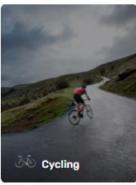
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Version Date Notes

0.01	15/03/2020	Initial Draft
0.02	30/03/2020	Converting sections to Units and updated content
0.03	7/04/2020	Minor updates throughout doc
0.04	14/4/2020	Complete update of Unit 2
0.05	15/04/2020	Added Extensibility section on creating modules
0.06	6/5/2020	Added a bit more clarity on validating products.
0.07	28/07/2021	Adding additional information on Pick up times and slots.
0.08	10/09/2021	Added B2B options to the training

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# **INTRODUCTION**

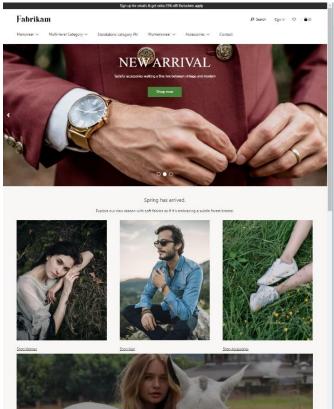
The Commerce workshop is meant to be a hands-on guide to making a branded e-Commerce site that could be used for general training or customer demos.

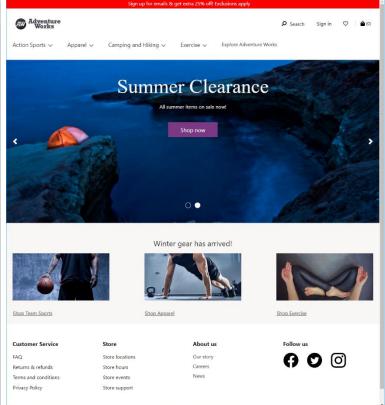
This document will cover the basics needed to get started with Dynamics 365 Commerce E-Commerce. It is not meant to be an exhaustive guide covering all the features of the Commerce product like merchandising, point of sale, etc... however the guide will touch on many features across the product.

This guide will provide examples of bringing up a fictitious sporting goods e-Commerce site called "Adventure Works" which will have its own set of products, navigation hierarchy and theme. This site is meant as an example only and can be replaced with any company / industry desired. Using the examples as a guide, you should be able to adjust to any company and set of products you desire.

When a Dynamics 365 Commerce environment is provisioned the option of starting with demo data can be selected. When this option is selected a starter "Fabrikam" fashion store is available with a pre-configured retail store (San Francisco), an e-Commerce site and a call center channel.

The goal of this exercise will be to turn the Fabrikam branded fashion store into the Adventure Works sporting goods branded store. The sporting goods store is just used as an example, feel free to use any ideas/brands you like as you follow the guide. We will also provide a zip file with Adventure Works assets if you choose to follow along with that brand.





#### **ASSUMPTIONS**

The guide is meant as a getting started guide and no assumptions are made on the level of expertise on the product. Unfortunately, with the limited time for this exercise we do not have time to fully cover an overview of the tools being used.

The guide will assume you have access to a Dynamics 365 Commerce environment which already has the Commerce scale unit and e-Commerce environments initialized. The environments should be created with the demo data option which includes pre-defined channels, users, and customers. If you are using a production site without demo data, the instructions generally still apply but some differences may be needed including pre-setting up some settings such as business entities, warehouses, users, address books, etc... For more information, see the <a href="Channel setup prerequisites">Channel setup prerequisites</a> online doc.

# **OPTIONAL PREREQUISITES**

Optionally creating a B2C tenant will allow a full branded experience when signing in, otherwise during those screens the
"Fabrikam" branded logo will appear. See the <u>Set up a B2C tenant in Commerce</u> doc for more information. This process
can take some time, and thus do not recommend this unless step for this workshop

#### ADDITIONAL RESOURCES

General Documentation

# HIGH LEVEL OVERVIEW

In this workshop we will cover the following:

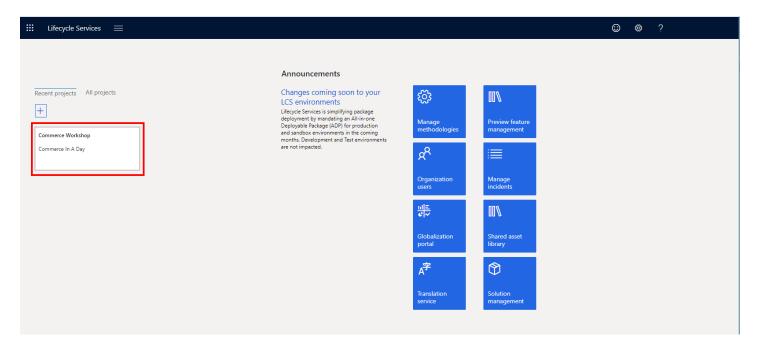
•	Unit 1 -	Setup and configure a new online channel and products in the Headquarters tool
	0	Set up and configure a new online channel (payment provider, shipping, fulfillment groups,)
	0	Add new products (with variants) into new retail hierarchy nodes
	0	Release new products, assort them to the new online channel and configure product attributes
	0	Create a channel navigation hierarchy and associate with new channel
	0	Configure channel refiners
	0	Run appropriate jobs needed for Commerce Scale Unit support to see the new channel/products
•	Unit 2 -	Setup and configure an e-Commerce site using the site builder tool
	0	Run the first time run experience (FRE) to create a new site based on new channel
	0	Test the new site – new nav hierarchy and products with Fabrikam theme and marketing content
	0	Tooling overview
	0	Upload product images to the digital asset manager
	0	Rebrand the header, footer, and homepage marketing content
	0	Setup B2C tenant (optional)
	0	CSS theme changes using theme overrides feature
•	Unit 2 –	E-Commerce Business to Business (B2B) configure new online channel
	0	Set up and configure a new B2B online channel (payment provider, shipping, fulfillment groups,)
	0	Run the first time run experience (FRE) to create a new site based on new channel
	0	Test the new site – new nav hierarchy and products with Fabrikam theme and marketing content
•	Unit 4 –	Business to Business site setup
	0	Create new B2B site
	0	Business Partner request, Account Management, Customer balance, Order template, Invoice pages
•	Unit 5 –	Azure Active directory B2C
	0	Setup AAD B2C
•	Unit 6 -	E-Commerce extensibility theme and module development
	0	Overview and development environment setup
	0	Creating a custom module
	0	Creating a custom theme
	0	Testing theme
	0	Build configuration extension package and deploying

# **TOOLS**

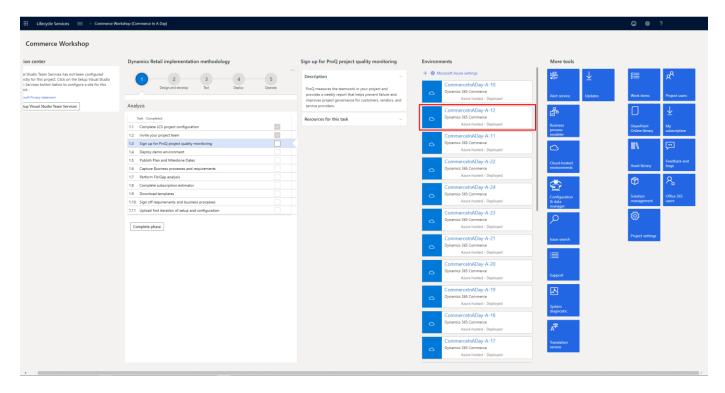
The main tools we will be using in this guide include the Lifecycle Services (LCS) tool, Commerce Headquarters and the e-Commerce Site Builder tool.

You should already have access and a link to an LCS environment as a prerequisite. The Commerce Headquarters and the Site Builder tool can be launched from there. To get to these tools, sign into LCS and follow the below steps.

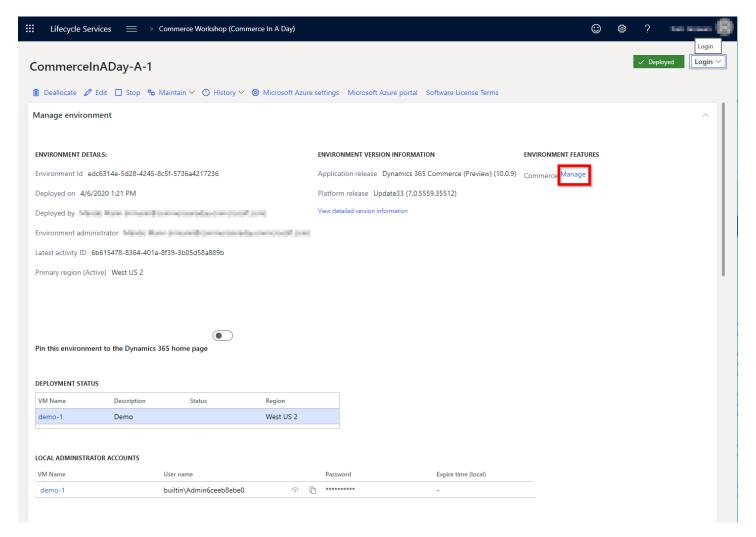
Start by selecting the environment you are working on.



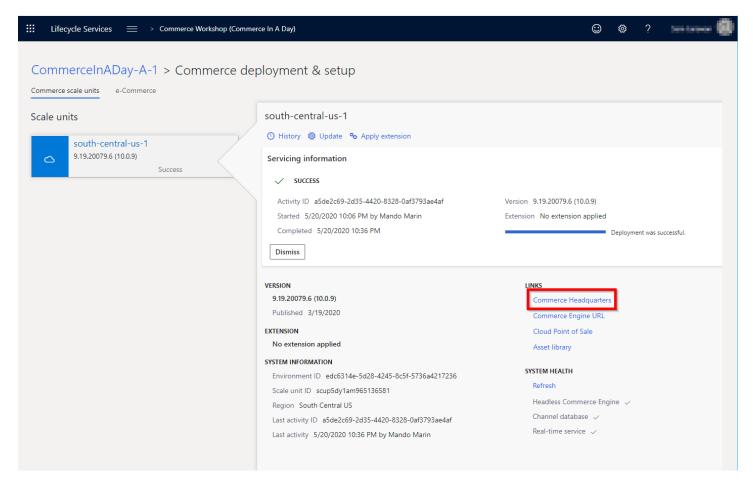
Next, select the environment you are managing as in the below image.



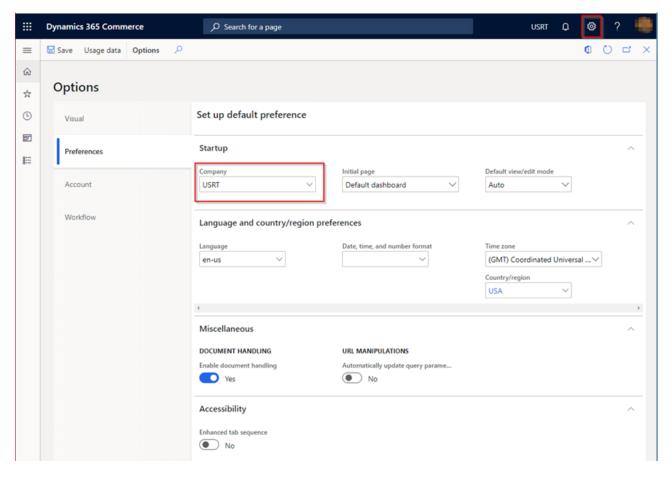
Select the "Manage" link under the "ENVIRONMENT FEATURES" section.



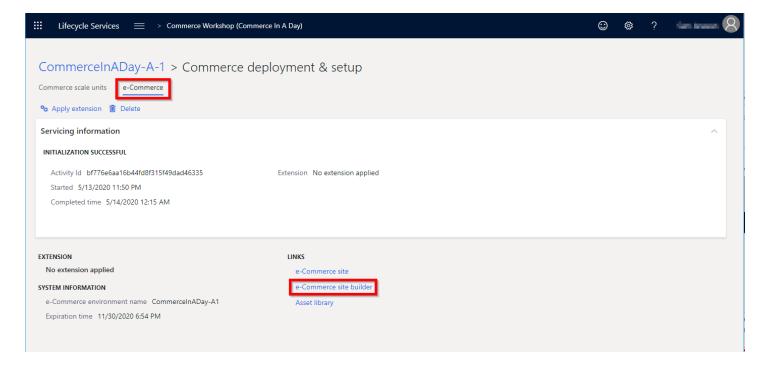
To load the Commerce **Headquarters** tool, select the link as shown in the image below.



Note: when using demo data you'll want to make sure you're using the **USRT**, to ensure HQ always launches with USRT you can optionally set it under the "User options" in the settings (gear at top of screen) as shown below.



To load the **Site Builder** tool, from **LCS**, select the "**e-Commerce**" tab at the top to load the e-Commerce **site builder** tool, select the appropriate link as shown below. You can also load the e-Commerce site from the appropriate link on this page.



# UNIT 1 ONLINE STORE CHANNEL CONFIGURATION

#### **ONLINE STORES**

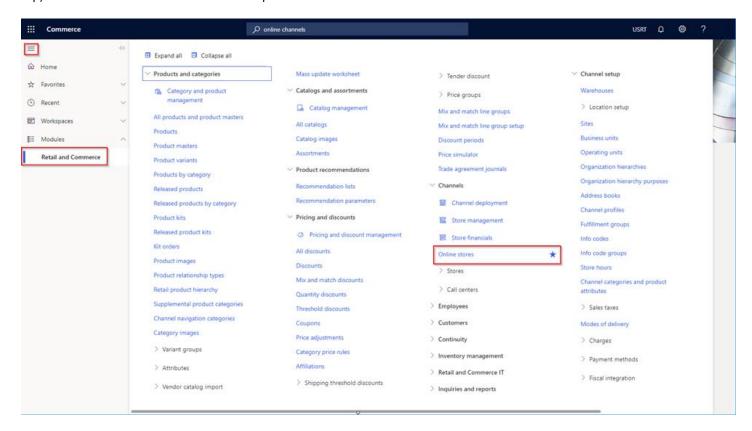
Dynamics 365 Commerce supports multiple channel types including **retail stores**, **call centers** and **online stores**. In a later step we will be using the Site Builder tool to initialize an e-Commerce site. As part of initialization it will need to associate to a Commerce online store channel. This section will cover how to create and configure an online store channel. We will also release and assort products to this channel and create a channel navigation hierarchy that will be shown on the e-Commerce site to navigate product categories.

To get started launch the **Commerce Headquarters** app.

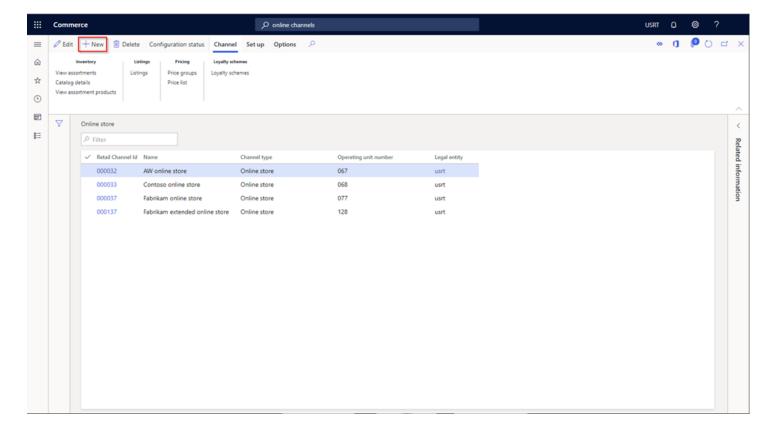
Please note: The demo environment you are using in this training has Adventure works demo data so just use another name. I.E AW Camping & Hiking.

#### CREATE AN ONLINE STORE CHANNEL IN HEADQUARTERS

From the "Retail and Commerce" menu, select "Online stores" (or alternatively search for "Online stores" in the search box at the top). Make sure "USRT" is selected at the top.

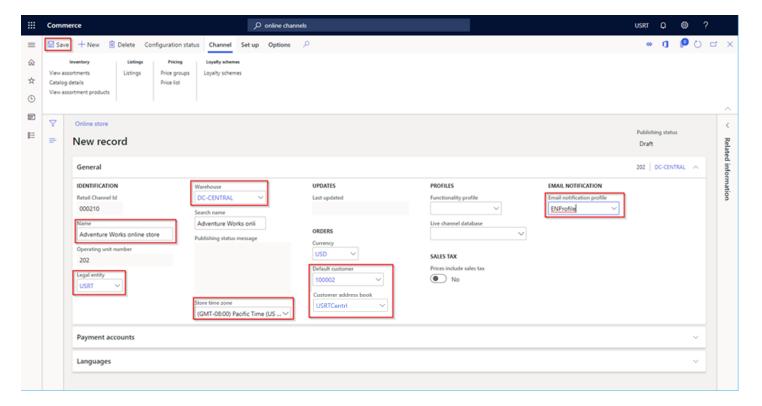


You should see a list of configured online stores if any exist, we will be adding a new one - select the "New" button.



Configure the following items for the new channel:

- Name Provide the name for the store (example: "Adventure Works online store")
- Legal entity Select the legal entity the store will belong to (this will be "USRT" in the evaluation environment)
- Warehouse Select the warehouse that will serve the online store (DC-CENTRAL can be used in the evaluation environment)
  - o For basic warehouse setup see the online Warehouse set up document.
- Store time zone Select the default time zone used for the store, this may map to the corporation's headquarters time
- **Default customer** This customer may need to be pre-configured, all sales orders through the site for anonymous users will be tied to this account in AX (**100002** can be used in the evaluation environment)
  - o For more info see the online <u>Create a default customer</u> doc.
  - Note: for any new e-commerce customer account signups the default properties are copied from this account
  - Note: If you are creating a new default customer, ensure that the default customer is of a type "Person" and not
     "Organization"
- **Customer address book** Set the address book, this should be pre-configured before creating the channel (**USRTCentrl** can be used from within the evaluation environment)
  - o For more info see the online <u>Create a default customer</u> doc which covers creating an address book.
  - Note: The default address book must be associated with the default customer provided above
- Email notifications Select the email notification profile, this may need to be pre-created before creating the channel (ENProfile can be used if you are using the evaluation environment)
  - o For more information see the online Set up an email notification profile document.
- Select the "Save" button.



#### SETUP PAYMENT ACCOUNTS

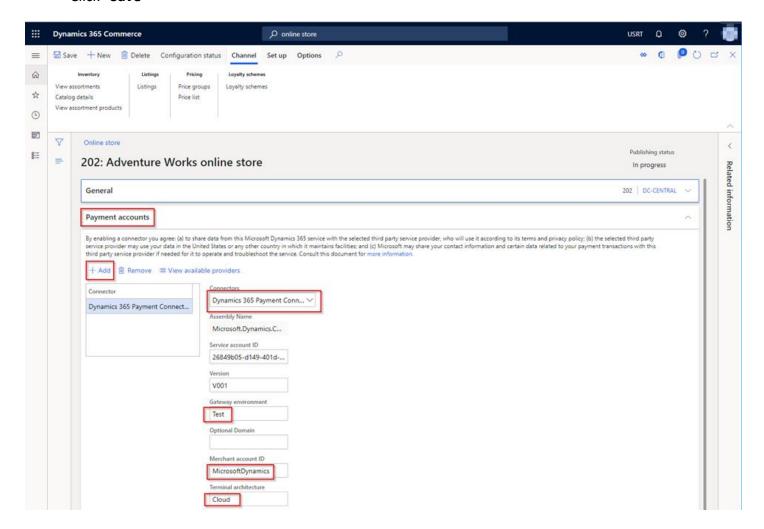
We will now setup the Adyen payment account needed to accept payments on the e-Commerce site. This section will guide you through setting up a payment connector for the Online site.

• Expand the "Payment accounts" section and select "Add" to add a payment connector.

Online channels are designed to be used out of the box with the **Dynamics 365 Payment Connector for Adyen.** 

Configuration Steps (Note: The Cloud API key will need to be supplied by your instructor for this training). If you plan to set this up in your own environment you will need an Adyen test account.

- Change "Gateway Environment" to 'Test'
- Set the "Merchant account ID"
- Set "Terminal Architecture" to "Cloud"
- Change "Allow saving payment information in e-Commerce" to "True"
- All other values can be left with the defaults
- Click "Save"



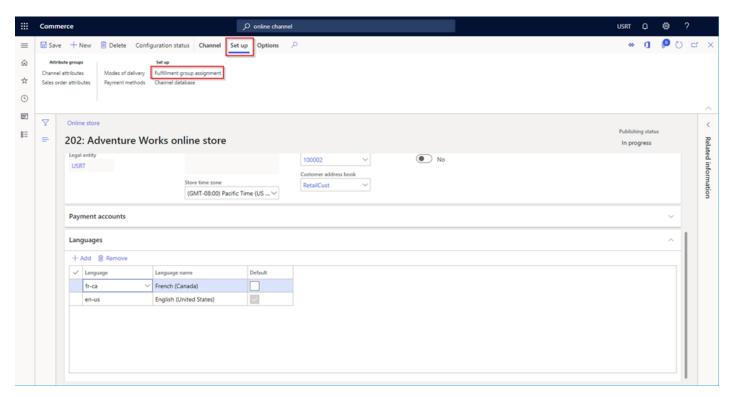
#### SETUP LANGUAGES

If you need to support multiple languages on your e-Commerce site, you first need to configure additional languages on the online store channel. For this workshop we will use en-us only, see appendix on how to add additional languages.

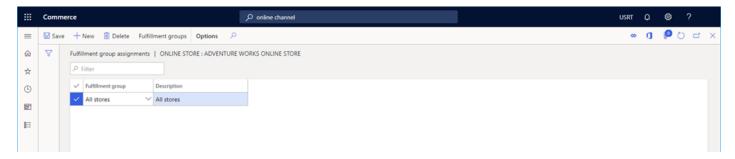
#### **FULFILLMENT GROUP ASSIGNMENTS**

In order for BOPIS (buy online, pickup in store) scenarios to work, you'll need to associate the channel with stores. Demo data already has a group of stores created called "All stores" that can be used here to ensure all stores retail stores show up when attempting the BOPIS scenario on the e-Commerce site. This section will show you how to set this up.

From within the selected online store, select the "Setup" tab at the top followed by the "Fulfillment group assignment" link.



Add "All stores" and close the form to get back to the previous channel page. You can also pick explicit stores here if desired.

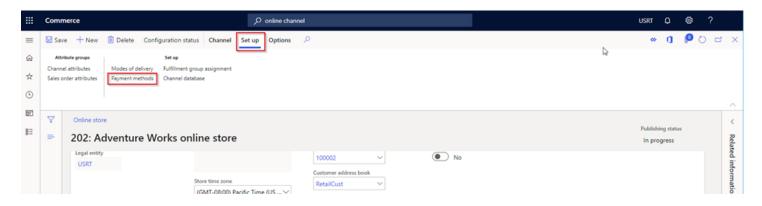


# SETUP PAYMENT METHODS

Each channel can accept various payment methods. In this section we will configure the online store channel to accept, loyalty cards, credit cards and gift cards. Choose the ones that are applicable to your needs.

# Please note: Card Setup has been renamed to Electronic payment setup

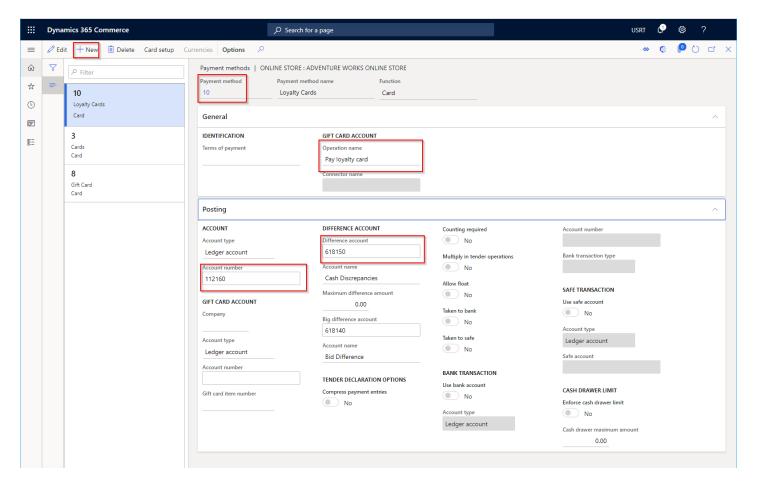
From within the selected online store channel, select the "Payment method" button under the "Setup" tab.



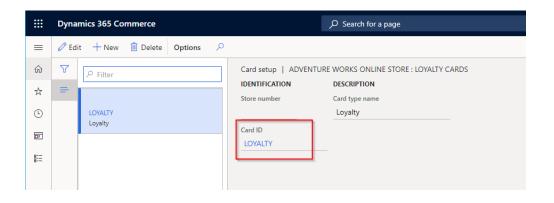
Click the new button to setup the below payment types. For each type you'll be adding account numbers that reference accounts setup in the demo data for posting purposes.

# LOYALTY CARD

- Payment method: 10
- In the "General" section set the Operation name to "Pay loyalty card"
- In the "Posting" section set
  - Under "ACCOUNT" section set Account number to 112160 (or other if not using demo data)
  - Under "DIFFERENCE ACCOUNT" section
    - Set difference account to 618150 (or other if not using demo data)
    - Set Big difference account to **618140**
- Select "Save"



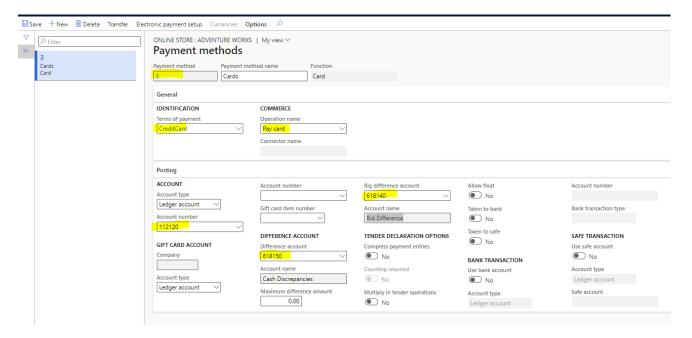
- Select "Card Setup" then "New"
- Set "Card ID" to "LOYALTY"
- Save and close to go back to previous screen



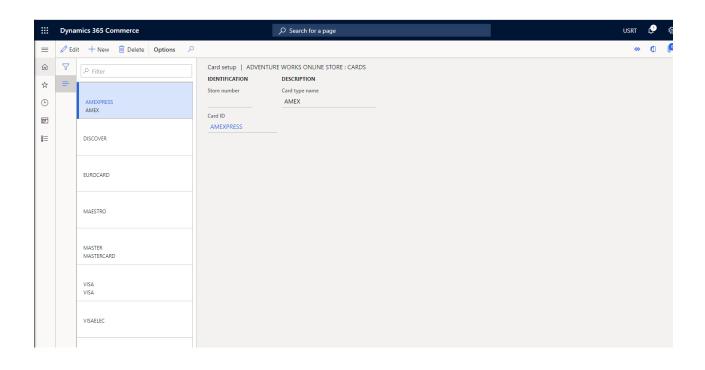
#### "CREDIT CARDS"

We'll now add another card type. Select "New" again.

- Set "Payment method" to 3
- In the "General" section set
  - o Terms of payment: "CreditCard"
  - Operation name "Pay card"
- In the Posting section set
  - o In the "ACCOUNT" section set Account number to 112120 (or other if not using demo data)
  - Difference account: 618150 (or other if not using demo data)
  - O Big difference account: 618140
- Click Save



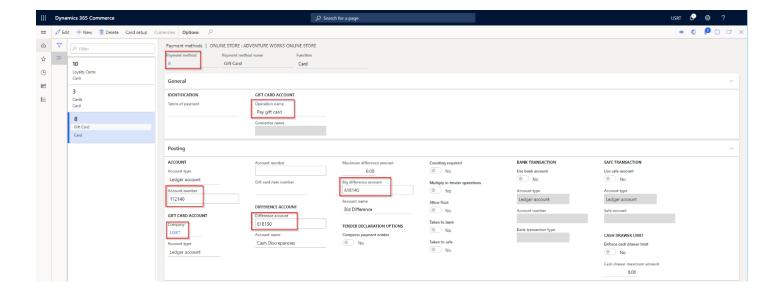
• Select "Electronic payment setup" and add cards to support, you should only need to set the "Card ID" for each, example add any of the following: AMEXPRESS, EUROCARD, MAESTRO, MASTER, VISA, VISAELEC (used for debit). Please include "Visa" to ensure the visa test card will work in Unit 2.



# "GIFT CARD"

We will now add gift card support. From the Payment methods page select "New" as done previously.

- Select Payment method: 8
- Set Function to "Card"
- In the "General" section
  - Set "Operation name" to "Pay gift card"
- In the Posting section
  - O Under "ACCOUNT" set Account number to 112140
  - Gift Card Account company "USRT"
  - Difference account: 618150
  - O Big difference account: 618140
- Click Save
- Note: no card setup is required for this and should be disabled



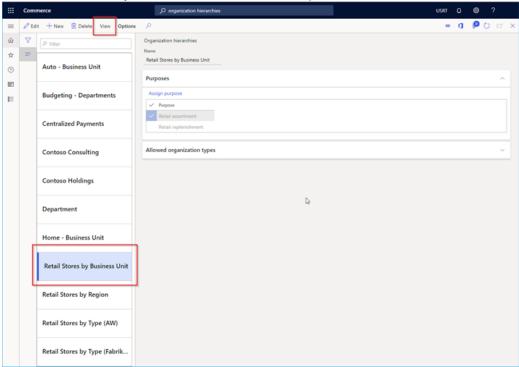
# ADD CHANNEL TO ORG HIERARCHY

Business units can be used to organize channels for simpler configurations. For example, instead of configuring modes of delivery for each store independently, or assorting products per channel, they can be done by org structure units.

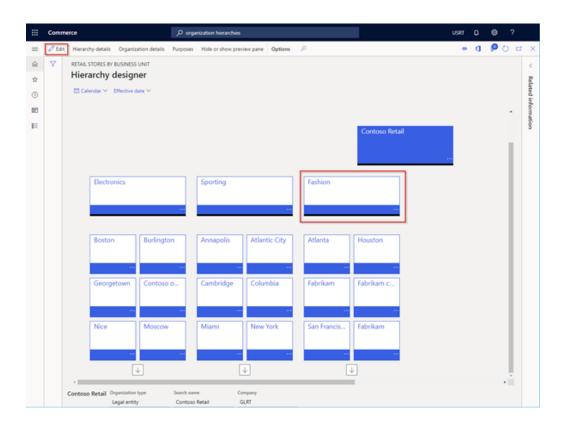
In this section we will add our new channel to an existing organization hierarchy business unit that is included as part of the demo data. You may want to create a new "Business Unit" for your channel and below steps can be used as a general guide.

Search for the "Organization hierarchies" page

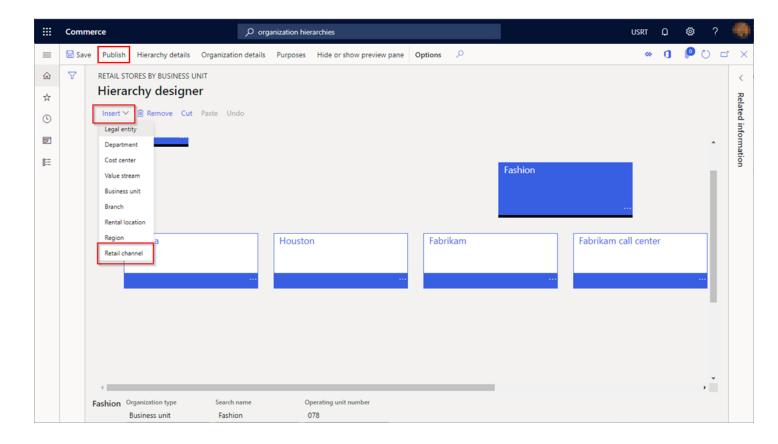
Select "Retail Stores by Business Unit" and "View" on top



• Select "Edit" then the "Fashion" by hitting the "..." on fashion



- Select "Insert" then "Retail channel" and pick the new channel to be added
- Note: You may need to select the arrow to see the new channel added as you scroll to the right.
- Save, publish, select an older date (example: 1st of last month since only 1 publish a day is allowed, if another publish is required you can pick a newer date)



# SETUP MODES OF DELIVERY

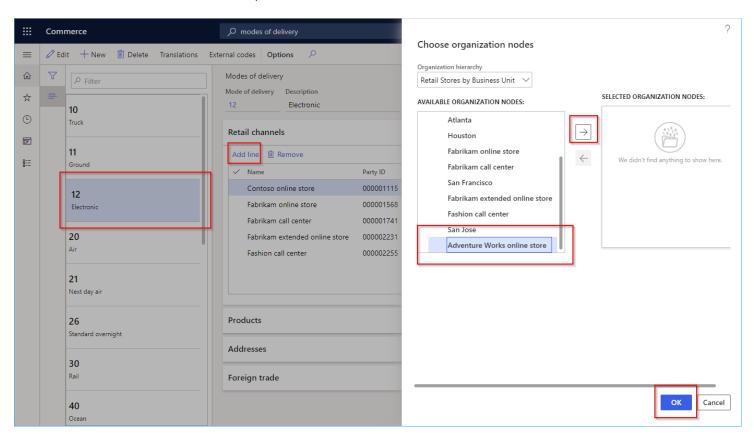
Modes of delivery are used at cart checkout when asking what delivery mode to use. We need to setup the modes of delivery available to the new online store channel.

Search for "modes of delivery" configuration in Headquarters.

Next, we will add this channel to the following modes of delivery.

- "12 Electronic"
- "26 Standard overnight"
- "60 Customer pickup"
- "99 Standard"
- "61 -Curbside pick up"

Select each one and under "Retail channels", click the "Add line" link then add the new channel:

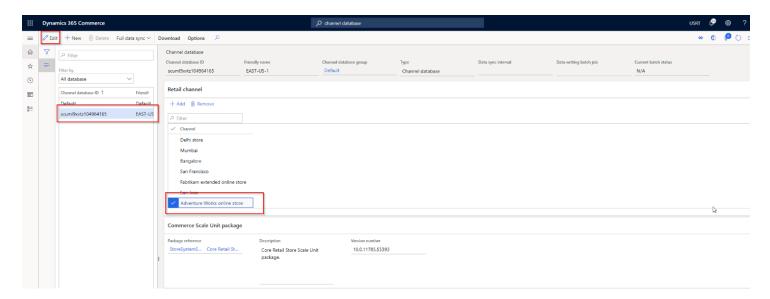


After any changes you must run "Process delivery modes", we'll run that in a later step.

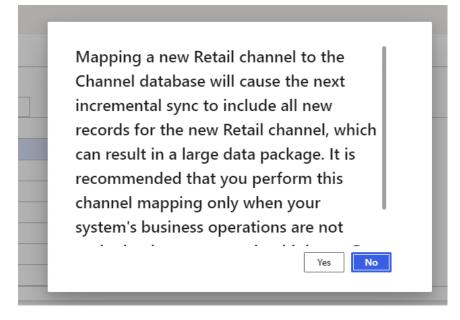
### CONFIGURE CHANNEL TO BE PART OF THE APPROPRIATE CHANNEL DATABASE

Now that the channel creation and configuration are complete, we need to ensure we pick the correct channel database. By default, the deployments will contain a scale unit that we should select.

- Search for "Channel database" and load the page
- Select the scale unit channel database (not the "Default") as shown in the image below.
- Select "Edit" and add the new channel then click save

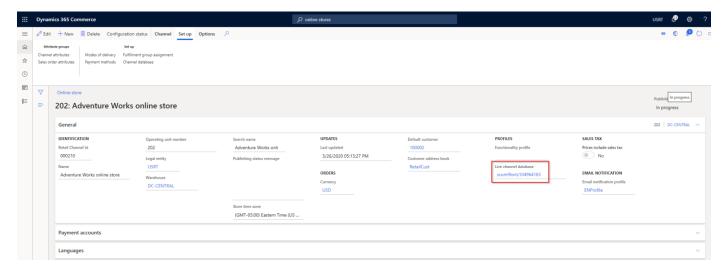


Note: you should get a warning message as below, stating this could take some time, select "Yes"



• Note we will later run the "Full data sync" from here but not yet...

If you now go back to the online store channel you should see the channel database listed as shown below:



We now have a completed channel setup!

#### CREATING A NEW PRODUCT

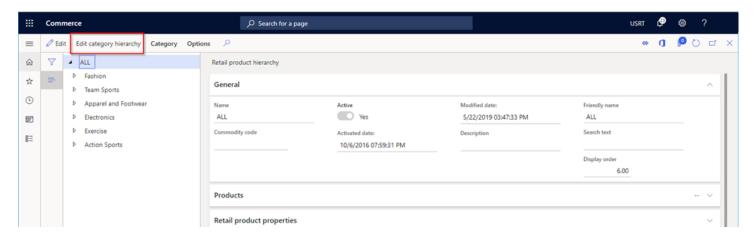
In this section we will create a single new "backpack" product, more products can be created following the same steps. To start we are going to create a new global category for the product.

#### CREATE A NEW PRODUCT HIERARCHY NODE

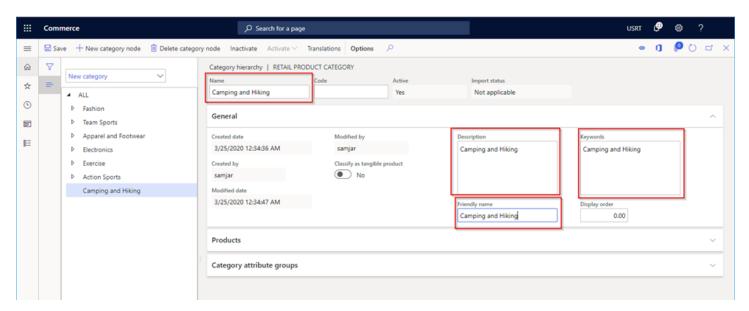
Since the demo data already has a product hierarchy defined, we are going to add a new node to it for our backpack example product we'll be adding. You could pick an existing category for your product or follow along and create a new one.

From within Headquarters, search for "Commerce product hierarchy".

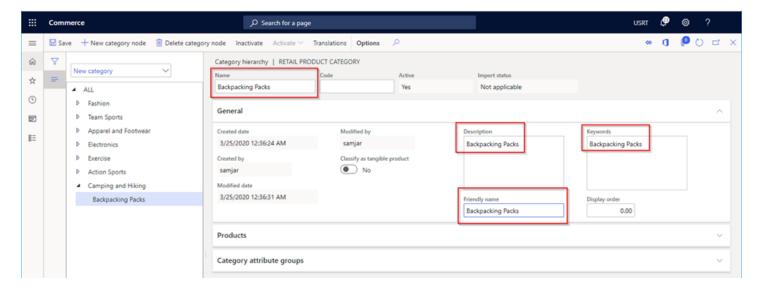
Select the "Edit category hierarchy" link



- Select the node you want to add a new node to
  - o Example we will add to the top level "ALL" node, select it and press the "New category node" button at the top
- Fill in the name, friendly name, description, and keywords



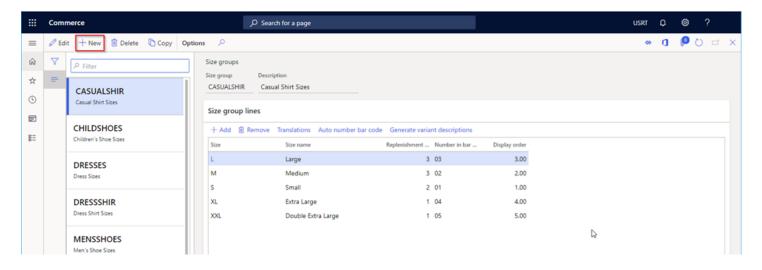
In our example we will now create a new node for the new product under "Camping and Hiking" called "Backpacking Packs".



### CREATE NEW SIZE GROUP

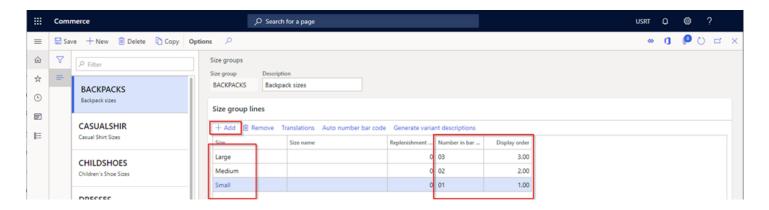
Products can contain variants such as size, color and style. The example product we are going to add will be a backpack that is available in 3 sizes, we need to create the size group first. The size group example will have 3 sizes called Small, Medium and Large. The different variants of a product are important later when adding product images since variant images will need to be used along with the variant name in the file name. This step is needed before we add the product since we need to create the product with the groups. The following steps can generally be followed to add color or style groups as well if needed.

- Search for the "size groups" page
- Select the "+ New" button at the top



The below example adds a "BACKPACKS" size group with Description "Backpack sizes"

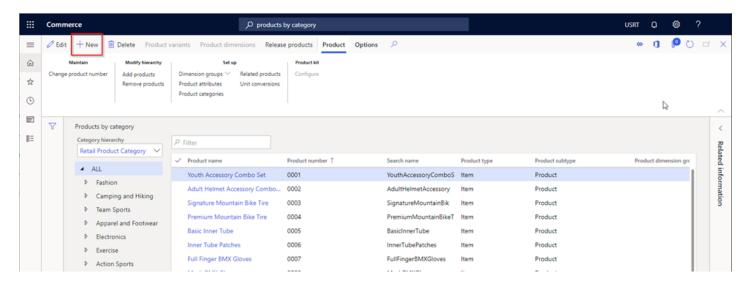
 Add Small, Medium and Large sizes with display order 1,2,3 respectively and 01,02,03 as Number in barcode and replenishment of 1 (Name and description are not required)



### ADDING A NEW PRODUCT

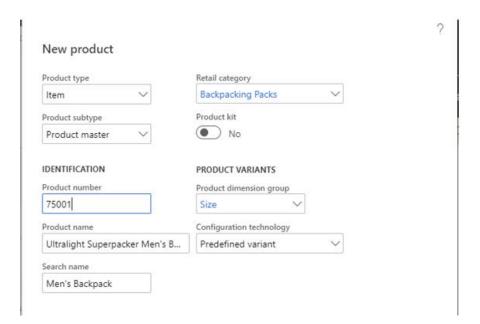
We are now ready to manually add a product. The below example shows how to add a new backpack with size variants using the size group we just created.

