

#### Microsoft workshop:

# Extend E-document core solution to suit your requirements

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directions lyon emea 2023

#### Who are we?



**Aleksandar Totovic** 

Product Manager @Microsoft



**Predrag Maricic** 

Principal engineering manager @Microsoft



Wael AbuSeada

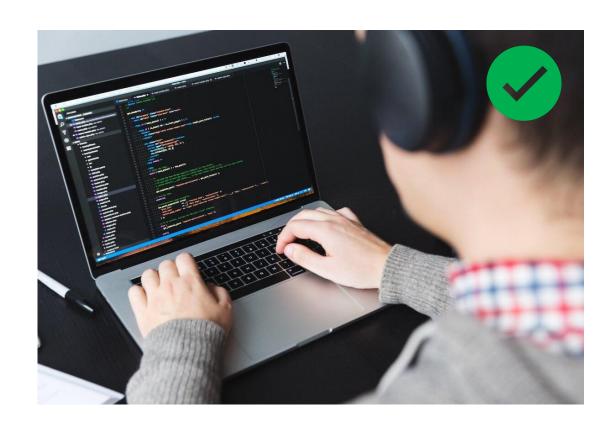
"Legendary" Software Engineer @ Microsoft

## Agenda

- Introduction
- Architecture
- Setup dev environment
- Build E-Document format
- Integrate to an endpoint
- Show your work

