

Tax Engine (Dynamics 365 for Operations)

This document will help you learn how to import and modify tax configurations from a Microsoft Dynamics Lifecycle Services (LCS) asset library.

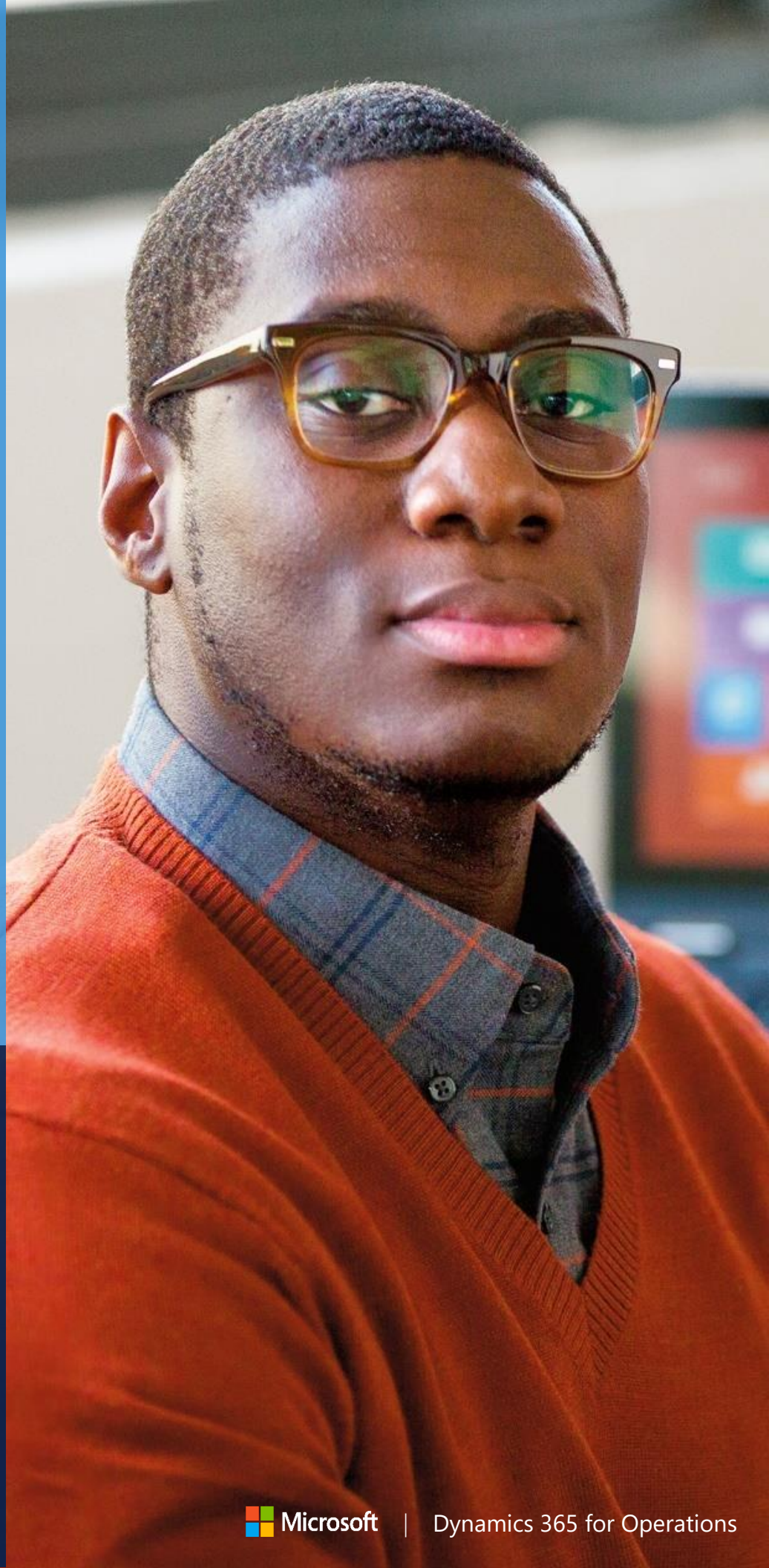
Demo script

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May 2017

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Learn more about Microsoft Dynamics 365.



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Tax Engine (Dynamics 365 for Operations)

The new Tax Engine is an essential part of the configurable business application experience in Microsoft Dynamics 365 for Operations. The new Tax Engine is highly customizable. A business user, functional consultant, or power user can configure tax rules that determine tax applicability, tax calculation, tax posting, and tax settlement, based on legal and business requirements.

Concepts

Tax document: A tax document is a transaction where tax details (lines and amounts) and the tax amount are distributed in a manner that is ready for consumption by any accounting system or framework.

Tax applicability

Tax type: A tax type is analogous to a tax regime. For example, sales tax and value-added tax (VAT) are two of the most common sales tax types. Tax types are applicable only when specific conditions (**applicability rules**) are met.

Tax components: Tax components are like sub-tax types that a tax authority can levy within the same jurisdiction or a different jurisdiction. For example, in the US, sales tax is levied at different levels of jurisdiction, such as the state, country, or city level. Different tax components can be treated differently from accounting, tax reporting, tax settlement, and other perspectives.

Tax calculation

Measures: Measures are the computation blocks for tax calculation. Measures can be of different types (**measure types**). The various measure types have different behavior and are used for different computational purposes. The following measure types are available:

- **Base Amount:** This measure type should be used to hold the amount that is the basis for tax calculation. Typically, **Base Amount** × **Rate** = **Tax Amount**.
- **Rate:** This special measure type is used to provide the applicable tax rate. It's a compound measure type and can also be used to hold threshold amount values as required.
- **Factor:** This special measure type is a subset measure type of **Rate**. It can be used to hold threshold amount values as required.
- **Tax Amount:** This measure type = **Base Amount** × **Rate**. This amount should then be distributed for accounting purposes as required.
- **Amount:** This measure type should be used for distributed tax amounts, such as the tax recoverable amount and the load on inventory amount.
- **Percentage:** This simple measure type can be used to hold any percentage values. Typically, it should be used for cases such as load on inventory percentage or expense percentage.

Formulas: After the measures have been defined, they can be used to create the tax calculation formulas. The formulas can be created in two notations:

- **Simple assignment notation:** For typical scenarios.
- **Advanced linear equations:** Specifically for price-inclusive tax calculation scenarios, such as Maximum retail price (MRP).

Additionally, formulas might have to be used conditionally. In this case, the user should add appropriate business conditions.

Key model attributes that should be assigned for calculation

The following table lists reserved keywords for attributes. When you create a new taxable document model, make sure that the model's attributes are defined as specified in the following table.

| Attribute name | Data type |
|------------------------------|-----------|
| Base Amount | Real |
| Price includes tax | Real |
| Tax amount included in price | Real |
| Line tax amount | Real |

These attributes are available in the Taxable Document (India) model that is provided by Microsoft.