- Search for the "Products by category" page
- Note: make sure you are not in "Released products by category"
- Select "+ New" button from the top

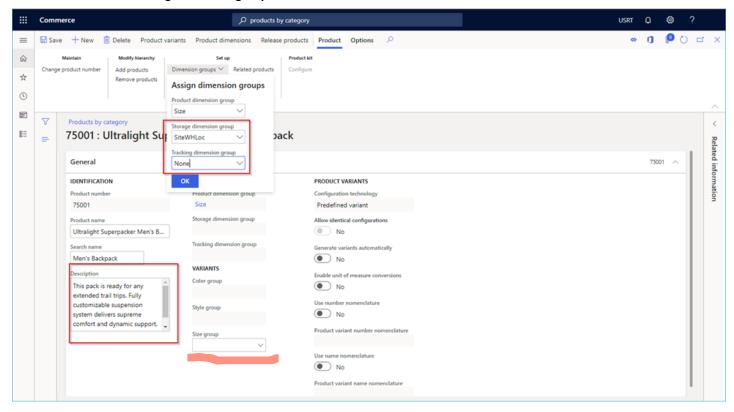


Fill out product details, below is an example:

- Product type = "Item"
- Product subtype = "Product Master"
- **Product number** = "**75001**" (this can be any number that is unique)
- Product Name = "Ultralight Superpacker Men's Backpack"
- Product dimension group = "Size"
- Retail category = "Backpacking Packs" (note: pick the category you created earlier with your name in it)
- Search name = "Men's Backpack"
- Click "OK"



- Next add a **Product Description** (below example uses: "This pack is ready for any extended trail trip. Fully customizable suspension system delivers supreme comfort and dynamic support.")
- Select "Dimension groups"
  - Select "Storage dimension group" = SiteWHLoc
    - This will ensure the product inventory can be added to a warehouse with specific defined locations (you will see this later when we add inventory)
  - Select "Tracking dimension group" = "None"

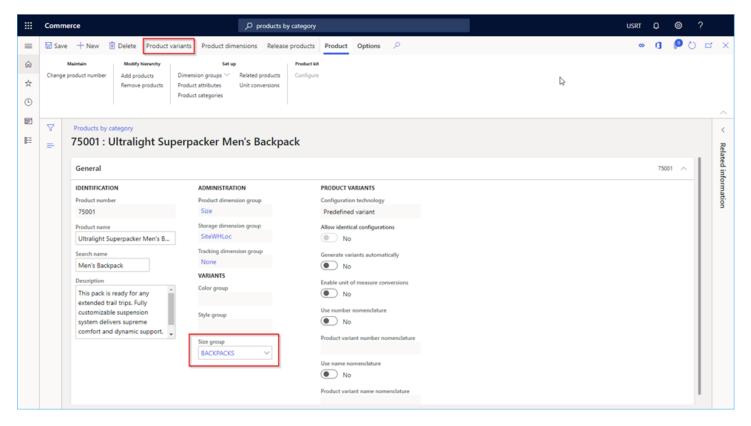


Now we can select the "Size group" we created earlier called "BACKPACKS"

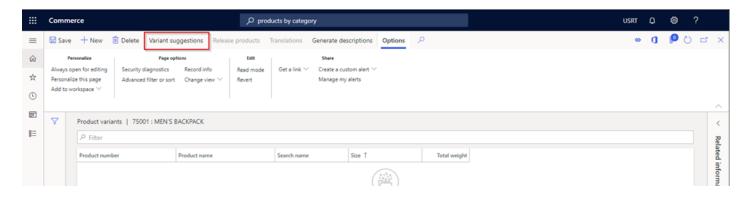
## **Define Product variants**

Now we need to define the specific variants our product will support, for example a color group could be chosen with a generic list of colors, now you can pick the specific ones available on the product.

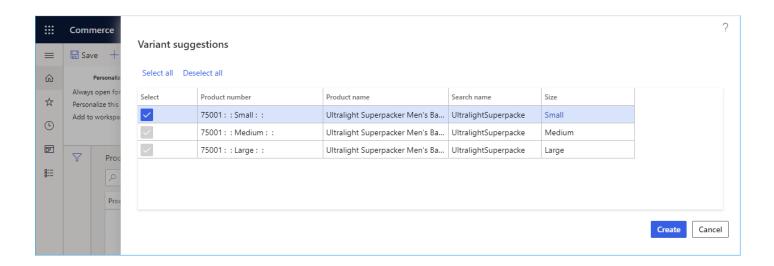
Select "Product variants"



Select "Variant suggestions"



- Select "Select all"
- Select "Create" button
- Click "X" in upper right to close to take you back to product page, no need to click save it should auto save

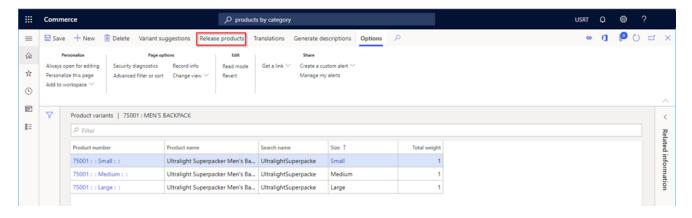


We have now finished creating a product and its variants.

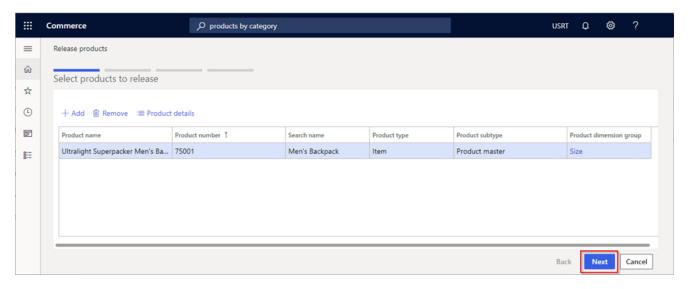
## RELEASE PRODUCTS TO A LEGAL ENTITY

Now that the product is added to our global list of products, we must release it to a legal entity to sell it. In our example below we will release to USRT where our online channel is defined.

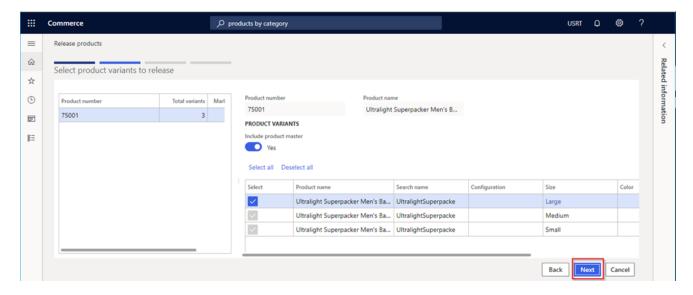
# Select "Release products"



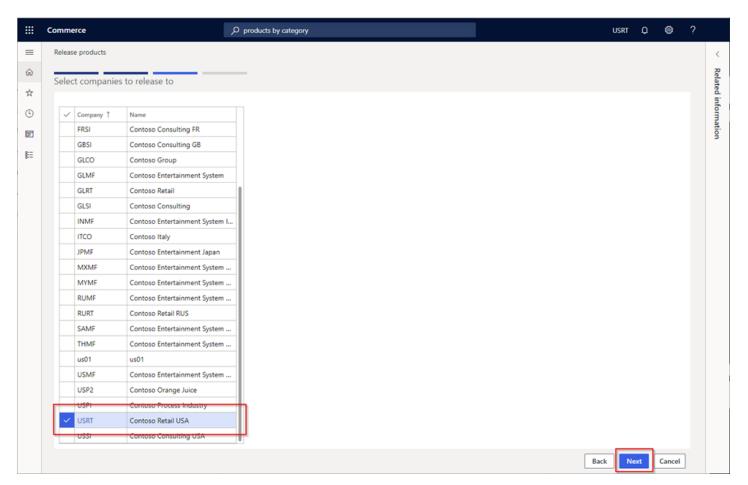
#### Select "Next"



Select "Next"



# Select "USRT" and "Next"



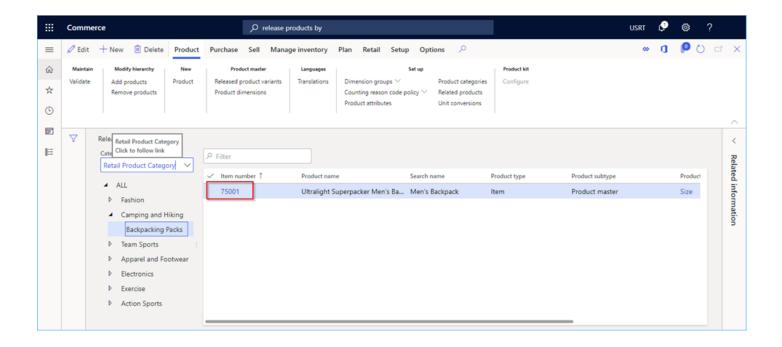
Select "Finish"



## CONFIGURE RELEASED PRODUCT PROPERTIES

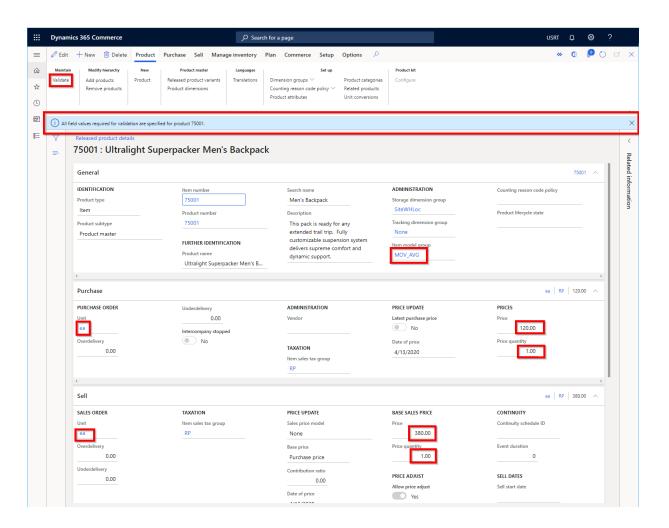
Once products are released, we can now configure more of the product information such as selling price. Below will show how to configure the example product created earlier.

- Search for the "Released Products by Category" page.
- Select the new product number link under "Camping and Hiking" -> "Backpacking Packs" category



We will now modify some of the data, there is a minimal set of data that needs to be set before the product will successfully validate. Ensure the product validates successfully before proceeding or it will not show up on the site.

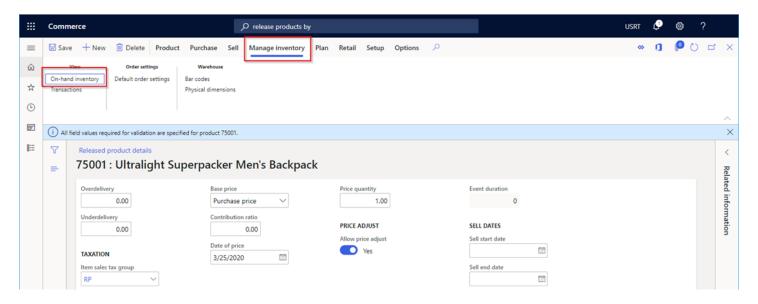
- Select "Edit" and make below changes
  - "General" section set
    - Item model group : Mov\_AVG
  - "Purchase" section add
    - Unit: "ea",
    - Price=120.00, Quantity=1.00
  - "Sell" section add
    - Unit: ea,
    - Price=380.00, Quantity=1.00
  - "Manage Inventory" section add
    - "Unit": ea
  - "Manage Costs" section pick an
    - "Item Group" = "Action Sports"
  - Select "Validate" then confirm there are no errors and click "Save"
    - Once validated you should see a message at the top saying "All field values required for validation are specified for product 75001.". As shown below.



## ADD PRODUCT INVENTORY

We will now add product inventory for each variant and for both the warehouse for the online store (DC-Central) as well as San Francisco for BOPIS scenarios. San Francisco retail is the most updated POS so it best used for demos.

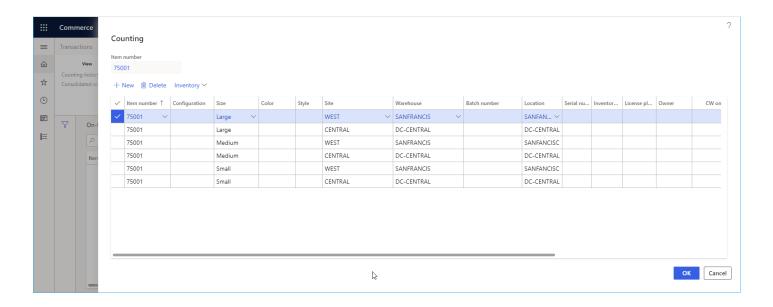
Select "Manage Inventory" and "On-hand inventory"



- Select "Quantity Adjustment" at the top
- Open "Inventory" dropdown menu then "Display Dimensions" and check the "Location" checkbox and click "OK"



- "+New"
  - choose Size=Small
  - choose Site="Central"
  - Warehouse="DC-Central"
  - Location="DC-Central" (this is the warehouse where our Online channel is hooked up to)
  - Add a quantity = some number ex: 55 for each
- Repeat for Size = **Medium**
- Repeat for Size = Large
- Optional: Add inventory for Site = "West" and Warehouse="SanFrancis" this can be useful for BOPIS scenarios (Buy online pickup in store)
- Select "OK" to save



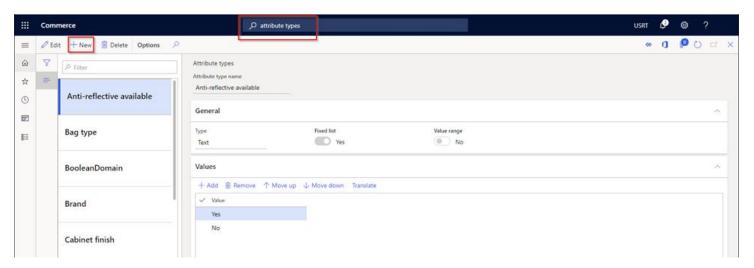
## CREATE NEW ATTRIBUTES

We are going to create two new attributes for our backpack, one for the usage and one for backpack frame type. This will allow us to see refiners on the category page. First, we will create the two new attribute types, the attributes and an attribute group to group them together.

## CREATE NEW ATTRIBUTE TYPES

In search box search for "Attribute types" and select the page

• Select "New" to create a new attribute type



Below example shows setting a "Backpack usage":

- "Attribute type name" = "Backpack usage"
- Type = "Text"
- Fixed list = "Yes"
- Values select "Add" and add the following 4 values

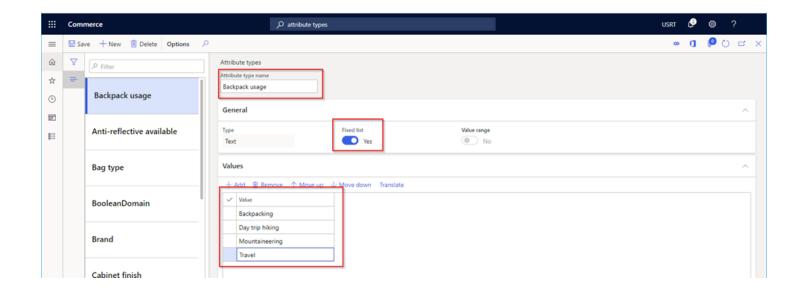
# **Backpacking**

Day trip hiking

Mountaineering

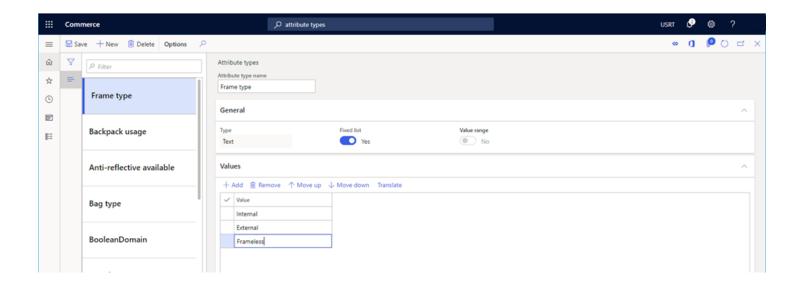
## Travel

Click "Save"



Below example shows setting a "Frame type":

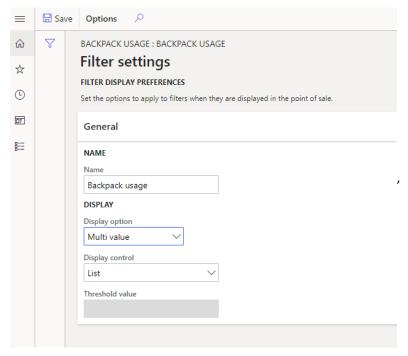
- Select "New" to create a new attribute type
- Set "Attribute type name" = "Frame type"
- Type = "Text"
- Fixed list = "Yes"
- Values select "Add" and add the following 4 values
  - Internal
  - External
  - Frameless
- Click "Save"



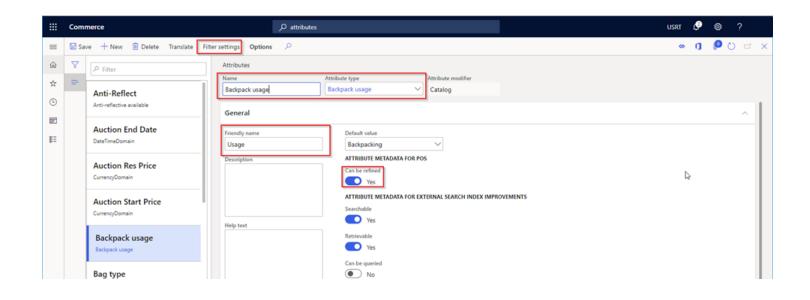
## **CREATE ATTRIBUTES**

The below example shows how to create a new attribute using the type we created above.

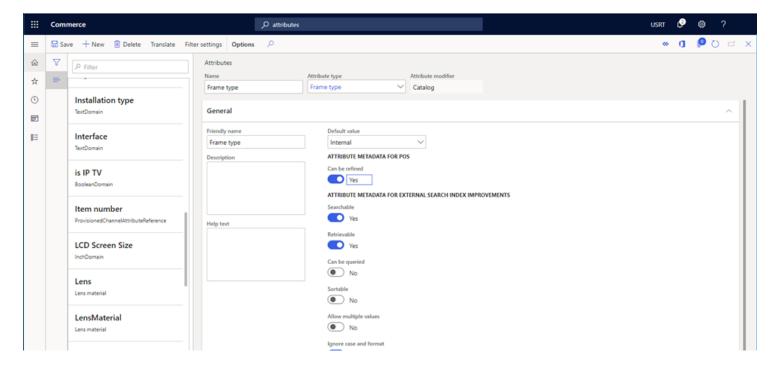
- Search and navigate to "Attributes" page
- Select "New" to create a new attribute
- Name = "Backpack usage"
- Attribute type = "Backpack usage"
- Friendly name = "Usage"
  - Click "Filter Settings" button and change "Display option" to "Multi value" then save and close



- Default value = "Backpacking"
- Can be refined = "Yes" (will show error if above step is not done)
- Click "Save"



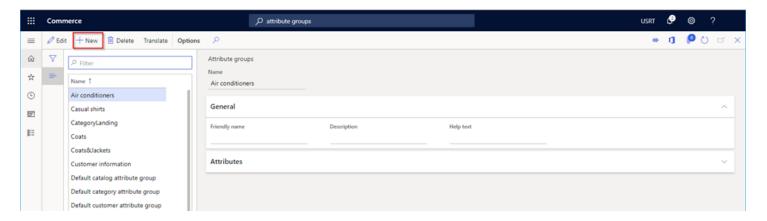
- Check if "Frame type" exists if not create it
- Select "New" to create another attribute
- Name = "Frame Type"
- Attribute type = "Frame Type"
- Friendly name = "Frame Type"
- Click "Filter Settings" button and change "Display option" to "Multi value" then save and close
- Default value = "Internal"
- Can be refined = "Yes" (will show error if above step is not done)
- Save



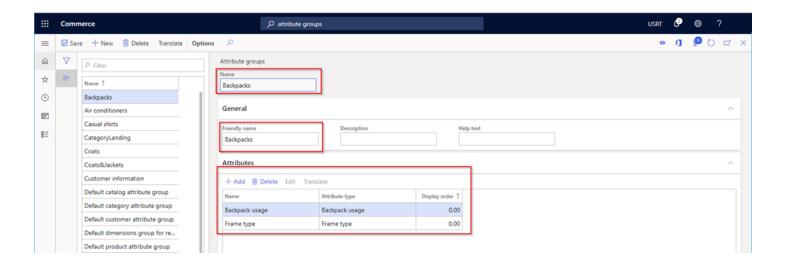
## CREATE NEW ATTRIBUTE GROUP

We can group attributes together; this will make it easier later to apply a group of attributes to a single product and a hierarchy node. Below is an example on creating an attribute group of the two attributes created above.

- Search and navigate to "Attribute groups"
- Select "New" button



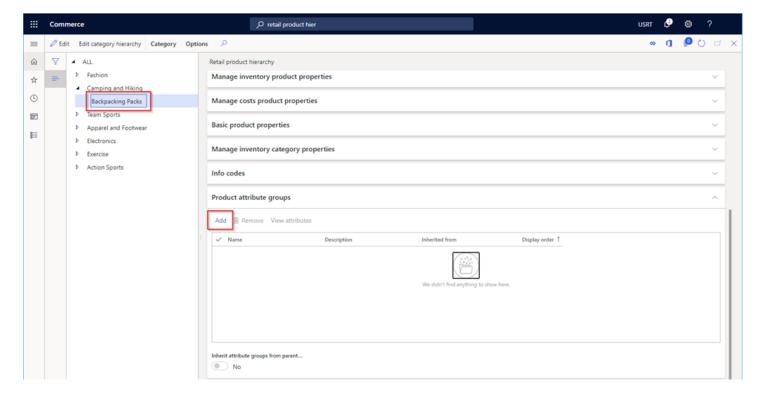
- Set Name="Backpacks"
- Friendly name = "Backpacks"
- Add the two previously created Attributes using the "Add" button in the Attributes section.
- Save and close



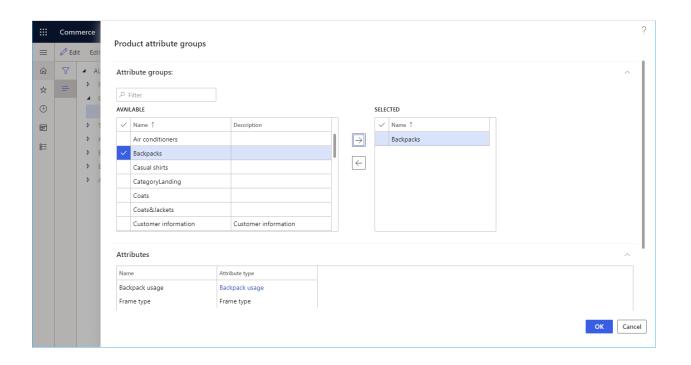
## ADD ATTRIBUTES TO COMMERCE PRODUCT HIERARCHY

This section will now show how to add an attribute group to a product hierarchy, this will allow all products to inherit the attributes.

- Search and navigate to "Commerce product hierarchy"
- Select a category, for example below the "Backpacking Packs" node has been selected
- Under "Product attribute groups" section select "Add" button



- Select an attribute group to add, the below example shows a "Backpacks" attribute group being added.
- Select "OK"

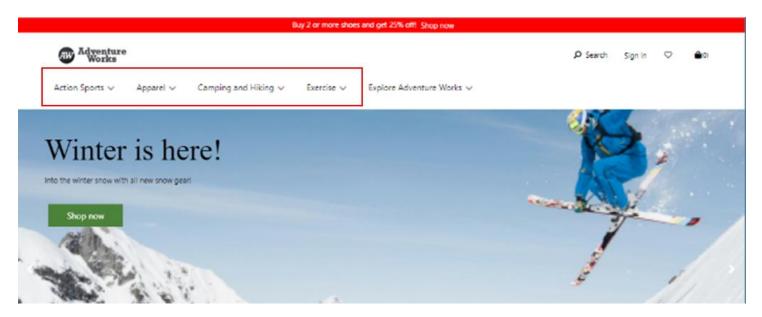


# ADDING ADDITIONAL PRODUCTS

Optionally you can follow the above steps to create more products. The products could leverage existing attributes and attribute groups if desired.

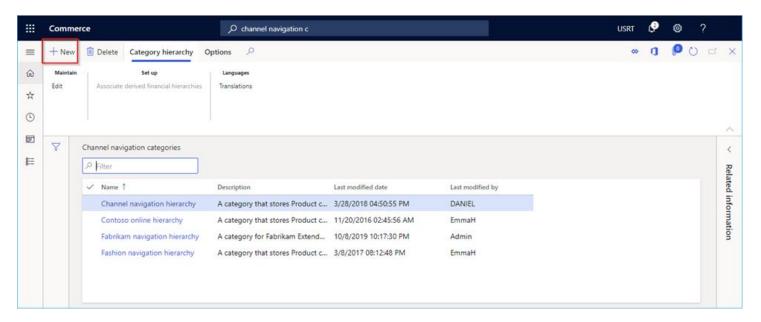
## CREATE NEW CHANNEL NAVIGATION HIERARCHY

Our new channel still needs a product navigation hierarchy that will be presented on our e-Commerce site which is different than the global product hierarchy we have used up until this point. Notice this hierarchy in the below image on the e-Commerce site.

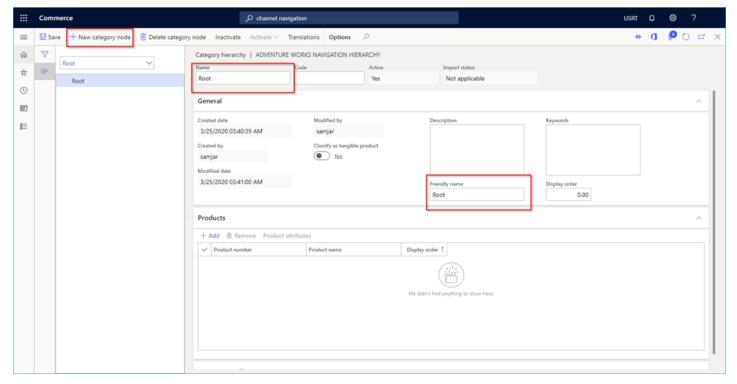


Follow the below steps to create a new navigation hierarchy. Each channel can have a unique channel hierarchy with.

- Search for the "Channel navigation categories" page
- Select the "New" button

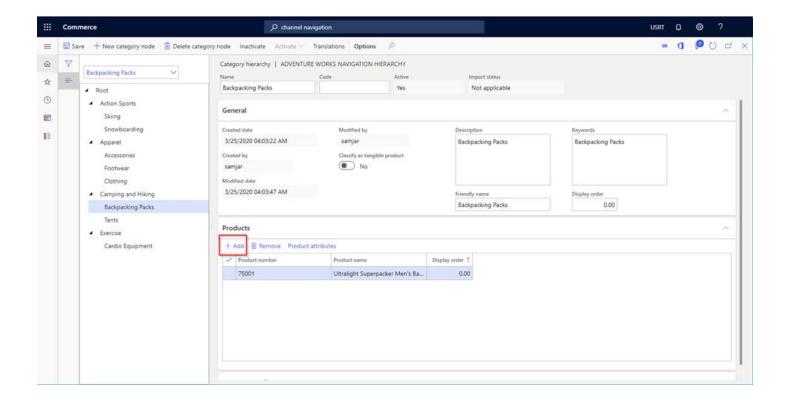


- Provide a name. In the below example we will use "Adventure Works navigation hierarchy" and description "A category for Adventure Works online store." then click the "Save" button
- We will create a root node first this root node will not show up in our e-Commerce site, select "New category node"
- Set a name such as "Root" and a friendly name such as "Root" (feel free to use any name here it will only show up here not in the end e-commerce site)



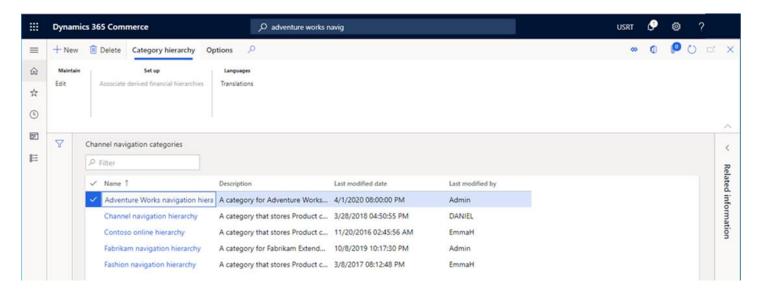
- Select the new "Root" node and add new nodes for each category with the "New category node" button.
- We'll use the below example set of nodes representing a sporting goods site:
  - Action Sports
    - Skiing
    - Snowboarding
  - Apparel
    - Accessories
    - Clothing
    - Footwear
  - Camping and Hiking
    - Backpacking Packs
    - Tents
  - Exercise
    - Cardio Equipment

Next, we'll add your new product to the appropriate node(s). For example, select the "Backpacking Packs" node and expand the "Products" section and click the "Add" button and add the products.

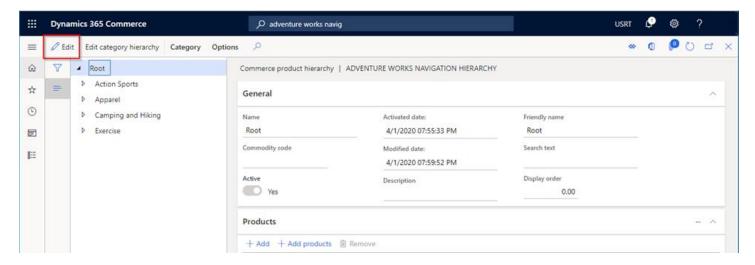


Next, we will add the product attribute groups to the node.

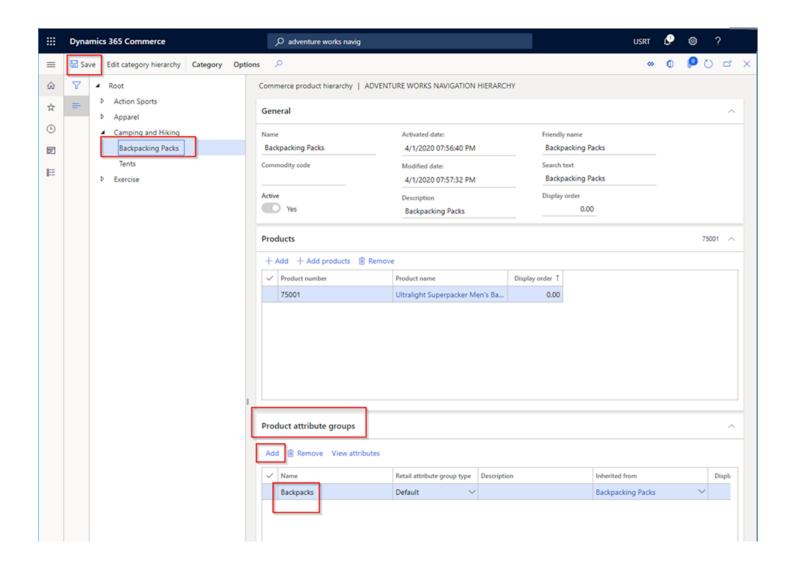
Close this page to go back to get back to channel navigation categories page as shown below.



• Select the new navigation category we just created and click the **edit** button.



- Select the new node we previously added a product to, "Backpacking Packs" in previous example.
- Expand the "**Product attribute groups**" section and click the "add" button to add the "Backpacks" attribute group created earlier.
- Click "Save" when complete. (You may see a warning; you can Ignore this warning notifying that you may want to add the attributes elsewhere.)

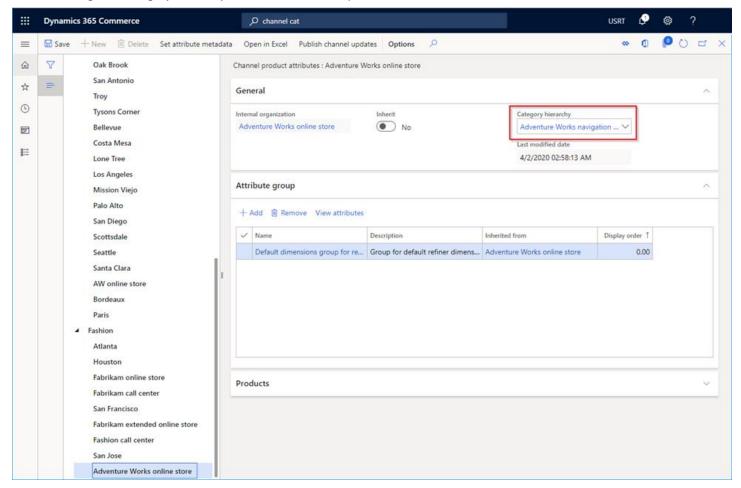


## CONFIGURE CHANNEL TO USE THE NEW CHANNEL HIERARCHY

Now that we have created a channel navigation hierarchy, we will learn to associate it to the new channel we created.

# Search for the "Channel categories and product attributes" page.

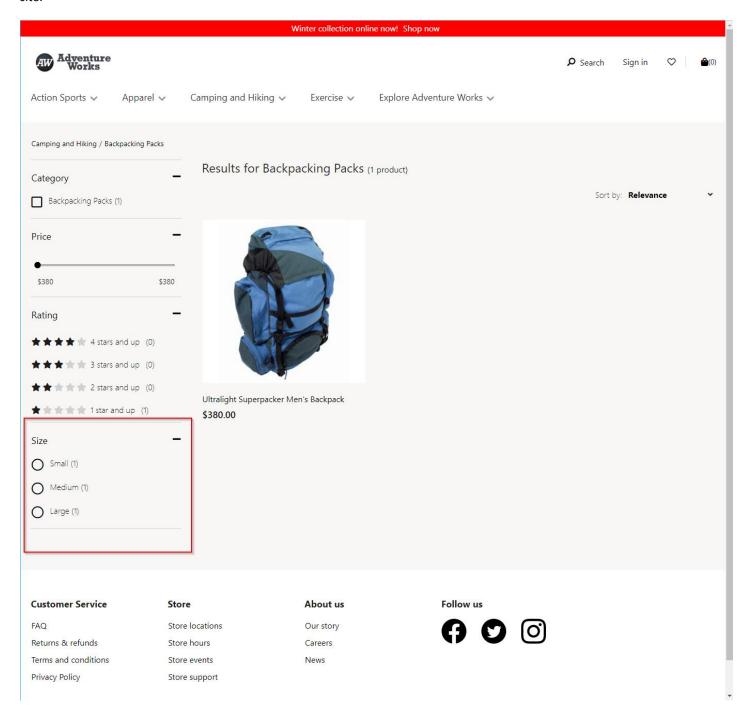
- Select the new online channel in the list that you want to configure and select the "Edit" button
- Change the category hierarchy to the new created in previous section



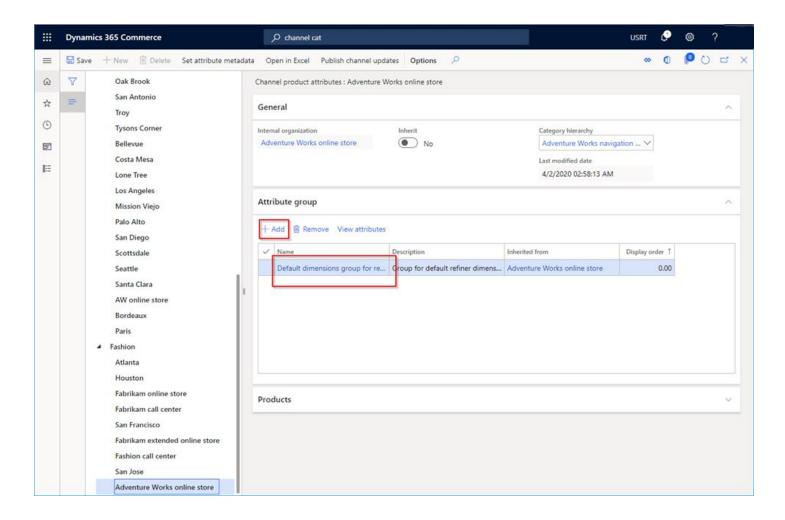
## CONFIGURING CHANNEL PRODUCT ATTRIBUTES

We now want to ensure we have the appropriate attribute refiners for each category on our e-Commerce site. We will start by removing the default one that is added to a new channel and replace with a pre-defined one that is designed to show the product variants (size/color/style). Our example backpack product only defined size, so we will not see the color/style but if your other products have those variants they will show up.

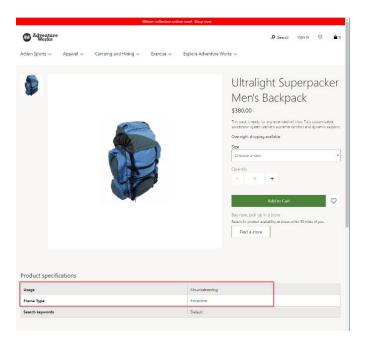
By doing the below steps we will enable the standard refiners to show up in the category pages as shown below on our e-commerce site.



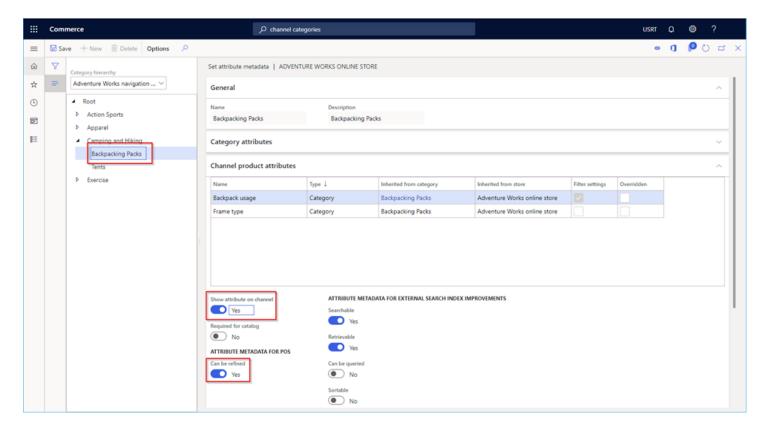
While still in the "Channel categories and product attributes" page from the previous section remove the "SharepointProvisionedProductAttributeGroup" and instead add the "Default dimensions group for refiners".



Now we will enable the new attributes to also be refinable and this will ensure the attributes show up on the product details page as shown below.

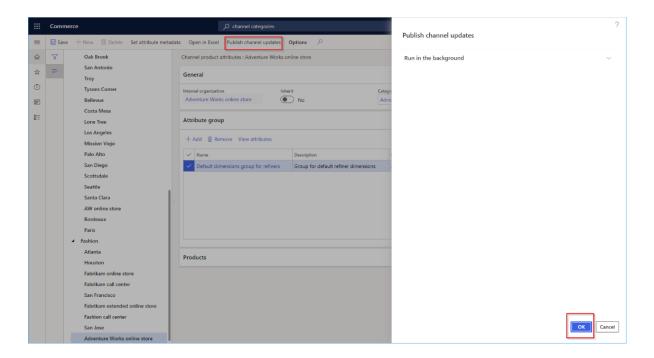


- Select the "Set attribute metadata" at the top
- Select a node you want to modify (for example "Backpacking Packs" under "Camping and Hiking")
- You should now see the previously created attributes, for each "Channel product attributes" (example: Backpack usage and Frame Type) set "Show attribute on channel" to "Yes" and make sure the "Can be refined" is set to "Yes" as well.
- The same can be done to all other categories to enable refiners.
- Select "Save" and close



We can now publish the changes.

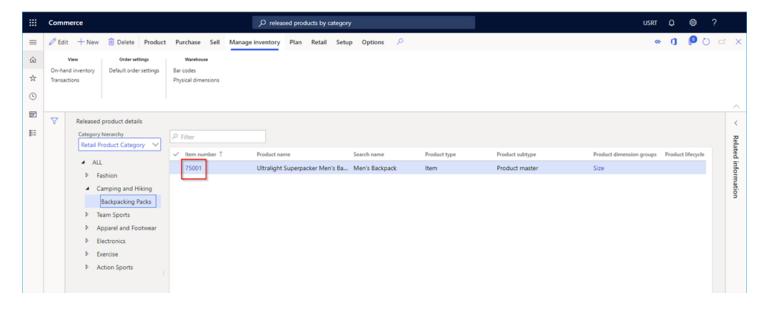
• Press "Publish channel updates" followed by "OK"



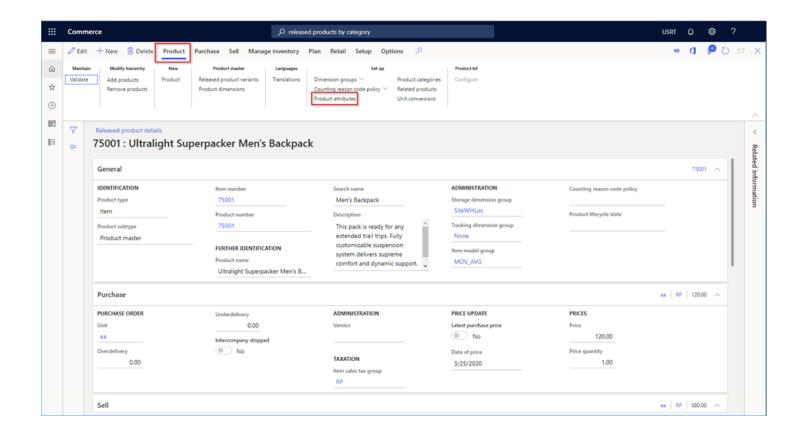
# Configure Attributes on new product(s)

Now that we have created attributes on the product and node, we need to set the specific value for the new products we've added. The below example shows how to do this for the example products added earlier.

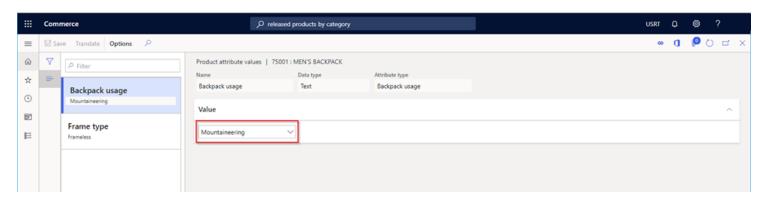
- Type in "Released products by category" in the search box and navigate to that page
- Select the new product link "75001" under "Camping and Hiking" -> "Backpacking Packs"



- Select the "Product" tab at the top
- Select "Product attributes"



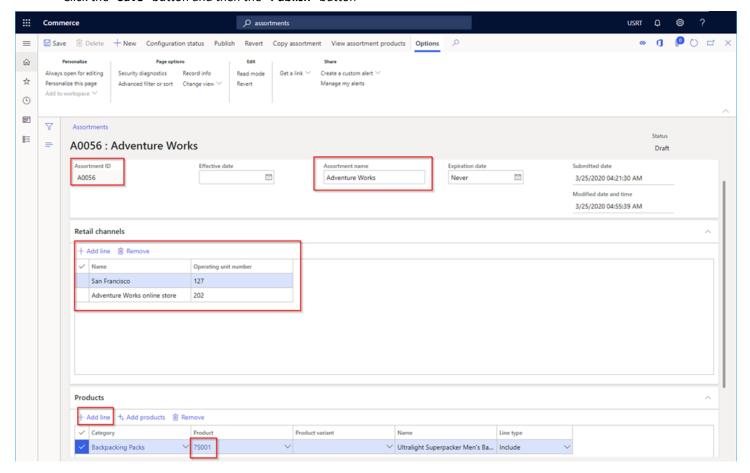
- Select "Mountaineering" for "Backpack Usage"
- Select "Frameless" for "Frame Type"
- Close page
- Do the same for all other new products



## CREATE A NEW ASSORTMENT

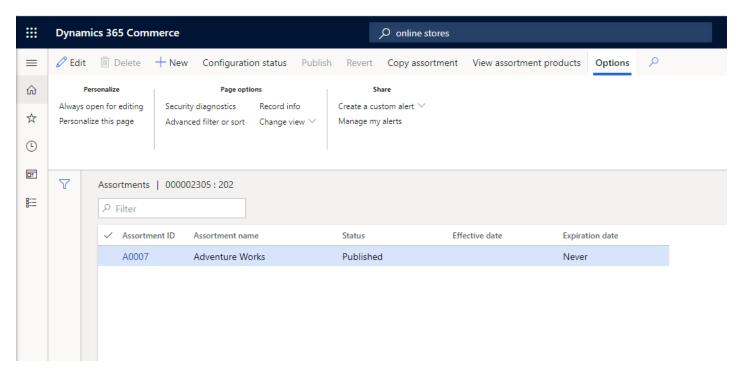
The final step before products will be available for sale in a channel, they need to be "assorted" to the channel. Follow the steps below to create a new assortment for our new online store and add assort products to it.