## Introduction

## Who is the workshop intended for?

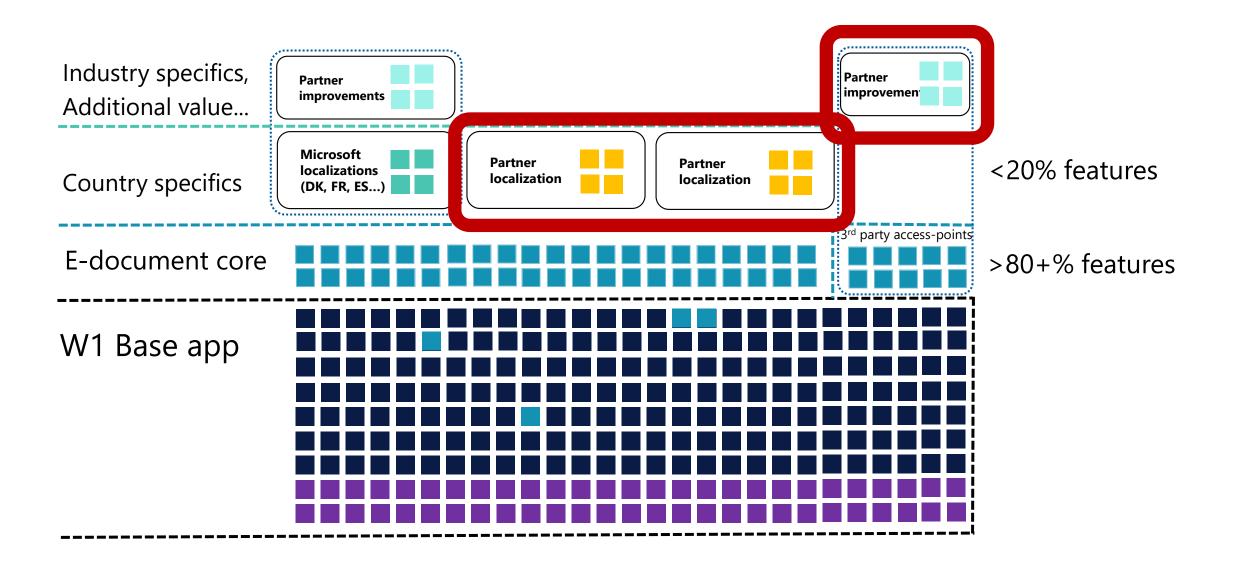




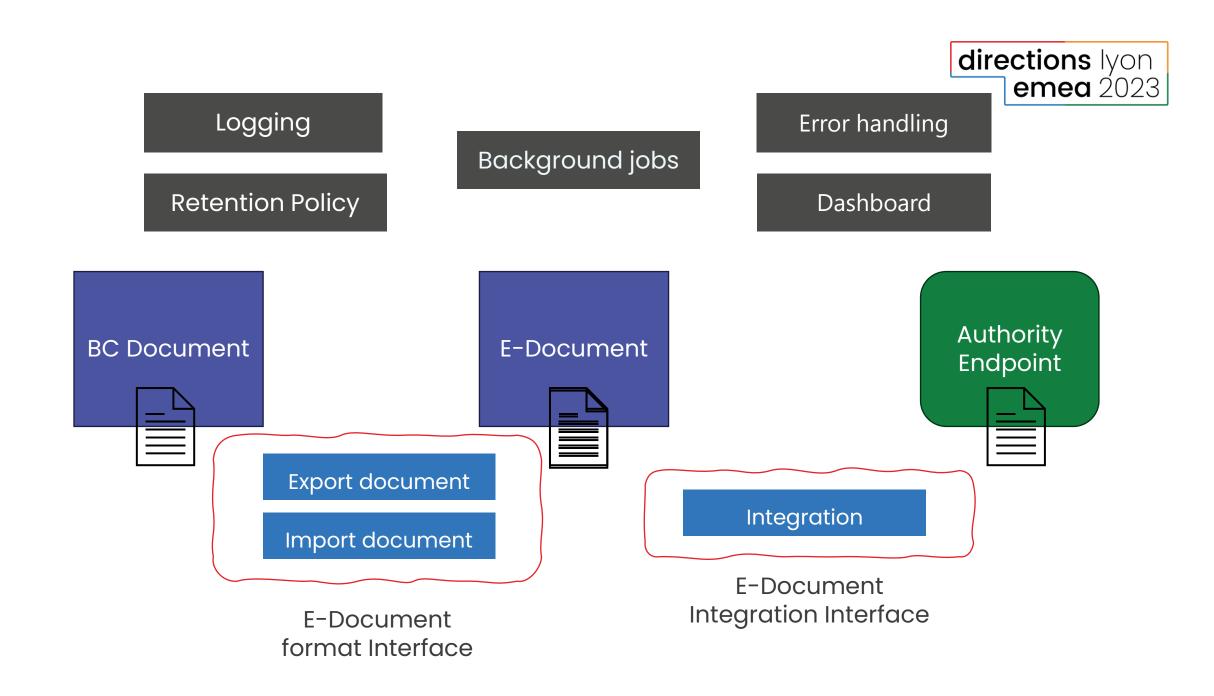
Developers

Consultants, Sales, Managers...

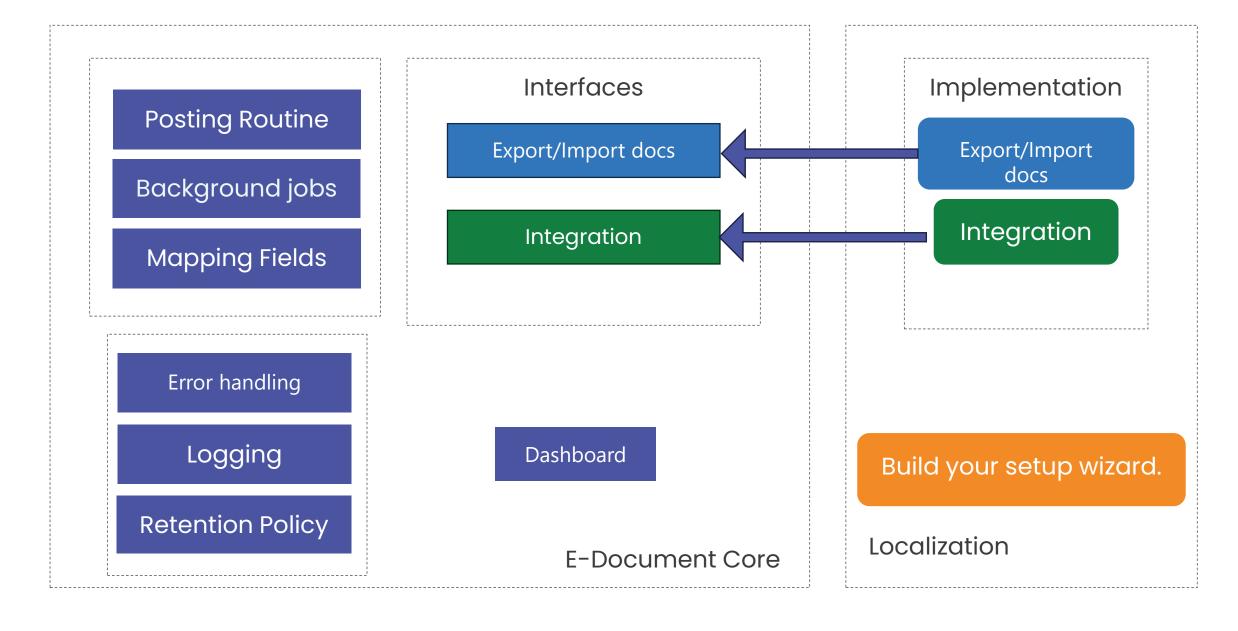
## Who is the workshop intended for?



#### Architecture



#### Architecture



## Step by step guide to create your own localization app

## **Initial implementation**

#### Initial implementation

- · Create new app
- · Add dependency on "E-Document core"
- · Extend Format enum and create implementation codeunit
- · Extend Integration enum and create implementation codeunit

#### **E-document Format interface**

#### **E-document Format interface**

```
codeunit 50112 "Demo Format" implements "E-Document"
          0 references
          procedure Check(var SourceDocumentHeader: RecordRef; EDocumentService: Record "E-Document Service"; EDocumentProcessingPhase: Enum "E-Document Processing Phase")
          var
          begin
          end;
          0 references
          procedure Create(EDocumentFormat: Record "E-Document Service"; var EDocument: Record "E-DocumentHeader: RecordRef; var SourceDocumentHeader: RecordRef; var SourceDocumentHeader: RecordRef; var SourceDocumentHeader: RecordRef; var SourceDocumentHeader: Record "E-DocumentHeader: 
          var
          begin
          end;
          procedure CreateBatch(EDocService: Record "E-Document Service"; var EDocument: Record "E-Document"; var SourceDocumentHeaders: RecordRef; var SourceDocumentSLines: RecordRef;
          begin
          end;
          0 references
          procedure GetBasicInfoFromReceivedDocument(var EDocument: Record "E-Document"; var TempBlob: Codeunit "Temp Blob")
           var
          begin
          end;
          procedure GetCompleteInfoFromReceivedDocument(var EDocument: Record "E-Document"; var CreatedDocumentHeader: RecordRef; var CreatedDocumentLines: RecordRef; var TempBlob: Code
          var
          begin
          end;
```