- **Base Amount:** This attribute is an output attribute and is used as the base amount for tax calculation.
- **Price includes tax:** This attribute is more like a flag that tells the engine that the tax amount is included in the line amount.
- **Tax amount included in price:** This attribute is the tax amount that should be considered as included in the price, per the business practice or statutory laws. The engine uses this value to determine the invoice line amount and the amount that should be considered during accounting.
- **Line tax amount:** This attribute is the tax amount that is computed for the line. This value will remain the same across the price-exclusive and price-inclusive scenarios. Withholding tax amounts should not typically be considered when this attribute is initialized.

The following scenarios show how these attributes should be initialized and used in the tax document configuration.

Price-inclusive scenario

'Base Amount' = 'Assessable Value' – CGST.'Tax Amount' – 'SGST'. 'Tax Amount' – 'IGST'. 'Tax Amount' – CESS.'Tax Amount' – CGST_TDS.'Tax Amount' – SGST_TDS.'Tax Amount' – IGST_TDS.'Tax Amount' – CESS_TDS.'Tax Amount'

'Price includes tax' = 1.0

'Line tax amount' = CGST.'Tax Amount' + 'SGST'. 'Tax Amount' + 'IGST'. 'Tax Amount' + 'CESS'. 'Tax Amount' + CGST_TDS.'Tax Amount' + SGST_TDS.'Tax Amount' + IGST_TDS.'Tax Amount' + CESS_TDS.'Tax Amount'

'Tax amount included in price' = CGST.'Tax Amount' + 'SGST'. 'Tax Amount' + 'IGST'. 'Tax Amount' + 'CESS'. 'Tax Amount' + CGST_TDS.'Tax Amount' + SGST_TDS.'Tax Amount' + IGST_TDS.'Tax Amount' + CESS_TDS.'Tax Amount'

Price-exclusive scenario

'Base Amount' = 'Assessable Value'

'Price includes tax' = 0.0

'Line tax amount' = CGST.'Tax Amount' + 'SGST'. 'Tax Amount' + 'IGST'. 'Tax Amount' + BCD.'Tax Amount' + 'ECESS C'. 'Tax Amount' + 'SHECESS C'. 'Tax Amount' + 'CESS'. 'Tax Amount' + CGST_TDS.'Tax Amount' + SGST_TDS.'Tax Amount' + IGST_TDS.'Tax Amount' + CESS_TDS.'Tax Amount'

For the price-exclusive scenario, the engine implicitly initializes the **Tax amount included in price** attribute to **0** (zero). Therefore, the equation doesn't have to be written explicitly.

Tax accounting

Tax accounting provider: A tax accounting provider is the subledger that will be affected in the tax accounting scenario. For example, in the purchase flow, if tax must be paid to the vendor as part of the vendor invoice, the tax accounting provider will be **Party/Vendor**. Currently the following providers are supported:

- Party
- Inventory
- Tax
- Ledger

Posting types: When the Tax subledger is affected as part of the tax accounting process, the tax amount must be distrusted further for settlement, reporting, costing, and similar purposes. The list can also vary because of country/region-specific regulations that are based on tax types. For India, of the following posting types are supported:

- Tax Recoverable
- Tax Payable
- Tax Expense
- Interim Tax Payable
- Interim Tax Recoverable

Tax credit pool



When the preceding configuration is used, the tax recoverable and payable amount will be accumulated on each of tax credit pool.

Set-off rule

A set-off rule indicates how the tax recoverable should be used to set off tax payable. The following table shows the setup details.

| Recoverable side | Payable side |
|------------------|----------------------|
| IGST | IGST CGST SGST |
| CGST | CGST IGST |
| SGST | SGST IGST |
| CESS | CESS |
| CGST_TDS | CGST |
| SGST_TDS | SGST |
| IGST_TDS | IGST |
| CESS_TDS | CESS_TDS |

Prerequisites

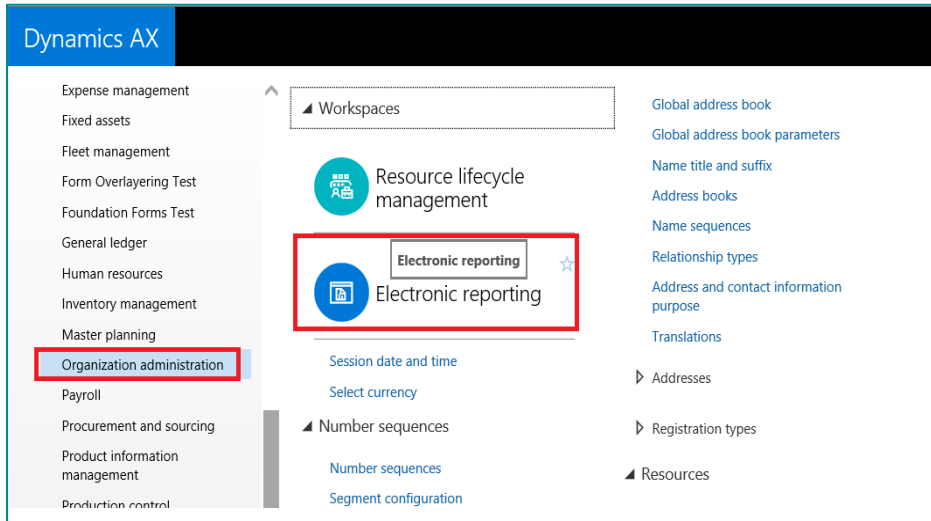
- 1 Make sure that Microsoft Dynamics 365 for Operations version 1611 has been deployed, and that the Goods and Services Tax (GST) hotfix has been installed.
- 2 Switch to the **INMF** company context.

