDF/A is a PDF format which prohibits the use of features that could hinder long-term archiving and future reproduction. The ISO (International Organization for Standardization) recognizes PDF/A as the *standard format for long-term preservation*. Further, it can be *leveraged as a security tool, for delivery of legally binding documents, storing files in different languages*, full-text searching, and more.

2

Apply Document Restrictions & Watermarks
The standard PDF format allows file creators to implement advanced security features in documents. Ideal for outbound delivery of files, such as DRAFT Contracts, AventX provides the ability to apply these document watermarks automatically using flexible logic.

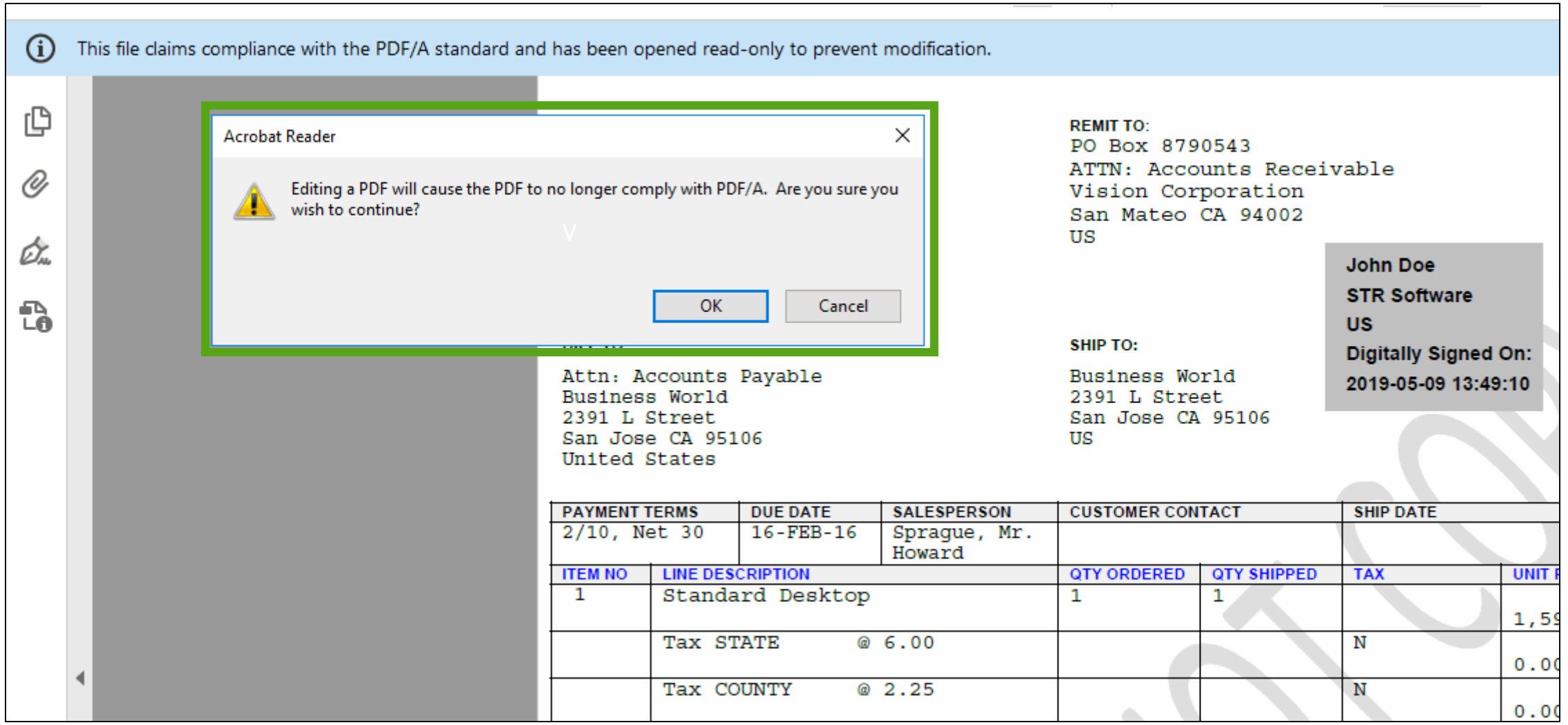
Setting Up PDF/A properties with AventX

Document Security using PDF/A



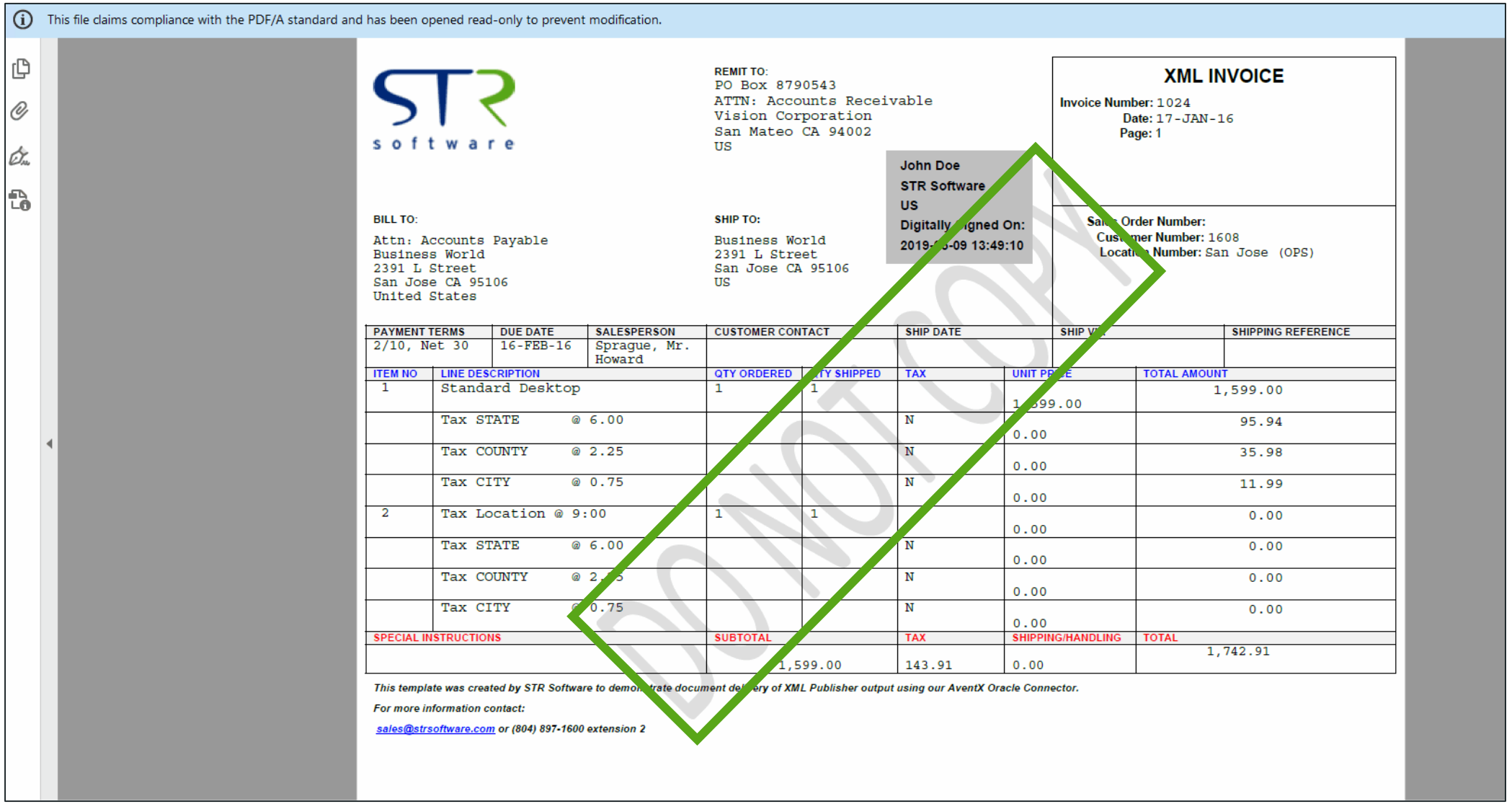
Setting Up PDF/A properties with AventX

Document Security using PDF/A



Using Watermarks with AventX

Document Security using Watermarks



Review

Review

1

Email: Preferred Business Communication

Despite not always being a secure option, Email is still the most preferred (and direct) method for email communications, including the delivery of important documents.

2

Digital Signatures > Electronic Signatures

Deploying robust authentication using certificates and Public Key Infrastructure, Digital Signatures provide advanced security and are therefore given higher evidentiary weight.

3

BI Publisher Supports Digital Signatures…kind of

Oracle offers very basic support for deploying PDF security via BI Publisher, Dynamic Digital Signatures provide unlimited customization

4

Additional Security Features

Easily deploy additional security features to delivery documents via PDF/A (perfect for Multilanguage support and archiving) and add watermarks

STR software

www.strsoftware.com

Richmond, Virginia

since

1986

Data Transfer
Mobile
Email
Print
Fax
for ERPs

OAUG

Quest

Oracle

1,500+
Licenses

22
Countries

1,344

donuts per year
(approximately)

Q&A

Ted Chappell

Director of Product Management
STR Software • Richmond, VA

p: 804.897.1600

e: ted.chappell@strsoftware.com

@TedChappell

/in/tedchappell/

Oracle Analytics, BI and Big Data
Special Interest Group