## **Sending - Check**

```
procedure Check(var SourceDocumentHeader: RecordRef; EDocumentService: Record "E-Document Service"; EDocumentProcessingPhase: Enum "E-Document Processing Phase")
var
    SalesHeader: Record "Sales Header";
begin
    Case SourceDocumentHeader.Number of
        Database:: "Sales Header":
            case EDocumentProcessingPhase of
                EDocumentProcessingPhase::Release:
                    begin
                        SourceDocumentHeader.Field(SalesHeader.FieldNo("Customer Posting Group")).TestField();
                        SourceDocumentHeader.Field(SalesHeader.FieldNo("Posting Date")).TestField();
                    end;
                EDocumentProcessingPhase::Post:
                    begin
                        SourceDocumentHeader.Field(SalesHeader.FieldNo("Customer Posting Group")).TestField();
                        SourceDocumentHeader.Field(SalesHeader.FieldNo("Posting Date")).TestField();
                        SourceDocumentHeader.Field(SalesHeader.FieldNo("Bill-to Name")).TestField();
                    end;
            end;
    End;
end;
```

#### **Sending - Create**

```
procedure Create(EDocumentService: Record "E-Document Service"; var EDocument: Record "E-Document"; var SourceDocumentHeader: RecordRef; var SourceDocumentLines: RecordRef; var TempBlob: Codeunit "Temp Blob")

var

OutStr: OutStream;

begin

TempBlob.CreateOutStream(OutStr);

case EDocument."Document Type" of

EDocument."Document Type"::"Sales Invoice":

GenerateInvoiceXMLFile(SourceDocumentHeader, OutStr);

EDocument."Document Type"::"Sales Credit Memo":

GenerateCrMemoXMLFile(SourceDocumentHeader, OutStr);

end;
end;
end;
```

#### **Sending - Create**

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
EKInvoice xmlns:cac="urn:oasis:names:specification:ubl:schema:xsd:CommonAggregateComponents-2" xmlns:cbc="urn:oasis:names:specification:ubl:schema:xsd:CommonBasicComponents-2"
 xmlns:ccts="urn:un:unece:uncefact:documentation:2" xmlns:gdt="urn:oasis:names:specification:ubl:schema:xsd:QualifiedDatatypes-2" xmlns:udt=
 "urn:un:unece:uncefact:data:specification:UnqualifiedDataTypesSchemaModule:2" xmlns="urn:oasis:names:specification:ubl:schema:xsd:Invoice-2">
  <cbc:CustomizationID>urn:cen.eu:en16931:2017#compliant#urn:fdc:peppol.eu:2017:poacc:billing:3.0/cbc:CustomizationID>
  <cbc:ProfileID>urn:fdc:peppol.eu:2017:poacc:billing:01:1.0</cbc:ProfileID>
   <cbc:ID>103226</cbc:ID>
   <cbc:IssueDate>2023-04-10</cbc:IssueDate>
   <cbc:DueDate>2023-05-10</cbc:DueDate>
   <cbc:InvoiceTypeCode>380</cbc:InvoiceTypeCode>
   <cbc:DocumentCurrencyCode>GBP</cbc:DocumentCurrencyCode>
   <cbc:BuyerReference>Ref 001</cbc:BuyerReference>
  <cac:ContractDocumentReference>
    <cbc:ID>103226</cbc:ID>
   </cac:ContractDocumentReference>
  <cac:AccountingSupplierParty>
    <cac:Party>
      <cbc:EndpointID schemeID="9932">77777777</cbc:EndpointID>
      <cac:PartvName>
        <cbc:Name>CRONUS UK Ltd.</cbc:Name>
       </cac:PartyName>
      <cac:PostalAddress>
        <cbc:StreetName>7122 South Ashford Street/cbc:StreetName>
        <cbc:AdditionalStreetName>Westminster</cbc:AdditionalStreetName>
        <cbc:CityName>London</cbc:CityName>
         <cbc:PostalZone>W2 8HG</cbc:PostalZone>
         <cac:Country>
          <cbc:IdentificationCode>GB</cbc:IdentificationCode>
        </cac:Country>
       </cac:PostalAddress>
       <cac:PartyTaxScheme>
        <cbc:CompanyID>GB77777777</cbc:CompanyID>
        <cac:TaxScheme>
          <cbc:ID>VAT</cbc:ID>
        </cac:TaxScheme>
      </cac:PartyTaxScheme>
       <cac:PartyLegalEntity>
        <cbc:RegistrationName>CRONUS UK Ltd.</cbc:RegistrationName>
        <cbc:CompanyID>77777777
       </cac:PartyLegalEntity>
       <cac:Contact>
        <cbc:Name>Jim Olive</cbc:Name>
        <cbc:ElectronicMail>J0@contoso.com</cbc:ElectronicMail>
      </cac:Contact>
    </cac:Party>
   </cac:AccountingSupplierParty>
  <cac:AccountingCustomerParty>
    <cac:Party>
      <cbc:EndpointID schemeID="9932">GB111111111</p
      <cac:PartyName>
        <cbc:Name>Adatum Corporation</cbc:Name>
       </cac:PartyName>
```

#### Receiving - GetBasicInfoFromReceivedDocument