Copy the GST configurations

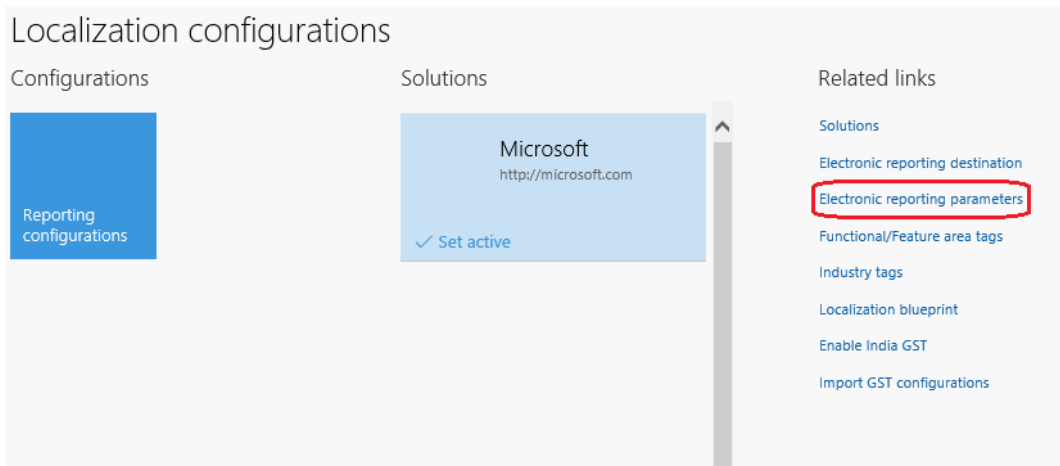
- 1 On the computer that runs Dynamics 365 for Operations, create a folder, such as **c:\India GST Configurations**.
- 2 Put the GST configurations in c:\India GST Configurations.

Activate the tax configurations

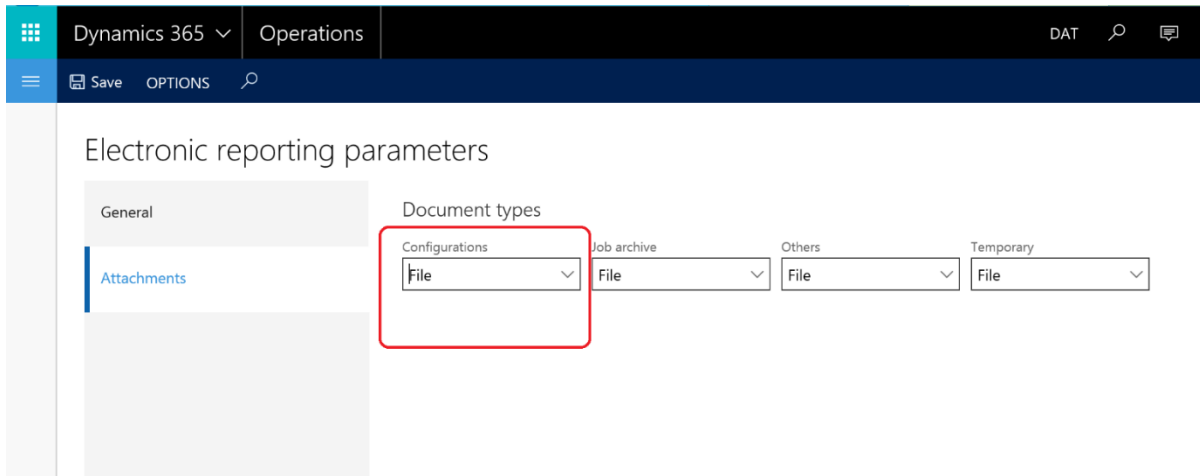
- 1 Go to **Organization administration > Electronic reporting**.



- 2 Click **Electronic reporting parameters**.

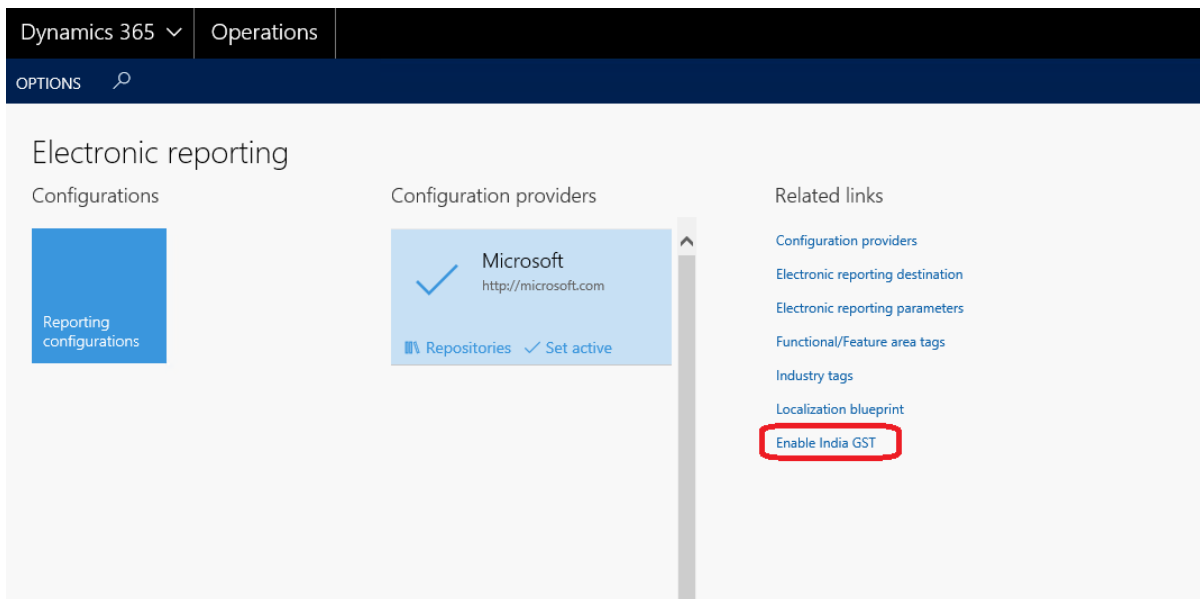


3 On the **Attachments** tab, set the **Configurations** field to **File**.

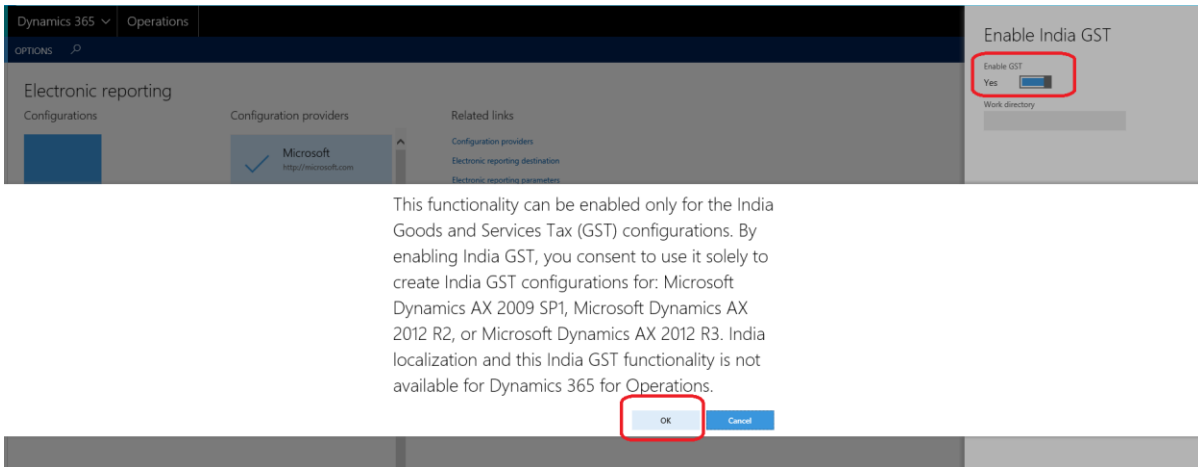


4 Close the page.

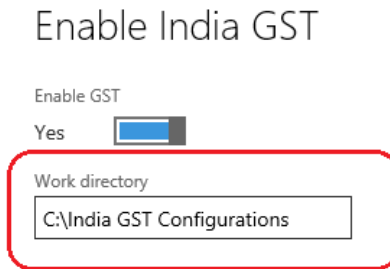
5 Click **Enable India GST**.