- Search for "Assortments" and navigate to page
- Select the "New" button
  - Set Assortment ID = "A0007" (or accept auto number)
  - Set Assortment Name = "Adventure Works" (or any name)
- In "Retail channels" section add the new online channel created earlier and add the "San Francisco" for BOPIS scenario.
- Under "Products" section select "Add line"
- Add the new backpack item 75001 (or any product) (alternatively a category of items can be added here if desired)
- Click the "Save" button and then the "Publish" button

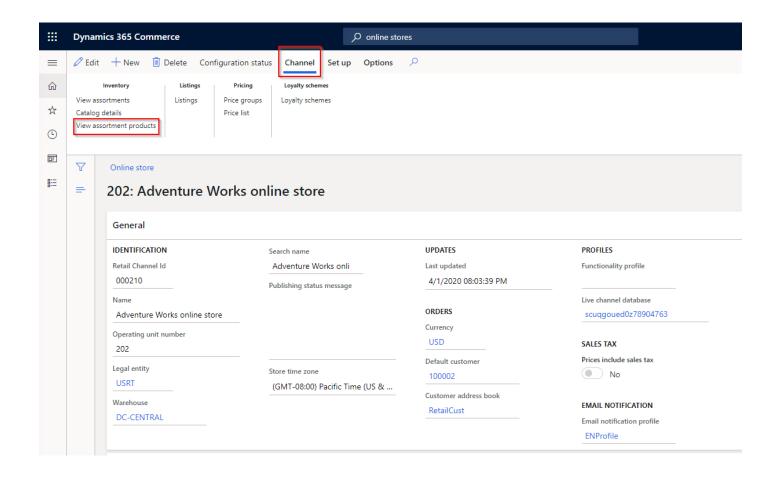


Publishing will automatically process the assortments.

To see the assortments in our channel, select the channel from "Online stores" page and select "View assortments" and you should only see 1 assortment as shown below.



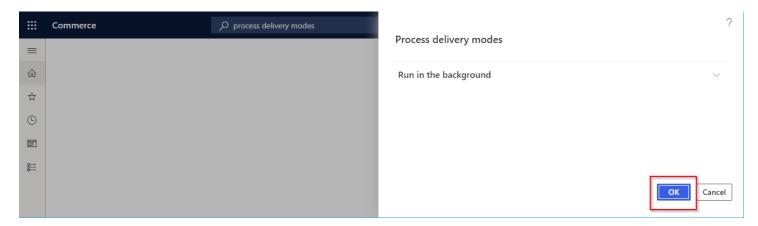
To see the assorted products on the channel, select "View assortment products" from the "Channel" tab on our channel.



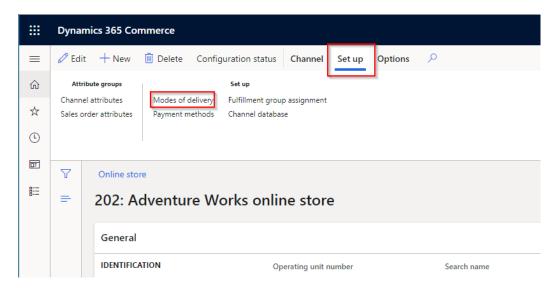
## SYNC DATA

We now need to run some jobs to pick up all our changes, running the below '9999' job will ensure we catch everything. Before we sync all jobs, let us process delivery modes to ensure they all get picked up:

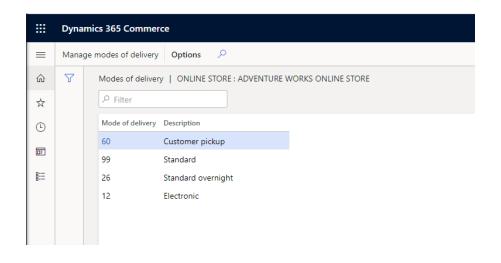
• Search for "Process delivery modes" and select "OK" to run.



To see if the new delivery modes are configured correctly, go back to "Online stores" and select the new store. Select the "Set up" tab at the top and then "modes of delivery".



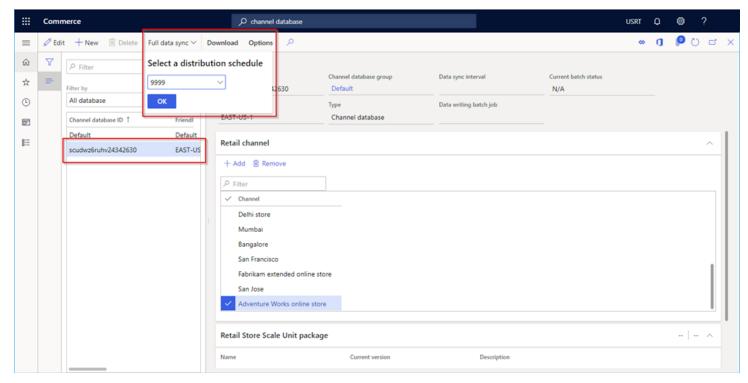
You should see a similar list to below image.



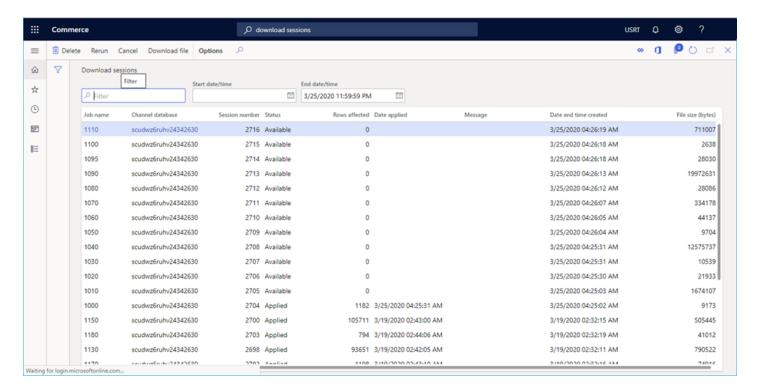
To sync all jobs to ensure all the data gets sync'd to the scale unit - search for the "Channel Database" page.

• Ensure the RSCU channel database is selected and select "Full data sync" drop down and type in "9999" to run all jobs.

Press "OK" on the next screen



- This could take 10-15 minutes to complete (coffee break time!). It could take up to another 15 minutes for the Azure search indexing before products will be viewable on the e-Commerce site.
- When the dialog goes away type "download sessions" in the search box and refresh until all Status items say "Applied"



This completes the Headquarters setup. We now have a new channel and a new channel hierarchy with products in it.

## UNIT 2 CREATE AND MANAGE AN E-COMMERCE SITE

### CREATE AN ONLINE SITE

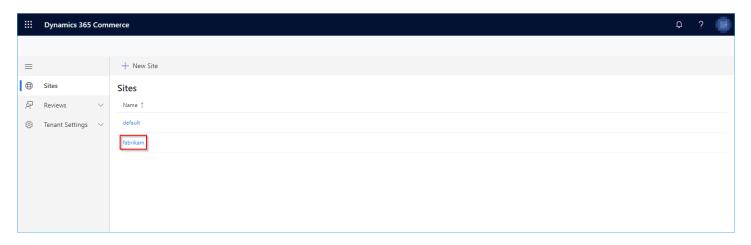
In this section we will create a new e-Commerce site with the Site Builder tool (see top of document on how to load this tool from within LCS). When creating the site, we will be choosing an online store channel, the language, and the Active Directory security group to use for site administrators.

There are two options when creating a new site, the most ideal option is the first run experience which will create a default set of pages for your site with Fabrikam branding and sample marketing images. The second option is to create a new site, which will not have any pages created for your site. Follow the below steps for the first run experience if you are using a newly deployed e-Commerce site or see Appendix A/B to create a new site and the corresponding fragments/templates and pages.

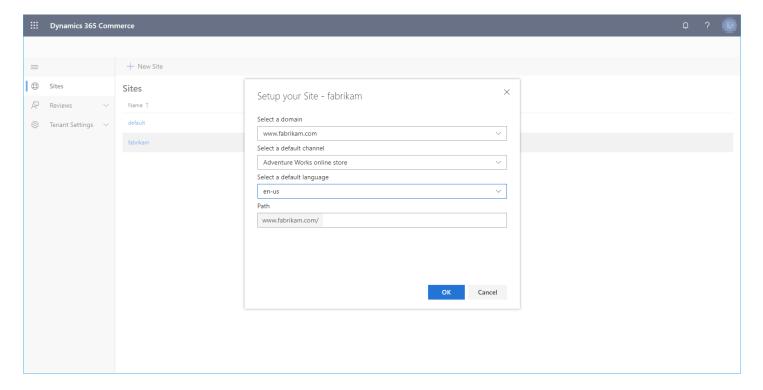
### SET UP YOUR E-COMMERCE SITE

Follow the next set of steps to set up your e-Commerce site.

Launch the site builder tool and you should see a "Sites" selection page. Select the **Fabrikam** site to open the site setup dialog box (see note below if you do not see the dialog box).



**NOTE**: If you are using an environment that already has the Fabrikam site setup against the "Fabrikam extended online store" then when you select the Fabrikam site, instead of getting the below "Setup your Site" dialog box it will take you to site to a list of site pages. This indicates that the first run experience has already happened, in this case you may need to either create a new site (see appendix A/B) or change the Fabrikam site to use your new channel (see next section to make this change). If you are in this situation, **we recommend you change the channel on the site for this workshop** instead of creating a new site since you'll have to create the pages/templates and fragments manually if you create a new site.

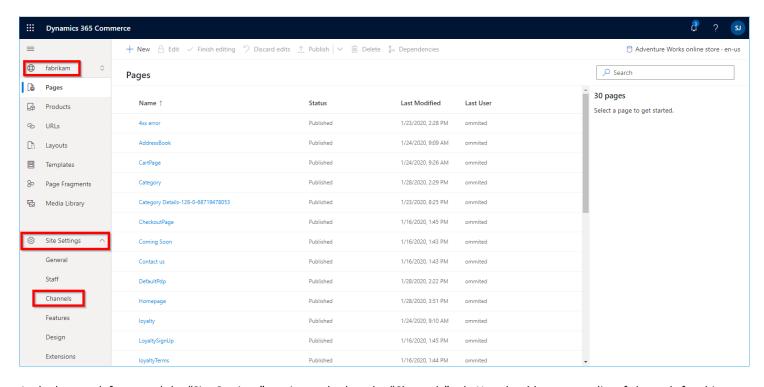


- Select the domain from the drop down, there should only be one option that was entered in when the e-Commerce site was deployed through LCS.
- Select the new online channel created earlier in this guide, which should appear in the drop down.
- Select **en-us** as the default language. **NOTE**: this is important to use en-us for this step since the default pages are only provided in English, additional languages can be added later.
- Leave the value of the Path field as it is.
- Select **OK**. The list of pages on the site appears.

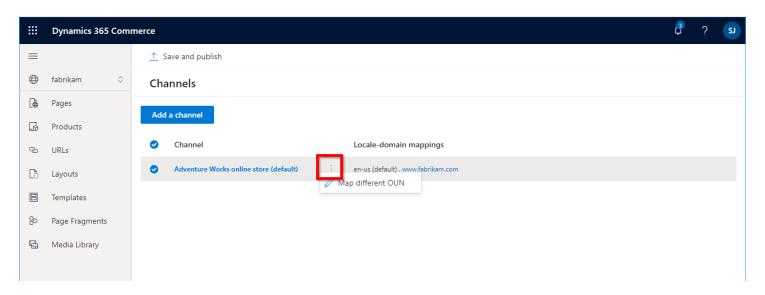
### CHANGING SITE TO A DIFFERENT ONLINE CHANNEL

If the above new "Setup your site" dialog did not come it, it means the site has already been initialized, we just need to change it to point to the new channel created earlier. Follow the below steps.

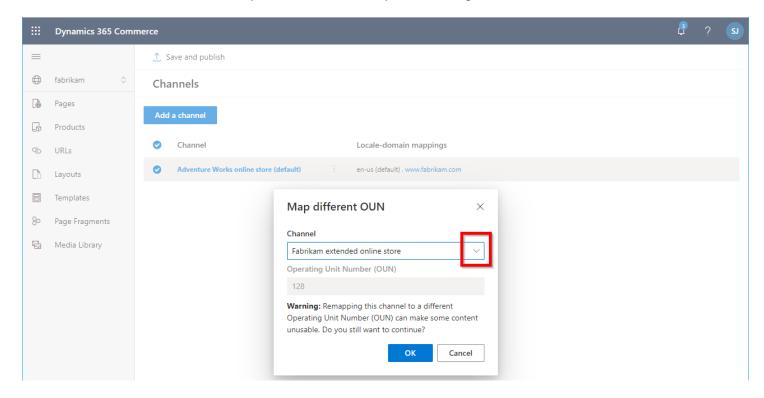
You should now be in the selected "Fabrikam" site inside of the site builder tool and be on the "Pages" tab as shown below.



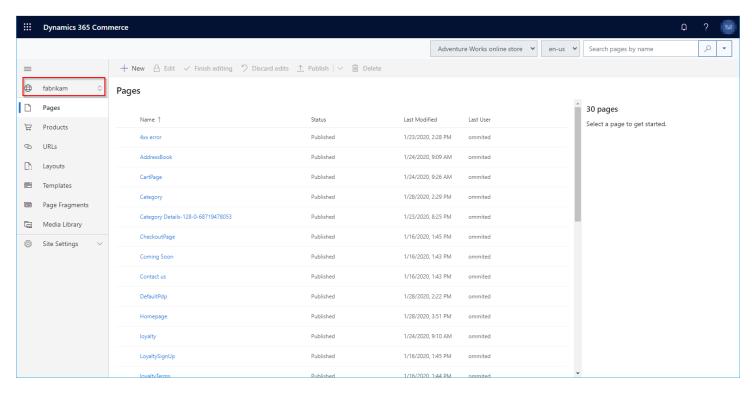
At the bottom left, expand the "Site Settings" section and select the "Channels" tab. You should now see a list of channels for this site, this is the same area you can configure multiple locales for a site. Select the vertical "..." and then "Map different OUN" in the pop-up menu.



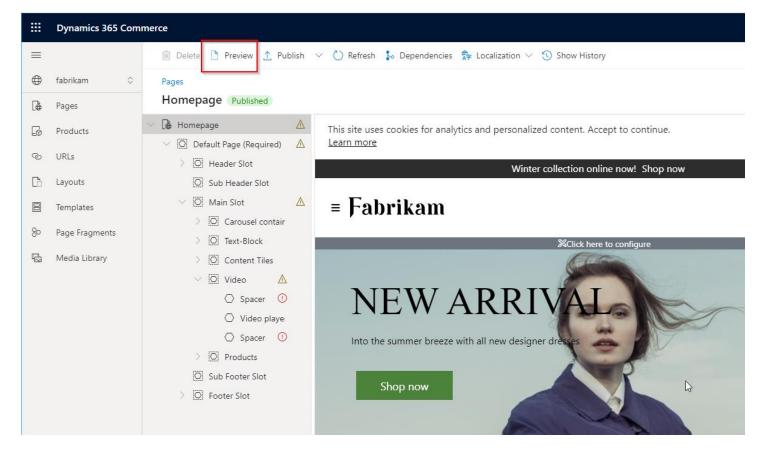
You can now select the appropriate channel from the Channel drop down as shown below followed by pressing the OK button. You will then need to the select the "Save and publish" button at the top for the setting to take effect.



At this point you should now have a full featured e-Commerce site, the new site called "Fabrikam" will be auto selected and you should now see a list of e-Commerce pages.



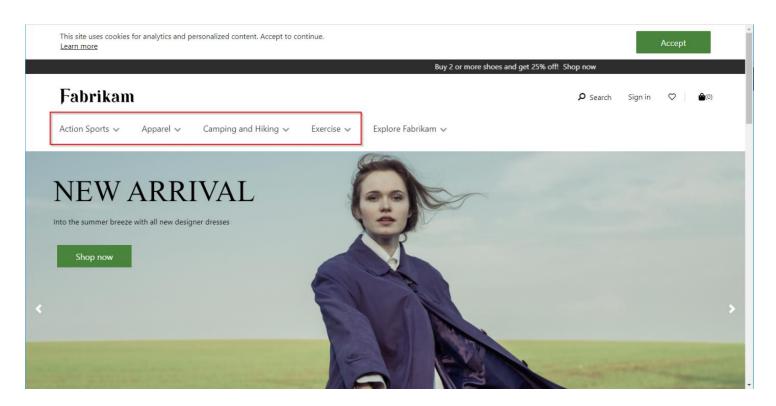
To test out the web site, select the "Homepage" from above list and select the Preview button as shown below.



The web site should now be a "Fabrikam" branded site with the channel navigation you created earlier in this document and clicking through to categories you should be able to see the products you created.

Take note of the URL it should look similar to: <a href="https://commerceinaday-9-eval.commerce.dynamics.com/?domain=www.fabrikam.com&preview=inprogress">https://commerceinaday-9-eval.commerce.dynamics.com/?domain=www.fabrikam.com&preview=inprogress</a>

If you remove the "?domain=www.fabrikam.com&preview=inprogress" from the url you can bookmark this for the site home page (otherwise you can get to the homepage from LCS).

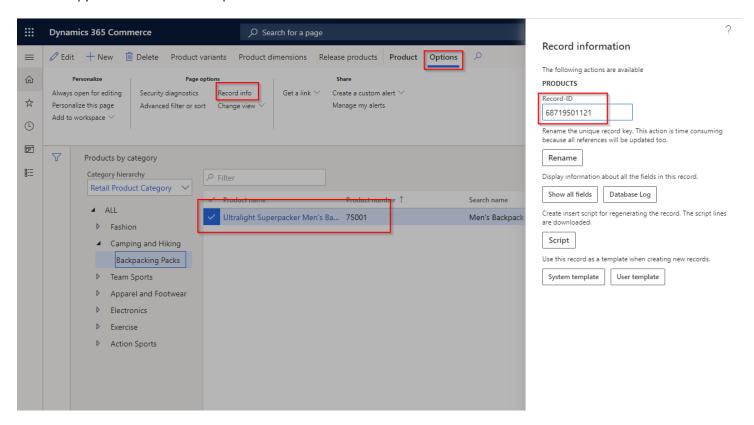


**Note**: As you navigate into product categories, if no products show up, it may just take some time for the search indexing to finish up, try again in 10-20 minutes. If products still do not show up after some time seek some support.

Also note that new product images will not show up until you upload them to the "Media Library" which we'll do in the next section.

If your product is still not showing up in the category (could be due to the search indexing taking longer than expected), another way to test if your product is working is to directly link to the product details page.

From within Headquarters search for "**products by category**" and select the product created earlier. Select "Options" and "Record Info and copy the "Record-ID" for the product.



You can then construct a URL based on this record id. Take your site URL and add the Record-ID.p (the ".p" represents product). For example if the site URL is: <a href="https://commerceinaday-9-eval.commerce.dynamics.com/">https://commerceinaday-9-eval.commerce.dynamics.com/</a>

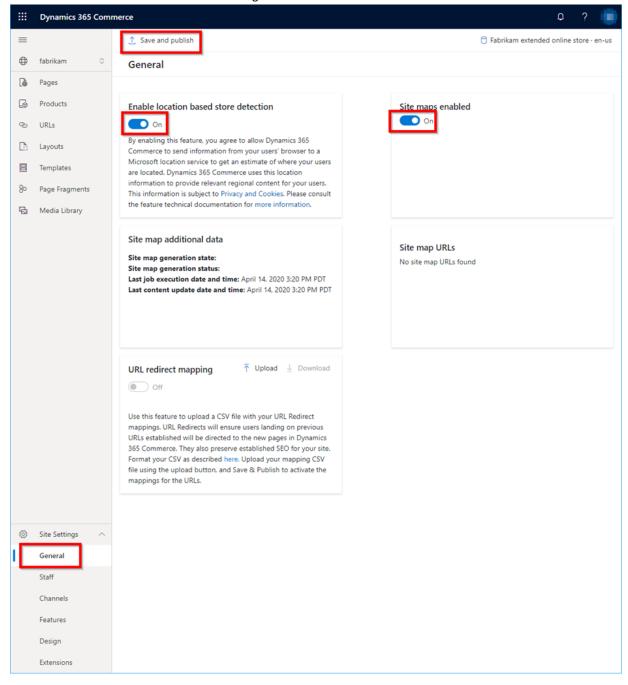
Then change it to: https://commerceinaday-9-eval.commerce.dynamics.com/68719501121.p

### **E-COMMERCE SITE MANAGEMENT**

We will now discuss some options that are available in configuring an e-Commerce site. Most of this will be left at the default values for this workshop.

Open the "Site Settings" on the bottom left and select the "General" tab. From here you can modify features as you wish, below shows the location-based store detection and site maps being enabled. Enabling site maps will enable the automated sitemap generation service, which will automatically keep track of page, category, product and URL additions/deletions/updates and maintain an up-to-date sitemap document for search engine indexing.

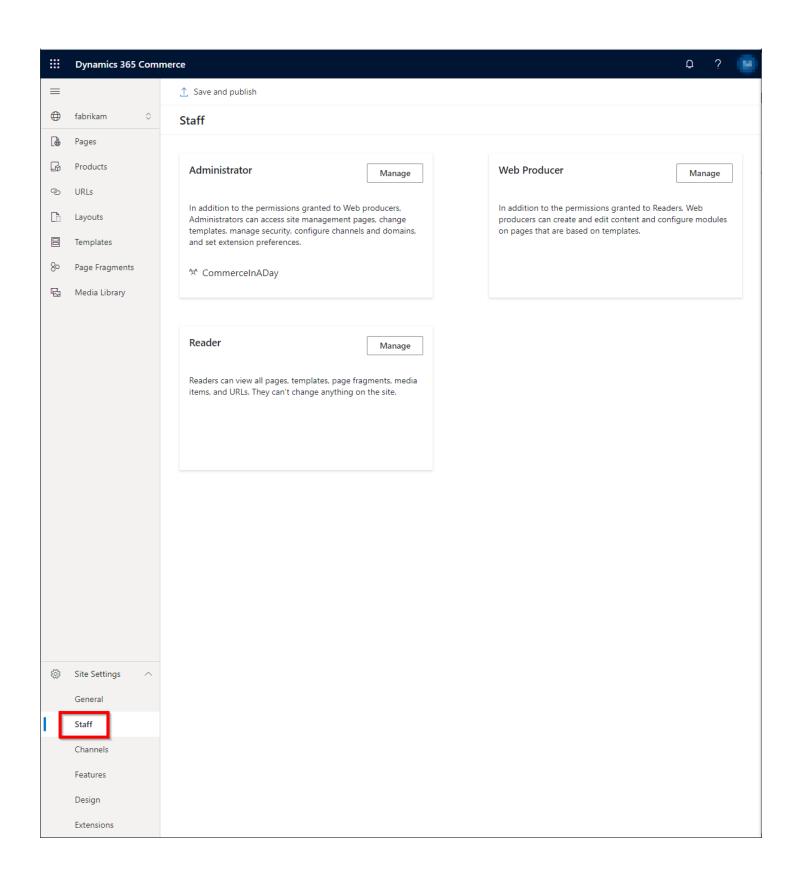
Select "Save and Publish" to make the settings live.



## STAFF CONFIGURATION

From within the security configuration tab you can configure various AAD groups to various roles including "Administrator", "Web Producer" and "Reader". By default, you will see the AD group added to the Administrator section used when the online site was created.

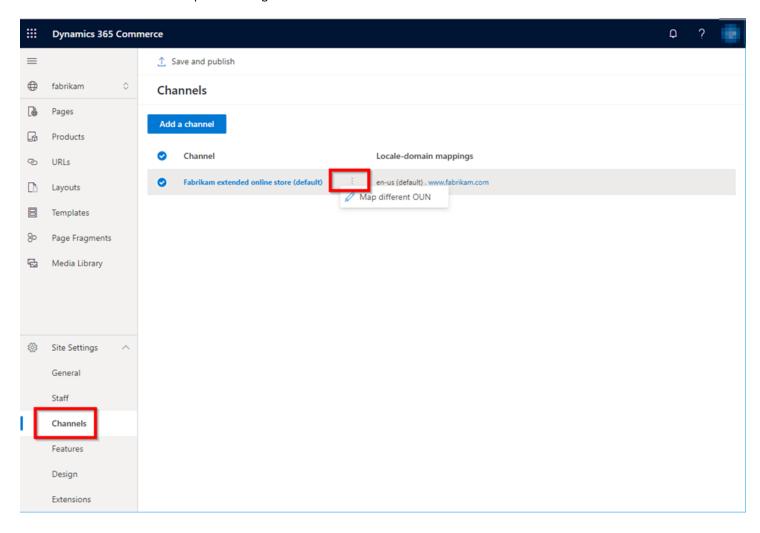
Selecting manage will allow you to add or remove AAD Groups.



## CHANNEL CONFIGURATION

From within the "Channels" setting tab, you can map additional channels into the single site. This is how you can add additional localized channels into a single site. For example, you can add an additional "Adventure Works online store" for another locale if configured.

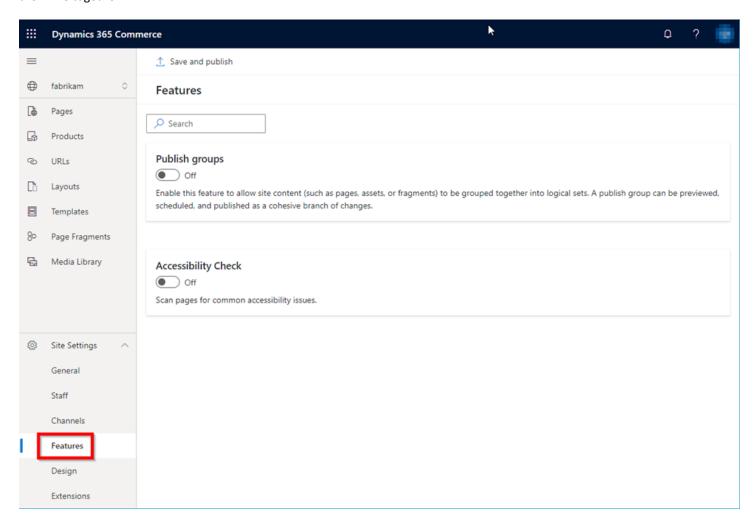
You can also select the three ellipses to change the online channel used for the site.



## **FEATURES SETTINGS**

The **Features** Settings section provides some additional feature options that can be enabled included "Publish groups" and "Accessibility Check".

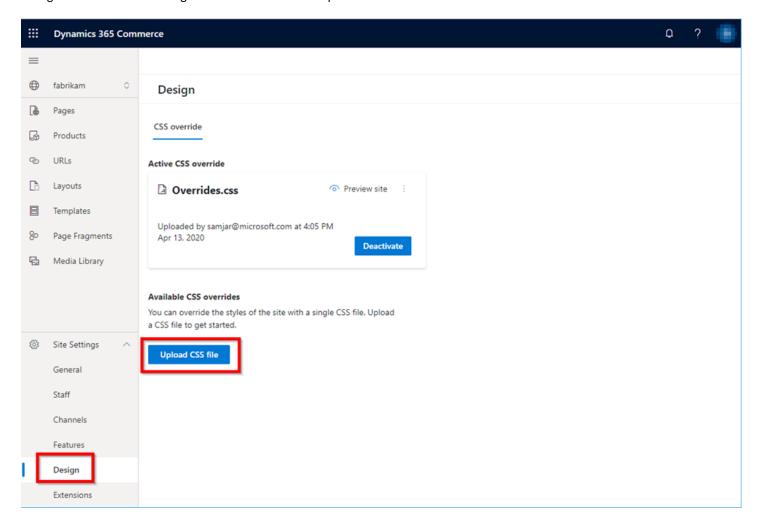
Publish groups allow a site author to modify several pages, templates and fragments together as a group and when complete publish them live together.



### **DESIGN CONFIGURATION**

The "Design" settings section is used to upload CSS theme overrides to a site. Only 1 theme override file can be uploaded at a time. You can also preview the site with the changes before the override file is activated. Once activated, it can also be de-activated at any time.

Theme overrides allow for quick site CSS overrides that will be applied to the entire site. Generally, CSS changes should be done within the theme code, however this requires the use of the online extensibility SDK (see unit 3) to create and modify a site theme then uploading and deploying the extensibility package. Overrides provide a way to do simple CSS overrides, great for testing changes on the site or building demos. More details are provided later in Unit 2.

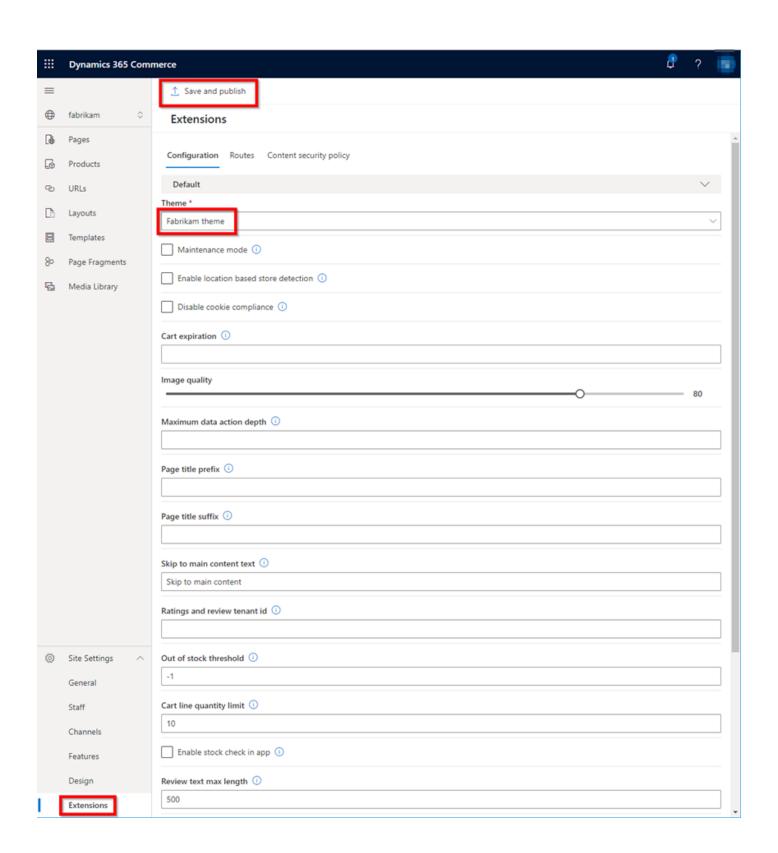


## **EXTENSIONS CONFIGURATION**

The extensions configuration tab exposes various global module settings including Route and Content security policy configuration. These settings are provided as part of either the starter kit or extension modules created by partners.

If a site theme is not selected (if you created a new site), then select the "Farbikam theme" to leverage the starter kit theme for the new site. Unit 3 will teach how to create additional themes.

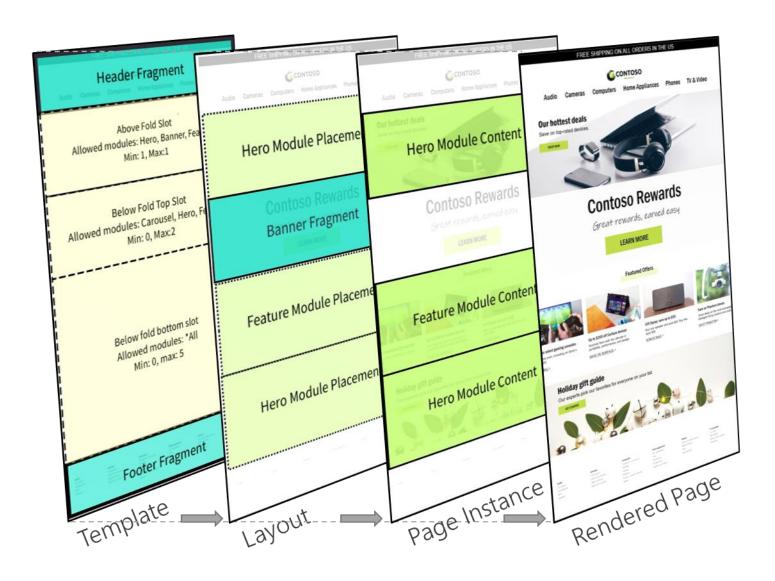
When complete select the "Save and publish" button



### SITE CONTENT MANAGEMENT

# COMMERCE PAGE MODEL

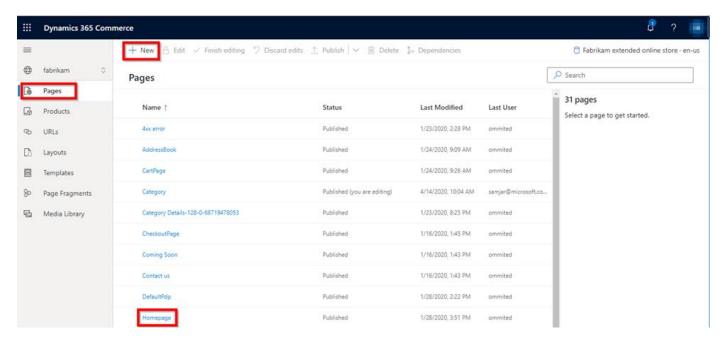
The below diagram shows the relationship between templates -> layouts -> pages and finally the rendered page.



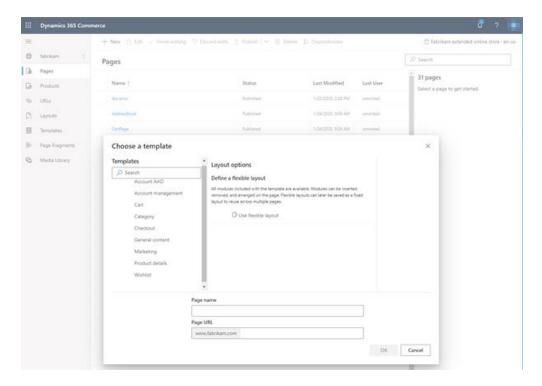
Details for each of the main site builder tabs can be found below.

### **PAGES**

After selecting a site, the "Pages" tab is generally the default tab that gets selected. This tab contains a list of all the pages that have been created for a site.

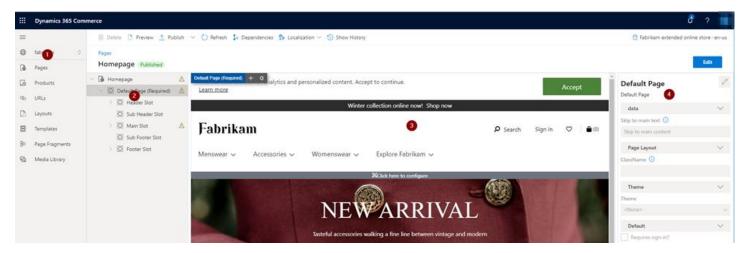


Selecting "**New**" will bring up a dialog box where you can provide the name of the page. Every page must be based off a template or a template layout.



Selecting a page such as "Homepage", will bring you into the page editor.

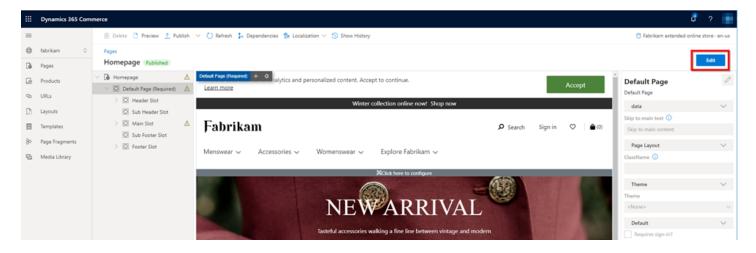
### PAGE EDITOR



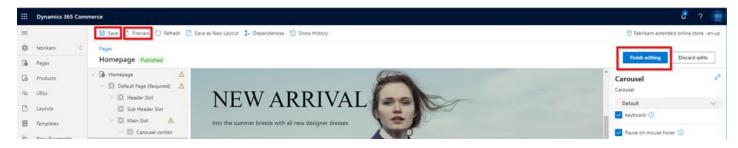
# In the image above:

- Section 1 is the content management tabs; you can press the top hamburger menu to expand/collapse.
- Section 2 is the tree view of the page, this is generally a list of modules that make up the page, some modules also have layout 'slots' that additional modules can be placed in.
- Section 3 contains the page preview. Modules can be selected either in this section or in tree in section 2.
- Section 4 contains the selected modules configuration properties. Each module type on a page has a different set of configurations.

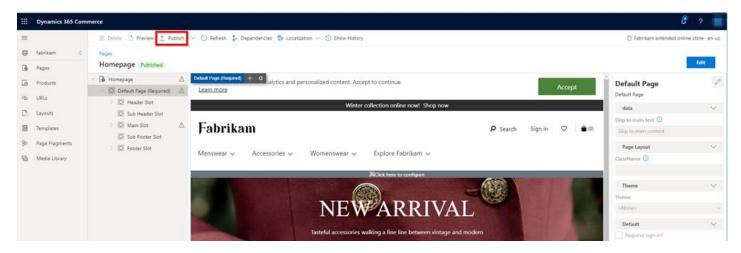
To edit a page select the edit button.



Changes can now be made. When finished with edits, the page can saved or previewed. You can then select the "Finish editing".

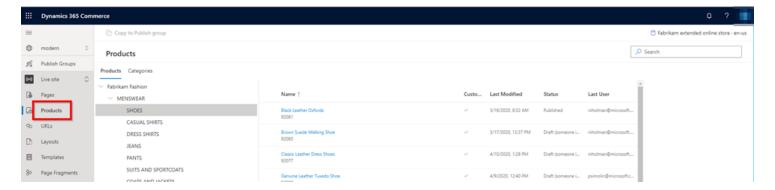


The changes will not be live until you select "Publish".

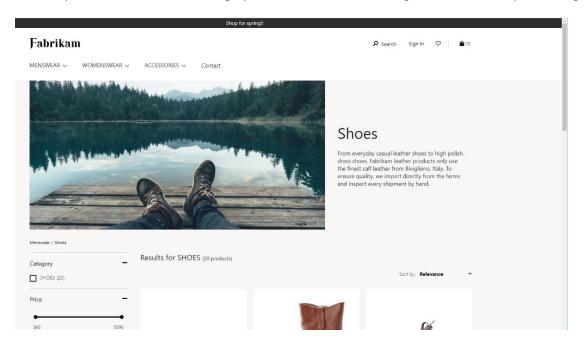


### **PRODUCTS**

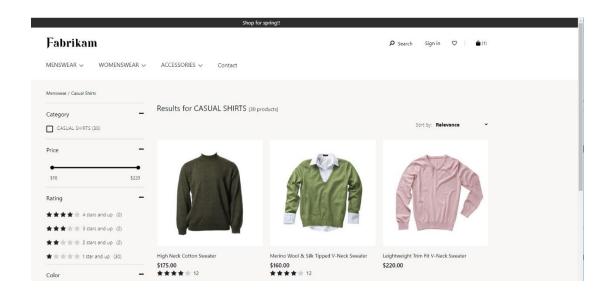
The products section allows you to view the channel products and categories and create customized pages for any product or category, this is great when promoting a product to add additional storytelling to the product or category.



For example, notice how the shoe category below has an additional image and text at the top, this category

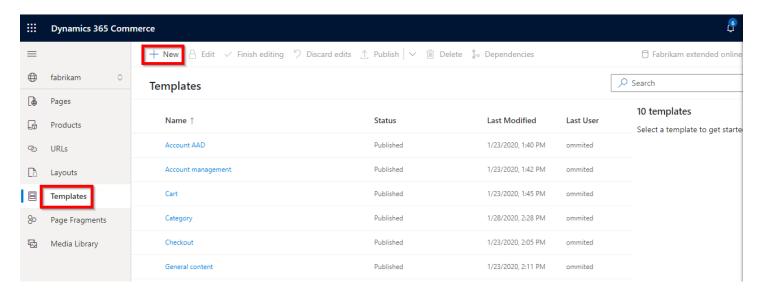


The below shows a standard category that has not been customized:

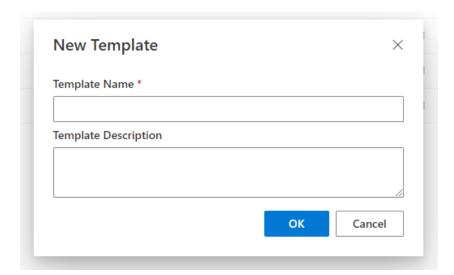


### **TEMPLATES**

Template contain the basic structure of a page and can be configured to tightly control the contents of a page if desired. For example, a template can choose to allow any module to appear any number of times on a page or can enforce rules such as specific must appear on a page and also limit the number of times a module can appear. Templates can also set default values for module configuration fields and even lock them so that pages that derive from them cannot change the values.



Select the "New" link will allow you to create a new template. You only need to provide a name and description.



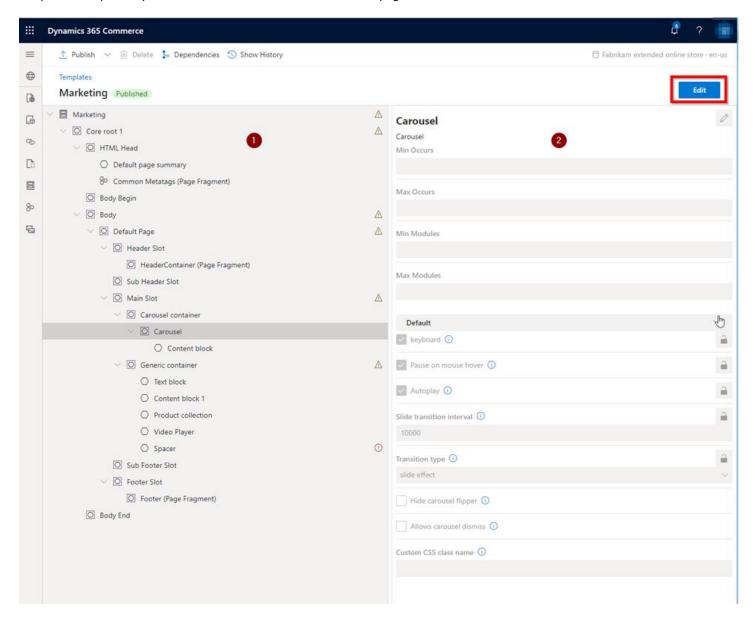
Both creating a new template or selecting an existing template will bring you to the template editor.