```
procedure GetBasicInfoFromReceivedDocument(var EDocument: Record "E-Document"; var TempBlob: Codeunit "Temp Blob")
var
begin
    EDocument. "Receiving Company VAT Reg. No." := CompanyInformation. "VAT Registration No.";
    EDocument."Receiving Company GLN" := CompanyInformation.GLN;
    EDocument."Receiving Company Name" := CompanyInformation.Name;
    EDocument."Receiving Company Address" := CompanyInformation.Address;
    EDocument."Document Type" := EDocument."Document Type"::"Purchase Invoice";
    EDocument."Document Date" := WorkDate();
    EDocument."Bill-to/Pay-to No." := '10000';
    EDocument."Bill-to/Pay-to Name" := 'Fabrikam, Inc.';
   EDocument."Amount Excl. VAT" := 15316.70;
   EDocument. "Amount Incl. VAT" := 19145.88;
```

#### Receiving - GetCompleteInfoFromReceivedDocument

```
procedure GetCompleteInfoFromReceivedDocument(var EDocument: Record "E-Document"; var CreatedDocumentHeader: RecordRef; var
CreatedDocumentLines: RecordRef; var TempBlob: Codeunit "Temp Blob"
var
    PurchaseHeader: Record "Purchase Header" temporary;
    PurchaseLine: Record "Purchase Line" temporary;
    LineNo: Integer;
begin
    LineNo := 10000;
    CreateInvoiceHeader(PurchaseHeader, '10000', 'Vend inv 001');
    CreatePurchaseLine(PurchaseHeader, PurchaseLine, LineNo, Enum:: "Purchase Line Type"::Item, '1100', 10, 27.8);
    CreatePurchaseLine(PurchaseHeader, PurchaseLine, LineNo, Enum:: "Purchase Line Type"::Item, '1200', 7, 506.6);
    CreatePurchaseLine(PurchaseHeader, PurchaseLine, LineNo, Enum:: "Purchase Line Type":: Item, '1300', 15, 219.5);
    CreatePurchaseLine(PurchaseHeader, PurchaseLine, LineNo, Enum:: "Purchase Line Type"::Item, '1400', 25, 328);
    CreatedDocumentHeader.GetTable(PurchaseHeader);
    CreatedDocumentLines.GetTable(PurchaseLine);
```

```
procedure CreateInvoiceHeader(var PurchaseHeader: Record "Purchase Header"; VendorNo: Code[20]; VendorInvoiceNo: Code[35])
var
begin
    PurchaseHeader.Init();
    PurchaseHeader.Validate("Document Type", PurchaseHeader."Document Type"::Invoice);
    PurchaseHeader."Buy-from Vendor No." := VendorNo;
    PurchaseHeader."Vendor Invoice No." := VendorInvoiceNo;
    PurchaseHeader."No." := VendorInvoiceNo;
    PurchaseHeader.Insert();
end;
68 references
procedure CreatePurchaseLine(var PurchaseHeader: Record "Purchase Header"; var PurchaseLine: Record "Purchase Line"; var
LineNo: Integer; LineType: Enum "Purchase Line Type"; No: Code[20]; Quantity: Decimal; DirectUnitCost: Decimal)
var
begin
    PurchaseLine.Init();
    PurchaseLine."Document Type" := PurchaseHeader."Document Type";
    PurchaseLine."Document No." := PurchaseHeader."No.";
    PurchaseLine.Type := LineType;
    PurchaseLine."No." := No;
    PurchaseLine."Line No." := LineNo;
    PurchaseLine.Quantity := Quantity;
    PurchaseLine."Direct Unit Cost" := DirectUnitCost;
    PurchaseLine."Item Reference No." := No;
    PurchaseLine.Insert();
    LineNo += 1000;
end;
```

## Integration interface

#### Integration interface

```
codeunit 50111 "Contoso Service" implements "E-Document Integration"
       0 references
       EDocumentHelper: Codeunit "E-Document Helper";
   procedure Send(var EDocument: Record "E-Document"; var TempBlob: Codeunit "Temp Blob"; var IsAsync: Boolean; var HttpRequestMessage; var HttpResponse: HttpResponseMessage);
   begin
   end;
   procedure SendBatch(var EDocuments: Record "E-Document"; var TempBlob: Codeunit "Temp Blob"; var IsAsync: Boolean; var HttpRequest HttpRequestMessage; var HttpResponse: HttpResponseMessage);
   begin
   end;
   procedure GetResponse(var EDocument: Record "E-Document"; var HttpRequest: HttpRequestMessage; var HttpResponse: HttpResponseMessage): Boolean;
   begin
   end;
   procedure GetApproval(var EDocument: Record "E-Document"; var HttpRequest: HttpRequestMessage; var HttpResponse: HttpResponseMessage): Boolean;
   begin
   end;
   procedure Cancel(var EDocument: Record "E-Document"; var HttpRequest: HttpRequestMessage; var HttpResponse: HttpResponseMessage): Boolean;
   begin
   end;
   procedure ReceiveDocument(var TempBlob: Codeunit "Temp Blob"; var HttpRequest: HttpRequestMessage; var httpResponse: HttpResponseMessage);
   var
   begin
   end;
   procedure GetDocumentCountInBatch(var TempBlob: Codeunit "Temp Blob"): Integer
       // Parse the tempblob to find how many documents in the batch.
   end;
   procedure GetIntegrationSetup(var SetupPage: Integer; var SetupTable: Integer)
       SetupPage := page:: "Contoso Serivce";
       SetupTable := Database::"Contoso Service Setup";
```

## Sending - Send