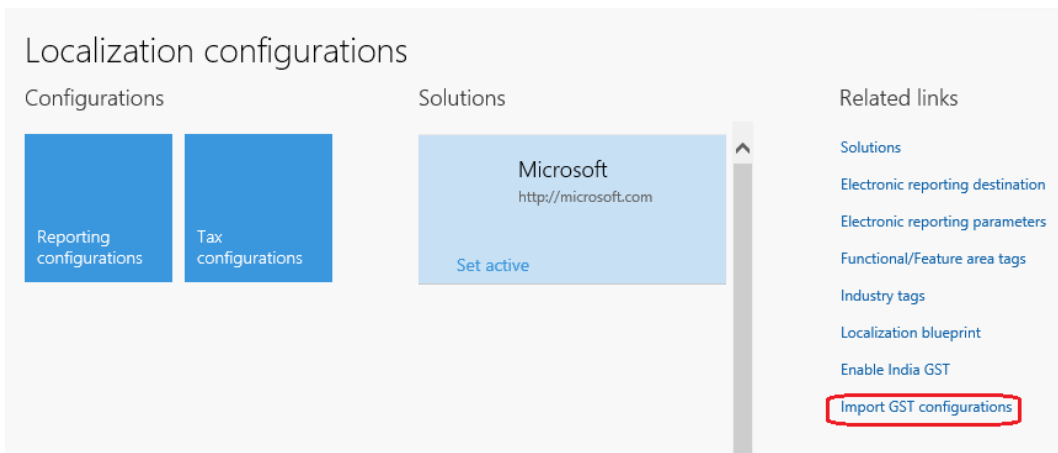
- 6 Set the **Enable GST** option to **Yes**, and then click **OK** in the message box.



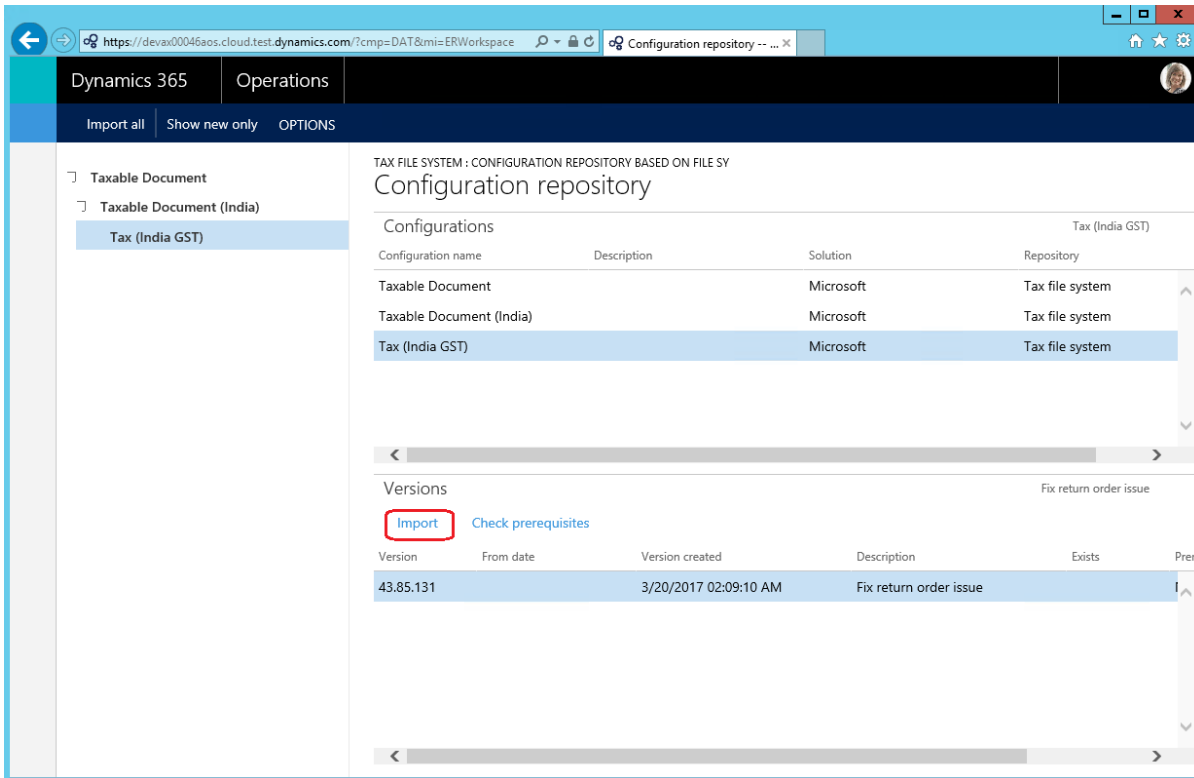
- 7 Set the **Work directory** field to the folder where the India GST configurations are saved.



- 8 Click **OK**.
- 9 Click **Import GST configurations** to import the configurations.