#### **TEMPLATE EDITOR**

The below example shows the "Marketing" template. Section 1 contains the tree view of the page and section 2 shows the configuration properties for the selected module.

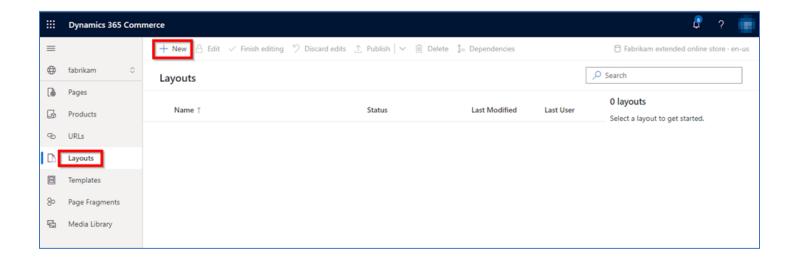
To make changes to a page, like the page editor, select the "Edit" button. Once complete you can select the "Finish editing" button and "Publish" when complete.

The is no preview for a template, since the template is just a set of rules that a page inherits. For example, in the below screen shot notice, the Carousel module is selected. The Min and Max are not set in the configuration, this means that a page that uses this template can optionally add one or more Carousel modules to the page.

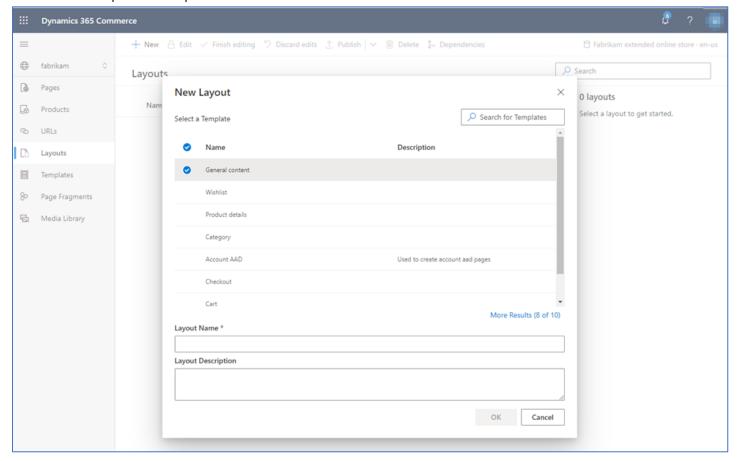


### **LAYOUTS**

When pages are created, they must be derived from either a template or a layout. Layouts must be derived from a single template. For example, you could create a product details page template that is generic offering a wide level of page optimizations. You may then create several different layouts for the different product types, perhaps clothing will get additional size charts on the pages, and sporting goods will get different manufacturing information. The modules for the two layouts could be layout out completely differently thus the end pages for either would look quite different even though they both still adhere to the same template.

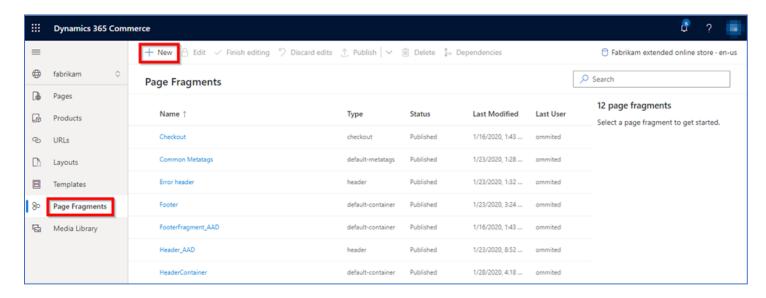


Selecting "New" will bring up the "New Layout" dialog box as shown below. A base template must be chosen for the layout along with a name and optional description.



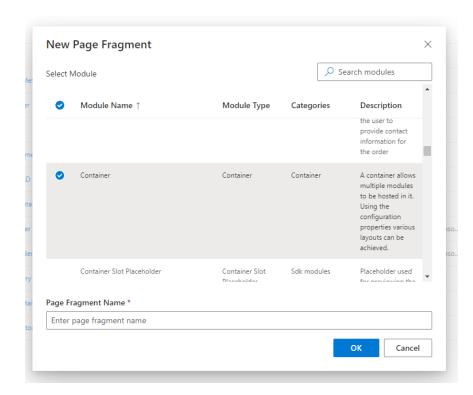
#### PAGE FRAGMENTS

Page fragments allow the creation and configuration of a module or a group of modules that can then be added to a page or template. Fragments are great for creating items such as the header or footer that will show up in most of the site pages. They can then be configured in the fragment editor and once saved and published will be updated on all pages.



Groups of modules on a page can also be saved as a fragment, this is great if you created and configured modules on a page and decide you'd like to also include it on another page, when this is done, the fragment can only be globally updated and the same configuration will appear on all pages.

Selecting "New" will bring up the "New Page Fragment" editor as shown below.

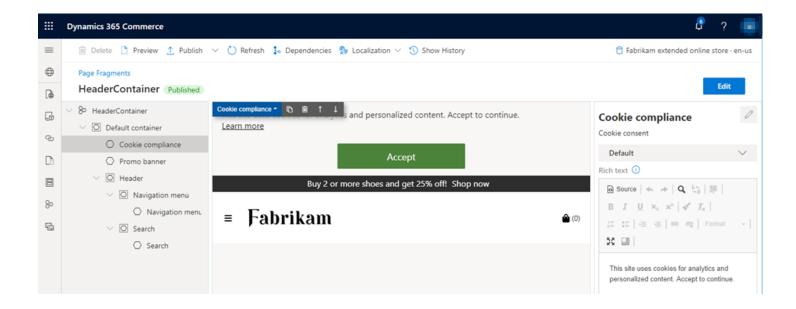


You will need to select the root module of the fragment, the "Container" module is a good generic starting point for many fragments, then any modules can further be placed inside the container.

Selecting a module will bring up the fragment editor.

### FRAGMENT EDITOR

The below screen shot shows a sample header fragment, notice how the fragment is just a set of modules and their configurations. The same "Edit", "Save" and "Publish" methods can be found on this editor as in the Page, Template and Layouts editor.

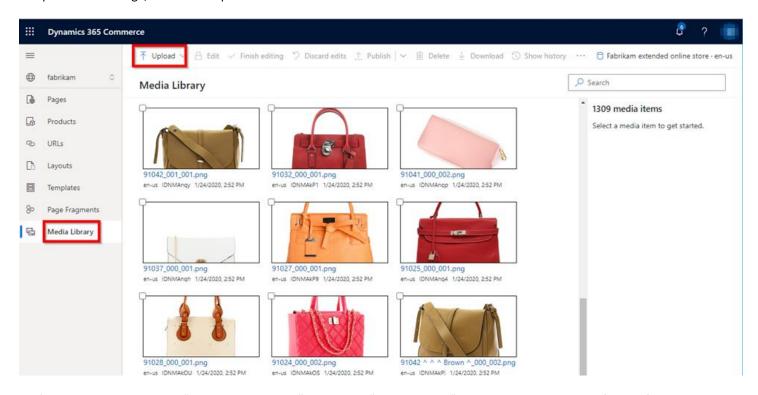


### MEDIA LIBRARY

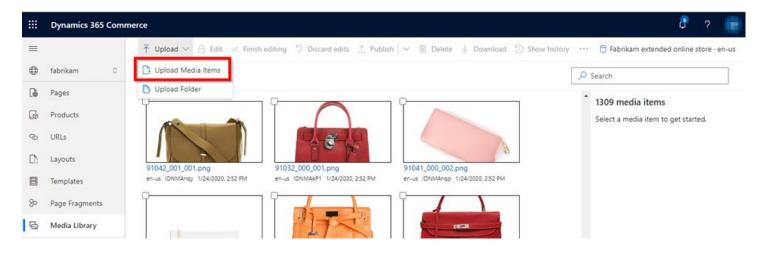
The media library is the store for all images used in the e-Commerce site, it can also be used to hold images for the point of sale system.

When you select the "Media Library" you should see a list of previously uploaded images. If you are using the Fabrikam site, you should see existing product and marketing images used with the demo data.

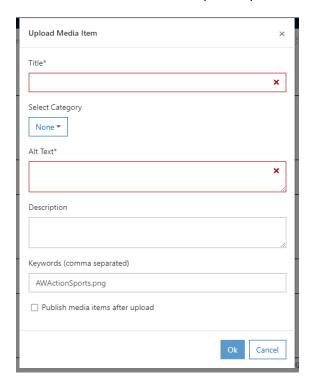
To upload a new image, select the "Upload" button.



You'll see two options, one to "Upload Media Items" and two to "Upload Folder" which will upload a whole folder of images at a time.

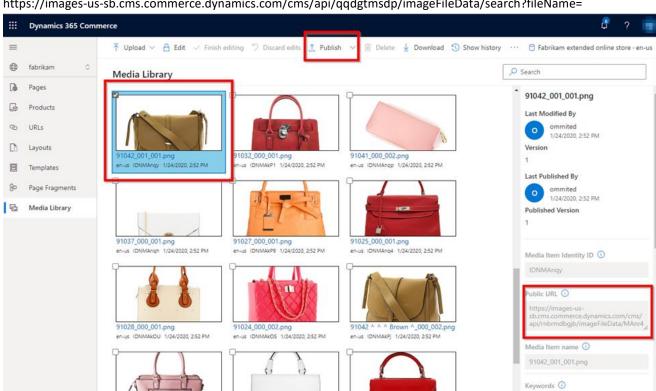


If you select "Upload Media Items" and select an image you will then be prompted for the image title and alt text and a category. The title and alt text are mandatory unless you select multiple images.



The category type is very important, if it is just marketing images leave it as "None", if it's a product image you must select type "Product", there are also other types used by the point of sale for category images, employees, ...

It is also handy to select "Publish media item after upload" otherwise it will not show up on the site. However, if missed you can select the image and publish as shown below.



https://images-us-sb.cms.commerce.dynamics.com/cms/api/qqdgtmsdp/imageFileData/search?fileName=

Notice the "Public URL" can be used to see the exposed URL for the image.

91034 000 001.png

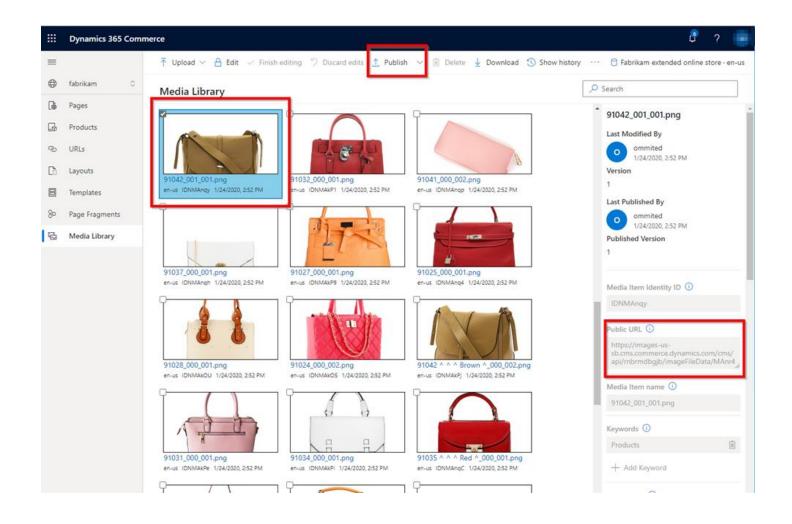
91031 000 001.png

To delete an image, you must first Unpublish which is available in the "Publish" dropdown as highlighted in the image below.

91035 ^ ^ ^ Red ^\_000\_001.png

en-us IDNMAngC 1/24/2020, 2:52 PM

+ Add Keyword



#### UPLOADING PRODUCT IMAGES

Earlier in this guide we added a new product (we used a sample backpack) and added it to the channel hierarchy and assorted it. You should be able to find it in the category view and notice that it has no product image.

Note: You should be provided with a zip file with assets we will use in this section that can be used if you configured a backpack.

In this section we will upload a set of product images in the "Media Library".

## PRODUCT IMAGE FILE NAME

The file names are very important and follow a pattern used for the master product image and its variants. It follows the same pattern used in Commerce POS today.

Notice there is a file "75001\_000\_001.png" this represents the first master image, you can provide up to five (PRODUCTNUMBER\_000\_001.png, PRODUCTNUMBER\_000\_002.png,..., PRODUCTNUMBER\_000\_005.png) . The first part of the file name before the "\_" separator is the product id provided in Headquarters when the product was created.

The other image names would be "75001\_000\_002.png" ... "75001\_000\_005.png".

You can also supply up to 5 images for each variant (size/style/color). Each variant can be specified between special "^" separators. For example, our backpack supports three sizes so notice we have provided 3 additional images:

75001 ^ ^ Small ^ ^\_000\_001.png

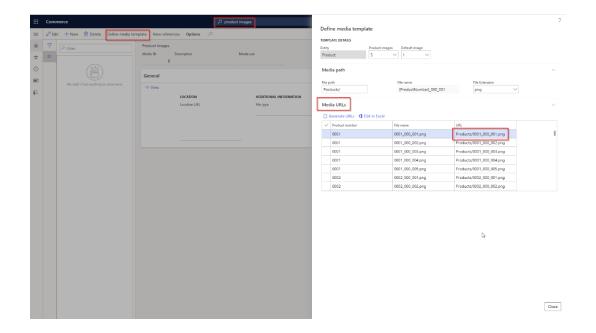
75001 ^ ^ Medium ^ ^ 000 001.png

75001 ^ ^ Large ^ ^\_000\_001.png

The pattern uses "ProductID ^ CONFIGURATION ^ SIZE ^ COLOR ^ STYLE\_000\_00x.png" (where x can be between 1-5).

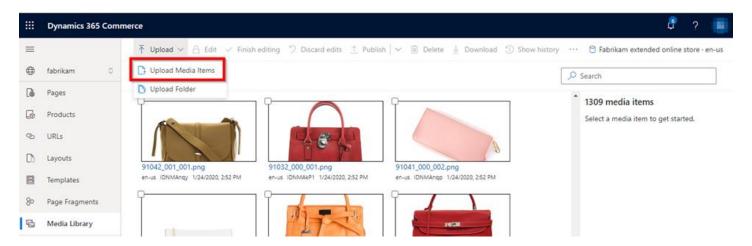
An example for a size 8, light blue(color) wide (style) shoe variant is: "92074 ^ ^ 8 ^ Light Blue ^ Wide\_000\_001.png"

Another way to see what product image file names should be is from Headquarters search for the "**Product images**" page and select "**Define media template**" as shown below.

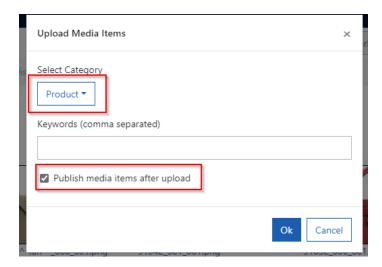


## **UPLOADING IMAGES**

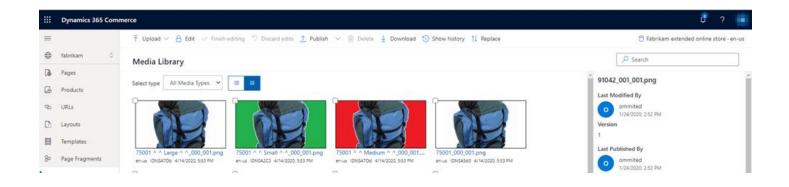
From within the site builder tool, select the "Media Library" tab followed by the "Upload" button and then "Upload Media Items". Navigate to the directory with the Adventure Works assets and select the four backpack images and click "Open" (or upload any images you need for the products you created – see note below on file naming).



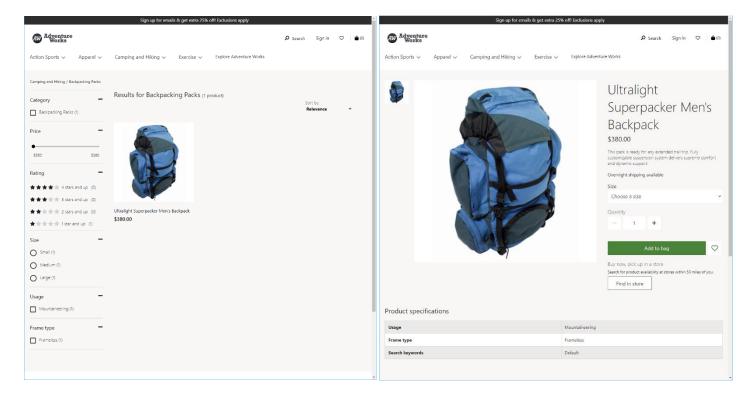
Select "Product" as the category (this is very important and not easy to change after uploading). Enable the "Publish assets after upload" checkbox and click "OK".



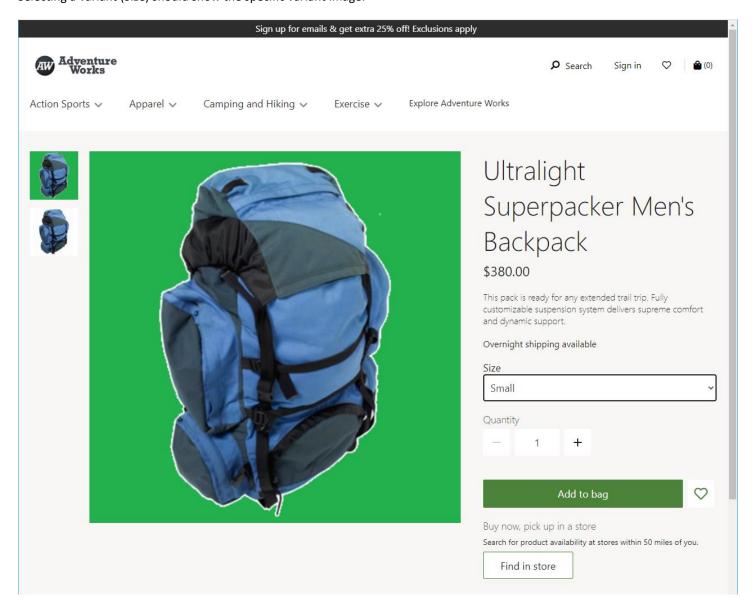
You should now see all of the product images in the media library.



If you now navigate to the category and product details page you should see the images load up and changing the size variants should load the appropriate image.

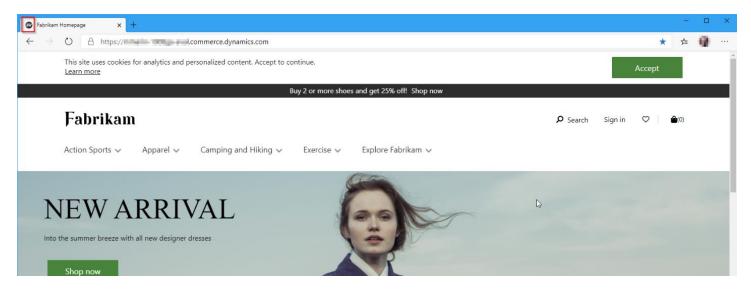


Selecting a variant (Size) should show the specific variant image:



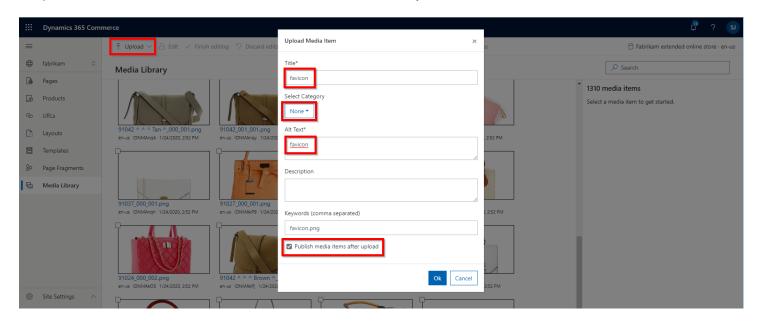
## ADDING A FAVICON

A favicon is the icon that shows up on the browser tab as highlighted in the below image. This image is specified in the HTML metatags. The below steps will show how to upload an image and add it to the metatags section of the html pages.

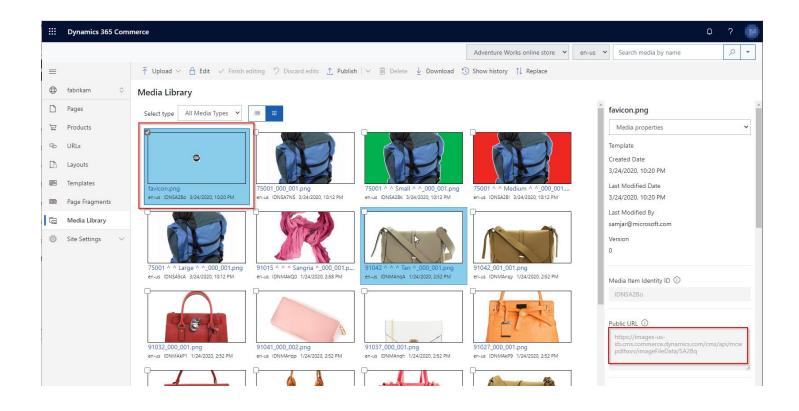


To add a favicon, first you need to upload the icon image to the site's Media Library and copy the public URL it provides to add to a meta tag link module.

If you are using the workshop asset zip file, upload the "favicon.png" file provided for this workshop. Leave the category as "None" and provide a name and alt text and ensure "Publish media items after upload" is enabled.



Copy the "Public URL" found in the right-hand column after you select the image.



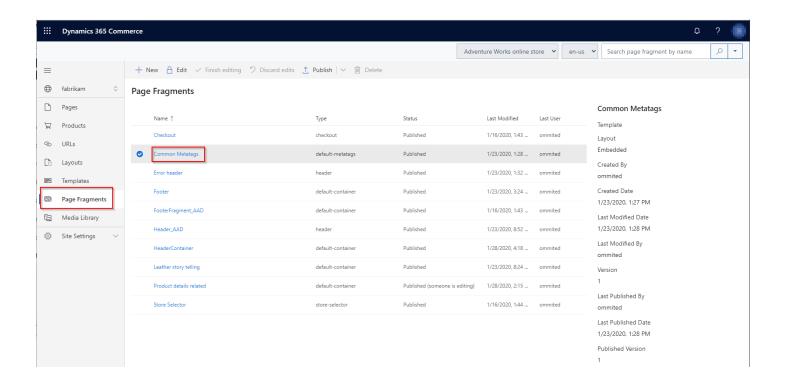
Then create link with the following format:

<link rel="shortcut icon" href="Public\_URL\_for\_your\_favicon">

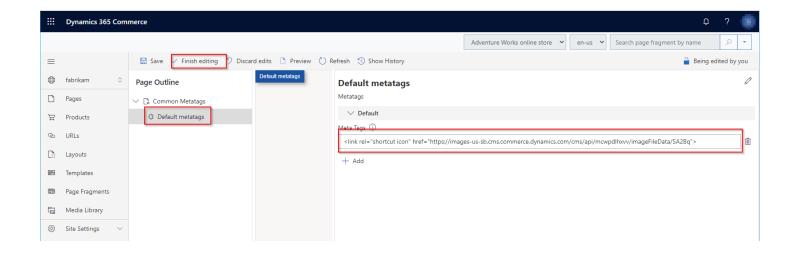
For Example:

<link rel="shortcut icon" href="https://images-ussb.cms.commerce.dynamics.com/cms/api/kbkzpdnblk/imageFileData/SA5cI">

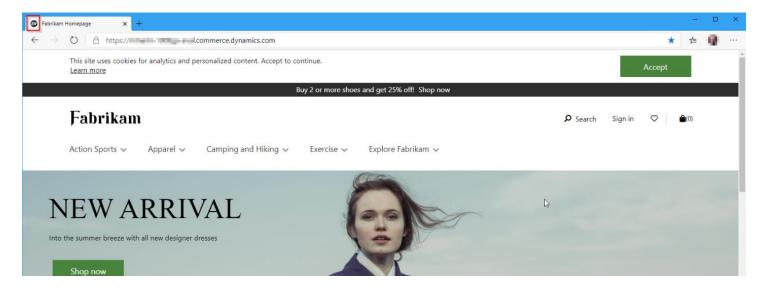
Next, you can find a Page Fragment called "Common Metatags" module as shown below.



Select the "Edit" button the select the "Default metatags" module found under the "Common Metatags" node. In the right-hand column change the "Meta Tags" section to include the new link created above. Select "Finish editing" followed by "Publish".



If you now refresh the e-Commerce site, you should see the favicon in the Browser tab as shown below.



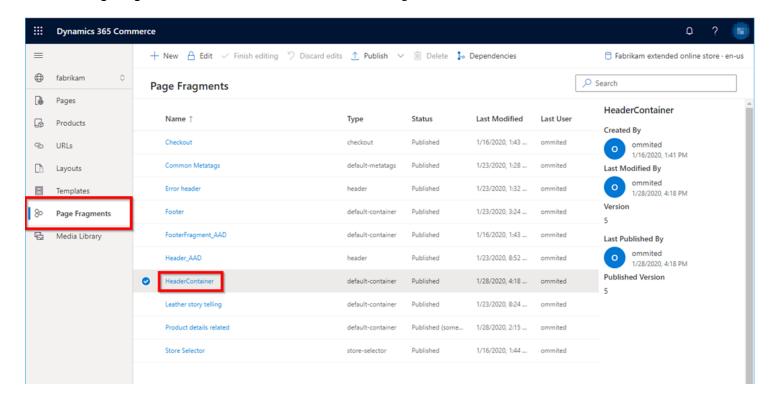
# CONFIGURE HEADER, FOOTER & HOMEPAGE CONTENT

We will now change the logo in the header fragment as well as change the footer to match our new company.

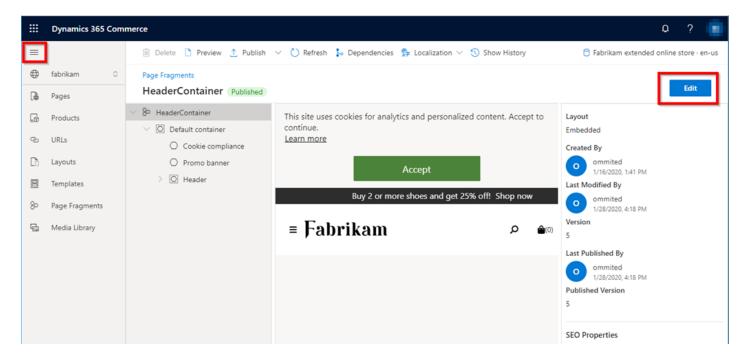
Fragments are standalone sets of modules that can be configured once and placed on multiple pages. The header and footer are created as fragments which allow it to be configured once and every page that uses them will pick up and changes published.

## **HEADER**

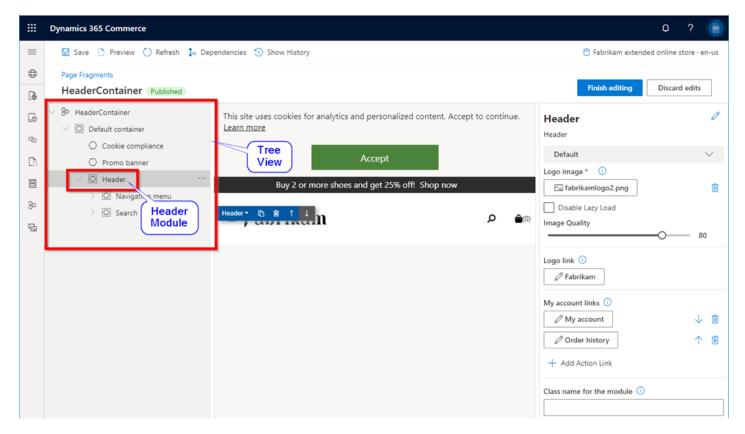
Select the "Page Fragments" tab and then the "HeaderContainer" fragment.



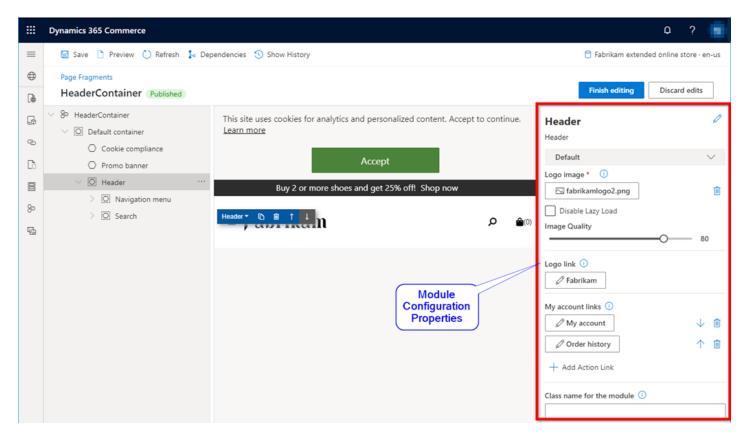
Once inside the fragment editor, select the "**Edit**" button. You can also hit the hamburger menu on the top left to collapse the tabs to give more room to work on the fragment.



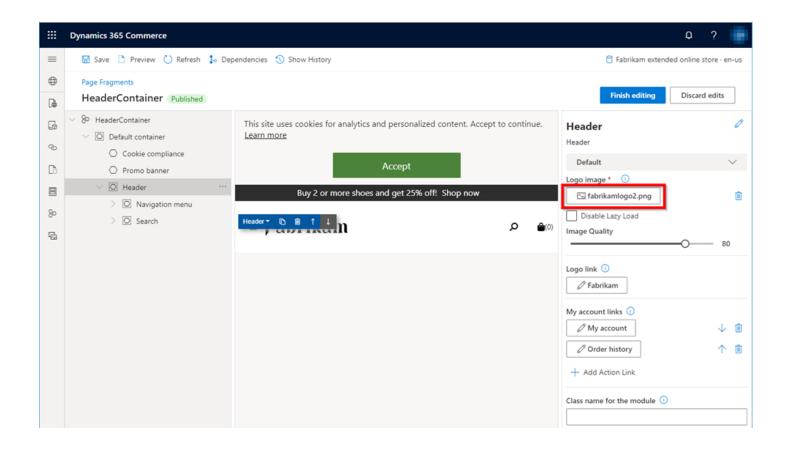
Next, inside of the tree view of the fragment (the left column highlighted below), select the "Header" module.



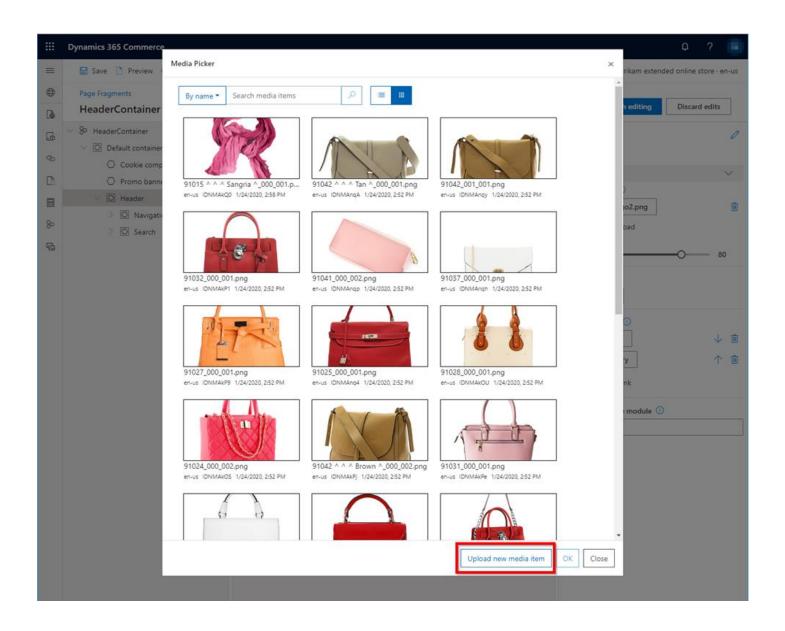
You will see a list of module configurations on the right-hand column of the page.



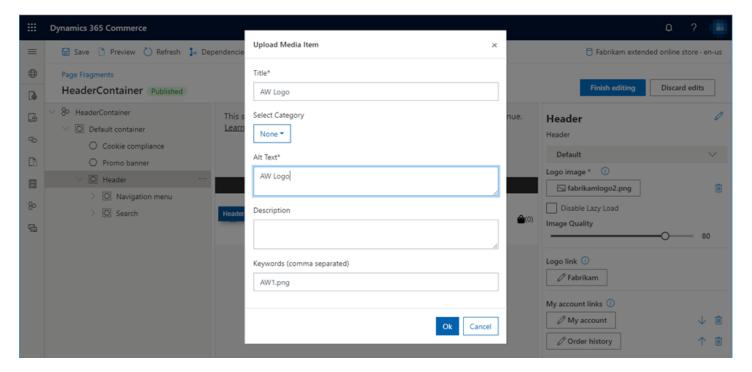
Select the config property "Logo image" file name (should say "fabrikamlogo2.png").



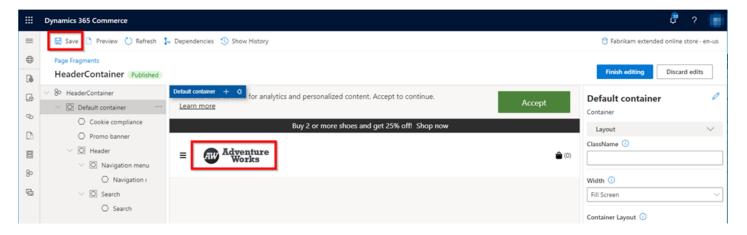
The Media Picker will appear as shown below, you will see other images already uploaded as part of the Fabrikam fashion marketing and product data. Click on the "Upload new media item" button.



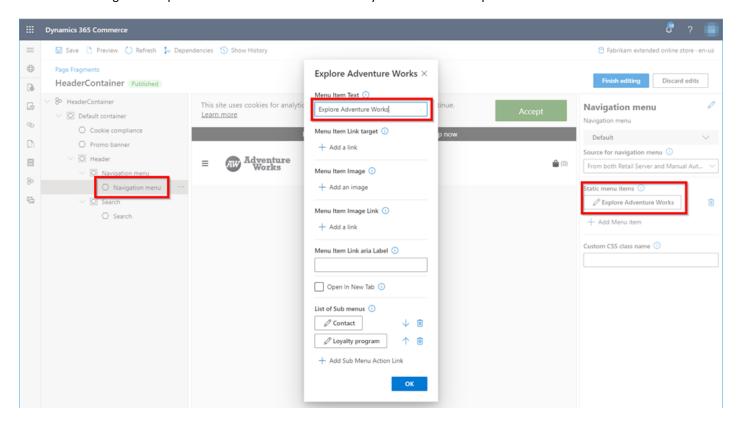
Upload the new logo image (a sample is provided is asset zip file called AW1.png which can be used), select it and click the "OK" button. You will now need to provide an image title and alt text such as "AW logo" and leave category set to "None").



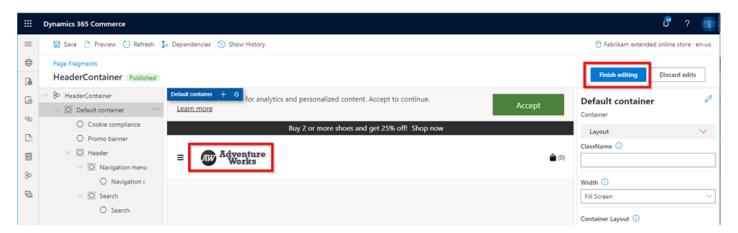
You need to click "Save" to see the updated image in the preview section as shown below.



Next, we will change the custom navigation menu item that appears next to the navigation menu. Select the "Navigation menu" module and change the "Explore Fabrikam" to a better name for your site such as "Explore Adventure Works".



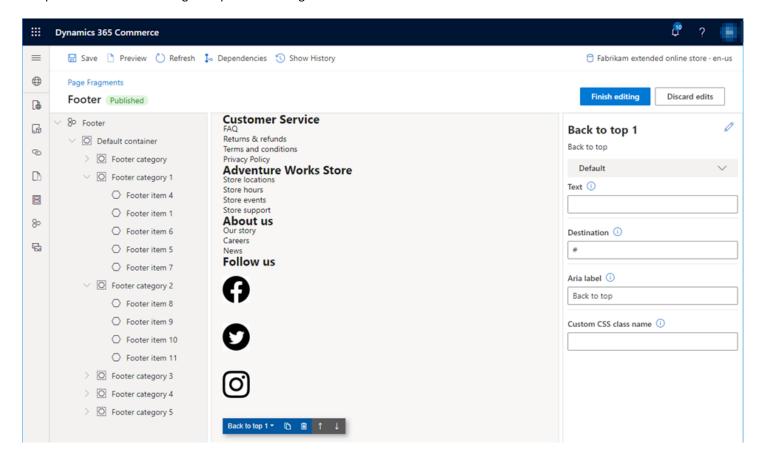
You can then click "Finish editing" and "Publish" the header fragment when complete.



## **FOOTER**

In this section we will be modifying the footer fragment to remove references to "Fabrikam".

Select the "Footer" fragment and then the "Edit" button. Select the various modules in the tree nodes (or select the text directly in the preview section in the middle) and change any reference to "Fabrikam" to your new company name as shown below. When complete select "Finish editing" and publish the fragment.



If you now preview the site, it should now have the new logo in the header and footer changes on all pages. Remember you can get to the homepage of your site through either the LCS tool or by going to the homepage page in site builder and selecting "Preview".

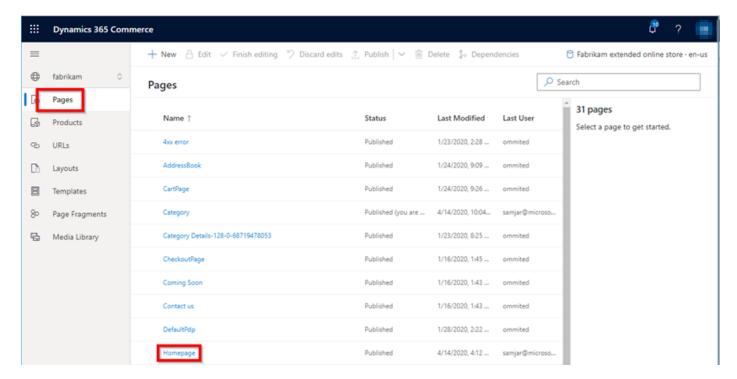
## HOMEPAGE MARKETING CONTENT

We will now change the Homepage marketing content to match the new brand. You can change however you like, below guide shows how to change to an "Adventure Works" sporting goods branded store.

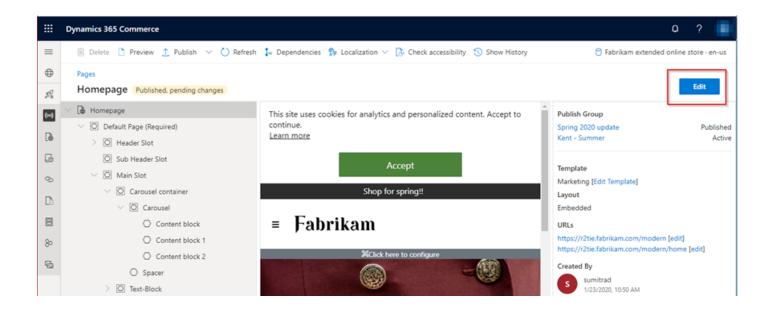
We are going to do the following:

- Configure 2 Content Block modules inside the carousel module to have new images and delete the third (sample images
  provided in asset zip file). Configure the CTA "Shop Now" links to point to specific category pages.
- Configure text block modules to change the text to more appropriate content
- Remove the video module
- Change the category images and links in the lower set of content blocks.

Open the Homepage in the site builder tool under the "Pages" tab.

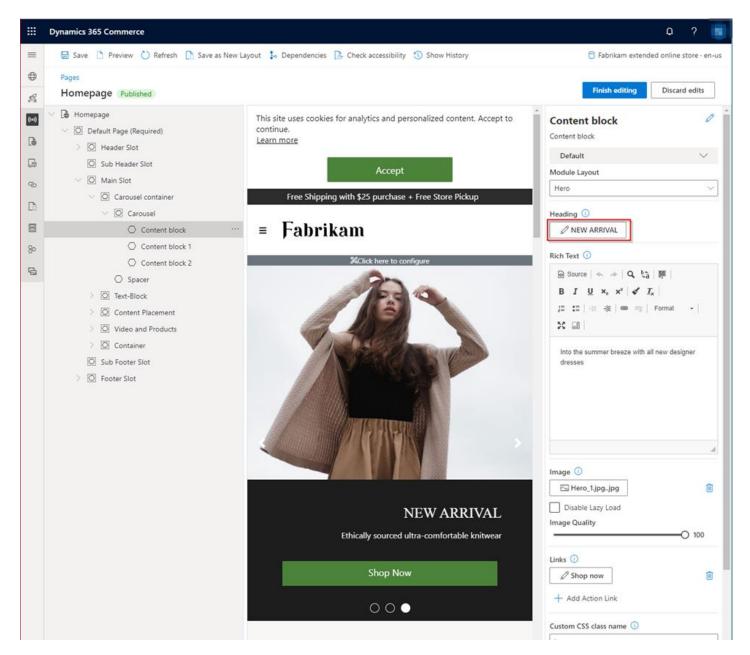


Select "Edit".



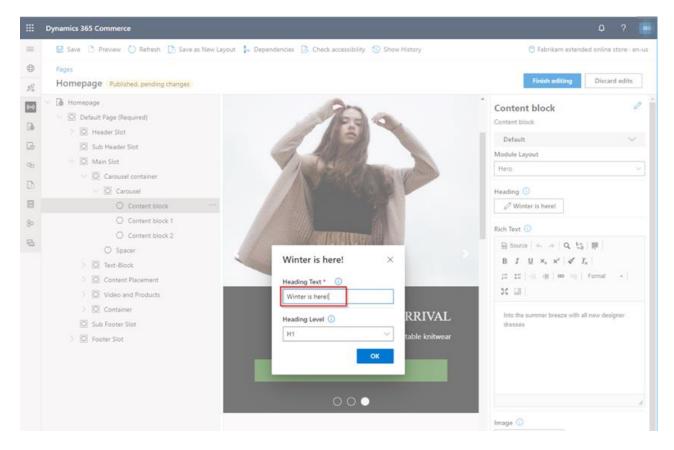
# CONFIGURE CAROUSEL MODULE

In the "Page Outline" section select the first "Content block" under the "Homepage" -> "Default Page" -> "Main Slot" -> "Carousel container" -> "Carousel" module as shown below.