```
procedure Send(var EDocument: Record "E-Document"; var TempBlob: Codeunit "Temp Blob"; var IsAsync: Boolean; var HttpRequest: HttpRequestMessage; var HttpResponse:
HttpResponseMessage);
    var
       // Record that hold integration setup
        ExampleIntegration: Record "Example - Test Integration";
       HttpClient: HttpClient;
        Payload: Text;
   begin
        ExampleIntegration.Get();
        Payload := EDocumentHelper.TempBlobToTxt(TempBlob);
       // Manipulate the payload and set the headers if needed
       HttpRequest.Content.WriteFrom(Payload);
       HttpRequest.Method := 'POST';
       HttpRequest.SetRequestUri(ExampleIntegration."Sending Endpoint");
       HttpClient.Send(HttpRequest, HttpResponse);
       // Parse the response if needed.
   end;
```

## Sending - SendBatch

```
procedure SendBatch(var EDocuments: Record "E-Document"; var TempBlob: Codeunit "Temp Blob"; var IsAsync: Boolean; var HttpRequest: HttpRequestMessage; var
HttpResponse: HttpResponseMessage);
    var
       // Record that hold integration setup
        ExampleIntegration: Record "Example - Test Integration";
       HttpClient: HttpClient;
       Payload: Text;
   begin
        ExampleIntegration.Get();
       Payload := EDocumentHelper.TempBlobToTxt(TempBlob);
       // Manipulate the payload and set the headers if needed
       HttpRequest.Content.WriteFrom(Payload);
       HttpRequest.Method := 'POST';
       HttpRequest.SetRequestUri(ExampleIntegration."Sending Endpoint");
       HttpClient.Send(HttpRequest, HttpResponse);
       // Parse the response if needed.
    end:
```

## **Sending - GetResponse**

```
procedure GetResponse(var EDocument: Record "E-Document"; var HttpRequest: HttpRequestMessage; var HttpResponse: HttpResponseMessage): Boolean;
var
    // Record that hold integration setup
    ExampleIntegration: Record "Example - Test Integration";
    HttpClient: HttpClient;
begin
    ExampleIntegration.Get();
    // Manipulate the payload and set the headers if needed
    HttpRequest.Method := 'GET';
    HttpRequest.SetRequestUri(ExampleIntegration."Get Response Endpoint");
    HttpClient.Send(HttpRequest, HttpResponse);
    // Parse the response if needed.
    exit(HttpResponse.IsSuccessStatusCode);
end;
```

## **Sending - GetApproval**

```
procedure GetApproval(var EDocument: Record "E-Document"; var HttpRequest: HttpRequestMessage; var HttpResponse: HttpResponseMessage): Boolean;
var
    // Record that hold integration setup
    ExampleIntegration: Record "Example - Test Integration";
    HttpClient: HttpClient;
begin
    ExampleIntegration.Get();
    // Manipulate the payload and set the headers if needed
    HttpRequest.Method := 'GET';
    HttpRequest.SetRequestUri(ExampleIntegration."Get Response Endpoint");
    HttpClient.Send(HttpRequest, HttpResponse);
    // Parse the response if needed.
    exit(HttpResponse.IsSuccessStatusCode);
end;
```

#### **Sending - Cancel**

```
procedure Cancel(var EDocument: Record "E-Document"; var HttpRequest: HttpRequestMessage; var HttpResponse: HttpResponseMessage): Boolean;
var
    // Record that hold integration setup
    ExampleIntegration: Record "Example - Test Integration";
    HttpClient: HttpClient;
begin
    ExampleIntegration.Get();
    // Manipulate the payload and set the headers if needed
    HttpRequest.Method := 'Delete';
    HttpRequest.SetRequestUri(ExampleIntegration."Cancel Endpoint");
    HttpClient.Send(HttpRequest, HttpResponse);
    // Parse the response if needed.
    exit(HttpResponse.IsSuccessStatusCode);
end;
```

#### Receiving - GetDocumentCountInBatch