10 Click **Import**.

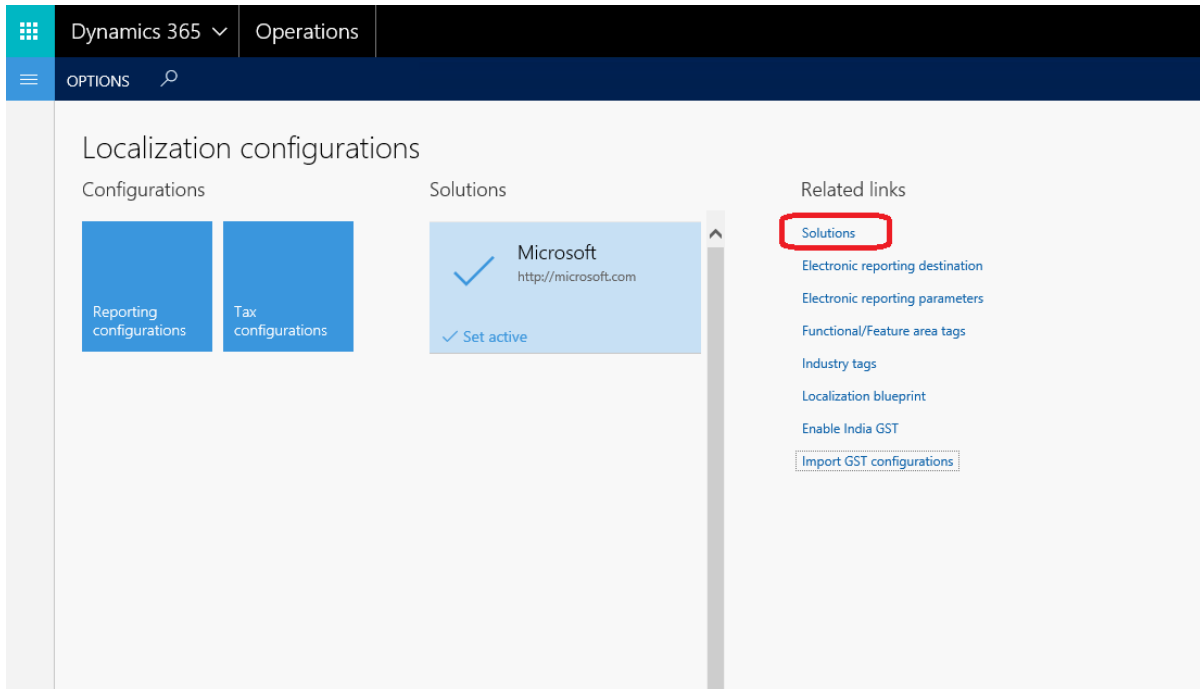


11 Click **Yes**.

Are you sure you want to import the '43.85.131' version of the 'Tax (India GST)' configuration and all its parent and related configuration versions recursively from the repository?



12 Click **Solutions**.

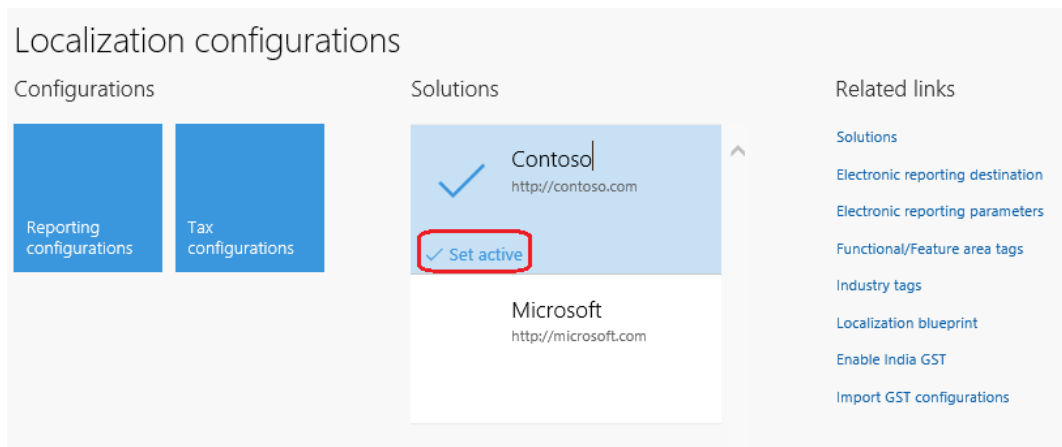


13 Create a new solution, and enter the required information.

Solutions

| Name | Internet address |
|-----------|----------------------|
| Contoso | http://contoso.com |
| Microsoft | http://microsoft.com |

14 Click **Set active** to activate your solution.



Define the tax configuration for GST

- 1 Configure a taxable document model, or use the taxable document model that Microsoft or your partner provided.
- 2 Use another taxable document model to extend the taxable document model so that it supports specific tax requirements, as required. Again, you can use the taxable document that Microsoft or your partner provided.
- 3 Any attribute that is relevant to any of the tax pillars (tax applicability, calculation, posting, or settlement) should form part of one of the taxable document models, based on the scope of the attribute.
- 4 Configure the tax document model by extending the next-to-last taxable document model.

The tax document model should have the following characteristics:

- Applicability:
 - All the applicable tax types
 - All the applicable tax components
 - Applicability rules for the tax types and tax components
- Formulas:
 - **Rate** and **Percentage** measure types, and any lookup structures
 - All the tax calculation logic for all the tax types and tax components, together with any conditions
 - All the tax distribution formulas, together with any conditions
- Accounting:
 - Define the accounting treatment for the computed tax amount and distributed tax amounts, together with the conditions when this accounting treatment should be applied.
 - For the lookup, define attributes that the business uses to determine the main account that the distributed tax amounts should be accounted to.

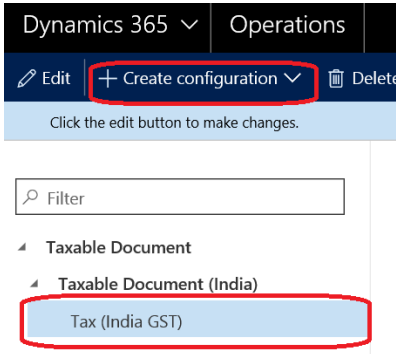
Scenario: Extend the tax configuration

Contoso manufactures and sells goods and services in India, and these transactions are subject to several taxes. In this scenario, you will learn how to configure Contoso's tax requirements for the **GST** tax type for extra components.

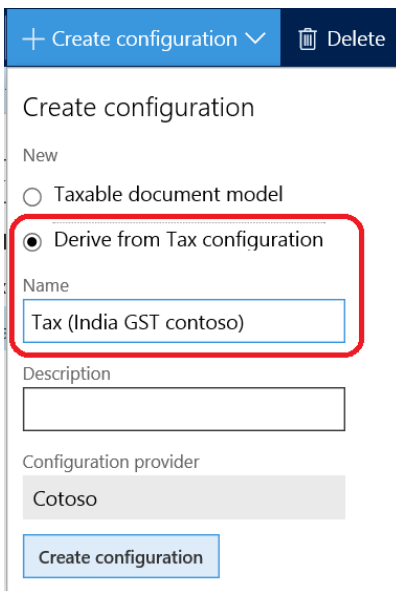
Task 1.1: Create an extension configuration

- 1 Open the **Localization configurations** workspace.
- 2 Click **Tax configurations**.

3 Navigate to the **Tax (India GST)** configuration, and then click **Create configuration**.

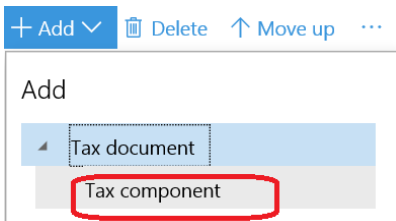


4 Select the **Derive from Tax configuration** option, and then enter the name of the configuration, e.g. Tax (India GST contoso).