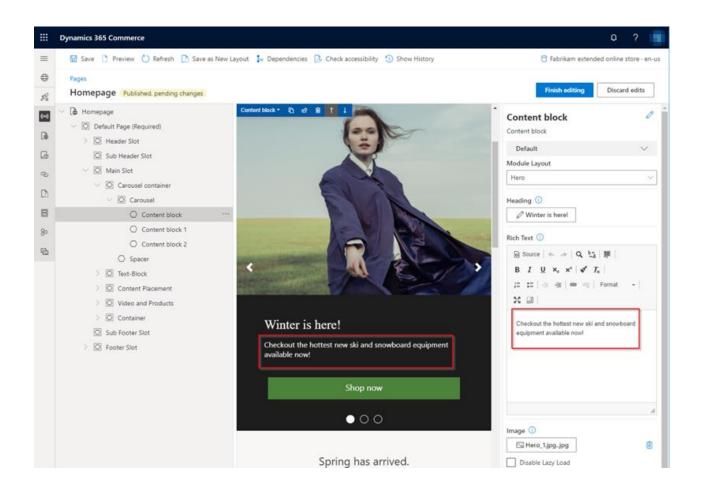


Select the "Heading" configuration property where it says "NEW ARRIVAL" as shown above.

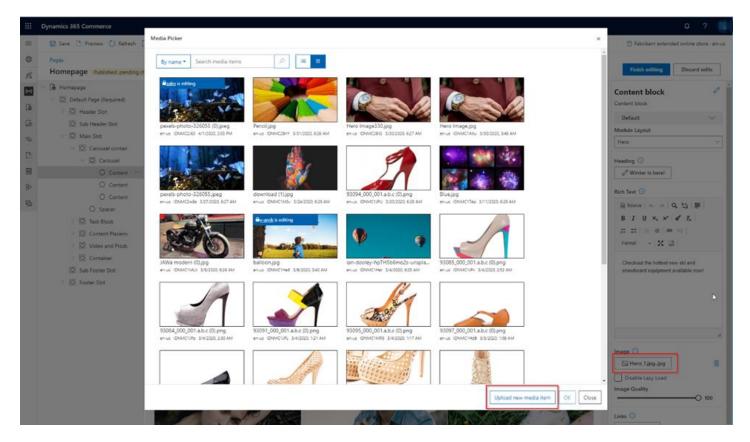
Change the heading text as desired, see example below then select the "OK" button.



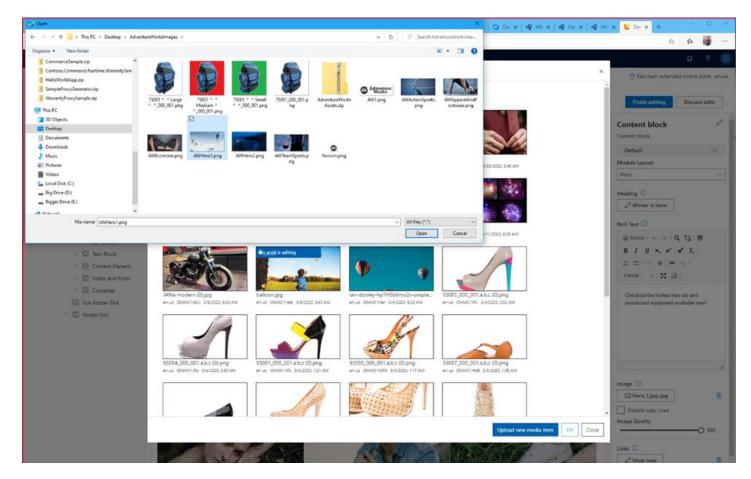
Change the Rich Text to something appropriate, notice as you change the text you can see the text changes in the middle column rendered view as shown below.



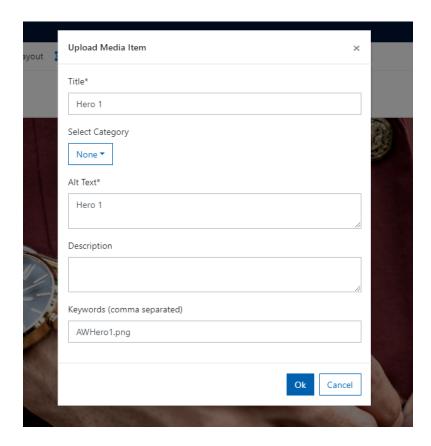
Select the image button to bring up the media picker dialog box as shown below and select the "Upload new media item" button.



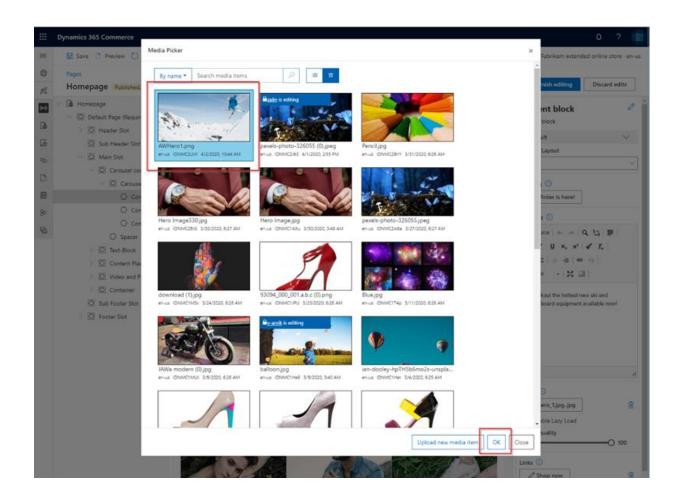
You can now select a hero image file provided or provide your own:



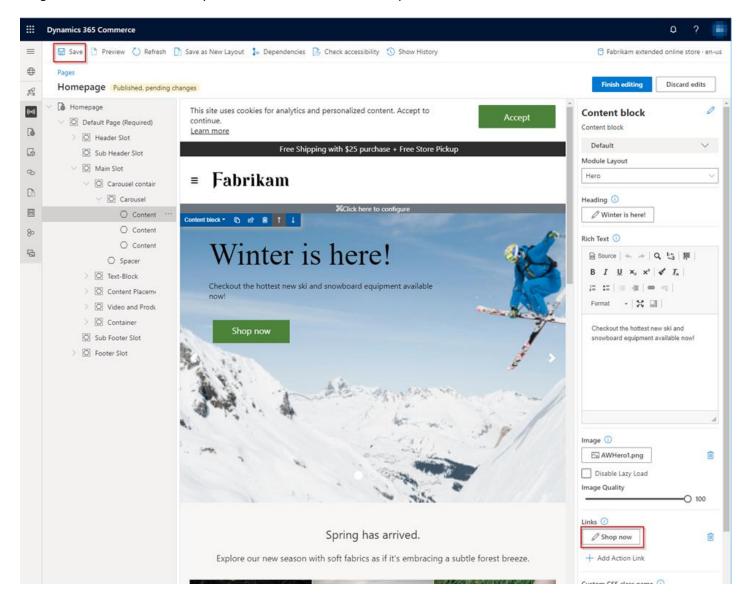
Provide an image title and alt text then click ok.



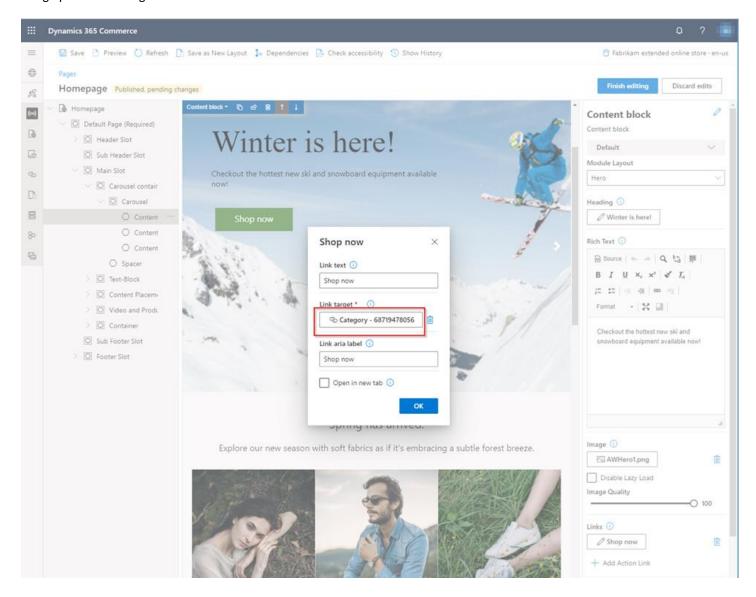
Now you can select the image and click "OK".



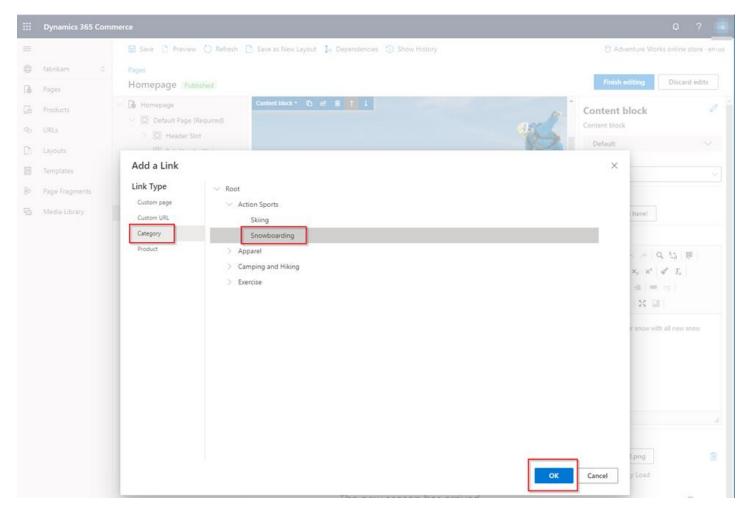
Images will not be rendered until you click the "Save" button at the top.



Next, we will configure the "Shop now" button to take us to one of our new categories. Select the button in the right column to bring up the link configuration.

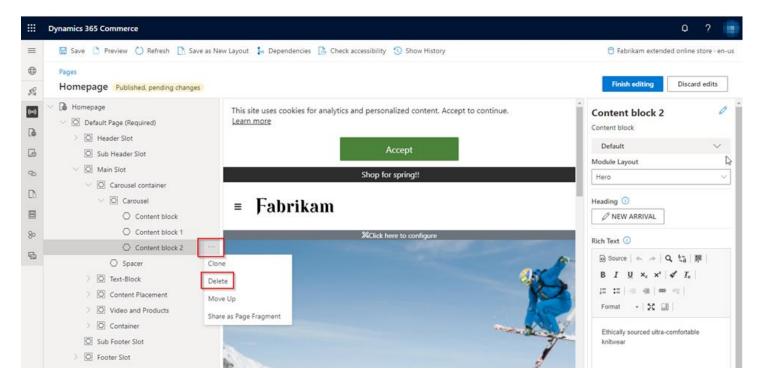


Select the "Link target" to bring up the link selection. You can now select "Category" and the page you want selected, for example in below screenshot the link will go to the "Snowboarding" category page.

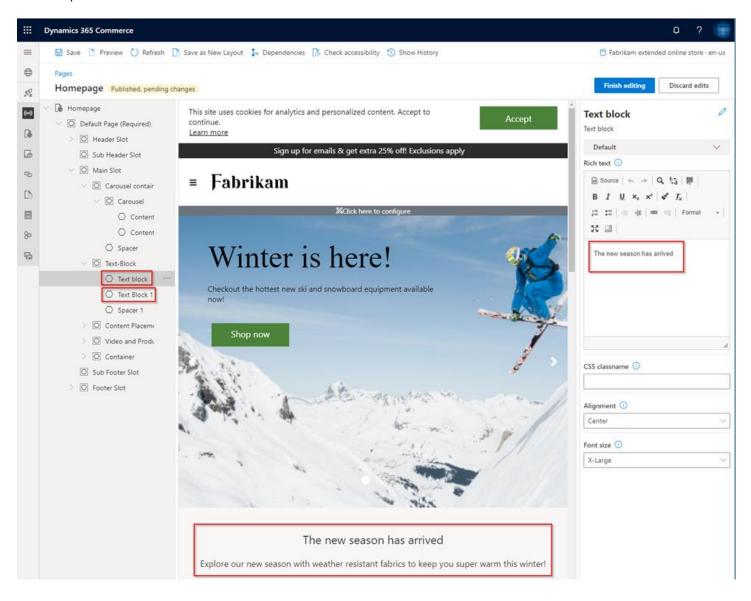


We are now done configuring the first "Hero" content block inside of the carousel. Follow the same steps to configure the second one.

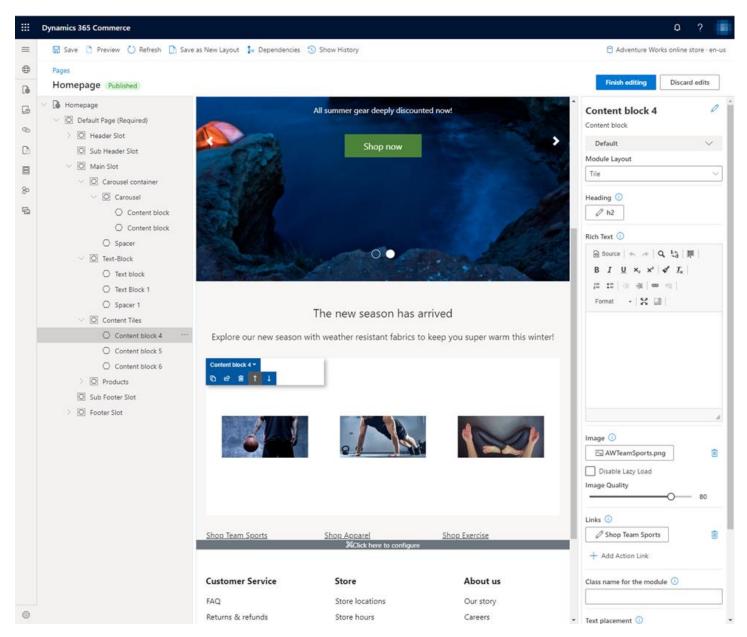
We will now delete the 3<sup>rd</sup> Content block. Select the module then the "..." followed by "Delete".



We will now modify the "Text block" modules on the page. Select the first "Text block" module in the tree as shown below. And change the "Rich text" to something relevant to your branded store. Do the same for "Text Block 1". Notice the text changes in the rendered preview as shown below.

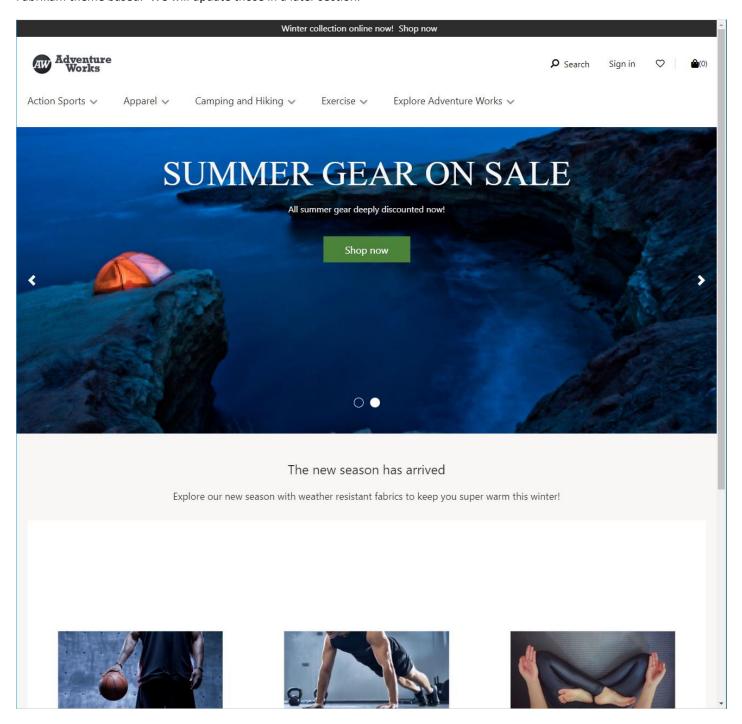


There is another "Content Tiles" section (it may be named differently), this section has several "content blocks" setup as having a "Tile" layout. As an exercise select each one and update the image, text, and link to be more relevant. There are sample images that can be used in the provided zip folder. Ensure you press save when complete to see the images. Finally delete the "Video and Products" node. You may notice extra white space around these images since they are a different aspect ratio than the ones used on Fabrikam, in Unit 3 on extensibility we will show how this can be fixed.



We are now complete with editing the home page. Select "Finish editing" then publish changes

Preview the site and you should now have an "Adventure Works" branded site. However, the colors, style, fonts, ... will still be Fabrikam theme based. We will update those in a later section.

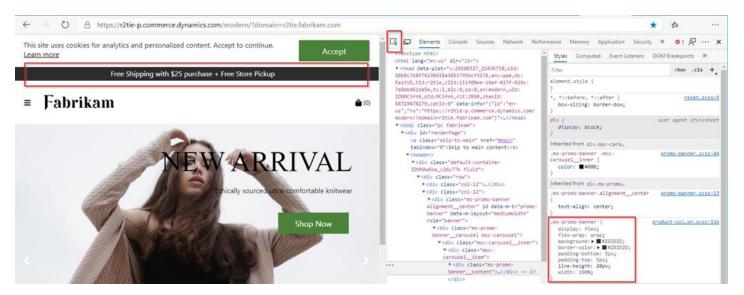


#### SITE THEMING WITH CSS OVERRIDES

Site theming is generally done by creating a SCSS based theme using the online store SDK, which requires setting up a development environment (see Unit 3 for details). However, you can make minor CSS changes directly in the site with a feature called "CSS Overrides".

To create a CSS override, start by creating a text file (you can use notepad) and name the file with the file extension .css, for example (siteOverrides.css).

In this file you can now add any CSS you would like. A great way to find appropriate CSS names to change is using a web browser's F12 tools on the site. For example, in Microsoft Edge or Chrome, you can click F12 on the homepage to open the explore tools and click the "inspect" button followed by an HTML element on the page. Notice in the below screen shot the promo banner is selected.



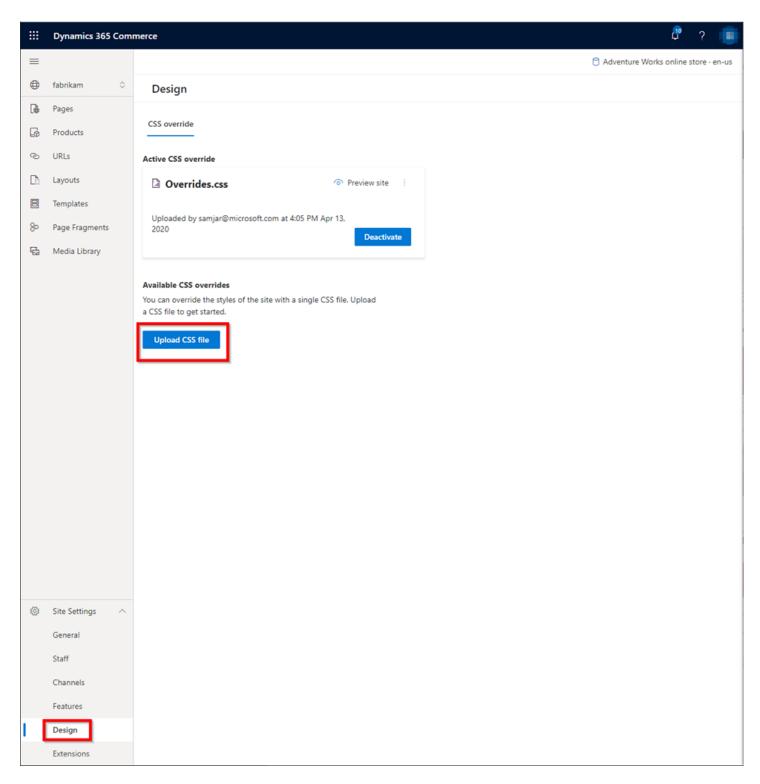
Now you can copy the css from the right side and modify. For example, if we want to only change the color of the banner add the following to my override file. This CSS file will then be applied on the site.

```
.ms-promo-banner {
  background: red;
}
```

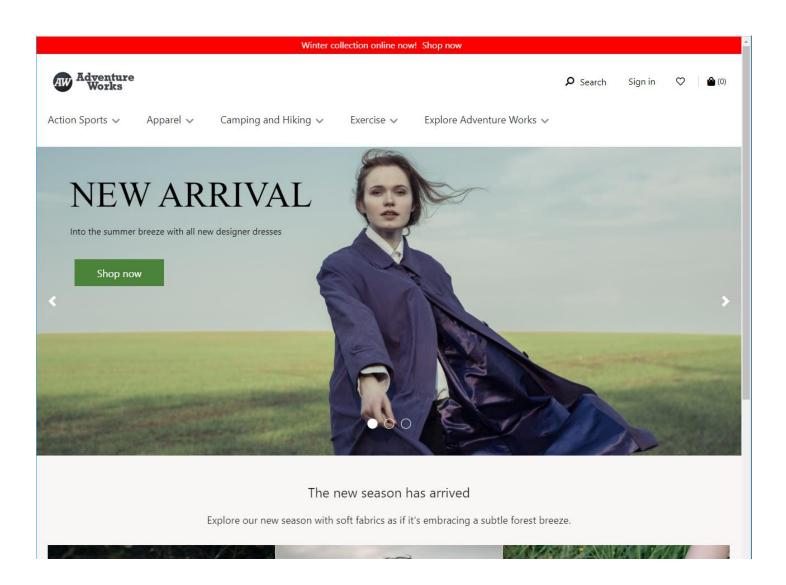
To upload the CSS file, follow the steps below.

Expand the "Site Settings" tab on the bottom left and select the "Design" tab. You can now select the "Upload CSS file" button and upload the new file. You can now preview the site with the overrides using the "Preview site" button. When you're ready to turn the overrides on, select the "Activate" button and it will be live immediately on the production site.

Note: Many override files can be uploaded but only 1 can be active on the site at a time.



Previewing the site should now show with your overrides as shown below...

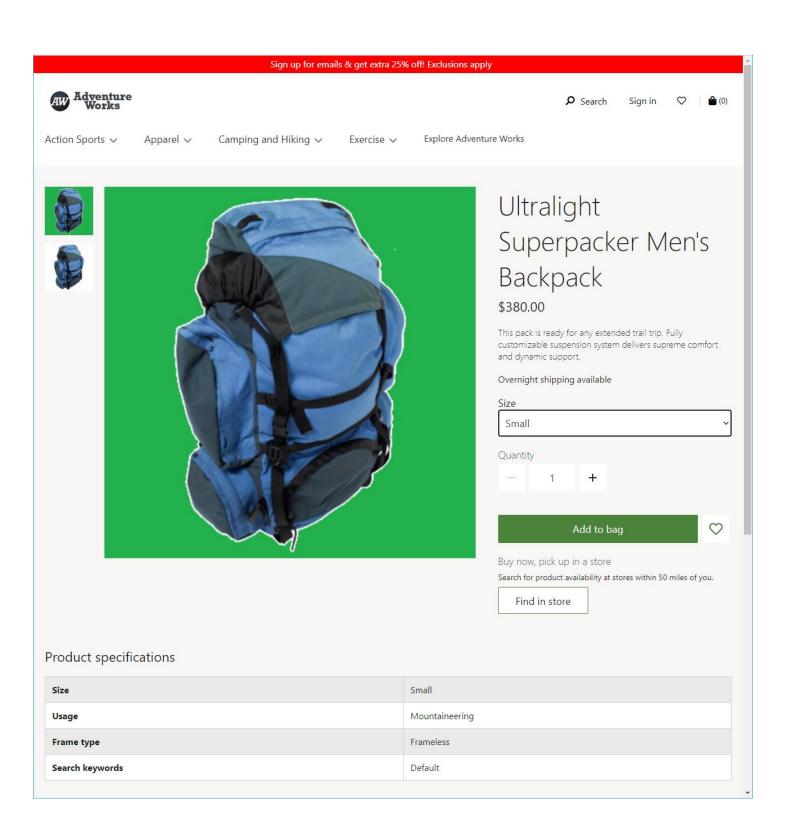


## END TO END SITE TESTING

In this section we will guide you to test your site which will include adding a product to the cart, making a purchase and picking up part of the order in a store.

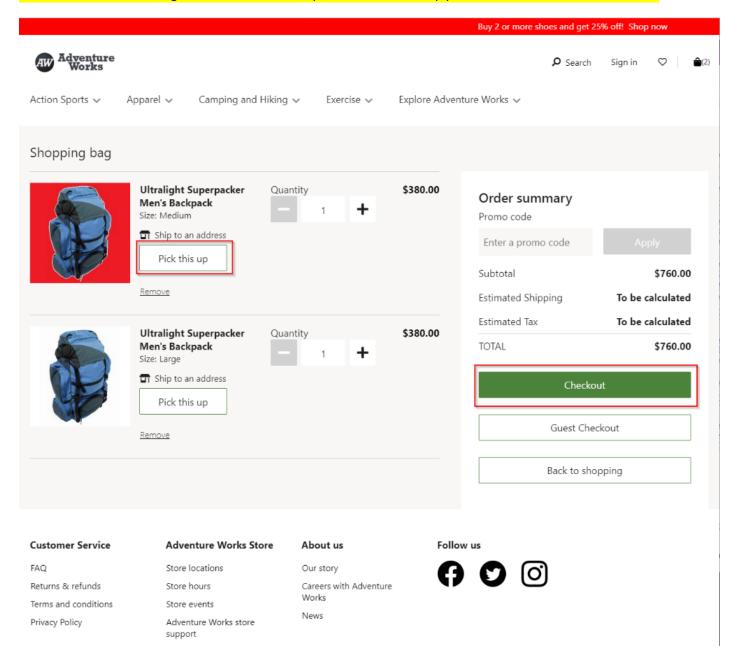
# ADDING PRODUCTS TO CART AND CHECKOUT

Navigate to a product page, select a product variant, and select the "Add to bag" button. Add a couple items to the cart.

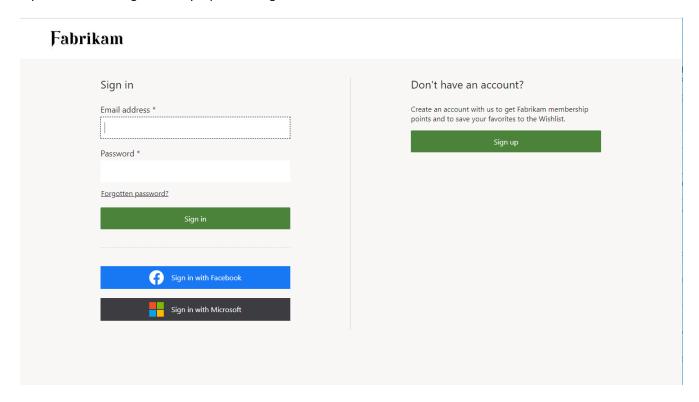


Try selecting one of the products to pick up in "San Francisco" store and checkout.

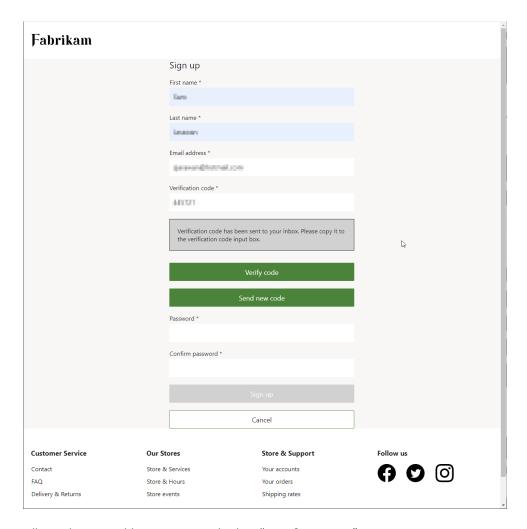
Note: Please note at this stage if Azure Active Directory B2C hasn't been setup you will need to do a "Guest Checkout"



If you have not configured B2C yet please use guess checkout.

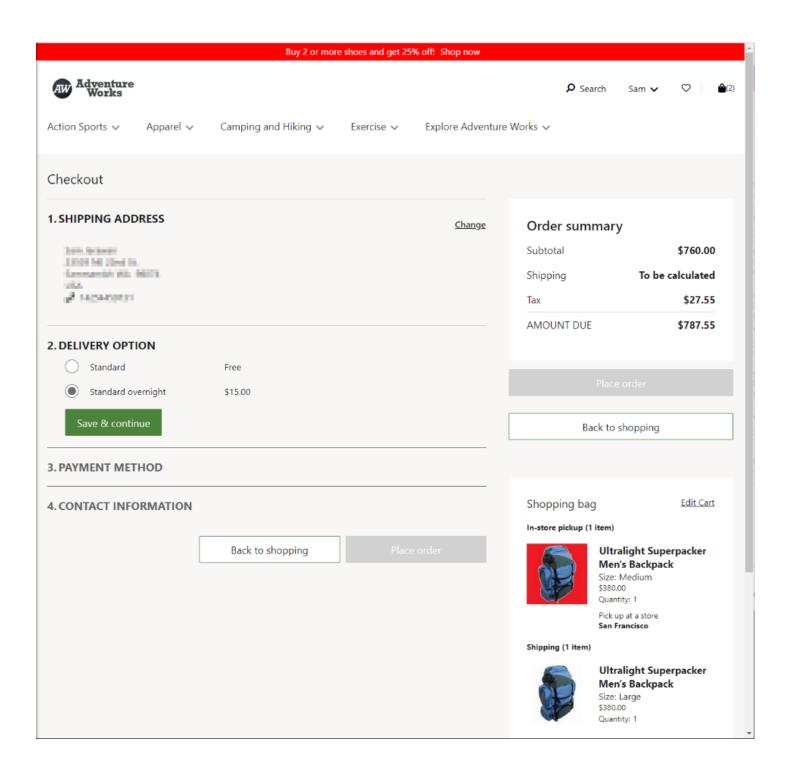


Once created click Sign-Up to create an account, it will send a verification code and then sign in.

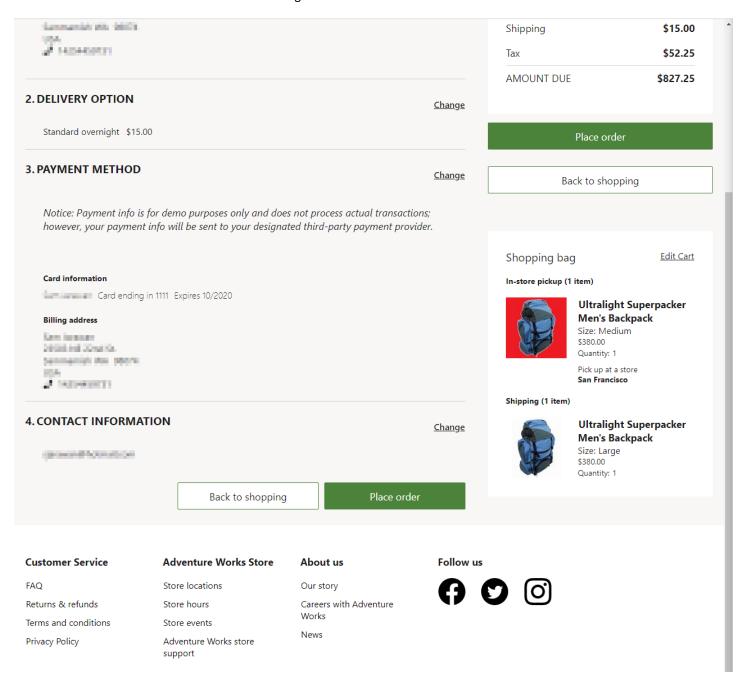


Fill out Shipping Address section and select "Save & continue".

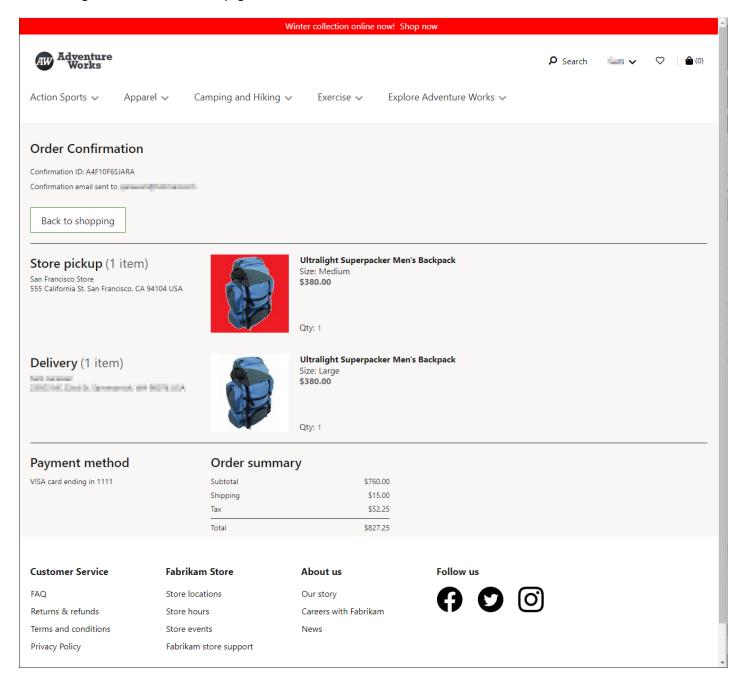
Select a delivery mode and "Save & continue" (if none are available – ensure you ran process delivery modes in HQ or run again).



Fill out payment method use any name and credit card number **4111 1111 1111 1111 1111 expiry 03/30** CVC **737**, provide email in contact information and click on "**Place order**". You should get a confirmation email.



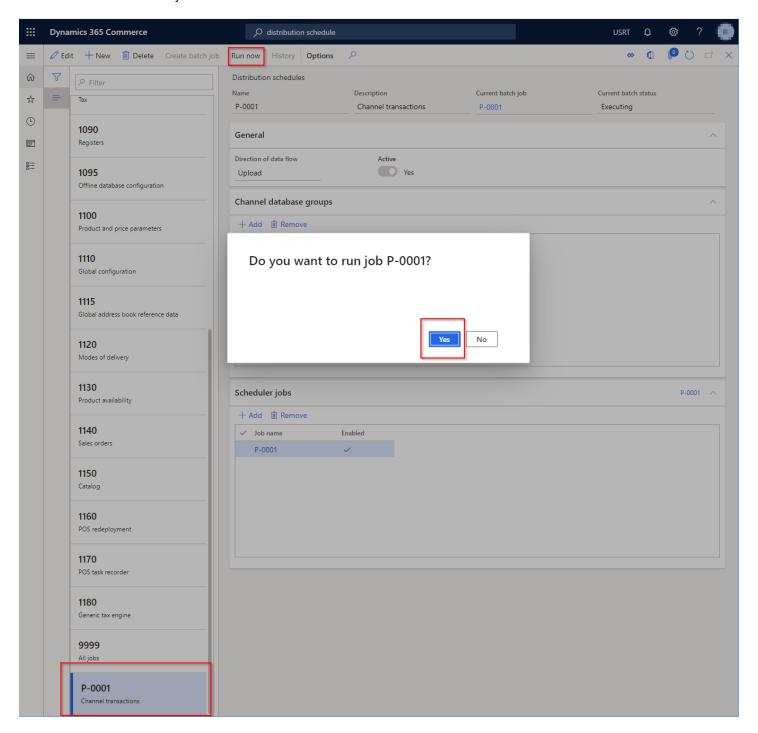
You should get an order confirmation page like below.



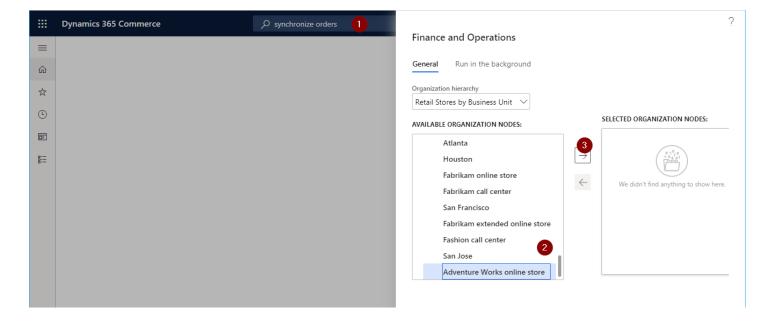
## SEEING THE ORDER IN HEADQUARTERS

Before we can see the transaction in the Headquarters tool, we need to run the "P-0001" job and "Synchronize Orders" to pull in the orders from the Commerce scale units.

- Search for the "Distribution schedule" page
- Select the "P-0001" job and click "Run now"

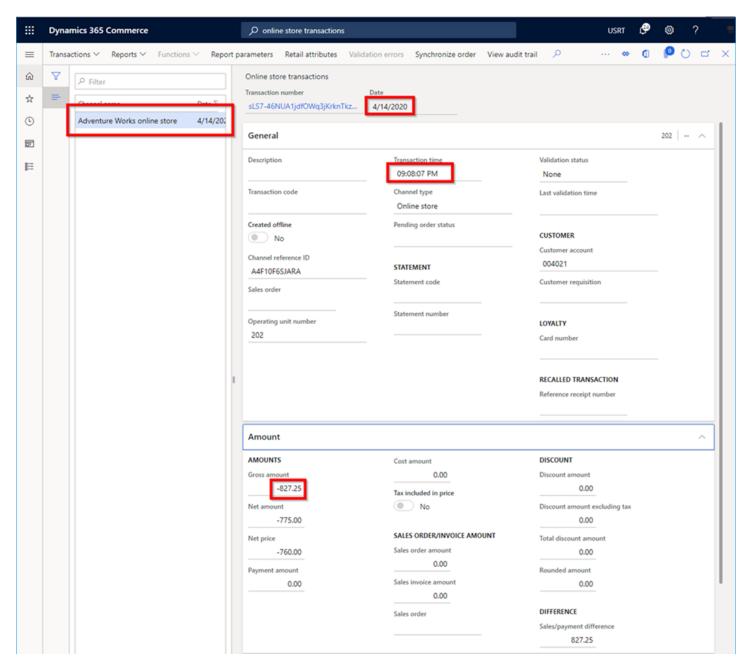


Next, we need to synchronize the orders down from the scale units. Search for "Synchronize Orders", select the online channel you are working with (such as "Adventure Works online store" and add it to the "SELECTED ORGANIZATION NODES" followed by clicking the "OK" button.



• Lastly, we can search for "Online store transactions" and you should find the order in the transaction list.

You should be able to match the date, time, and order charge to the order you created on the site.



#### PICKING PRODUCTS UP IN A RETAIL STORE WITH POINT OF SALE

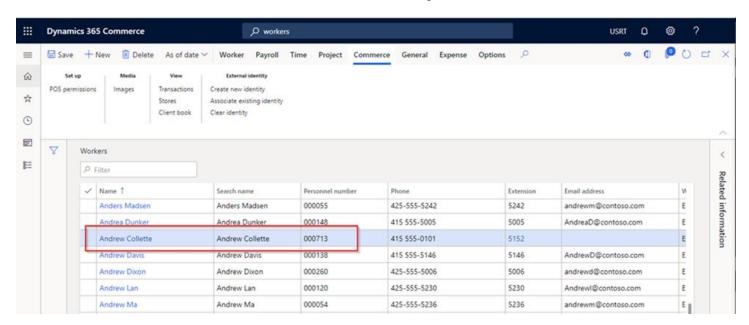
We can now launch the San Francisco point of sale and demonstrate a customer pickup.

Before you log into cloud point of sale (POS), you need to associate the AAD account you are using with the worker you will be logging in with. We will mostly be using the San Francisco store, which is the most up to date configured retail channel that has the same set of products configured as the Fabrikam extended online channel. There is also a pre-configured user for this channel (000713 - Andrew Collette).

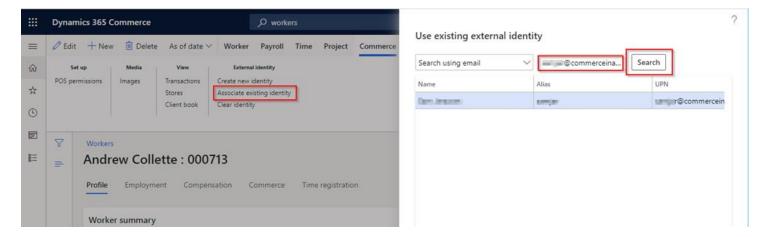
#### ASSOCIATE AAD USER TO WORKER

Follow the steps below to associate the AAD account to user 000713.

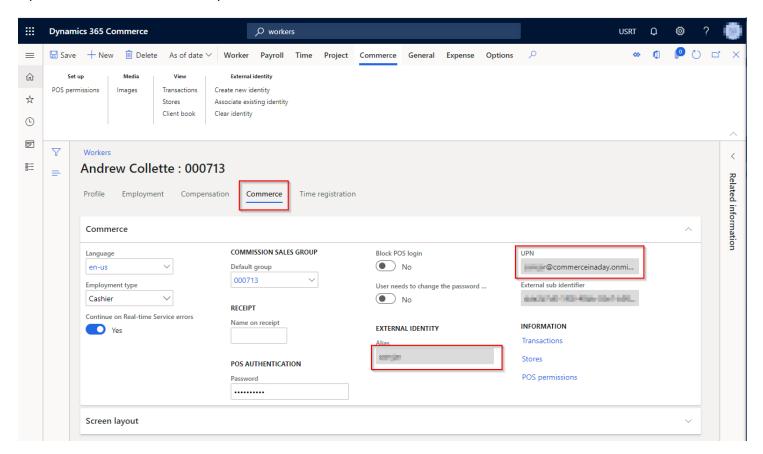
- Launch the Headquarters tool and search for the "workers" page
- Select the user "Andrew Collette", this user with id 000713 is configured for the retail "San Francisco" channel.



 Click on the "Associate existing identity" and enter in the AAD account you are using for your environment followed by clicking the "Search" button, then the "OK" button.

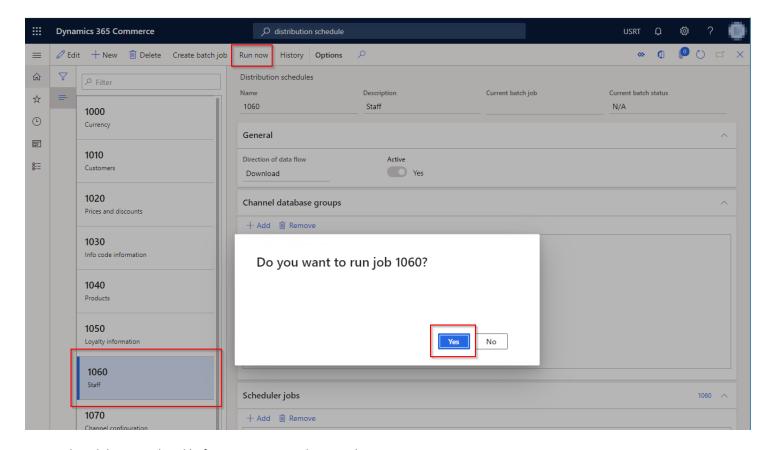


If you now select the Commerce tab you should see the AAD account and alias listed as shown below.