```
procedure GetDocumentCountInBatch(var TempBlob: Codeunit "Temp Blob"): Integer
begin
    // Parse the TempBlob to find how many documents in the batch.
    exit(1);
end;
```

#### Receiving - ReceiveDocument

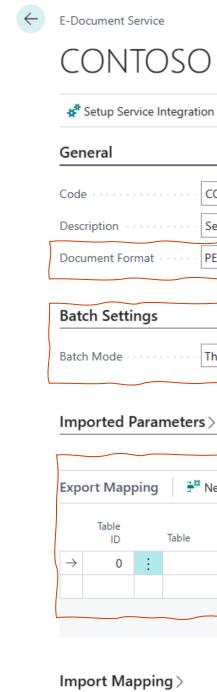
```
procedure ReceiveDocument(var TempBlob: Codeunit "Temp Blob"; var HttpRequest: HttpRequestMessage; var HttpResponse: HttpResponseMessage);
var
     // Record that hold integration setup
     ExampleIntegration: Record "Example - Test Integration";
     HttpClient: HttpClient;
     Result: Text;
begin
     ExampleIntegration.Get();
     HttpRequest.Method := 'GET';
     HttpRequest.SetRequestUri(ExampleIntegration."Receiving Endpoint");
     HttpClient.Send(HttpRequest, HttpResponse);
     HttpResponse.Content.ReadAs(Result);
    WriteToTempBlob(TempBlob, Result);
 end;
```

#### You can use our dummy test endpoint

- · Send:
  - https://bcedocument.azurewebsites.net/post
- · Receive (will spit out the latest invoice submitted)
  - https://bcedocument.azurewebsites.net/get

If you want something specific, I can quickly set something up for you, just ask.

## Setup

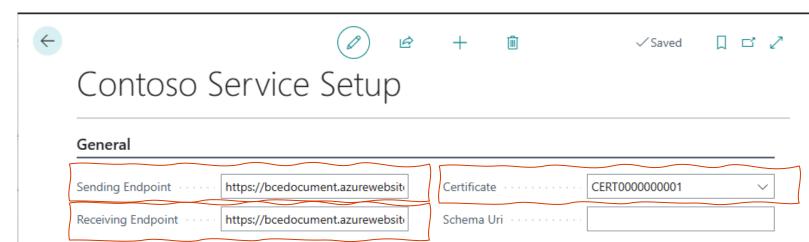


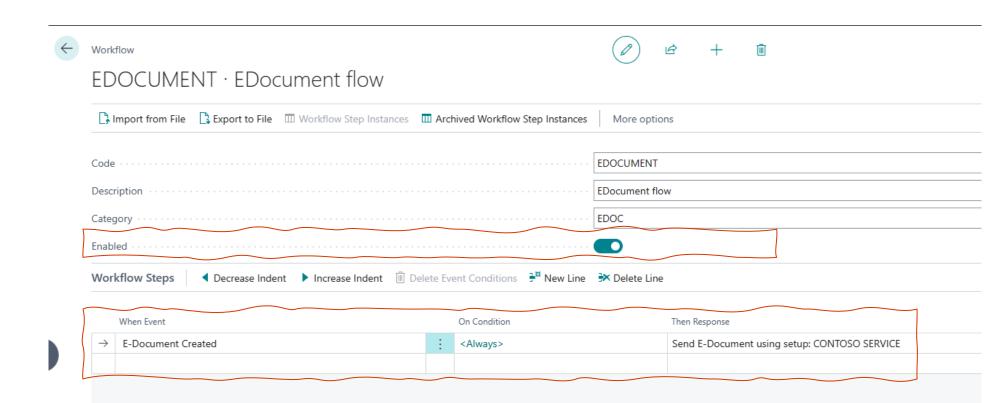
**Setup E-document Service** 

#### CONTOSO SERVICE \*\* Setup Service Integration : Receive More options CONTOSO SERVICE Service Integration Contoso Service D Use Batch Processing Send and receive documents to C PEPPOL Demo Batch Threshold ..... Threshold 53 Field ID Field Transformation Find Value Replace Value 0 LOWERCASE

✓ Saved

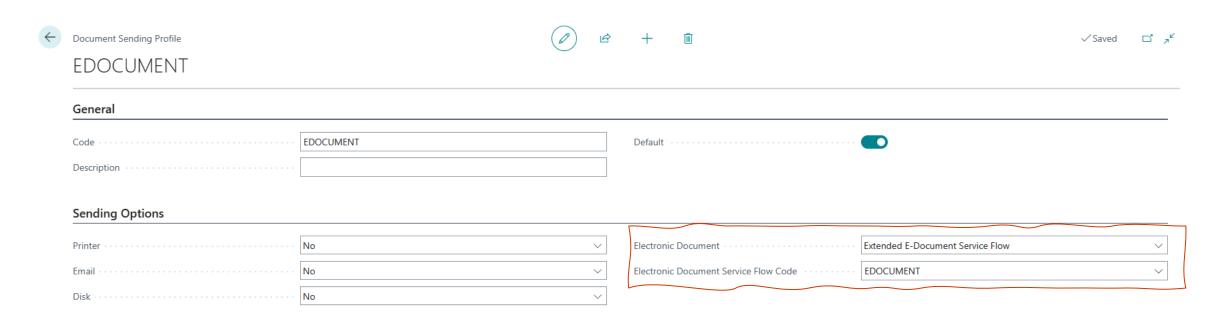
#### Setup integration parameters





#### **Setup Workflow**

#### Setup document sending profile



#### Demo

Get started with setup dev environment

#### Setup Dev environment

#### You will need:

- 1. Laptop
- 2. VSCode
- 3. Updated AL compiler in VSCode

# Setup Dev environment

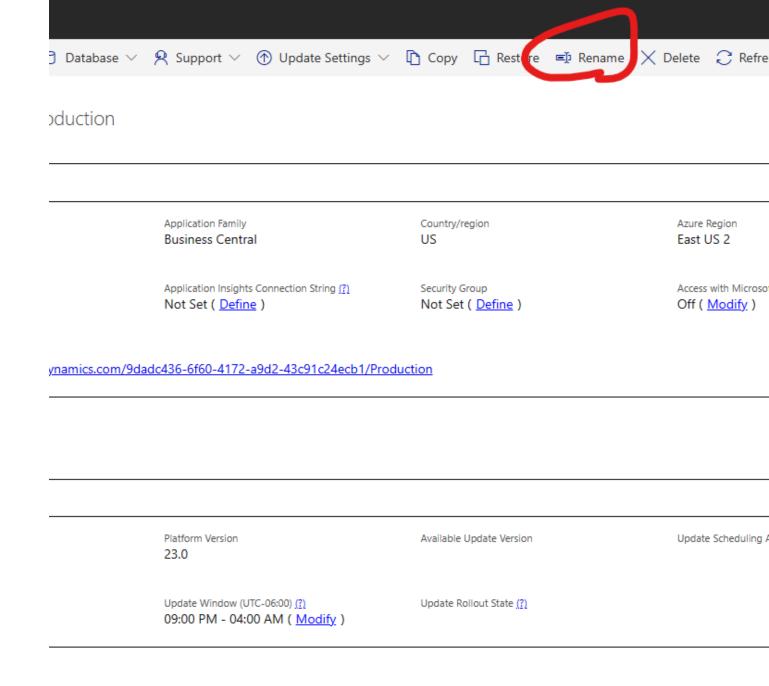
- Login to admin center using:
  - Admin center:

     https://businesscentral.dynamics.com/9dadc436-6f60-4172-a9d2-43c91c24ecb1/admin

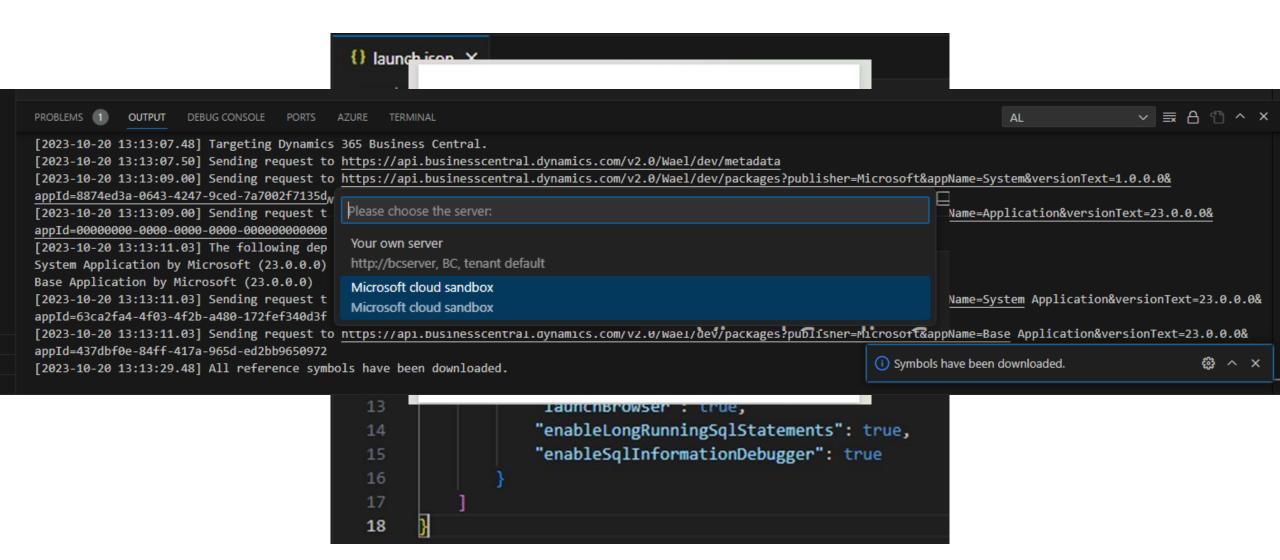


# Setup Dev environment

Assign environment to yourself by renaming it.



#### Debug sandbox



#### Working time, find all materials here:

Skeleton app guide Presentation PDF

https://github.com/WaelAbuSeada/e-documents

You can find the open source of "E-Document Core" here:

ALAppExtensions/Apps/W1/EDocument/app at main · microsoft/ALAppExtensions (github.com)

### **Advanced implementation**

#### **Sending - Createbatch**

#### Receiving - GetBasicInfoFromReceivedDocument

#### Receiving - GetBasicInfoFromReceivedDocument