Task 1.2: Add new tax components

- 1 Navigate to the **Tax (India GST contoso)** configuration, and then click **Designer**.
- 2 Navigate to the **Tax document/Header/Lines/GST** node, click **Add**, and then click **Tax component**.



3 Enter a name and description for the component:

- **Name:** CESS-CGST
- **Description:** CESS CGST

Tax component

Parameters

| | |
|-----------|-------------|
| Name | Description |
| CESS-CGST | CESS CGST |

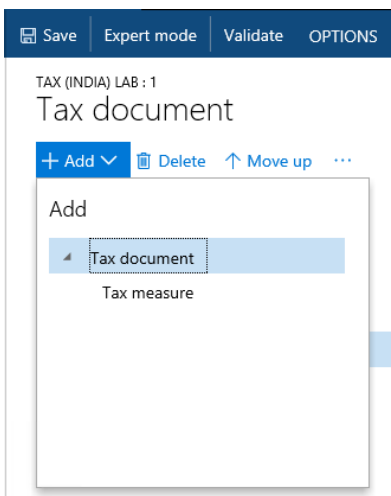
OK Cancel

4 Click **OK**.

5 Save the configuration.

Task 1.3: Configure measures

1 Navigate to the **Tax document/Header/Lines/GST/CESS-CGST** node, click **Add**, and then click **Tax measure**.



2 Add a new measure, or select an existing measure in the list.

3 Add the following measures:

- Base Amount
- Rate
- Tax Amount

TAX (INDIA GST CONTOSO) : 1
Tax document

+ Add ▾ + Add Tax measure ...

- ▾ Tax document
 - ▾ Header
 - ▾ Lines
 - Custom Duty
 - ▾ GST
 - CGST
 - SGST
 - IGST
 - ▾ CESS-CGST
 - Base Amount
 - Rate
 - Tax Amount

Miscellaneous Charge Line

PROPERTIES LOOKUPS FORMULAS

Type
Tax measure

Name
Base Amount

Description

Tax measure type
Base amount

4 Save the configuration.

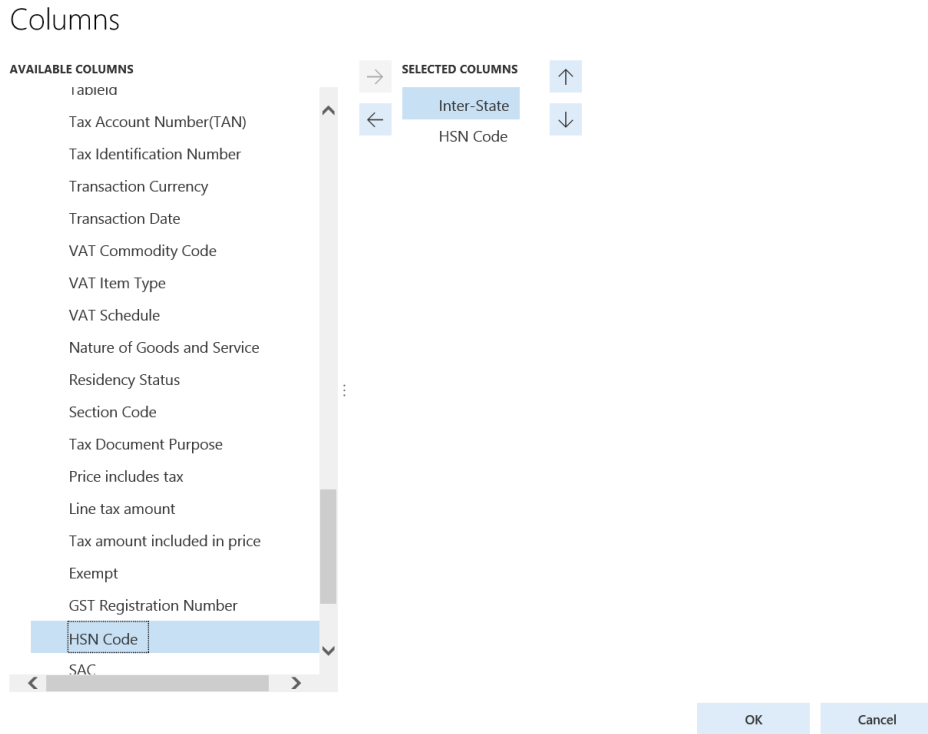
5 **Advanced scenario:** Add measures for load on inventory:

- Load on Inventory Percentage
- Load on Inventory Amount
- Load on Inventory Remaining Amount

Task 1.4: Configure tax applicability lookups

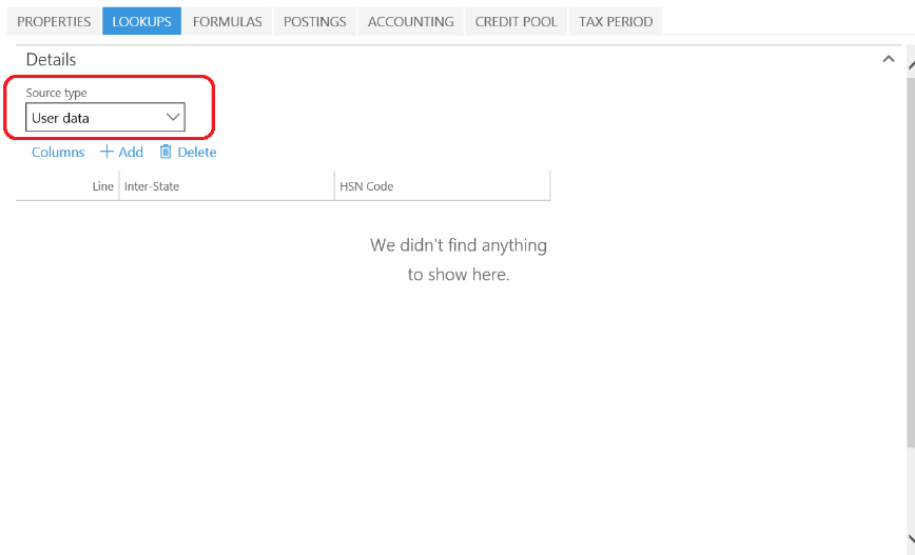
- 1 Navigate to the **Tax document/Header/Lines/GST/CESS-CGST** node, and then click the **Lookups** tab.
- 2 Click **Columns**.