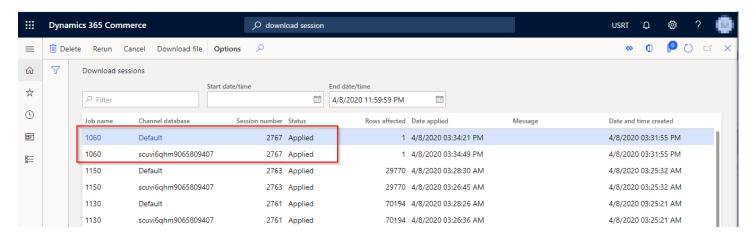
The last thing needed it to run the "1060 – Staff" job.

- Search for the "Distribution schedule" page
- Select 1060 Staff from the list and click the "Run now" button and select "Yes" to add the job to the queue.



Ensure the job has completed before attempting to log into the POS.

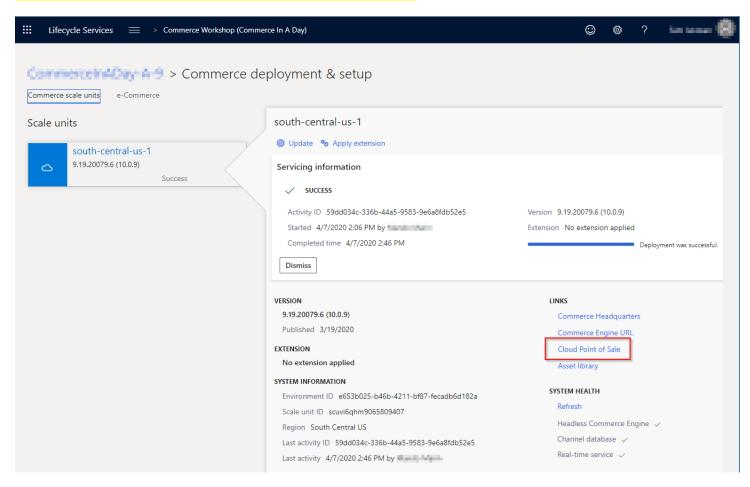
- Search for the "Download sessions" page
- Ensure that the 1060 job is listed with status "Applied"



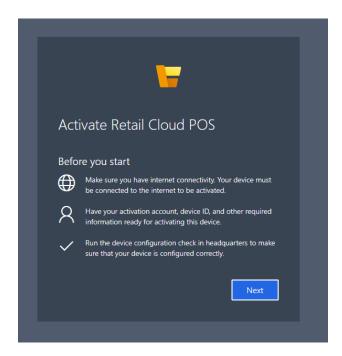
### LOGGING INTO THE CLOUD POINT OF SALE

We are now ready to log into the point of sale. From LCS you can find the link to the point of sale as shown below.

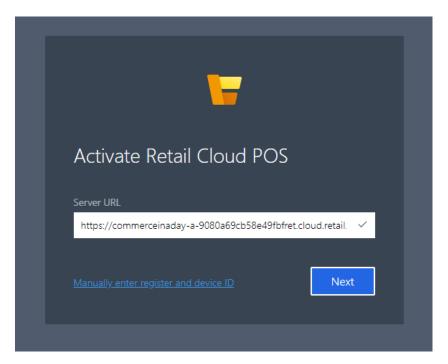
Please note: If you cannot log onto the POS with Chrome please use Edge.



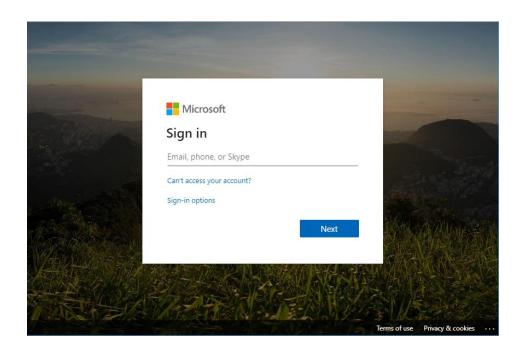
Once you click on the "Cloud Point of Sale" link, you should see a similar dialog box as shown below, click the "Next" button.



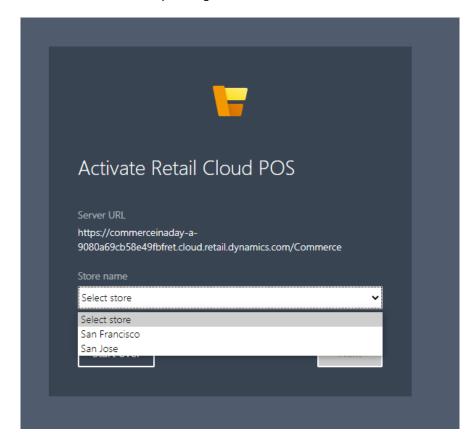
Click the "Next" button when you see the dialog box below.



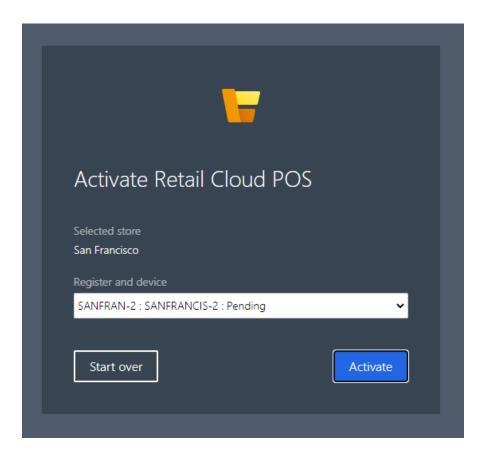
You can now sign in with your AD account that was configured against the 000713 user in previous section.



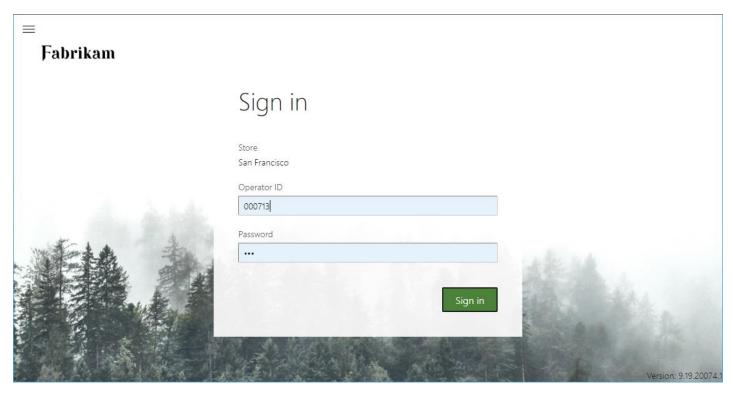
Next, you will be asked to select a store. Since this AD account was associated with a specific user the stores that the user has access to are listed. Select San Francisco followed by clicking the "Next" button.



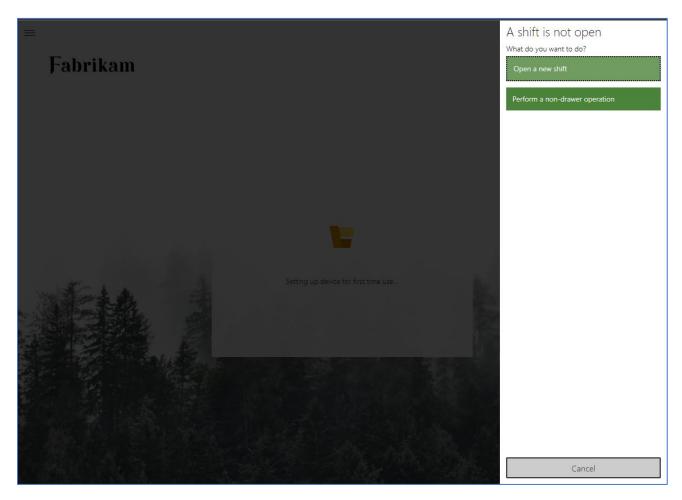
Finally, you will be asked which register and device to log into. You can pick any of them, followed by the "Activate" button.



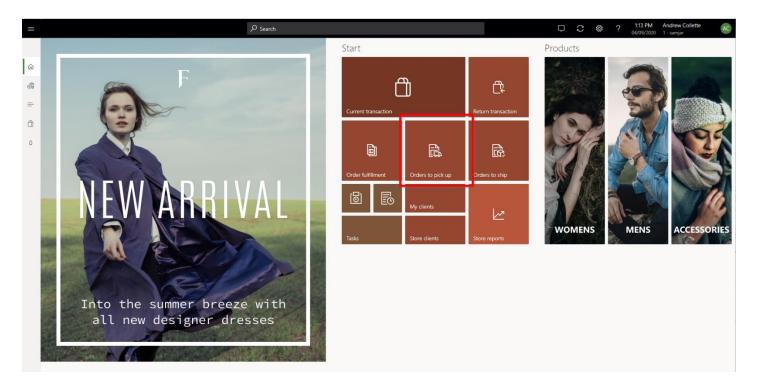
You can now sign into the POS with the 000713 account, the default password set up in demo data is "123" but you can change this in the Headquarters app if desired. Notice how it is branded as Fabrikam, we won't be covering rebranding the POS in this workshop.



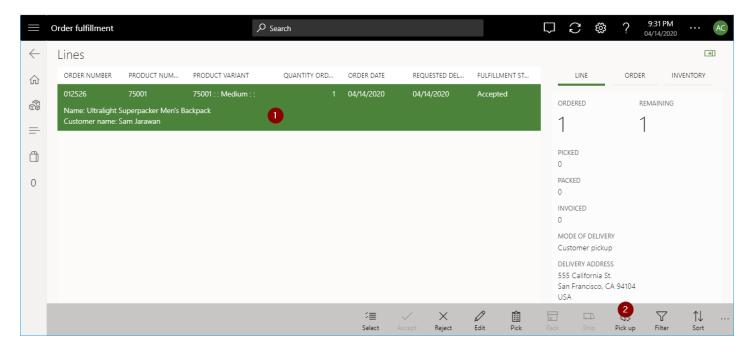
You can select "Open a new shift" and then pick "Main drawer".



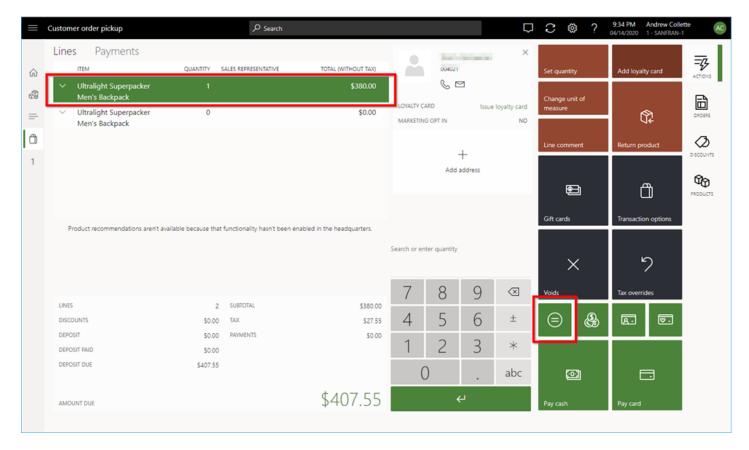
The POS is now ready to use, select "Orders to pick up":



Select the order to pick up (1) and then click the "Pick up" button (2) at the bottom.

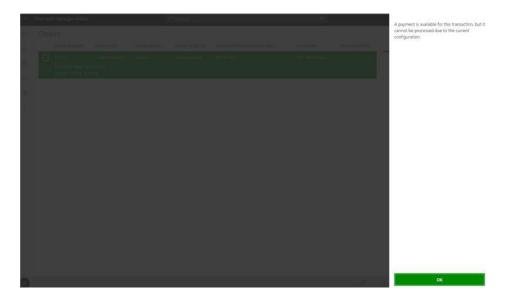


Select the item to be picked up and select the "Payment methods button" to complete the transaction.



This completes the full End 2 End transaction.

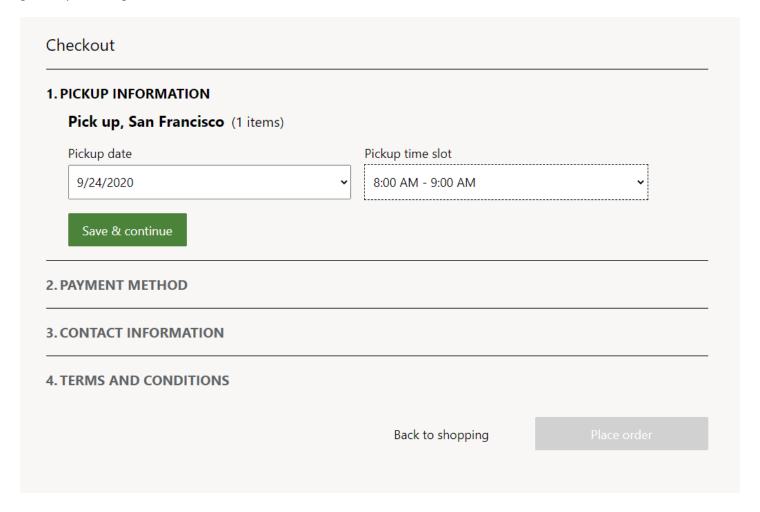
Note: If you run into issues at the POS and receive an error message like below you need to change the setting on the register you're using in HQ for "Card not present processing" to retail server.



## UNIT 2 OPTIONAL - TIME SLOTS FOR CUSTOMER PICKUPS

The time slot feature gives retailers a way to define a time slot for items that the customer pickup delivery mode is turned on for.

Time slots let retailers define the days and times when orders can be picked up from a store. Retailers can also define the number of orders that can be picked up during a given period. In this way, retailers can limit the number of orders that can be picked up on a given day and at a given time

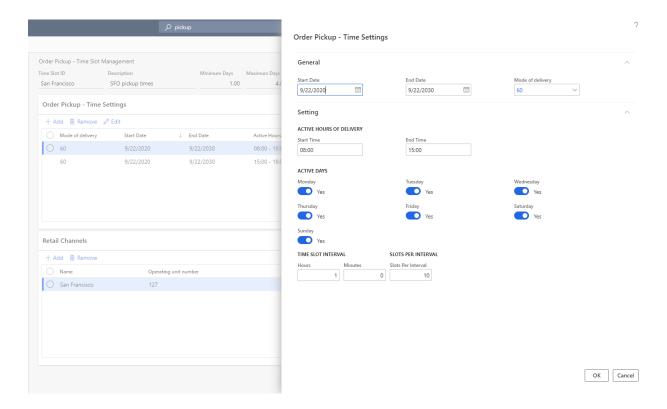


To configure the time slot feature in Commerce headquarters, follow these steps.

- 1. Go to Commerce > Channel setup > Store pickup time slot.
- 2. Select **New** to create a new time slot template. To use an existing template, select the template in the left pane.
- 3. Enter values in the Time Slot ID and Description fields.
- 4. On the Order Pickup Time Settings FastTab, select Add.
- 5. In the **Order Pickup Time Settings** dialog box, define the date range, mode of delivery, active hours of delivery, active days, time slot interval, slots per interval, and other settings.

If time slots will be static for the foreseeable future, set the **End Date** field to **Never**.

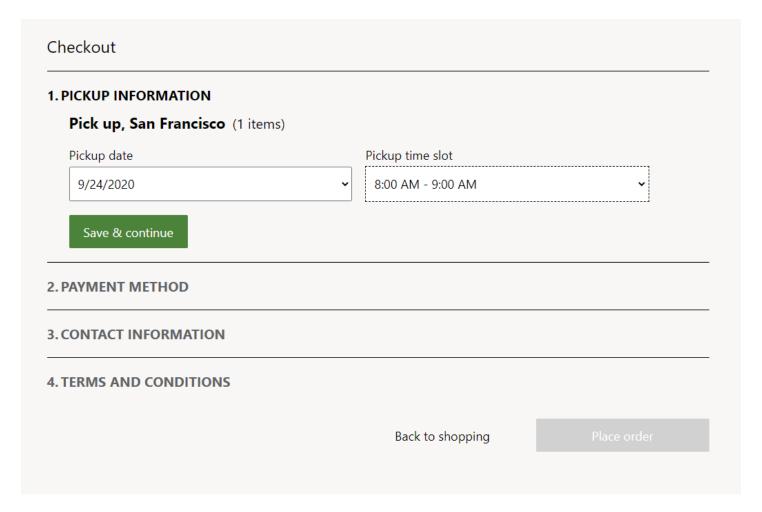
Note: You can create multiple templates, but only one template can be associated with a single channel or store.



- 6. When you've finished, select **OK**.
- 7. If the time slots in a day will vary, create additional entries on the **Order Pickup Time Settings** FastTab to ensure that the dates and times don't overlap.
- 8. On the **Retail Channels** FastTab, select **Add** to associate the time slot template with the stores or channels where it will be used.
- 9. In the **Choose organization nodes** dialog box, use the arrow buttons to select (or clear the selection of) the stores, regions, and organizations that the template should be associated with.
- 10. When you've finished, select **OK**.
- 11. On the **Distribution schedule** page, run the **1070** and **1135** jobs to sync the data to the channels.

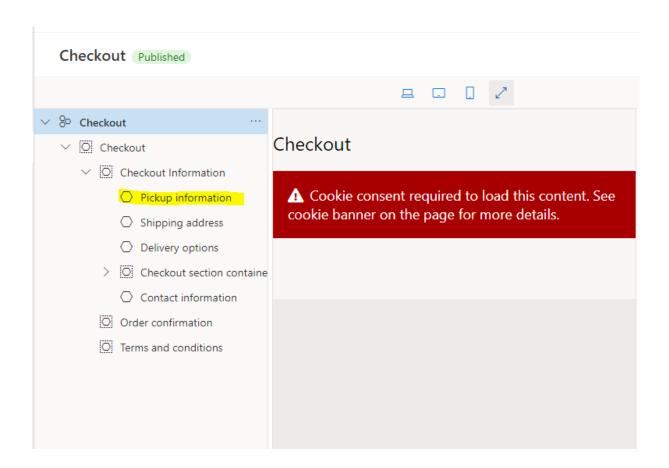
#### PICKUP INFORMATION MODULE

Now you have setup time slots in Commerce headquarters for customer pickups you need to add the pickup information module to the checkout page.



- 1. Go to Fragments and edit the "Checkout" fragment.
- 2. Add the "Pickup information module" as shown below.
- 3. Once added, save and Publish.

**Note:** Information about the selected time slot can be viewed in the order confirmation module and the order details module. Both these modules have a **Show timeslot information** property. Before they can show the selected time slot during the order process, this property must be set to **True.** 



## UNIT 1B E-COMMERCE BUSINESS TO BUSINESS (B2B)

Before we can use the B2B functionality we need to make sure the B2B eCommerce options have been enabled in Feature management.

The B2B e-commerce capabilities feature in Commerce headquarters enables organizations to onboard business partners and define administrator users. This feature also enables administrators to create and manage business partner users and teams, and to assign specific roles to them. Finally, it enables business partner users to create order templates and use existing orders to reorder products.

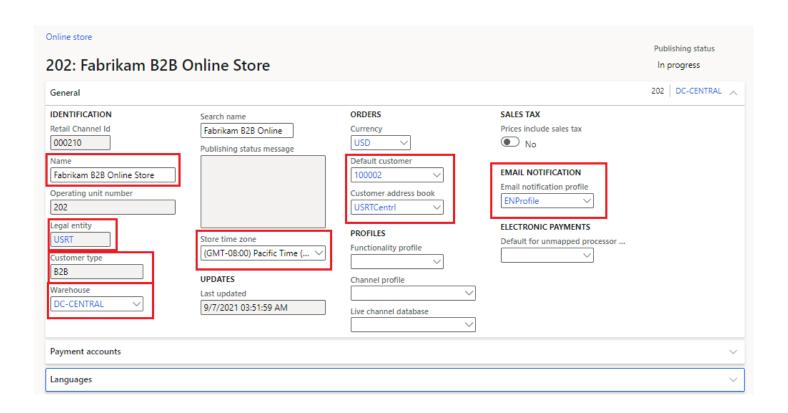
To turn on the B2B e-commerce capabilities feature in Commerce headquarters, follow these steps.

- 1. Go to Workspaces > Feature Management.
- 2. On the All tab, filter on the Module field by using the term Retail and commerce.
- Find and select the feature that is named Enable the use of B2B eCommerce capabilities, and then select Enable now.

#### **B2B ONLINE STORE**

Configure the following items for the new channel:

- Name Provide the name for the store (example: "Fabrikam B2B Online Store or Adventure Works B2B")
- Legal entity Select the legal entity the store will belong to (this will be "USRT" in the evaluation environment)
- Customer Type Make sure this is set to B2B
- Warehouse Select the warehouse that will serve the online store (DC-CENTRAL can be used in the evaluation environment)
  - o For basic warehouse setup see the online Warehouse set up document.
- Store time zone Select the default time zone used for the store, this may map to the corporation's headquarters time zone
- **Default customer** This customer may need to be pre-configured, all sales orders through the site for anonymous users will be tied to this account in AX (**100002** can be used in the evaluation environment)
  - o For more info see the online <u>Create a default customer</u> doc.
  - Note: for any new e-commerce customer account signups the default properties are copied from this account
  - Note: If you are creating a new default customer, ensure that the default customer is of a type "Person" and not "Organization"
- **Customer address book** Set the address book, this should be pre-configured before creating the channel (**USRTCentrl** can be used from within the evaluation environment)
  - o For more info see the online <u>Create a default customer</u> doc which covers creating an address book.
  - Note: The default address book must be associated with the default customer provided above
- **Email notifications** Select the email notification profile, this may need to be pre-created before creating the channel (**ENProfile** can be used if you are using the evaluation environment)
  - o For more information see the online <u>Set up an email notification profile</u> document.
- Select the "Save" button.



#### SETUP PAYMENT ACCOUNTS

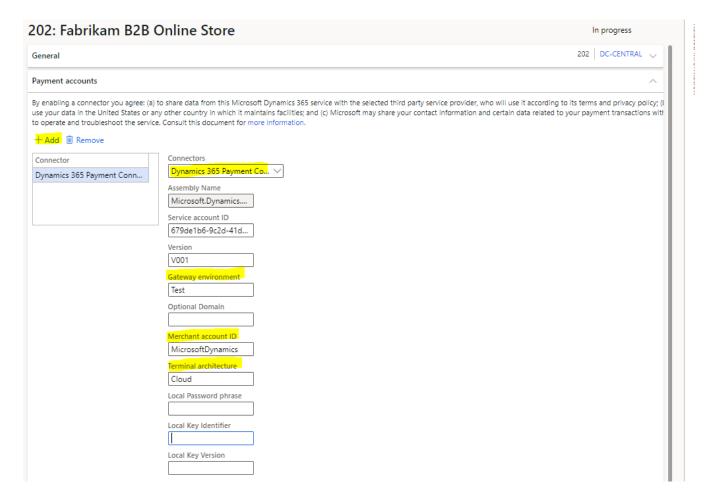
We will now setup the Adyen payment account needed to accept payments on the e-Commerce site. This section will guide you through setting up a payment connector for the Online site.

• Expand the "Payment accounts" section and select "Add" to add a payment connector.

Online channels are designed to be used out of the box with the **Dynamics 365 Payment Connector for Adyen.** 

Configuration Steps (Note: The Cloud API key will need to be supplied by your instructor for this training). If you plan to set this up in your own environment you will need an Adyen test account.

- Change "Gateway Environment" to 'Test'
- Set the "Merchant account ID"
- Set "Terminal Architecture" to "Cloud"
- Change "Allow saving payment information in e-Commerce" to "True"
- All other values can be left with the defaults
- Click "Save"



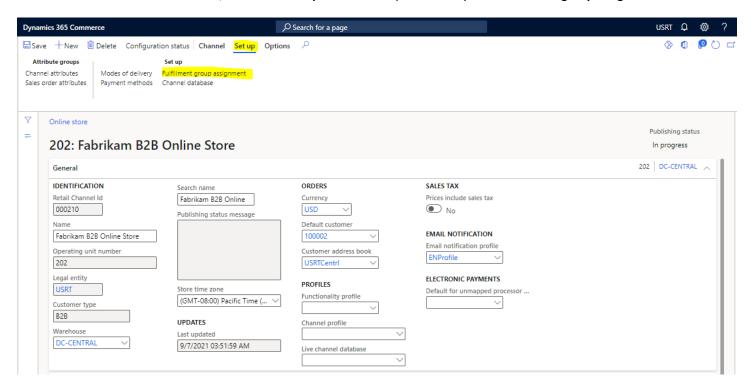
#### SETUP LANGUAGES

If you need to support multiple languages on your e-Commerce site, you first need to configure additional languages on the online store channel. For this workshop we will use en-us only, see appendix on how to add additional languages.

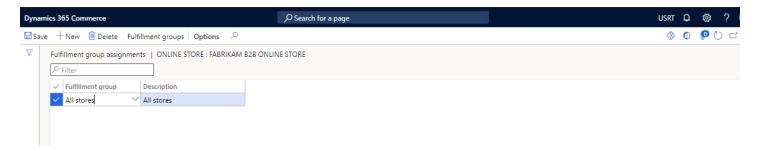
#### **FULFILLMENT GROUP ASSIGNMENTS**

In order for BOPIS (buy online, pickup in store) scenarios to work, you'll need to associate the channel with stores. Demo data already has a group of stores created called "All stores" that can be used here to ensure all stores retail stores show up when attempting the BOPIS scenario on the e-Commerce site. This section will show you how to set this up.

From within the selected online store, select the "Setup" tab at the top followed by the "Fulfillment group assignment" link.



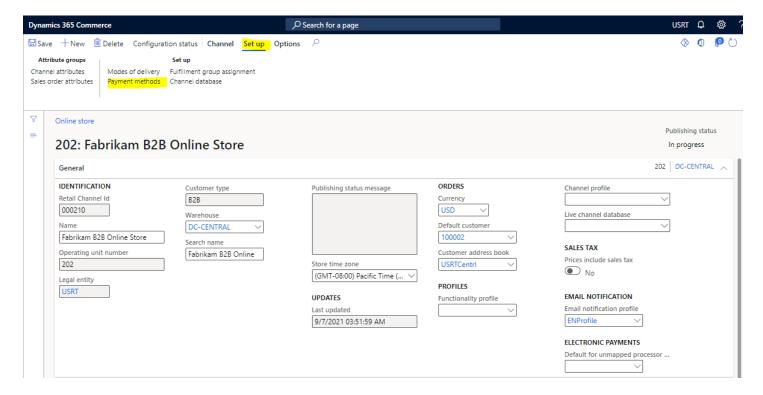
Add "All stores" and close the form to get back to the previous channel page. You can also pick explicit stores here if desired.



### SETUP PAYMENT METHODS

Each channel can accept various payment methods. In this section we will configure the online store channel to accept credit cards and because B2B can accept on account payments we will set this up as well.

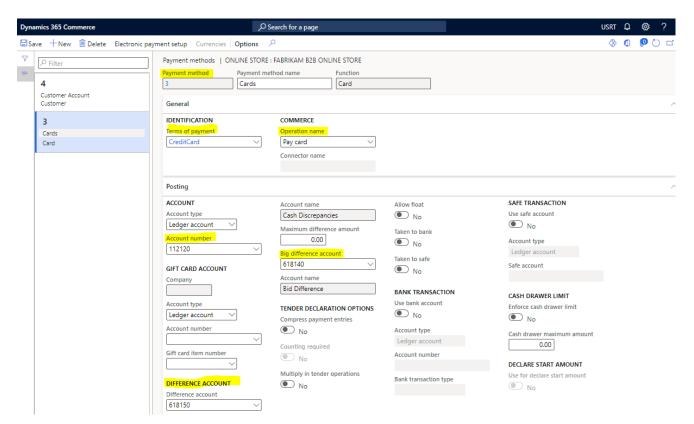
From within the selected online store channel, select the "Payment method" button under the "Setup" tab.



#### "CREDIT CARDS"

We'll now add another card type. Select "New" again.

- Set "Payment method" to 3
- In the "General" section set
  - o Terms of payment: "CreditCard"
  - Operation name "Pay card"
- In the Posting section set
  - In the "ACCOUNT" section set Account number to 112120 (or other if not using demo data)
  - O Difference account: **618150** (or other if not using demo data)
  - Big difference account: 618140
- Click Save

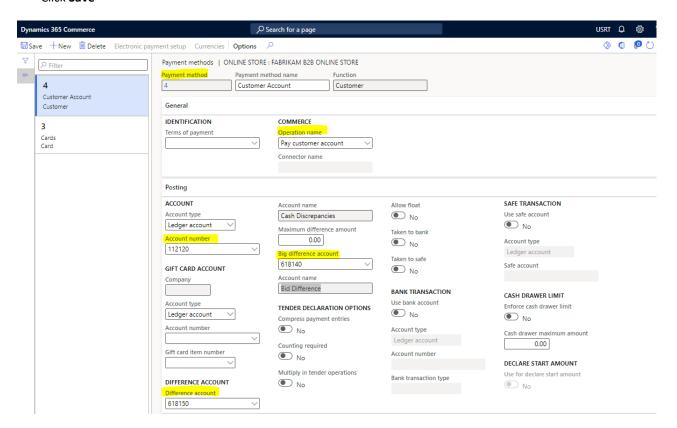


• Select "Electronic payment setup" and add cards to support, you should only need to set the "Card ID" for each, example add any of the following: AMEXPRESS, EUROCARD, MAESTRO, MASTER, VISA, VISAELEC (used for debit). Please include "Visa" to ensure the visa test card. Close window when completed.

#### "CUSTOMER ACCOUNT"

# Select "New" again.

- Set "Payment method" to 4
- In the "General" section set
  - o Terms of payment Blank
  - Operation name "Pay customer account"
- In the Posting section set
  - o In the "ACCOUNT" section set Account number to 112120 (or other if not using demo data)
  - O Difference account: 618150 (or other if not using demo data)
  - O Big difference account: 618140
- Click Save



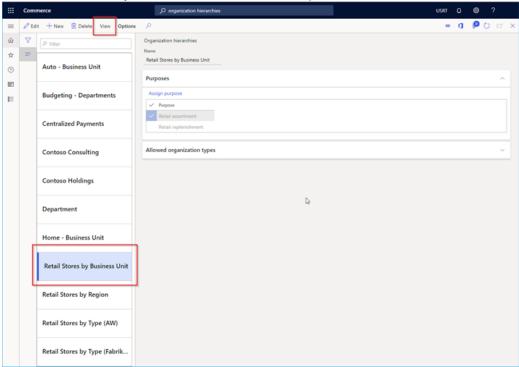
### ADD CHANNEL TO ORG HIERARCHY

Business units can be used to organize channels for simpler configurations. For example, instead of configuring modes of delivery for each store independently, or assorting products per channel, they can be done by org structure units.

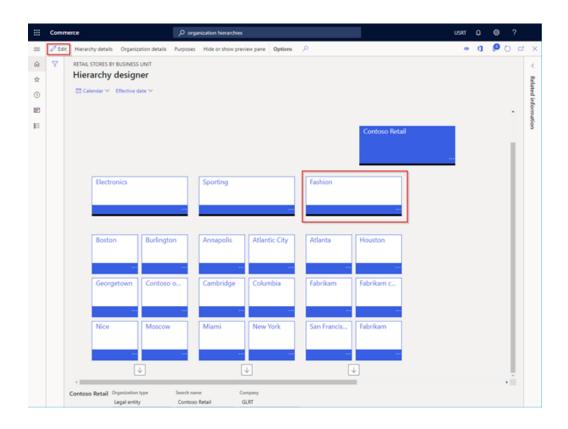
In this section we will add our new channel to an existing organization hierarchy business unit that is included as part of the demo data. You may want to create a new "Business Unit" for your channel and below steps can be used as a general guide.

Search for the "Organization hierarchies" page

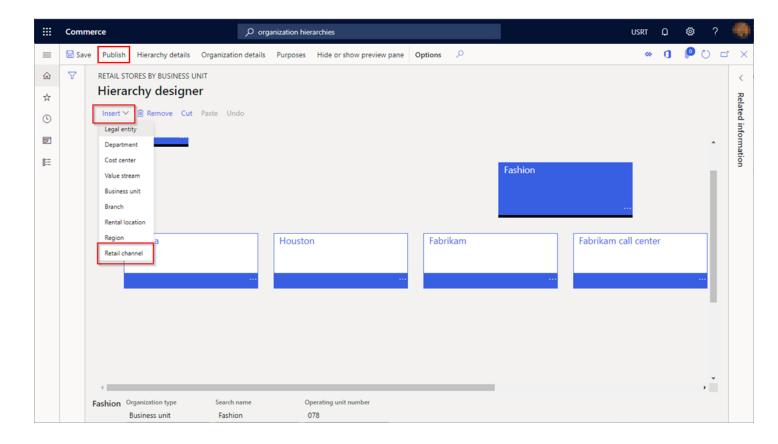
Select "Retail Stores by Business Unit" and "View" on top



Select "Edit" then the "Fashion" by hitting the "..." on fashion



- Select "Insert" then "Retail channel" and pick the new channel to be added
- o Note: You may need to select the arrow to see the new channel added as you scroll to the right.
- Save, publish, select an older date (example: 1<sup>st</sup> of last month since only 1 publish a day is allowed, if another publish is required you can pick a newer date)



#### "ASSORTMENTS"

As we have already learnt how to setup assortments during our B2C training we will not be setting up a new one during this exercise, we will use the same assortment group as the "Fabrikam extended online store.

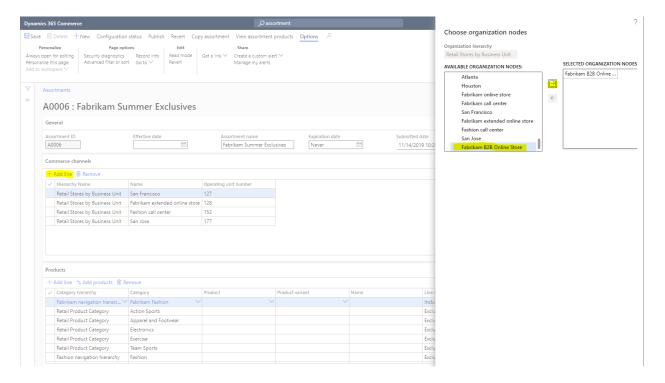
In the search bar type "assortments", go to "Fabrikam Summer Exclusives"

Click "Edit", you will receive a warning, click yes

Are you sure you would like to edit this assortment? Editing this assortment will move it back to draft state.



Add the "Fabrikam B2B Online store" and then click save and Publish.



### SETUP MODES OF DELIVERY

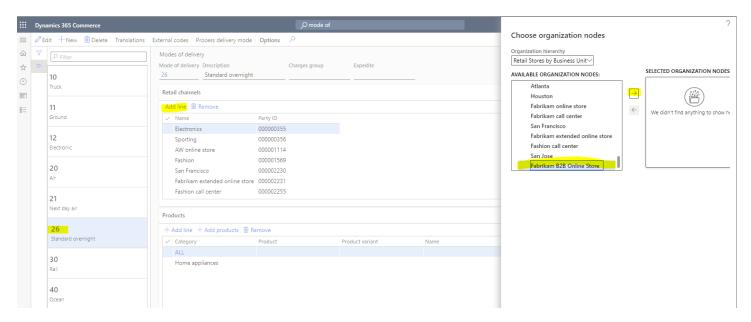
Modes of delivery are used at cart checkout when asking what delivery mode to use. We need to setup the modes of delivery available to the new online store channel.

Search for "modes of delivery" configuration in Headquarters.

Next, we will add this channel to the following modes of delivery.

- "26 Standard overnight"
- "60 In Store pick up"
- "61 -Curbside pick up"
- "99 Standard"

Select each one and under "Retail channels", click the "Add line" link then add the new channel:

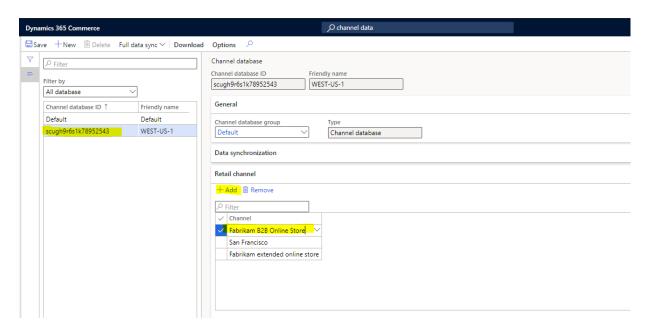


After any changes you must run "Process delivery modes", run now.

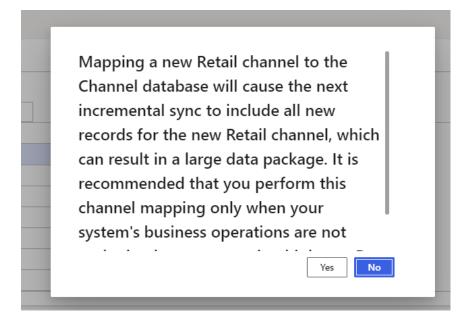
#### CONFIGURE CHANNEL TO BE PART OF THE APPROPRIATE CHANNEL DATABASE

Now that the channel creation and configuration are complete, we need to ensure we pick the correct channel database. By default, the deployments will contain a scale unit that we should select.

- Search for "Channel database" and load the page
- Select the scale unit channel database (not the "Default") as shown in the image below.
- Select "Edit" and add the new channel then click save

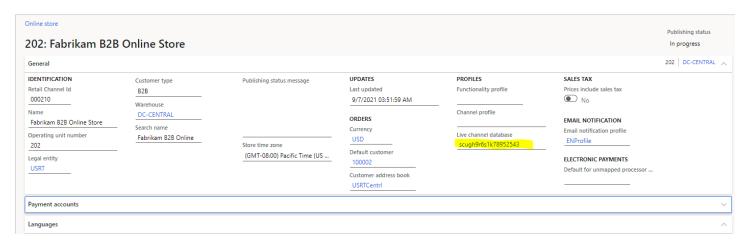


Note: you should get a warning message as below, stating this could take some time, select "Yes"



Note we will later run the "Full data sync" from here but not yet...

If you now go back to the online store channel you should see the channel database listed as shown below:



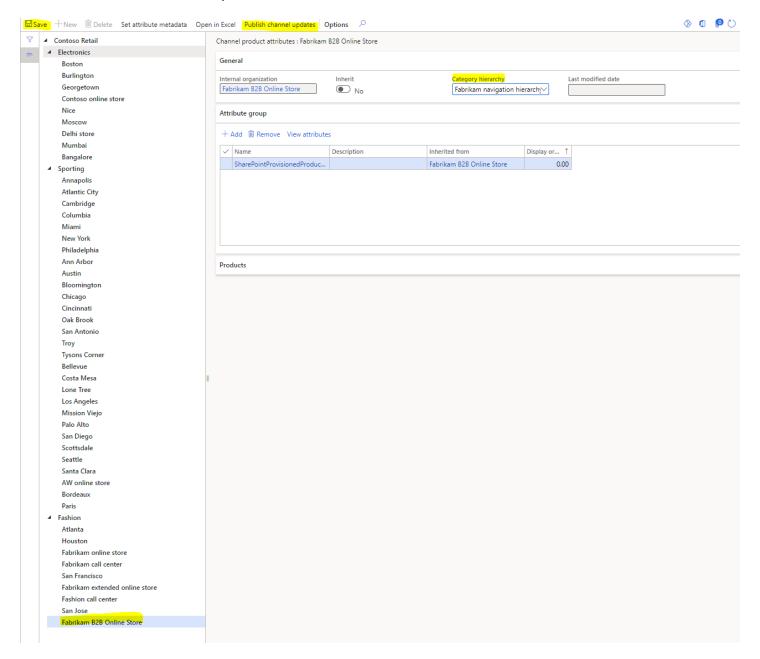
#### "CHANNEL NAVIGATION"

We now need to setup our channel navigation and since we are following the Fabrikam option we will set the navigation hierarchy to be the same as the "Fabrikam extended online store".

## Search "Channel categories and product attributes"

Select "Fabrikam B2B Online Store, then edit and change category hierarchy to "Fabrikam navigation hierarchy".

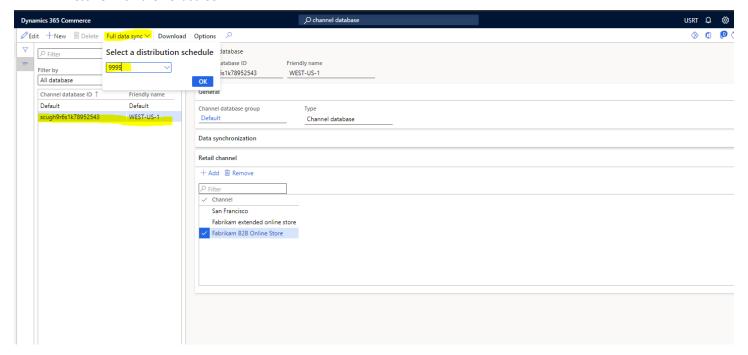
Click save and then Publish channel updates.



To sync all jobs to ensure all the data gets sync'd to the scale unit - search for the "Channel Database" page.

• Ensure the RSCU channel database is selected and select "Full data sync" drop down and type in "9999" to run all jobs.

Press "OK" on the next screen



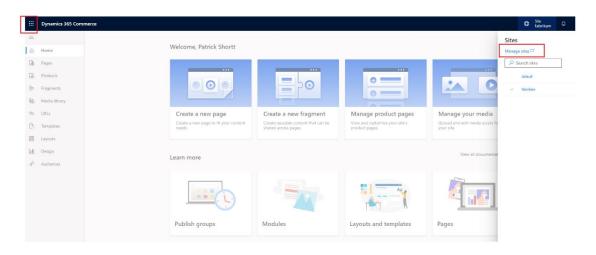
- This could take 10-15 minutes to complete (coffee break time!). It could take up to another 15 minutes for the Azure search indexing before products will be viewable on the e-Commerce site.
- When the dialog goes away type "download sessions" in the search box and refresh until all Status items say "Applied"

# UNIT 2B BUSINESS TO BUSINESS (B2B) SITE SETUP

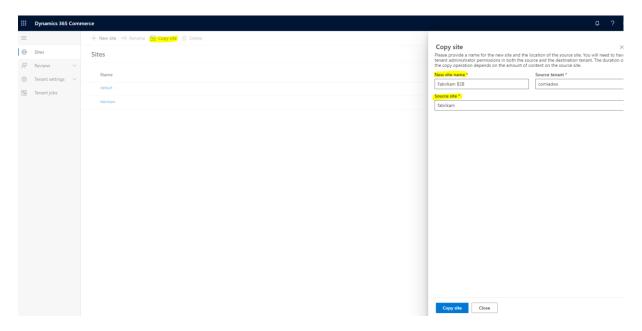
Business-to-business (B2B) e-commerce sites provide some key capabilities that optimize the workflow for a B2B user. In this unit we will be creating the pages required for a B2B site, however before doing this we need to do a site copy of our B2C site so we don't have to create all the templates, pages URL's etc from scratch.