```
procedure ParseBasicInfo(var EDocument: Record "E-Document"; var TempBlob: Codeunit "Temp Blob")
var
    XmlDoc: XmlDocument;
    DocInstr: InStream;
   NamespaceManager: XmlNamespaceManager;
begin
    // Create an XML document from the blob
    TempBlob.CreateInStream(DocInstr);
    XmlDocument.ReadFrom(DocInstr, XmlDoc);
    // Parse the document to fill EDocument information
    EDocument."Bill-to/Pay-to No." := CopyStr(GetPEPPOLNode('//cac:InvoiceLine/cbc:ID', XmlDoc, NamespaceManager), 1, 20);
    EDocument. "Bill-to/Pay-to Name" := CopyStr(GetPEPPOLNode('//cac:AccountingCustomerParty/cac:Party/cac:PartyName/cbc:Name', XmlDoc, NamespaceManager), 1, 20);
    Evaluate(EDocument."Document Date", GetPEPPOLNode('//cbc:IssueDate', XmlDoc, NamespaceManager));
    EDocument."Document Type" := EDocument."Document Type"::"Purchase Invoice";
end;
procedure ParseBatchOfDocuments(var EDocument: Record "E-Document"; var TempBlob: Codeunit "Temp Blob")
   XmlDoc: XmlDocument;
    DocInstr: InStream;
   NamespaceManager: XmlNamespaceManager;
begin
   // Create an XML document from the blob
   TempBlob.CreateInStream(DocInstr);
   XmlDocument.ReadFrom(DocInstr, XmlDoc);
   // Based on the batching technique, use the index in EDocument. "Index In Batch" to access the document header and lines
   ParseDocumentHeaderAndLines(EDocument, XmlDoc, EDocument. "Index In Batch");
end;
```

#### Receiving - GetCompleteInfoFromReceivedDocument