3 Select **Inter-State** and **HSN code** as lookup columns.



4 Click **OK**.

5 Set the **Source type** field to **User data**.



6 Save the configuration.

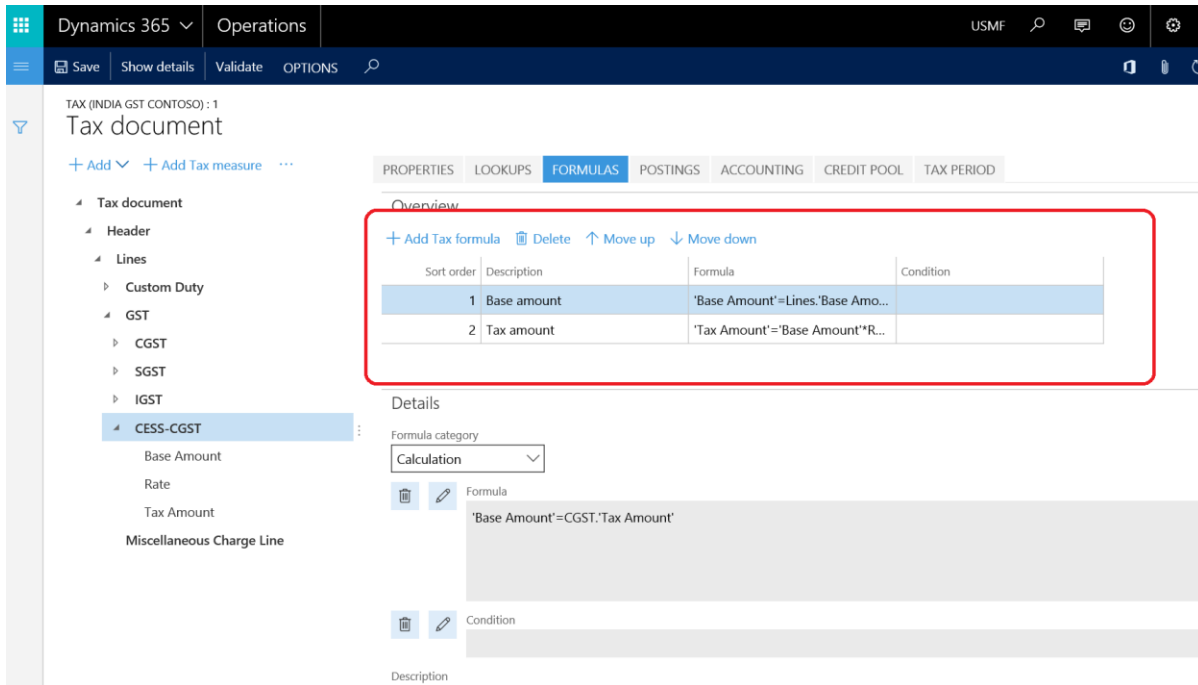
Task 1.5: Configure formulas

Formulas can be configured at the level of either group nodes (line, tax component, or tax type) or measure nodes. We recommend that you always configure tax calculation formulas at the group node level. You can configure tax amount distribution formulas at either the group node level or the measure node level.

- 1 Navigate to the **Tax document/Header/Lines/GST/CESS-CGST** node, and then click the **Formulas** tab.
- 2 Click **Add Tax formula**.
- 3 In the **Details** section, click **Edit** (the pencil symbol) to enter the formula.

For our example, add the following formulas for CESS-CGST:

- 'Base Amount'='CGST.'Tax Amount'
 - 'Tax Amount'='Base Amount'*'Rate'
- 4 Optional: Enter a description for the formula.
 - 5 Save the tax document. The formulas should appear as shown in the following screenshot.



- 6 Navigate to the **Tax document/Header/Lines** node, and then click the **Formulas** tab.
- 7 Update the **Tax amount Exclusive** formula as shown here:

'Line tax amount'='CGST.'Tax Amount' + 'SGST.'Tax Amount' + 'IGST.'Tax Amount'+BCD.'Tax Amount' + 'IGST CVD.'Tax Amount' + 'ECESS C.'Tax Amount' + 'SHECESS C.'Tax Amount' + **'CESS-CGST.'Tax Amount'**

- 8 Repeat step 7 to update other formulas accordingly.
- 9 Save the configuration.
- 10 **Advanced scenario:** Add formulas for load on inventory measures:
 - 'Load on Inventory Amount'='Tax amount'*'Load on Inventory Percentage'
 - 'Load on Inventory Remaining Amount'='Tax amount'-'Load on Inventory Amount'

Task 1.6: Configure rate/percentage lookups

- 1 Navigate to the **Tax document/Header/Lines/GST/CESS-CGST/Rate** node, and then click the **Lookups** tab.
- 2 As you did for lookups of the **Tax document/Header/Lines/GST/CESS-CGST** node, click **Columns** to add columns that determine the rate. Because the rate of CESS-CGST is fixed at 10 percent, no columns are required here.

Note: Values that you enter here have no effect on the actual rate table. This table should be set up in the ERP system.

- 3 Save the configuration.
- 4 **Advanced scenario:** Add a lookup for the load on inventory percentage:
 - **HSN code** column

Task 1.7: Configure a posting profile

Tax component nodes support a posting profile definition.

- 1 Navigate to the **Tax document/Header/Lines/GST/CESS-CGST** node, and then click the **Postings** tab.
- 2 Click **Add Posting profile** to create a posting profile definition.
- 3 Enter **Purchase-Registered dealer** as the description of the posting profile.

| Sort order | Description | Postings | Condition |
|------------|----------------------------|----------------------------------|----------------------------------|
| 1 | Purchase-Registered dealer | Tax Amount:Tax Recoverable/In... | AND(NOT(Header.Lines.'Party G... |

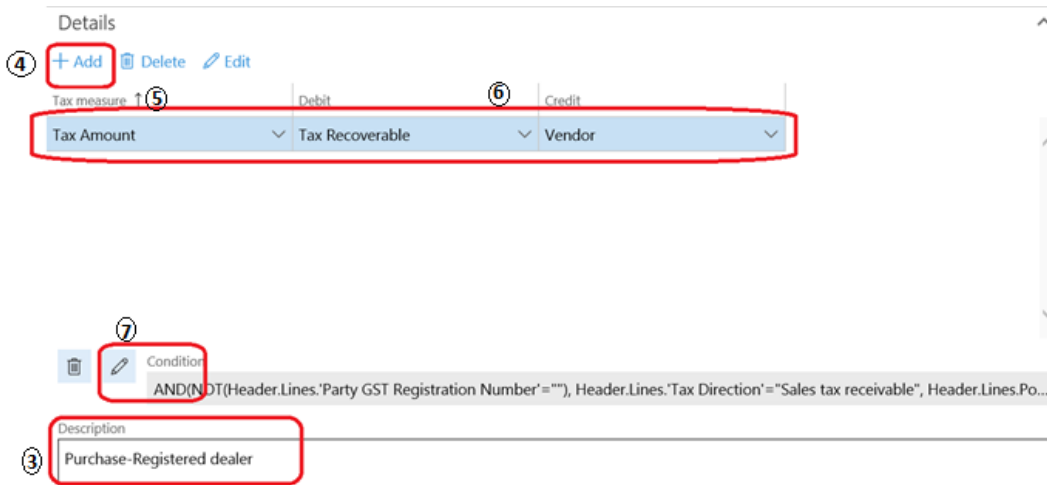
Details

| Tax measure ↑ | Debit | Credit |
|---------------|-----------------|--------|
| Tax Amount | Tax Recoverable | Vendor |

- 4 On the **Details** tab, click **Add**.
- 5 Enter the accounting treatment for the various tax measures that you defined in the previous task.
- 6 Enter the names of debit and credit accounting subledgers.