### SETUP YOUR B2B E-COMMERCE SITE

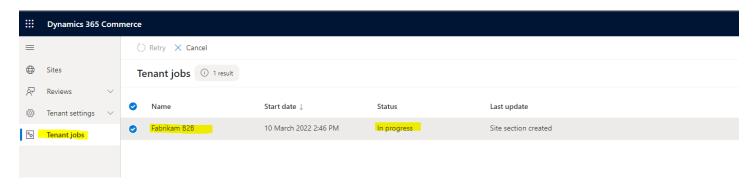
Go to the site builder tool, "Manage sites" or "Home"



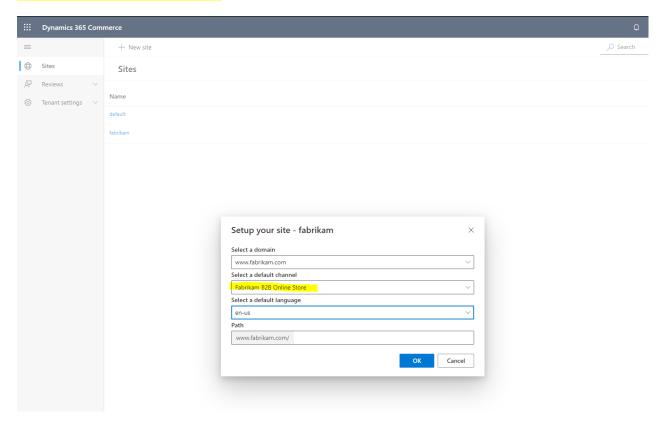
"Copy Site". Give your new site a name and select the source site which is your B2C site.



Click on Tenant jobs to see the progress, the job will take around 10+ mins to complete.



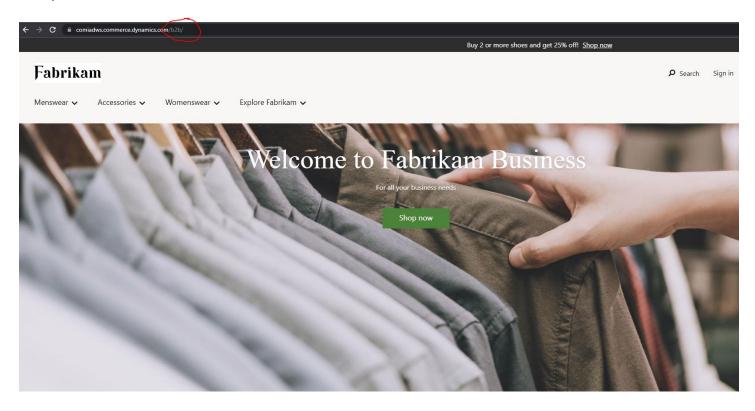
Once the site has been copied you need to setup the site information, similar to the setup below. Remember you need to select the new B2B online store you have just created in the "select a default channel" and give it a path name. For example: www.fabrikam.com/B2B



Note: You should now have a fully functional site, with pages, products, fragments, media library, URLs and Templates populated based on the site you just copied.

As you already know how to create a B2C site and change the look and feel you might want to change your homepage first so you don't mix up your B2C site and B2B site.

# Example:



#### **BUSINESS PARTNER REQUEST PAGE**

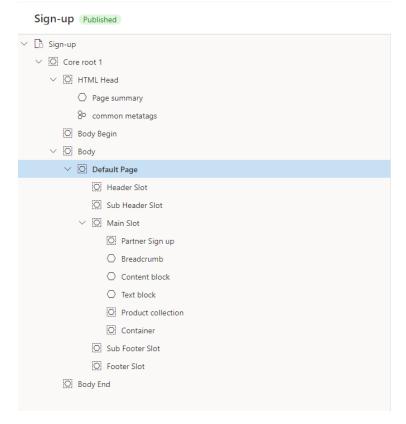
One of the first pages which need to setup for our B2B site is the business partner sign-up pages, this will allow potential business partners to sign up to become a business partner.

The **Partner sign up** module on a business partner request page is used to initiate user requests to become business partners. This module lets you collect the user information that is required for the sign-up process. Additionally, the **Business account address** module is used to capture the user's address.

To set up and configure the business partner request page in site builder, follow these steps.

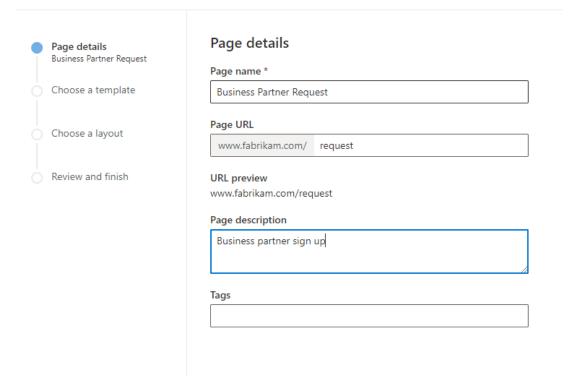
- 1. Create a template that is named **Business Partner Sign-up**. This template should include the following modules:
  - Partner sign up
  - Breadcrumb
  - Container
  - Content block
  - Text block
  - Product collection

Note: Please make sure you add the "Page summary & common metatags".

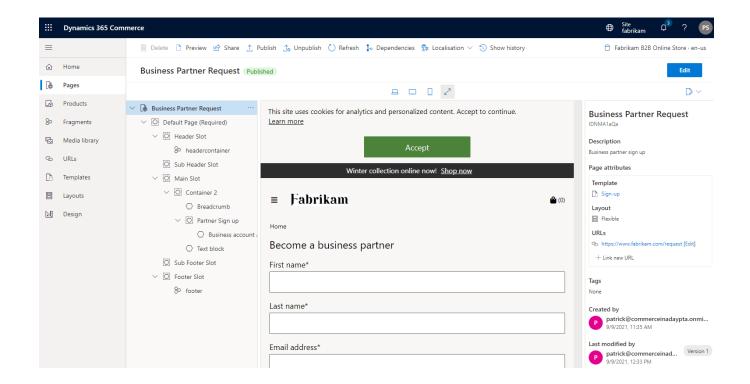


2. Go to Pages and use the Sign-up template to create a page that is named Business Partner Request.

### Create a new page



- 3. In the **Header** slot, add the header fragment that is preconfigured with the site header.
- 4. In the **Footer** slot, add the footer fragment that is preconfigured with the site footer.
- 5. In the **Main** slot, add a **Container** module. In the module properties pane, set the **Width** value to **Fill Container**.
- 6. In the **Container** slot, add a **Breadcrumb** module. In the module properties pane, under **Links**, configure a link to the home page, and enter **Home** as the link text.
- 7. In the **Container** slot, add a **Partner sign up** module below the **Breadcrumb** module. In the module properties pane, under **Heading**, enter **Become a business partner**.
- 8. In the Partner sign up slot, add a Business account address module.
- 9. In the **Container** slot, add a **Text block** module below the **Partner sign up** module. Here, you can define some terms and conditions for the sign-up process.
- 10. Select **Save**, and then select **Preview** to preview the page.
- 11. Select Save, select Finish editing to check in the page, and then select Publish to publish it.
- 12. Don't forget to publish the URL for the page.

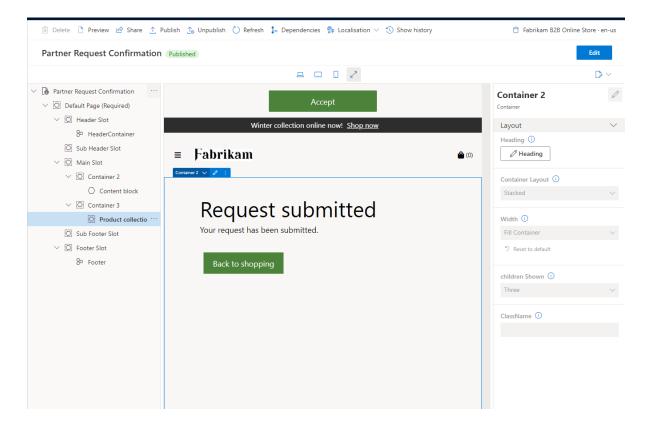


#### **BUSINESS PARTNER REQUEST CONFIRMATION PAGE**

After a business partner request is submitted, a confirmation page should be shown to the user to acknowledge the submission.

To set up and configure the request confirmation page in site builder, follow these steps.

- 1. Use the **Business Partner Signup** template that you created earlier to create a page that is named **Partner Request Confirmation**.
- 2. In the **Header** slot, add the header fragment that is preconfigured with the site header.
- 3. In the **Footer** slot, add the footer fragment that is preconfigured with the site footer.
- 4. In the **Main** slot, add a **Container** module. In the module properties pane, set the **Width** value to **Fill Container**.
- 5. In the Container slot, add a Content block module. In the module properties pane, under Heading, enter Request submitted. In the Rich Text field, enter Your request has been submitted. Under Links, configure a link to the home page, and enter Back to shopping as the link text.
- 6. Optional Add another Container module, and add a Product Collection module to it.
- 7. Configure the **Product Collection** module with the recommendation or category list that you want to showcase on the page. This can be setup later.
- 8. Select **Save**, and then select **Preview** to preview the page.
- 9. Select Save, select Finish editing to check in the page, and then select Publish to publish it.
- 10. Publish the URL for the page.



To add a link to the request confirmation page in site builder, follow these steps.

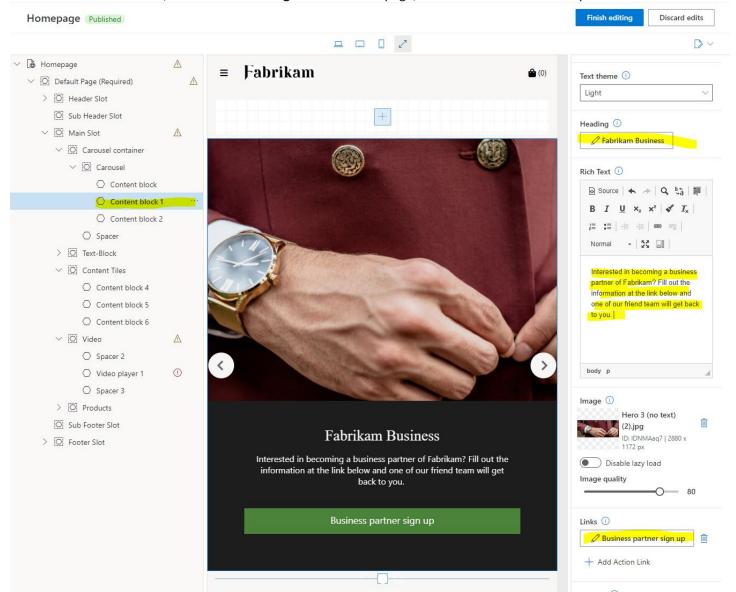
- 1. Go to the Business Partner Request page that you created earlier and select Edit.
- 2. Select the **Partner sign up** module slot. In the properties pane, under **Link to the Sign-Up Confirmation page**, configure the link to the business partner request page that you created earlier.
- 3. Select Save, select Finish editing to check in the page, and then select Publish to publish it.

#### BUSINESS PARTNER REQUEST LINK TO THE HOME PAGE

After the business partner request sign-up and confirmation pages are created, you must make the sign-up page accessible through a link on the home page. You can complete this task by adding the link to any **Content block** module in the on the home page.

To add a business partner request link to the home page in site builder, follow these steps.

- 1. Go to the home page for your site, and select **Edit**.
- 2. Select **Content block 1** module slot in the carousel container. In the module properties pane, under **Links**, configure a link to the business partner request page that you created earlier, and enter **Business partner sign up** or similar text as the link text.
- 3. Select Save, select Finish editing to check in the page, and then select Publish to publish it.



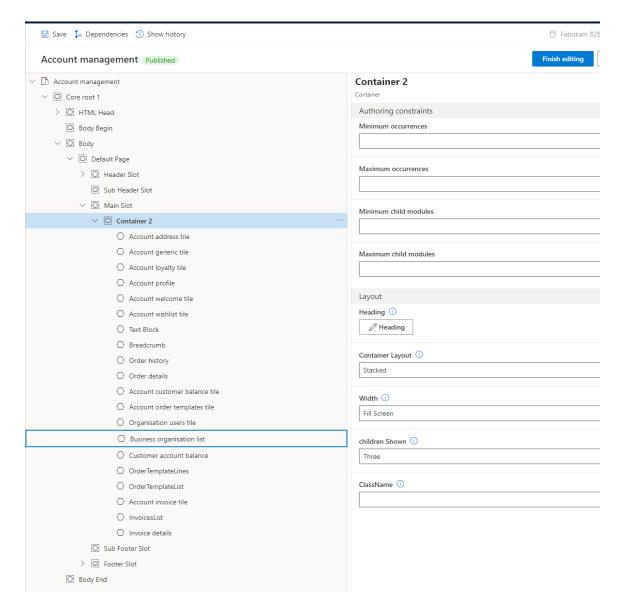
### ACCOUNT MANAGEMENT LANDING PAGE

The account management landing page includes all the account management information that is required for both B2B and B2C e-commerce sites. Only signed-in users can view this page.

We will use the existing account management template that has been already created during the first run experience and just add the missing options.

- 1. Go to the template named **Account management** and make sure all the options below are part of the template. The ones in blue need to be added, starting from "Account customer balance tile".
  - o Header
  - o Footer
  - o Breadcrumb
  - Account welcome tile
  - Account generic tile
  - Account Address tile
  - Account wishlist tile
  - Account address tile
  - Account loyalty tile
  - Account customer balance tile
  - Account order templates tile
  - Organization users
  - Business organization list
  - o Customer account balance
  - Order template lines
  - Order template list
  - Account invoice tile
  - Invoices list
  - Invoice details

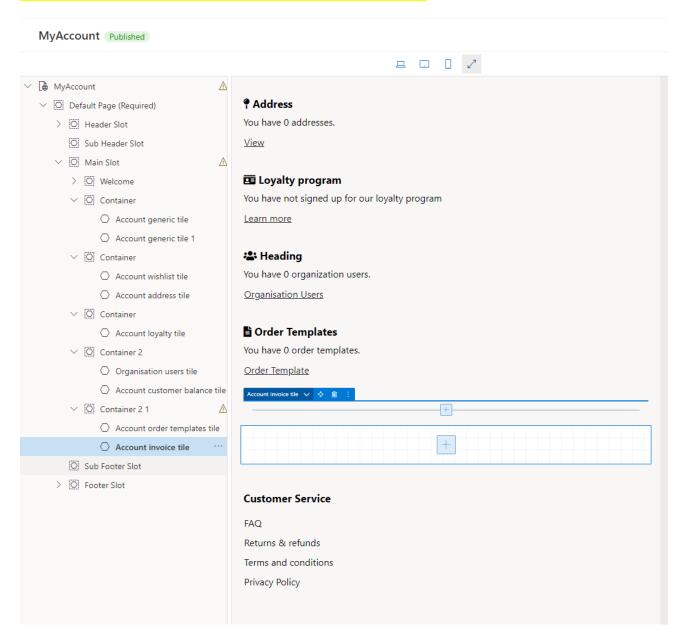
Once finished, save and publish.



- 2. Go to Pages and find My Account page.
- 3. In the Main slot, add a Container module. In the module properties pane, set the Width value to Fill Container.
- 4. In the **Main** slot, add another **Container** module. In the module properties pane, set the **Width** value to **Fill Container**. Set the **Children Shown** value to **Two**.
- 5. In the **Container** slot, add an **Organization users** module. In the module properties pane, under **Heading**, enter **Organization Users**.
- 6. In the **Container** slot, add an **Account customer balance tile** module. In the module properties pane, under **Heading**, enter **Account credit**.
- 7. In the **Main** slot, add another **Container** module. In the module properties pane, set the **Width** value to **Fill Container**. Set the **Children Shown** value to **Two**.
- 8. In the **Container** module, add an **Account order templates tile** module. In the module properties pane, under **Heading**, enter **Order Templates**.
- 9. In the **Container** module, add an **Account invoice tile** module. In the module properties pane, under **Heading**, enter **My Invoices**.

10. Select Save, select Finish editing to check in the page, and then select Publish to publish it.

**Important note:** Some of the sections that you added won't appear on the "what you see is what you get" (WYSIWIG) canvas in site builder, because they require a signed-in B2B account.



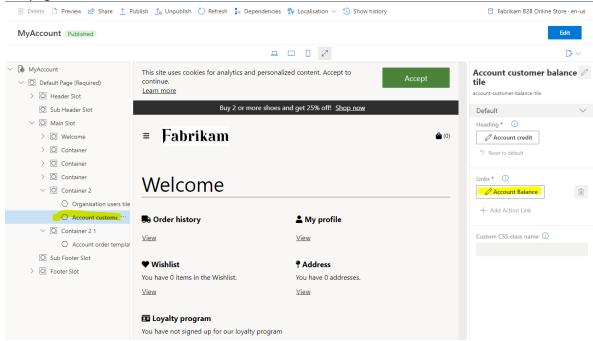
#### **CUSTOMER BALANCE PAGES**

Customer accounts can be used to pay for orders, the available balance in a customer account can be viewed from a user's account management page.

Before a signed-in B2B users can view their customer balance, you must create a customer balance page.

To create a customer balance page in site builder, follow these steps.

- 1. Use the **Account management** template to create a page that is named **Customer Balance**.
- 2. In the **Main** slot, add a **Container** module. In the module properties pane, set the **Width** value to **Fill Container**. Set the **Children Shown** value to **Two**.
- 3. In the **Container** slot, add a **Breadcrumb** module. In the module properties pane, under **Links**, configure a link to the account management landing page, and enter **My Account** as the link text.
- 4. In the **Container** slot, add a **Customer Account Balance** module. In the module properties pane, under **Heading**, enter **Account Balance**.
- 5. Select **Save**, select **Finish editing** to check in the page, and then select **Publish** to publish it.
- 6. Publish the URL for the page.
- 7. Go to the account management landing page (My Account) that you created earlier, click edit.
- 8. In the properties pane for the **Account customer balance tile** module, add a link to the customer balance page.



9. Save and publish the page.

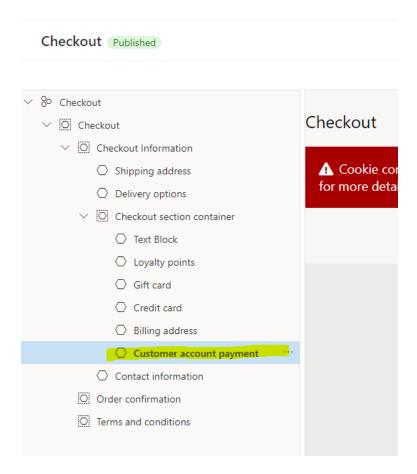
The customer balance page has now been created, and users can access it from the account management landing page.

### CUSTOMER BALANCE PAGES - CONFIGURE CHECK OUT PAGE

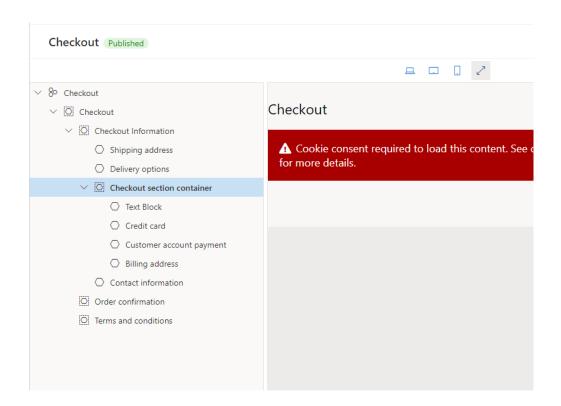
The **Customer Account Payment** module is required to enable the customer balance to be used as a form of payment. This module should be added to the checkout page as a form of payment.

The checkout page uses the "checkout" fragment so it's the checkout fragment which needs to be modified to allow for customer account payment at checkout.

- 1. Go to the checkout fragment, click edit
- 2. In the "Checkout section container" add the customer account payment module
- 3. Once added, you can see it is the last in the list below billing address, is this how you would like a customer to see it during checkout, sitting below the bill address? Move it up the list to where you think it should go.



- 4. Since we are setting up a B2B site we have decided not to use the "Gift Card" module so delete this module so it does not show at checkout. If you also decide you don't want to use Loyalty points in your B2B site, remove this module.
- 5. Save and publish



In addition, at **Site Builder > Extensions**, you must make sure that the **Enable customer account payments** property is set to **Enabled for B2B customers**. Note: If this is a new site there might be some other settings you need to set before being able to save and publish the change for "**Enable customer account payments**".

#### ORDER TEMPLATE PAGES

Two order template pages need to be set up for a B2B e-commerce site: an order templates list page and an order template lines page.

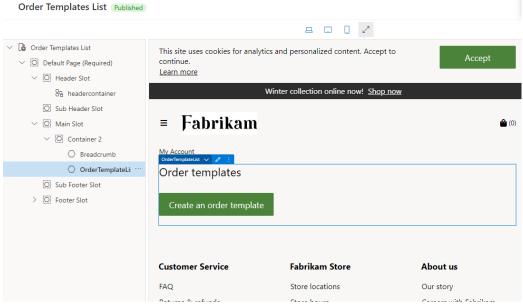
An order templates list page shows a list of all order templates that are available. It's set up by using the **Order templates list** module. The order templates list page lets you create or delete a template and add the items in a template to the cart.

An order template lines page shows the details of the order template that is selected on an order templates list page. It's set up by using the **Order templates lines** module. When a user selects the name of a template on an order templates list page, the order template lines page appears and shows the details of the template. The user can then view and edit the items in the template.

#### ORDER TEMPLATES LIST PAGE

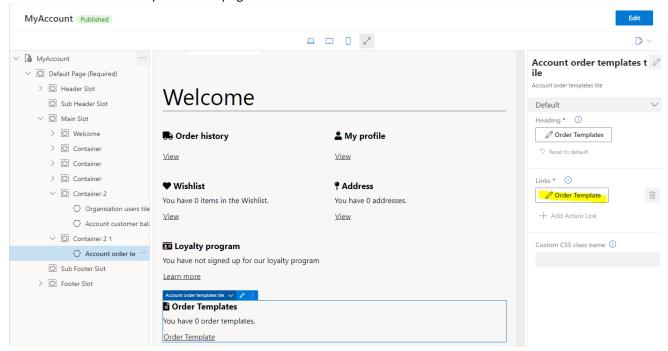
To create an order templates list page in site builder, follow these steps.

- 1. Use the **Account management** template that you created earlier to create a page that is named **Order templates list**.
- 2. In the **Main** slot, add a **Container** module. In the module properties pane, set the **Width** value to **Fill Container**.
- 3. In the **Container** slot, add a **Breadcrumb** module. In the module properties pane, under **Links**, configure a link to the account management landing page (**MyAccount** page), and enter **My Account** as the link text.
- 4. In the **Container** slot, add an **Order templates list** module and change name to "Order Templates".
- 5. Select Save, select Finish editing to check in the page, and then select Publish to publish it.



- 6. Publish the URL for the page.
- 7. Go to the account management landing page (My Account) that you created earlier, click edit.
- 8. In the properties pane for the **Account order templates tile** module, under **Links**, configure a link to the order templates list page that you just created.

9. Save and publish the page.



The order templates list page has now been created, and users can access it from the account management landing page.

### ORDER TEMPLATE LINES PAGE

To create an order template lines page in site builder, follow these steps.

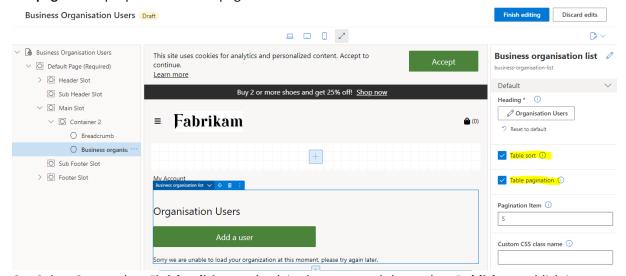
- 1. Use the **Account management** template that you created earlier to create a page that is named **Order template lines**.
- 2. In the **Main** slot, add a **Container** module. In the module properties pane, set the **Width** value to **Fill Container**.
- 3. In the **Container** slot, add a **Breadcrumb** module. In the module properties pane, under **Links**, configure a link to the account management landing page, and enter **My Account** as the link text and a link to my account.
- 4. In the **Container** slot, add an **Order template lines** module.
- 5. Select Save, select Finish editing to check in the page, and then select Publish to publish it.
- 6. Publish the URL for the page.

#### ONBOARD BUSINESS PARTNER USERS

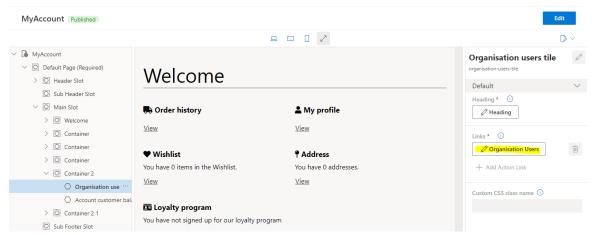
The organization users page lets the administrator of a business partner organization onboard additional users from that organization to the B2B e-commerce site. It's set up by using the **Business organization list** module. From the organization users page, an administrator can add or remove users, define account balances, and request statements for a user.

To create an organization users page in site builder, follow these steps.

- 1. Use the **Account management** template that you created earlier to create a page that is named **Organization Users**.
- 2. In the Main slot, add a Container module. In the module properties pane, set the Width value to Fill Container.
- 3. In the **Container** slot, add a **Breadcrumb** module. In the module properties pane, under **Links**, configure a link to the account management landing page, and enter **My Account** as the link text with a link to My Account.
- 4. In the **Container** slot, add a **Business organization list** module. In the module properties pane, under **Heading**, enter **Organization Users**.
- 5. In the **Business organization list** module properties pane, enable the **Table Sort** and **Table** pagination properties. Set the pagination count to **5**.



- 6. Select Save, select Finish editing to check in the page, and then select Publish to publish it.
- 7. Publish the URL for the page.
- 8. Go to the account management landing page (My Account) that you created earlier, click edit.
- 9. In the properties pane for the **Organization users tile** module, under **Links**, configure a link to the organization users page that you just created.



10. Select Save, select Finish editing to check in the page, and then select Publish to publish it.

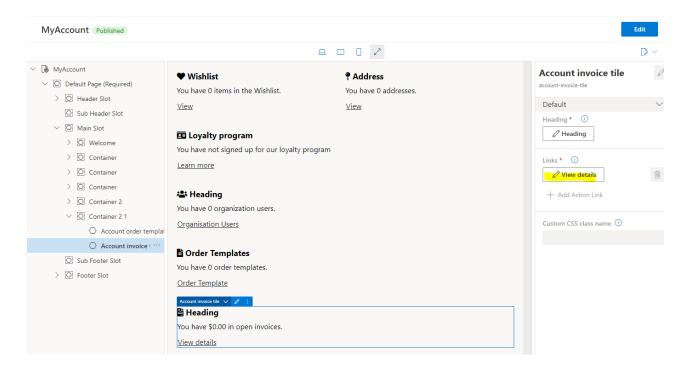
#### CREATE INVOICE PAGES

An invoices list page shows a list of all available invoices. It's set up by using the **InvoicesList** module. From the invoice list page, users can pay off or request invoices.

An invoice details page shows the details of the invoice that is selected on an invoices list page. It's set up by using the **Invoice details** module. When a user selects an invoice ID on an invoice list page, the invoice details page appears and shows the details of the invoice.

To create an invoices list page in site builder, follow these steps.

- 1. Use the **Account management** template that you created earlier to create a page that is named **Invoices List**.
- 2. In the Main slot, add a Container module. In the module properties pane, set the Width value to Fill Container.
- In the Container slot, add a Breadcrumb module. In the module properties pane, under Links, configure a link to the account management landing page, and enter My Account as the link text with a link to my account.
- 4. In the **Container** slot, add an **InvoicesList** module. In the module properties pane, under **Heading**, enter **Invoices**.
- 5. Select Save, select Finish editing to check in the page, and then select Publish to publish it.
- 6. Publish the URL for the page.
- 7. Go to the account management landing page (My Account) that you created earlier, click edit.
- 8. In the properties pane for the **Account invoices tile** module, under **Links**, configure a link to the invoices list page that you just created and Link text "View details".



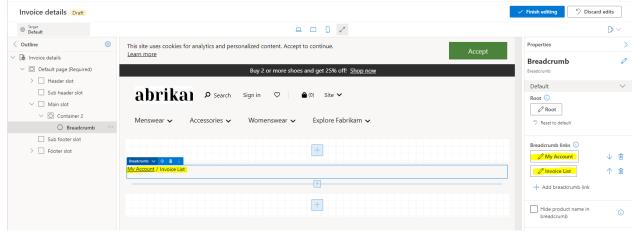
9. Select Save, select Finish editing to check in the page, and then select Publish to publish it.

### CREATE AN INVOICE DETAILS PAGE

To create an invoice details page in site builder, follow these steps.

- Use the Account management template that you created earlier to create a page that is named Invoice
  Details.
- 2. In the **Main** slot, add a **Container** module. In the module properties pane, set the **Width** value to **Fill Container**.
- 3. In the **Container** slot, add a **Breadcrumb** module. In the module properties pane, under **Breadcrumb Links**, configure a link to the account management landing page, and enter **My Account** as the link text.

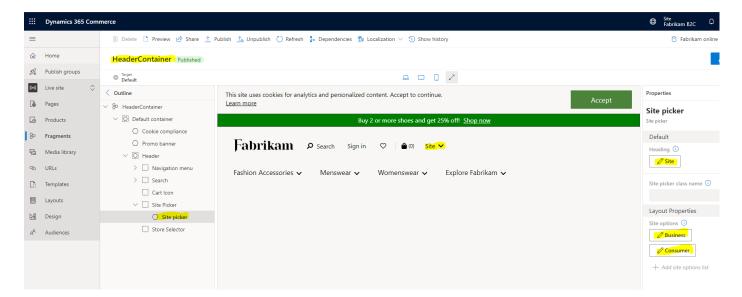
  Then configure a link to the invoices list page and enter **Invoice Lists** as the link text.



- 4. In the Container slot, add an Invoice details module.
- 5. Select Save, select Finish editing to check in the page, and then select Publish to publish it.
- 6. Publish the URL for the page.

### ADD A SITE PICKER MODULE TO A PAGE

The site picker module can be added to the **Site picker** slot of the header module. After a site picker module is added, you can define the module heading and site options. Generally, a header module is contained in a header fragment that can be shared across e-commerce pages for a site.



## OPTIONAL - AZURE ACTIVE DIRECTORY B2C

We now need to set up your Azure Active Directory (Azure AD) business-to-consumer (B2C) tenants for user site authentication in Dynamics 365 Commerce.

Dynamics 365 Commerce uses Azure AD B2C to support user credential and authentication flows. A user can sign up, sign in, and reset their password through these flows. The setup for B2C and B2B site for Azure AD B2C is very similar.

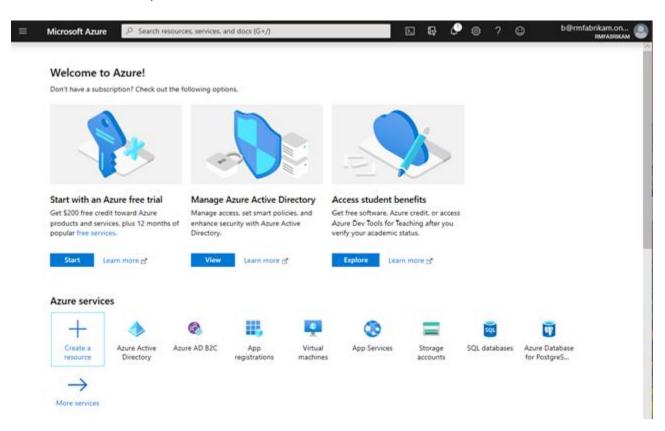
The Azure AD B2C tenant has already been setup for the workshop, the instructor will provide the additional information required to complete this task.

If you would like to use social identity providers, please see our Microsoft Docs site for more information as this will not be covered in this training.

There is a good video on our community page for Azure AD B2C setup. - (2) Unlock the Power of Dynamics 365 Commerce: Setup a B2C Tenant for e-Commerce Site Authentication | December 18, 2020 - Microsoft Dynamics Blog

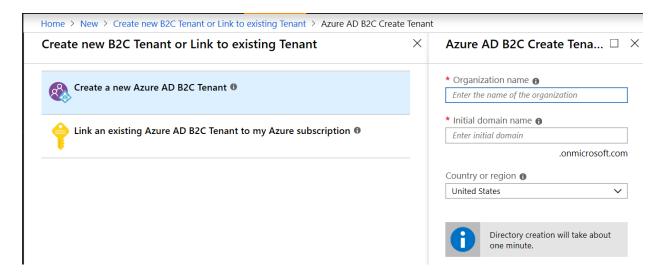
## SETUP AZURE AD B2C

- 1. Sign in to the Azure portal.
- 2. From the Azure portal menu, select **Create a resource**. Be sure to use the subscription and directory that will be connected with your Commerce environment.

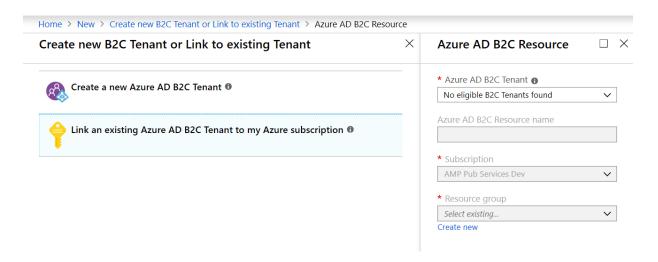


3. In the search box, search Azure Active Directory B2C and select.

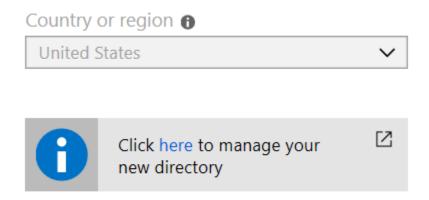
- 4. Once on the **Create New B2C Tenant or Link to existing Tenant** page, use one of the options below that best suits your company's needs:
  - Create a new Azure AD B2C Tenant: Use this option to create a new Azure AD B2C tenant.
    - 1. Select Create a new Azure AD B2C Tenant.
    - 2. Under **Organization name**, enter the organization name.
    - 3. Under **Initial domain name**, enter the initial domain name.
    - 4. For **Country or region**, select the country or region.
    - 5. Select **Create** to create the tenant.



- Link an existing Azure AD B2C Tenant to my Azure subscription: Use this option if you already have an Azure AD B2C tenant you want to link to.
  - 1. Select Link an existing Azure AD B2C Tenant to my Azure subscription.
  - 2. For **Azure AD B2C Tenant**, select the appropriate B2C tenant. If the message "No eligible B2C Tenants found" appears in the selection box, you do not have an existing eligible B2C tenant and will need to create a new one.
  - 3. For **Resource group**, select **Create new**. Enter a **Name** for the resource group that will contain the tenant, select the **Resource group location**, and then select **Create**.



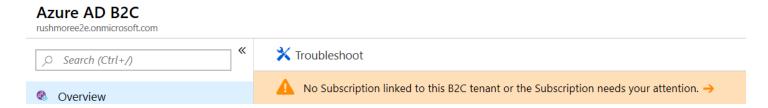
5. Once the new Azure AD B2C directory is created (this may take a few moments), a link to the new directory will appear on the dashboard. This link will direct you to the "Welcome to Azure Active Directory B2C" page.



### Note

If you have multiple subscriptions within your Azure account or have set up the B2C tenant without linking to an active subscription, a **Troubleshoot** banner will direct you to link the tenant to a subscription. Select the troubleshooting message and follow the instructions to resolve the subscription issue.

The following image shows an example of an Azure AD B2C Troubleshoot banner.



#### CREATE THE B2C APPLICATION

Once the B2C tenant has been created, you will create a B2C application within your new Azure AD B2C tenant to interact with Commerce.

To create the B2C application, follow these steps.

- 1. In the Azure portal, select **App registrations**, and then select **New registration**.
- 2. Under **Name**, enter the name to give this Azure AD B2C application.
- 3. Under Supported account types, select Accounts in any identity provider or organizational directory (for authenticating users with user flows).
- 4. For **Redirect URI**, enter your dedicated reply URLs as type **Web**. For information on reply URLs and how to format them, see <u>Reply URLs</u> below. A redirect URI/reply URL must be entered to enable redirections from Azure AD B2C back to your site when a user authenticates. The reply URL can be added during the registration process, or can be added later by selecting the **Add a Redirect URI** link from the **Overview** menu in the B2C application's **Overview** section.
- 5. For Permissions, select Grant admin consent to openid and offline\_access permissions.
- 6. Select Register.
- 7. Select the newly-created application and navigate to the API permissions menu.
- 8. If a reply URL is entered, under Implicit grant and hybrid flows select both the Access tokens and ID tokens options to enable them for the application, and then select Save. If a reply URL was not entered during registration, it can also be added on this page by selecting Add a platform, selecting Web, and then entering the redirect URI of the application. The Implicit grant and hybrid flows section will then be available to select both the Access tokens and ID tokens options.
- 9. Go to the **Overview** menu of the Azure portal and copy the **Application (client) ID**. Note this ID for later setup steps (referenced later as the **Client GUID**).

For additional reference on App Registrations in Azure AD B2C, please see <u>The new App registrations experience for Azure Active Directory B2C</u>

### **REPLY URLS**

Reply URLs are important as they provide an allow list of the return domains when your site calls Azure AD B2C to authenticate a user. This permits the return of the authenticated user back to the domain from which they are signing into (your site domain).

In the **Reply URL** box on the **Azure AD B2c - Applications > New application** screen, you need to add separate lines for both your site domain and (once your environment is provisioned) the Commerce-generated URL. These URLs must always use a valid URL format and must be base URLs only (no trailing forward slashes or paths). The string /\_msdyn365/authresp then needs to be appended to the base URLs, as in the following examples.

- https://www.fabrikam.com/\_msdyn365/authresp (The domain should match the e-commerce domain completely. If you have multiple domains, you need to add this URL for each domain.)
- https://fabrikam-prod.commerce.dynamics.com/\_msdyn365/authresp

#### CREATE USER FLOW POLICIES

User flows are the policies Azure AD B2C uses to provide secure sign in, sign up, edit profile, and forget password user experiences. Dynamics 365 Commerce uses these flows to perform the policy actions to interact with the Azure AD B2C tenant. When a user interacts with these policies, they are redirected to the Azure AD B2C tenant to perform the actions.

Azure AD B2C provides three basic user flow types:

- Sign up and sign in
- Profile editing
- Password reset

You can choose to use the default user flows provided by Azure AD, which will display a page hosted by Azure AD B2C. Alternately, you can create an HTML page to control the look and feel of these user flow experiences.

To customize the user policy pages with pages built in Dynamics 365 Commerce, see <u>Set up custom pages for user logins</u>. For additional information, see <u>Customize the interface of user experiences in Azure Active Directory B2C</u>.

#### CREATE A SIGN UP AND SIGN IN USER FLOW POLICY

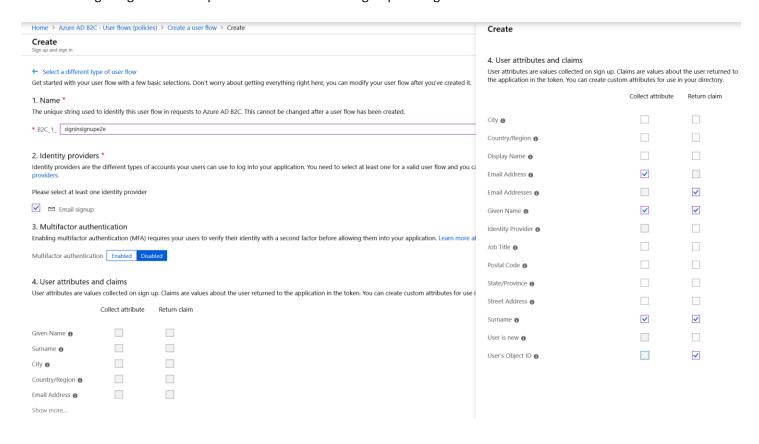
To create a sign up and sign in user flow policy, follow these steps.

- 1. In the Azure portal, select **User flows (policies)** in the left navigation pane.
- 2. On the Azure AD B2C User flows (policies) page, select New User Flow.
- 3. Select the Sign up and sign in policy, and then select the Recommended version.
- 4. Under **Name**, enter a policy name. This name will display afterwards with a prefix the portal assigns (for example, "B2C\_1\_").
- 5. Under **Identity providers**, in the **Local accounts** section, select **Email signup**. Email authentication is used in most common scenarios for Commerce. If you are also using social identity provider authentication, these can also be selected at this time.
- 6. Under Multifactor Authentication, select the appropriate choice for your company.
- 7. Under **User attributes and claims**, select options to collect attributes or return claims as appropriate. Select **Show more...** to get the full list of attributes and claims options. Commerce requires the following default options:

Collect attribute	Return claim
Email Address	Email Addresses
Given Name	Given Name
	Identity Provider
Surname	Surname
	User's Object ID

#### 8. Select Create.

The following image is an example of the Azure AD B2C sign up and sign in user flow.



### CREATE A PROFILE EDITING USER FLOW POLICY

To create a profile editing user flow policy, follow these steps.

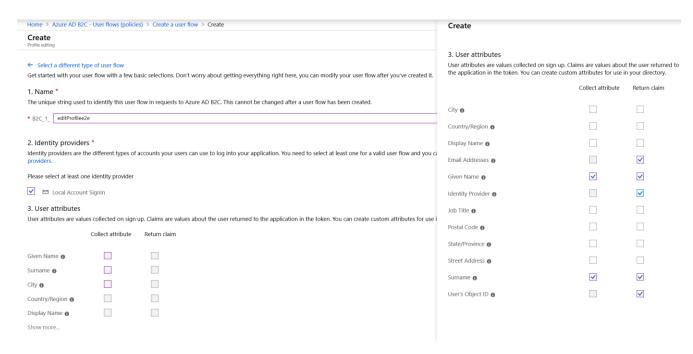
- 1. In the Azure portal, select **User flows (policies)** in the left navigation pane.
- 2. On the Azure AD B2C User flows (policies) page, select New User Flow.
- 3. Select **Profile editing**, and then select the **Recommended** version.
- 4. Under **Name**, enter the profile editing user flow. This name will display afterwards with a prefix the portal assigns (for example, "B2C\_1\_").
- 5. Under Identity providers, in the Local accounts section, select Email SignIn.
- 6. Under **User attributes**, select the following check boxes:

Collect attribute	Return claim
	Email Addresses
Given Name	Given Name
	Identity Provider
Surname	Surname

User's Object ID

### 7. Select Create.

The following image shows an example of the Azure AD B2C profile editing user flow.