```
procedure GetCompleteInfoFromReceivedDocument(var EDocument: Record "E-Document"; var CreatedDocumentHeader: RecordRef; var
CreatedDocumentLines: RecordRef; var TempBlob: Codeunit "Temp Blob")
  begin
    if EDocument."Index In Batch" = 0 then
        ParseCompleteInfoAndCreatePurchaseDoc(EDocument, TempBlob)
    else
        ParseBatchDocumentCompleteInfoAndCreatePurchaseDoc(EDocument, TempBlob);
  end;
```

#### Sending – Send - async

```
procedure Send(var EDocument: Record "E-Document"; var TempBlob: Codeunit "Temp Blob"; var IsAsync: Boolean; var HttpRequest: HttpRequestMessage; var HttpResponse:
HttpResponseMessage);
    var
       // Record that hold integration setup
        ExampleIntegration: Record "Example - Test Integration";
       HttpClient: HttpClient;
        Payload: Text;
   begin
        ExampleIntegration.Get();
        Payload := EDocumentHelper.TempBlobToTxt(TempBlob);
       // Manipulate the payload and set the headers if needed
       HttpRequest.Content.WriteFrom(Payload);
       HttpRequest.Method := 'POST';
       HttpRequest.SetRequestUri(ExampleIntegration."Sending Endpoint");
       HttpClient.Send(HttpRequest, HttpResponse);
       // Parse the response if needed.
    end;
```

#### Wizard

## Show your work

#### Other resources, learn more!



https://twitter.com/ MSDYN365BC





Have a question?

aka.ms/BCYammer



Looking for resources?

aka.ms/BCAll



Didn't watch the launch event?

aka.ms/BCLE

#### Other resources

#### Learn more!

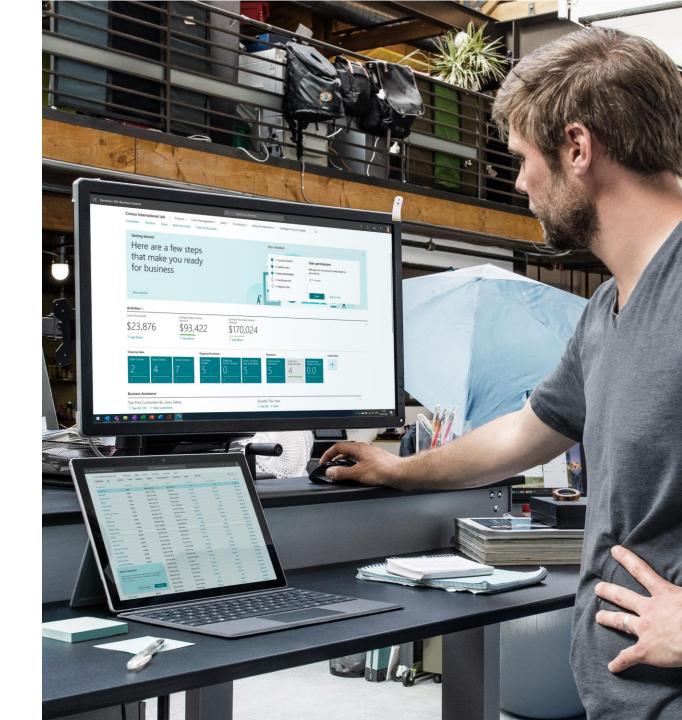
P Have a question? aka.ms/BCYammer



Looking for resources? <a href="mailto:aka.ms/BCAII"><u>aka.ms/BCAII</u></a>

Submit your ideas <u>aka.ms/BCldeas</u>

Didn't watch the launch event? <a href="https://doi.org/10.2016/j.jup/aka.ms/BCLE">aka.ms/BCLE</a>



#### Don't miss these sessions during the conference

Session title	Room	Date	Time
Localizations today and in the future	Tete d'Or 1&2	Nov. 2	2:00 pm
New demo tool	Thone 2	Nov. 3	10:30 am
Planned enhancements in E-documents (roundtable)	Gratte Ciel 3	Nov. 3	11:30 am
What's new in VAT	Forum 2	Nov. 3	12:45 am

## Thank you



**MERCI** DANK U

TACK

ขอบคุณครับ

MULTUMESC

DANKE

**GRACIAS** 

감사합니다

شکر اً

**DZIĘKUJĘ** 

**OBRIGADO** 

THANK YOU

TEŞEKKÜRLER

ευχαριστώ

धनयवाद

AČIŪ

# Merci beaucoup!

நன்றி

多謝晒

תודה

ДЯКУЮ

ĎAKUJEM

متشكرم

TERIMA KASIH

TAK

**HVALA** 

DANKE

DĚKUJI

谢谢

CÁM ON

**DANKON** 

**GRAZIE** 

**PALDIES** 

KÖSZÖNÖM

БЛАГОДАРЯ

ありがとうございます