7 Add the following condition for the posting profile:

AND(NOT(Header.Lines.'Party GST Registration Number'=""), Header.Lines.'Tax Direction'="Sales tax receivable", Header.Lines.Postable="Yes", Header.'Taxable Document Type' <> "Invent transfer order receive", Header.'Taxable Document Type' <> "General ledger - vendor payment")



8 Save the configuration.

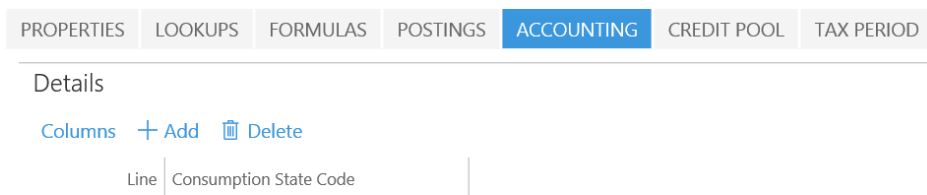
9 **Advanced scenario:** Adding postings for the following scenarios:

- Purchase – Unregister dealer
- Sales invoice

Task 1.8: Configure accounting lookups (Optional)

Tax type and tax component nodes support an accounting lookup definition.

- 1 Navigate to the **Tax document/Header/Lines/GST/CESS-CGST** node, and then click the **Accounting** tab.
- 2 Click **Columns**, and then follow steps 3 through 4 in task 1.4 to add **Consumption State Code** as a lookup column for accounting.



We didn't find anything
to show here.

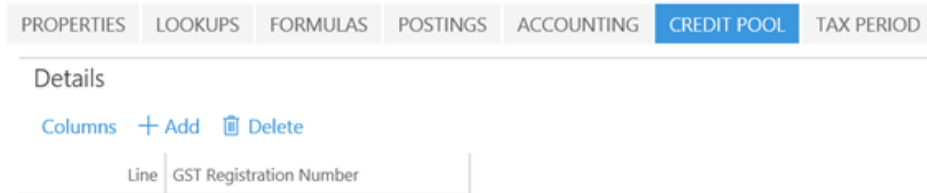
Note: Don't click **Add**. Values that you enter here have no effect on the actual rate table. This table should be set up in the ERP system.

3 Save the configuration.

Task 1.9: Configure a credit pool

Tax component nodes support a credit pool lookup definition.

- 1 Navigate to the **Tax document/Header/Lines/GST/CESS-CGST** node, and then click the **Credit Pool** tab.
- 2 Click **Columns**, and then follow steps 3 through 4 in task 1.4 to add **GST Registration Number** as a lookup column for the credit pool that will be used for tax settlement.



Note: Don't click **Add**. Values that you enter here have no effect on the actual rate table. This table should be set up in the ERP system.

- 3 Save the configuration.

Task 1.10: Configure a tax period lookup (Optional)

Tax component nodes support a tax period lookup definition.

- 1 Navigate to the **Tax document/Header/Lines/GST/CESS-CGST** node, and then click the **Tax period** tab.
- 2 Click **Columns**. A list of attributes that are relevant to the tax period of this component appears. For example, a relevant attribute might be the tax registration number. Additionally, tax authorities and periods might have to be defined for each state. In this case, the same GST setup must be mapped to multiple tax authorities and periods.

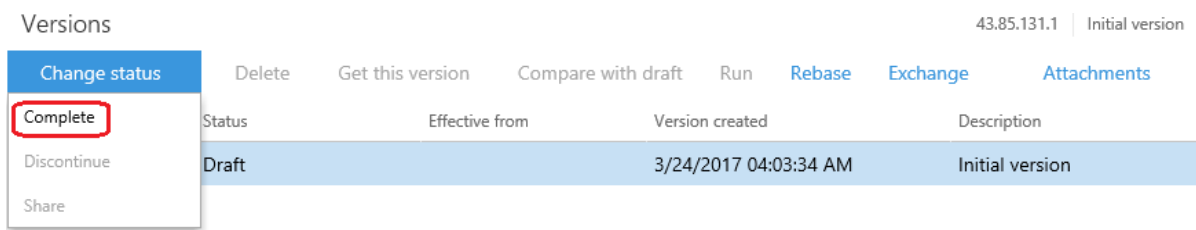
For our example, we don't have to add any column for the tax period.

Note: Don't click **Add**. Values that you enter here have no effect on the actual rate table. This table should be set up in the ERP system.

- 3 Save the configuration.

Task 1.11: Complete the tax document configuration

- 1 Save the configuration, and close the designer.
- 2 In the **Configurations** workspace, click **Change status**, and then select **Complete**.



- 3 Click **OK**.
- 4 If there are any errors, open the designer, click **Validate**, and fix the errors.

- 5 Repeat steps 1 through 4 until no errors occur.
- 6 After the status is updated to **Complete**, the configuration is ready for deployment.

Task 1.12: Download the tax document configurations

- 1 In the **Versions** grid, select the completed configuration.
- 2 Click **Change status**, and then select **Share**.

43.85.131.1 | Initial version

| Change status | Delete | Get this version | Compare with draft | Run | Rebase | Exchange | Attachments |
|---------------|-----------|------------------|-----------------------|-----------------|--------|----------|-------------|
| Discontinue | Status | Effective from | Version created | Description | | | |
| Share | Draft | | 3/24/2017 04:08:22 AM | | | | |
| 43.85.131.1 | Completed | | 3/24/2017 04:08:22 AM | Initial version | | | |

- 3 Click **Yes**.

Are you sure you want to upload the 'Tax (India GST contoso)' configuration 43.85.131.1 version and all it's parent configuration versions recursively into the 'Tax file system' repository?

Yes No

Note: The configurations will be saved in the "c:\India GST configurations folder. All configurations are currently in 'c:\India GST Configurations'. Copy the folder to the Microsoft Dynamics AX environment where the configuration must be applied.

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