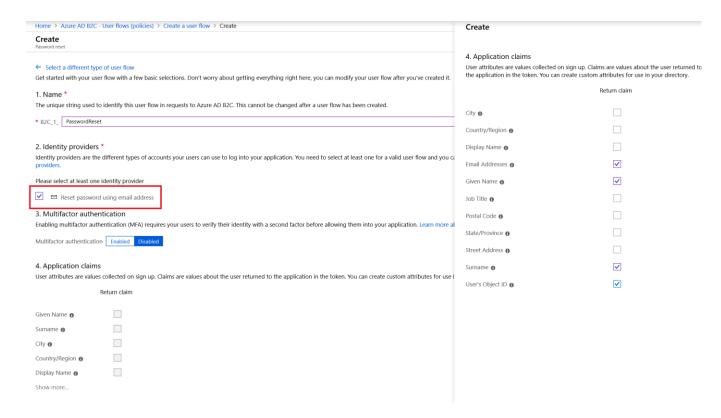
### CREATE A PASSWORD RESET USER FLOW POLICY

To create a password reset user flow policy, follow these steps.

- 1. In the Azure portal, select **User flows (policies)** in the left navigation pane.
- 2. On the Azure AD B2C User flows (policies) page, select New User Flow.
- 3. Select **Password Reset**, and then select the **Recommended** version.
- 4. Under **Name**, enter a name for the password reset user flow.
- 5. Under Identity providers, select Reset password using email address.
- 6. Select Create.

- 7. Under **Application claims**, select the following check boxes:
  - o Email addresses
  - o Given Name
  - o Surname
  - o User's Object ID
- 8. Select Create.

The following image shows where to set **Reset Password using mail address** in the Azure AD B2C password reset user flow.



#### UPDATE COMMERCE HEADOUARTERS WITH THE NEW AZURE AD B2C INFORMATION

Once the Azure AD B2C provisioning steps above are completed, the Azure AD B2C application must be registered in your Dynamics 365 Commerce environment.

To update headquarters with the new Azure AD B2C information, follow these steps.

- 1. In Commerce, go to Commerce Shared Parameters and select Identity Providers in the left menu.
- 2. Under **Identity Providers**, do the following:
  - 1. In the **Issuer** box, enter the identity provider issuer URL. To find your issuer URL, see next topic.
  - 2. In the **Name** box, enter a name for your issuer record.
  - 3. In the Type box, enter Azure AD B2C (id\_token).
- 3. Under Relying Parties, with the above B2C identity provider item selected, do the following:
  - 1. In the **ClientID** box, enter your B2C application ID. You can find this in the **Application ID** box of your B2C application's properties page.
  - 2. In the **Type** box, enter **Public**.
  - 3. In the **User Type** box, enter **Customer**.
- 4. On the action pane, select **Save**.
- 5. In the Commerce search box, search for **Distribution schedule**
- 6. In the left navigation menu of the **Distribution schedules** page, select job **1110 Global configuration**.
- 7. On the action pane, select **Run Now**.

#### **OBTAIN ISSUER URL**

To obtain your identity provider issuer URL, follow these steps.

- 1. On the Azure AD B2C page of the Azure portal, navigate to your **Sign up and sign in** user flow.
- 2. Select **Page layouts** in the left navigation menu, under **Layout name** select **Unified sign up or sign in page**, and then select **Run user flow**.
- 3. Make sure your application is set to your intended Azure AD B2C application created above, and then select the link under the **Run user flow** header that includes .../.well-known/openid-configuration?p=<B2CSIGN-INPOLICY>.
- 4. A metadata page is displayed in your browser tab. Copy the identity provider issuer URL (the value for "issuer").
  - o Example: https://login.fabrikam.com/011115c3-0113-4f43-b5e2-df01266e24ae/v2.0/.

**OR**: To construct the same metadata URL manually, do the following steps.

- Create a metadata address URL in the following format using your B2C tenant and policy: https://<B2CTENANTNAME>.b2clogin.com/<B2CTENANTNAME>.onmicrosoft.com/v2.0/.well-known/openid-configuration?p=<B2CSIGN-INPOLICY>
  - o Example: https://d365plc.b2clogin.com/d365plc.onmicrosoft.com/v2.0/.well-known/openid-configuration?p=B2C\_1\_signinup.
- 2. Enter the metadata address URL into a browser address bar.
- 3. In the metadata, copy the identity provider issuer URL (the value for "issuer").

# CONFIGURE YOUR B2C TENANT IN COMMERCE SITE BUILDER

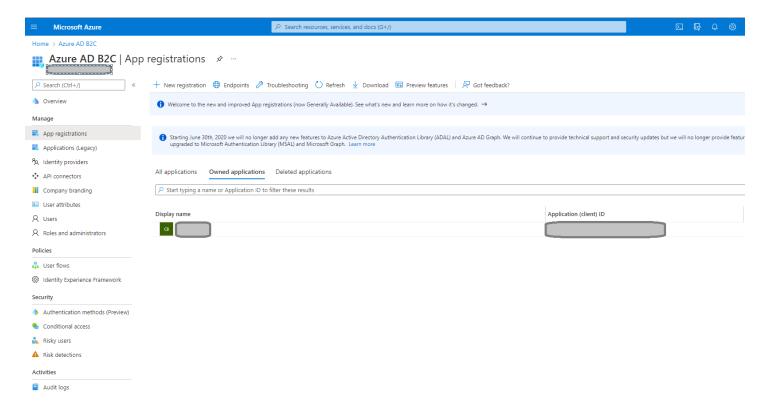
Once setup of your Azure AD B2C tenant is completed, you must configure the B2C tenant in Commerce site builder. Configuration steps include collecting B2C application information from the Azure portal, entering that B2C application information into site builder, and then associating the B2C application with your site and channel.

#### COLLECT THE REQUIRED APPLICATION INFORMATION

To collect the required application information, follow these steps.

- 1. In the Azure portal, go to Home > Azure AD B2C App registrations.
- 2. Select your application, copy **Application (client) ID** information as this will later be entered as the **Client GUID** in site builder.
- 3. Under Reply URL, collect the reply URL.
- 4. Go to Home > Azure AD B2C User flows and then collect the names of each user flow policy.

The following image shows an example of the Azure AD B2C - App registration page.



The following image shows an example of user flow policies on the Azure AD B2C – User flows page.



### ENTER YOUR AZURE AD B2C TENANT APPLICATION INFORMATION INTO COMMERCE

You must enter details of the Azure AD B2C tenant into Commerce site builder before associating the B2C tenant with your site(s).

To add your Azure AD B2C tenant application information to Commerce, follow these steps.

- 1. Sign in as an administrator to Commerce site builder for your environment.
- 2. In the left navigation pane, select **Tenant Settings** to expand it.
- 3. Under Tenant Settings, select Site authentication setup.
- 4. In the main window next **Site authentication profile**, select **Manage**. (If your tenant appears in the B2C Applications list, then it was already added by an administrator. Verify that the items in step 6 below match your B2C Application.)
- 5. Select Add B2C Application.
- 6. Enter the following required items in the form displayed, using values from your B2C tenant and application. Fields that are not required (those without an asterisk) may be left blank.
  - o Application Name: The name for your B2C Application, for example "Fabrikam B2C".
  - o **Tenant Name**: The name of your B2C tenant (for example, use "fabrikam" if the domain appears as "fabrikam.onmicrosoft.com" for the B2C tenant).
  - Forget Password Policy ID: The forget password user flow policy ID, for example
     "B2C 1 PasswordReset".
  - Signup Signin Policy ID: The sign up and sign in user flow policy ID, for example "B2C\_1\_signup\_signin".

- o **Client GUID**: The B2C application ID, for example "22290eb2-c52e-42e9-8b35-a2b0a3bcb9e6".
- Edit Profile Policy ID: The profile editing user flow policy ID, for example
   "B2C 1A ProfileEdit".
- 7. Select **OK**. You should now see the name of your B2C application appear in the list.
- 8. Select **Save** to save your changes.

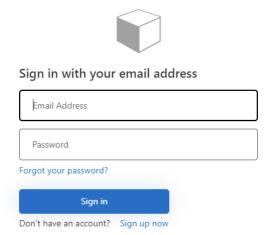
#### ASSOCIATE THE B2C APPLICATION TO YOUR SITE AND CHANNEL

To associate the B2C application to your site and channel, follow these steps.

- 1. Navigate to your site in Commerce site builder.
- 2. In the left navigation pane, select Site Settings to expand it.
- 3. Below Site Settings, select Channels.
- 4. In the main window under **Channels**, select your channel.
- 5. In the channel properties pane on the right, select your B2C application name from the **Select B2C Application** drop-down menu.
- 6. Select Close, and then select Save and Publish.

#### SET UP CUSTOM PAGES FOR USER SIGN-INS

You have options of using the standard out of the box Azure AD B2C functionality which will look like the picture below or you can create your own customer pages for user sign-in.



If you would like more information on setting up custom pages for user sign-ins please see our doc site.

Set up custom pages for user sign-ins - Commerce | Dynamics 365 | Microsoft Docs

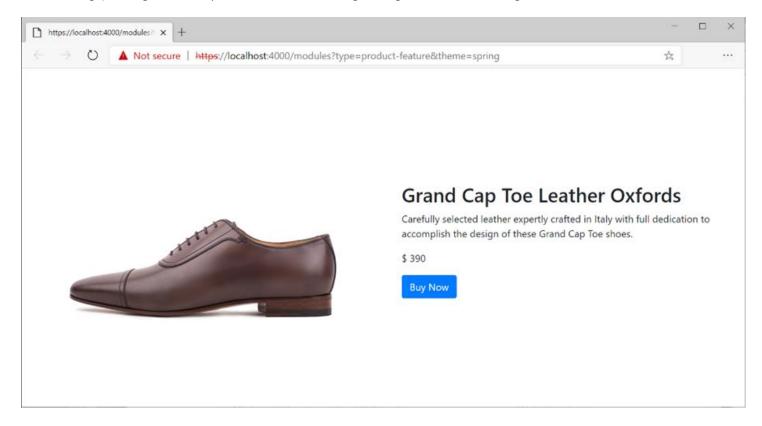
# UNIT 3 EXTENSIBILITY - CUSTOM MODULES AND THEMING

This next section involves setting up a development environment and walks through how to create a custom module, leverage a data action and build a new site theme than can be packaged up and uploaded to a site.

E-Commerce pages are made up of various 'modules' that use 'data actions' to get data from the CMS system, Commerce Scale Unit and other services to render appropriate html that make up a page. The Commerce online store SDK provides support to build custom modules, data actions and themes which contain module styling (SCSS) and module view overrides.

## Our end goal will be to:

1. Create a custom product "Feature" module which will be configurable with product information (title, description, price and image) coming from the Dynamics Commerce catalog looking similar to below image.



- 2. Create a new site theme.
- 3. Create an e-Commerce extension package that can be uploaded to LCS and deploy to an environment

Familiarity with the following technology will be helpful but you should be able to follow along without full knowledge:

- Node and package management via NPM
- React
- JavaScript / Typescript
- SCSS for theme development (or CSS)

#### SETTING UP A DEVELOPMENT ENVIRONMENT AND SDK

Online documentation can be found here to set up a development environment or by following the below steps.

Setting up a development environment involves installing three freely available tools (Visual Studio Code, Node.js, Yarn) and installing the Dynamics Commerce online SDK (by cloning a Git repository or downloading the zip file).

The SDK includes CLI commands (commands to create modules, data actions theme, build extension package, ...), APIs (globalization, telemetry, ...) and the store starter kit (SSK) which is a full set of pre-built modules, data actions and themes to run an e-Commerce front end site. Note the order of installing the below tools is not important.

#### **INSTALLING NODE.JS**

Node.js is a JavaScript runtime built on Chrome's V8 JavaScript Engine.

Visit <a href="https://nodejs.org">https://nodejs.org</a> to find out more. Click on the 12.x version as shown below.

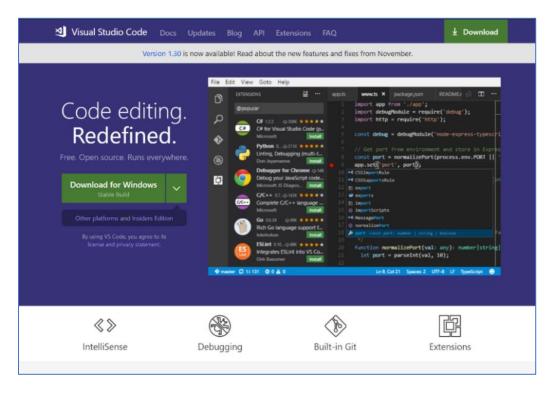


Once downloaded, launch the installer and hit the "Next" button (and accept the License Agreement) until you see the "Install" button, you should be able to leave all values at their defaults.

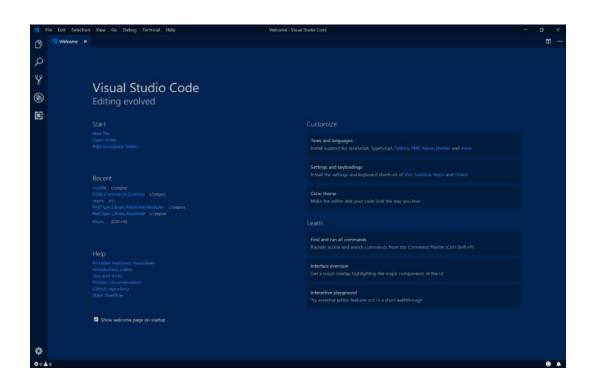
## **INSTALLING VISUAL STUDIO CODE**

Visual Studio Code is a lightweight source code editor which runs on your desktop and is available for Windows, macOS and Linux. It comes with built in support for JavaScript, TypeScript and Node.js.

Navigate to <a href="https://code.visualstudio.com">https://code.visualstudio.com</a> and download the latest stable build. Once downloaded launch the installer and you should be able to leave all values at their defaults during the install and accept the user license agreement.



When installation is complete it will auto launch and should look similar to the below image.

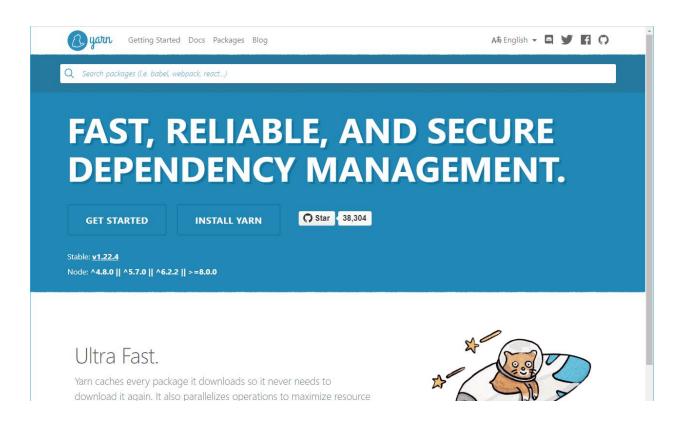


#### **INSTALLING YARN**

Yarn is a dependency management tool that will ensure you have all the latest packages needed for your Dynamics 365 Commerce Extensibility needs.

Navigate to <a href="https://classic.yarnpkg.com">https://classic.yarnpkg.com</a> download the latest 1.x stable build. Once downloaded launch the installer and hit the "Next" button (and accept the License Agreement) until you see the "Install" button, you should be able to leave all values at their defaults.

The below screen shot may differ slightly from what you see depending on versions at time of installation and environment you are working with.



# **INSTALLING GIT (OPTIONAL)**

Git is a free and open source distributed version control system. We will be using git to clone our SDK/Starter Kit code but optionally you can just download the zip file for the SDK in a later step instead of using Git. Navigate to <a href="https://git-scm.com/downloads">https://git-scm.com/downloads</a> followed by downloading and installing the latest build. You should be able to accept all the default install values.

#### INSTALLING DYNAMICS 365 COMMERCE ONLINE SDK/STARTER KIT

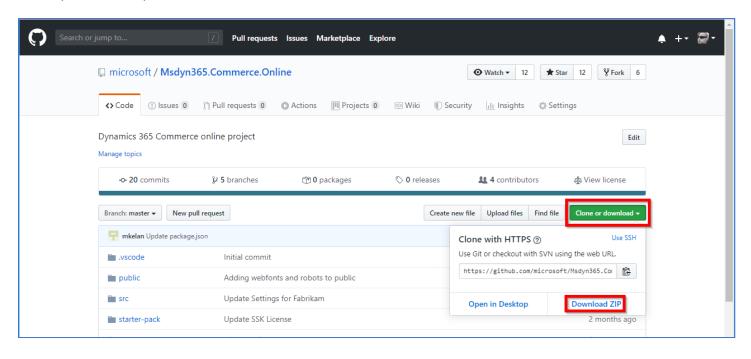
The SDK will give you everything you need to extend your e-Commerce site including the ability to create new modules, data actions and themes.

The SDK configuration package is available through the following GitHub repository: <a href="https://github.com/microsoft/Msdyn365.commerce.Online">https://github.com/microsoft/Msdyn365.commerce.Online</a>

There are two ways to get the SDK configuration packages to your development machine, either directly download the zip file from the GitHub repo or clone the repo.

#### DOWNLOAD THE SDK ZIP FILE

From the above Github site, press the "Clone or download" button and select "Download ZIP". Save the file and unzip it to a directory such as "c:\repos".



#### **CLONE THE SDK**

To clone, launch a Command Prompt with Administrator privileges and **create a directory** to hold your e-Commerce site code, we'll use **"c:\repos"** below. You will need the Git tools installed for this method.

From within the new directory type in the command "git clone SDK\_GIT\_REPO". Example:

C:>md repos
C:>cd repos
C:\repos>git clone https://github.com/microsoft/Msdyn365.Commerce.Online.giyarn t
C:\repos>cd Msdyn365.Commerce.Online

```
C:\>cd repos

C:\repos>git clone https://github.com/microsoft/Msdyn365.Commerce.Online.git
Cloning into 'Msdyn365.Commerce.Online'...
remote: Enumerating objects: 142, done.
remote: Counting objects: 100% (142/142), done.
remote: Compressing objects: 100% (92/92), done.

Receiving objects: 100% (142/142), 1.05 MiB | 9.06 MiB/s, done.
Resolving deltas: 100% (53/53), done.

C:\repos>cd Msdyn365.Commerce.Online

C:\repos\Msdyn365.Commerce.Online
```

We now have the SDK 'configuration' files but have not fully downloaded the SDK and all the dependency packages which include the store starter kit, the Fabrikam theme, Retail proxy files, etc ...

We will do this by running the "yarn" command which leverage the Node package manager (NPM).

From the new directory (example: "c:\repos\Msdyn365.Commerce.Online") directory type "yarn" followed by the Enter key. This step can take a couple of minutes to complete.

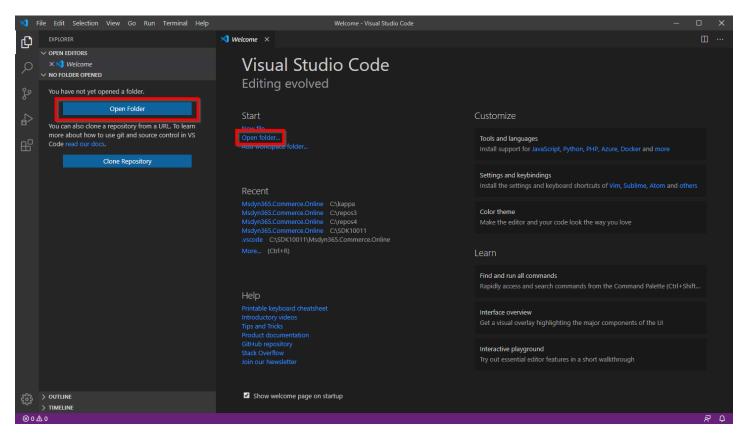
(Note: if you get "would clobber existing tag" warnings, run "yarn cache clean")

When complete, the results should look like the below screen shot. Note: warnings in the output are ok, no need to worry about these.

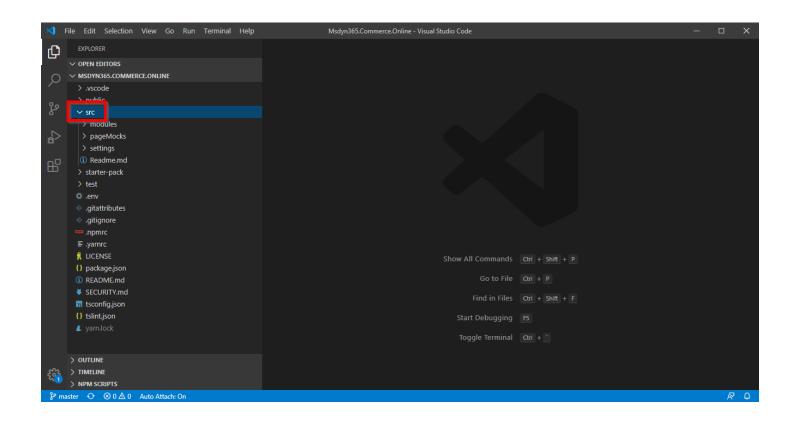
```
command Prompt

...
warning "reactstrap > react-popper@0.10.4" has unmet peer dependency "react@0.14.x || ^15.0.0 || ^16.0.0".
warning "reactstrap > react-popper@0.10.4" has unmet peer dependency "react-dom@0.14.x || ^15.0.0 || ^16.0.0".
warning "tslint > tsutils@2.29.0" has unmet peer dependency "typescript@>=2.1.0 || >=2.1.0-dev || >=2.2.0-dev || >=2.3.0
-dev || >=2.4.0-dev || >=2.5.0-dev || >=2.5.0-dev || >=2.7.0-dev || >=2.8.0-dev || >=2.9.0-dev || >= 3.0.0-dev || >= 3.1
-dev".
warning "> reactstrap@6.5.0" has unmet peer dependency "react@^16.0.0".
warning "> reactstrap@6.5.0" has unmet peer dependency "react-dom@^16.0.0".
warning "reactstrap > react-transition-group@2.9.0" has unmet peer dependency "react-dom@>=15.0.0".
warning "reactstrap > react-transition-group@2.9.0" has unmet peer dependency "react-dom@>=15.0.0".
warning "> react-test-renderer@16.13.1" has unmet peer dependency "react@^16.13.1".
warning "> tslint@5.20.1" has unmet peer dependency "typescript@>=2.3.0-dev || >=2.4.0-dev || >=2.5.0-dev || >=2.6.0-dev || >=2.7.0-dev || >=2.8.0-dev || >=2.5.0-dev || >=3.1.0-dev || >=3.2.0-dev".
[4/4] Building fresh packages...
success Saved lockfile.
Done in 33.98s.
C:\repos\Msdyn365.Commerce.Online>
```

Now that we have our SDK/starter kit source code, launch Visual Studio Code and open the new root repo folder (example: "c:\repos\Msdyn365.Commerce.Online").



Take note of the "/src" directory, this is where all your customization code will live.

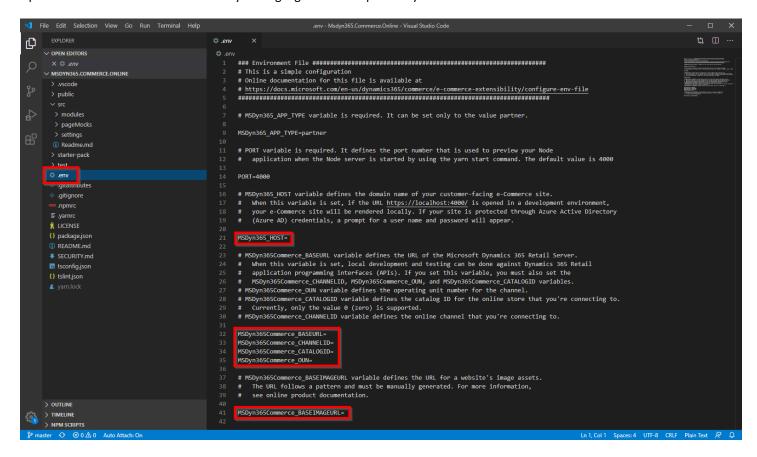


#### CONFIGURING DEVELOPMENT .ENV FILE

Follow the docs to <u>configure the .env file</u> to point to your environment. This step is optional for a development environment but will help us when developing themes to test against our live site as well as to get live data from the Commerce server when developing with data actions.

If you are do not currently have a Dynamics 365 Retail server and/or Online Channel, you can still do local module development.

Open the .env file in VS Code and modify the highlighted line to point to your environment:



The below is a sample .env file (note that the comments have been removed), save when complete.

application when the Node server is started by using the yarn start command. The default value is 4000 PORT=4000 # MSDyn365 HOST variable defines the domain name of your customer-facing e-Commerce site. When this variable is set, if the URL https://localhost:4000/ is opened in a development environment, your e-Commerce site will be rendered locally. If your site is protected through Azure Active Directory (Azure AD) credentials, a prompt for a user name and password will appear. MSDyn365 HOST=commerce-in-day-eval.commerce.dynamics.com # MSDyn365Commerce BASEURL variable defines the URL of the Microsoft Dynamics 365 Retail Server. When this variable is set, local development and testing can be done against Dynamics 365 Retail application programming interfaces (APIs). If you set this variable, you must also set the MSDvn365Commerce CHANNELID, MSDvn365Commerce OUN, and MSDvn365Commerce CATALOGID variables. # MSDyn365Commerce\_OUN variable defines the operating unit number for the channel. # MSDyn365Commerce CATALOGID variable defines the catalog ID for the online store that you're connecting to. Currently, only the value 0 (zero) is supported. # MSDyn365Commerce CHANNELID variable defines the online channel that you're connecting to. MSDyn365Commerce BASEURL=https://commerce-in-day11b59da3b157638bret.cloud.retail.dynamics.com/ MSDyn365Commerce CHANNELID=68719478279 MSDyn365Commerce CATALOGID=0 MSDyn365Commerce OUN=128 # MSDyn365Commerce BASEIMAGEURL variable defines the URL for a website's image assets. The URL follows a pattern and must be manually generated. For more information, see online product documentation. MSDyn365Commerce BASEIMAGEURL=https://images-ussb.cms.commerce.dynamics.com/cms/api/rnbrmdbgjb/imageFileData/search?fileName=/

#### **RUN NODE SERVER**

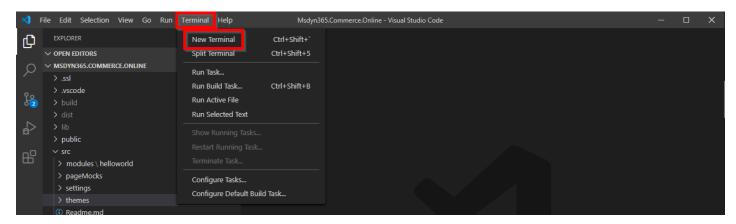
To check if everything worked, we will start the Node server and load some pages on your machine.

We use the Node.js JavaScript runtime to render modules and our e-Commerce rending engine uses it to render full pages in the production environment. To see modules in the development environment you need to run the node server with the following steps.

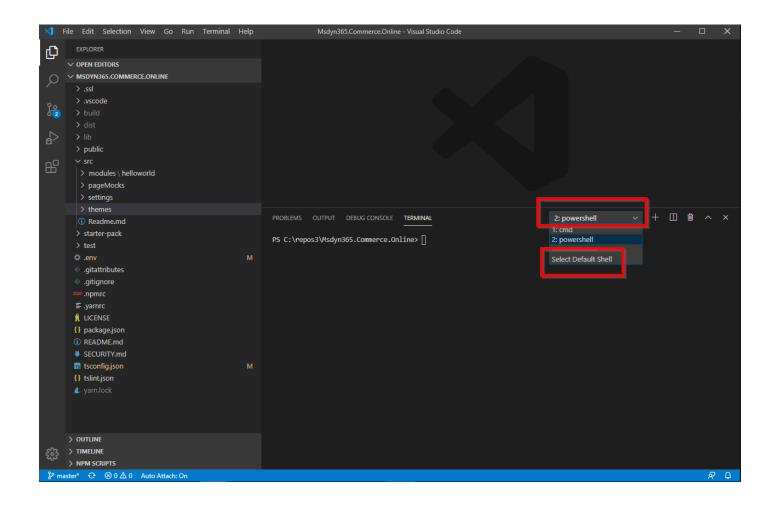
Run "yarn start" in the command prompt which will perform a build followed by starting up the Node server.

Below instructions is a great way to get a command prompt right inside Visual Studio Code for this.

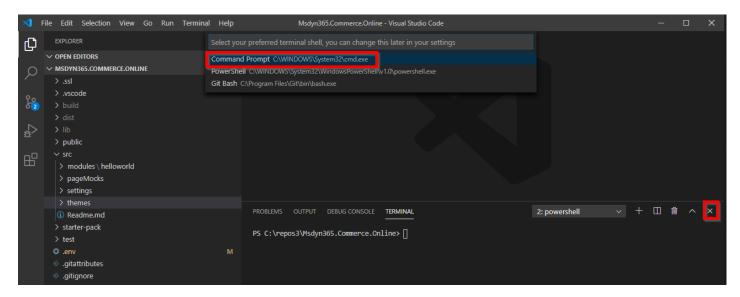
From within Visual Studio Code, open a command prompt terminal window.



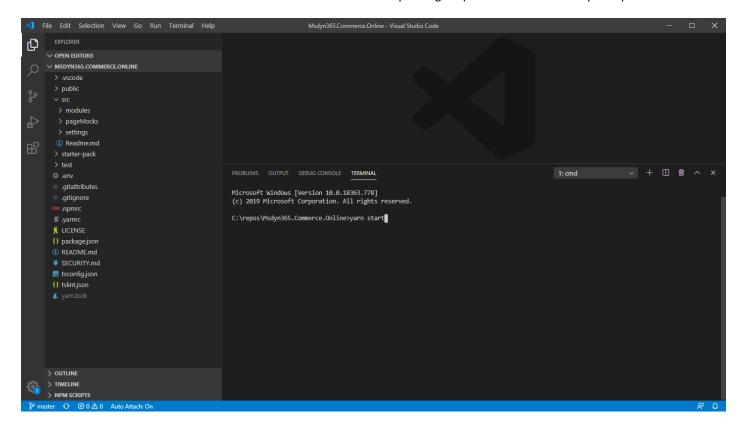
You should see a new window open up similar to below, by default it will open a powershell window, however we want a command prompt window. Select the "Select default shell" link as shown below.



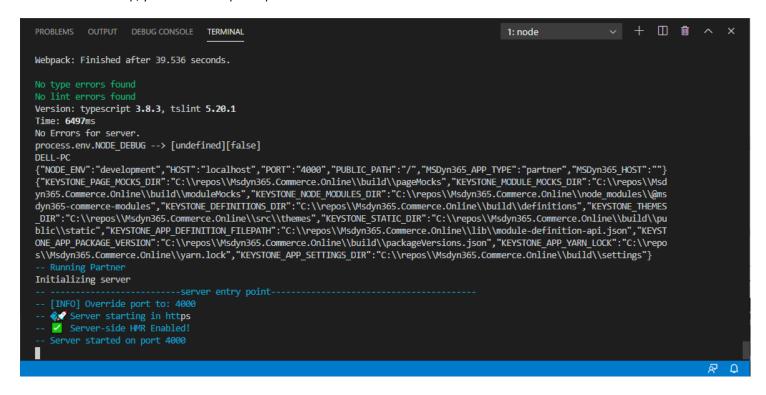
Next you can select the Command Prompt as our default.



We can now hit the "x" to close the powershell window and select "Terminal" -> "New terminal" again, and you should see the "cmd" listed in the terminal window as shown below. Notice how it opens right up into our SDK directory ready for our commands.



Type in "yarn start" followed by the Enter key to start the compiling and node server. This may take a couple of minutes the first time it is run as it compiles all of the code down to Javascript and css. You may also see a Windows Defender Firewall warning when Node server starts up, you should accept the port.



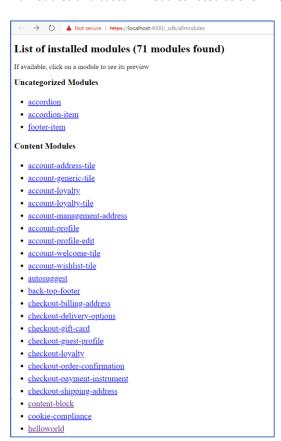
The node server is configured to use port 4000 by default (see .env file we configured earlier to change this).

# Launch <a href="https://localhost:4000/version">https://localhost:4000/version</a>

**Note** you may be prompted that the site is unsafe since we're using https and do not have a local certificate installed, in this case click the "Advanced" button followed by the "Proceed to localhost (unsafe)" link. You should see a similar page as below which shows the current versions of the installed packages.

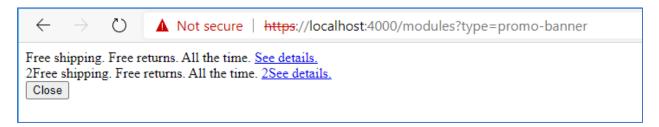
```
\bigcirc
                    ▲ Not secure | https://localhost:4000/version
"packageName": "Msdyn365.Commerce.Online",
"version": "1.0.0",
"submissionId": "unknown",
"build": {},
"buildTime": "2020-04-17 15:53:51",
"buildVersion": "d2ad0e",
"MSDyn365-Commerce": [
    "packageName": "action-internal",
    "versionDetails": [
        "rootPackageVersion": "--",
        "hoistedVersion": "1.20.5"
    ]
    "packageName": "bootloader",
    "versionDetails": [
        "rootPackageVersion": "^1.0.0",
        "hoistedVersion": "1.20.5"
    ]
```

The module list page can be shown with the following link: <a href="https://localhost:4000/sdk/allmodules">https://localhost:4000/sdk/allmodules</a>. You should see a list of starter kit modules and custom modules listed as shown below.

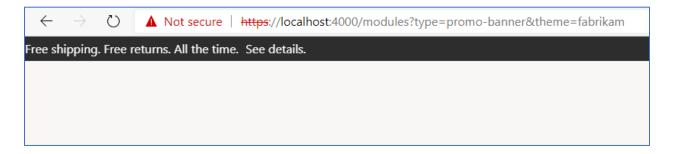


You can then select a starter kit module such as the "promo-banner" module and notice the URL has the module name in it, which can be changed to show any module: <a href="https://localhost:4000/modules?type=promo-banner">https://localhost:4000/modules?type=promo-banner</a>

Notice how the module mock data is not rendering very well (note some modules may show up as blank because mock data is not setup for them):

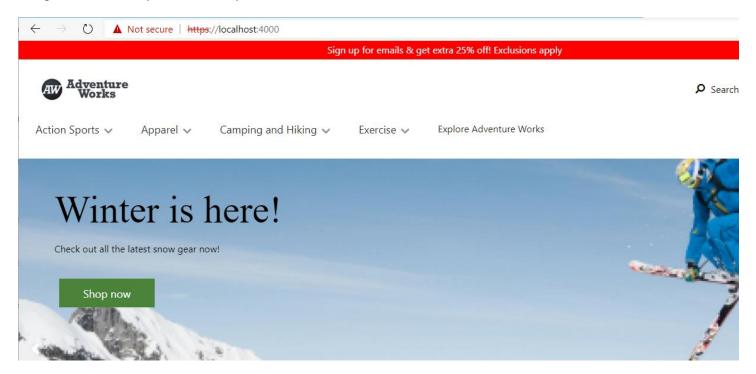


This is because no CSS has been applied to the module. This is easy to fix, we can apply the "Fabrikam" starter kit theme by changing the URL to <a href="https://localhost:4000/modules?type=promo-banner&theme=fabrikam">https://localhost:4000/modules?type=promo-banner&theme=fabrikam</a>. Later we can do the same with any theme we create.



One last test is to change the URL to <a href="https://www.localhost.com:4000/">https://www.localhost.com:4000/</a>

With this URL, if you configured the "MSDyn365\_HOST" in the .env file to point to your online web site, you will see your web site, but take note that the rendering of the page is done on the local Node development environment, this is handle when making local changes as see how they would look on your live site.



Now click CTRL-C in the Command Window to stop the Node server. You can keep this window open we will be running the Node server again soon.

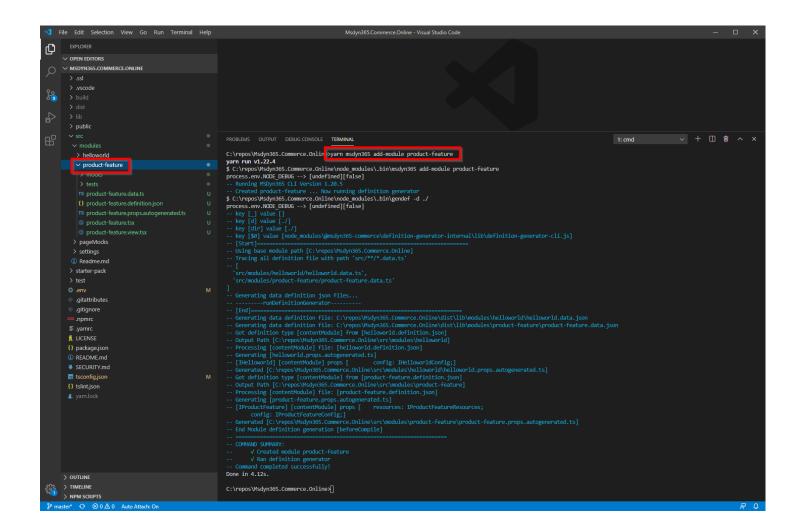
#### CREATING A NEW MODULE

We are now ready to create our first module.

The online SDK includes several Command Line Interface (CLI) commands to complete specific tasks. All CLI commands are prepended with "yarn msdyn365" followed by the command name and any arguments.

From the Command Prompt we were previously using in Visual Studio Code type in the below command to create a module titled "product-feature" (feel free to change this name).

# yarn msdyn365 add-module product-feature



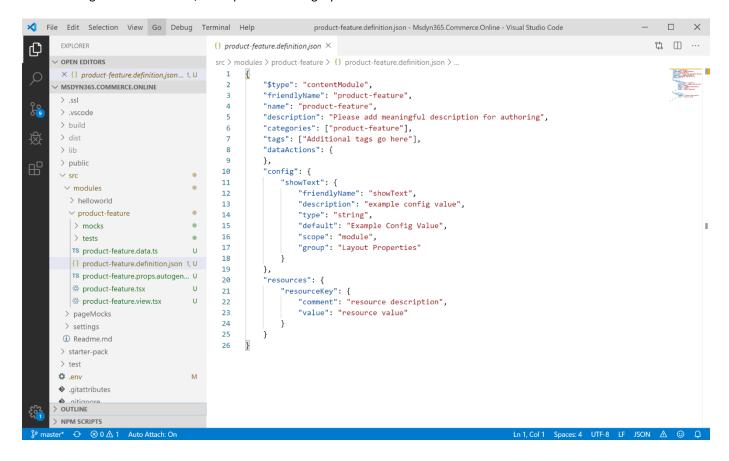
You have now successfully created a new module! Notice how it showed up under the "/src/modules/" directory. We'll next look at the template files that were created.

#### ANATOMY OF A MODULE

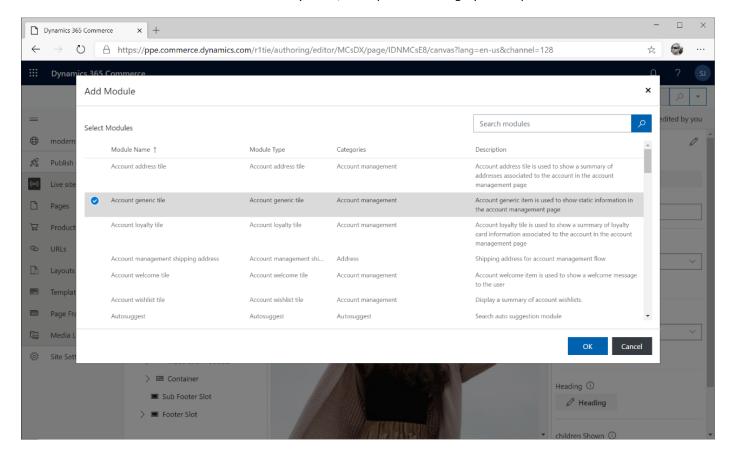
From within Visual Studio Code let us briefly examine the new module directory that was created "/src/modules/product-feature" to understand the anatomy of a module.

# MODULE\_NAME.DEFINITION.JSON

This file is referred to as the module definition file which is used to register the module and provides metadata to the site builder tool including the module name, description and category.

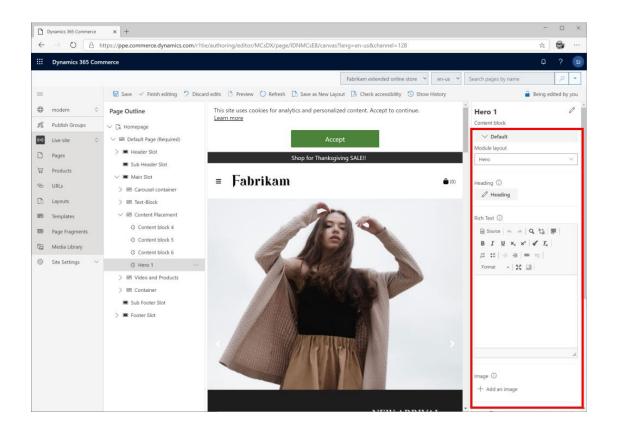


Below screen shot shows where the module friendly name, description and category show up.



The definition file is also used to expose "config" fields, which allow a page author to set module settings. An example may be a layout alignment setting (with left, right and center values to choose from), a module title or heading, rich text description, call to action link, image URLs or Dynamics Retail product data.

The page author can then choose the specific configurations for the module on a specific page without affecting the setting of the module on other pages. Below is an example of what a page author would see, note the right-side panel has various config settings for the selected module.



#### **DEFINITION SCHEMA**

**\$type**: The type of the module. A module can be either a content module (**contentModule**), a container module (**containerModule**), a page module (**pageModule**), a script injector module (**scriptModule**) or a theme module (**themeModule**). Container and page modules also optionally define "slots" which are used for layout regions. Script injector modules also define an "attributes" section that is used for specifying where script can be injected.

friendlyName: The friendly name of the module that gets displayed to page authors. Minimum length is three characters.

**name**: The name of the module. This name must be unique across the application. It is used as the ID of the module and is referenced by the site builder tool. It should not be changed.

**description**: The description of the module. The description provides a friendly string that is shown in the authoring tools when modules are added to pages.

**categories**: The categories that the module can subscribe to. Container modules use the values that are specified here to allow or disallow some modules in specific slots.

tags: The tags that are used to search for the module. All the categories are automatically added as tags.

dataActions: The data actions node is used to register the data actions that should be run for the module.

**slots**: Slots are defined only on "containerModules" and exposed in the authoring tool. Slots can define allow and deny lists to allow or disallow specific modules from being accepted in the slot.

attributes: Attributes are used to control script injectors properties.

#### MODULE CONFIG SCHEMA

Configuration fields can be defined that are surfaced in the authoring tool for page authors to provide data.

**Config name**: The local name that is used to access the configuration values from your React source code. Note this name is not case sensitive thus if you define multiple configs with the same name but only case differences they will be treated as the same and cause an error.

friendlyName: The friendly name that is shown as the configuration name in the authoring tools.

**description**: The description that is shown as the configuration description in the authoring tools.

type: The type of the configuration. Possible values are "string", "bool", "number", "integer", "richText", "image", "imageSettings", "css", "video", and "array".

#### NOTE ON CSS CONFIG TYPE:

A CSS type must specify a set of string enums of possible classes to apply to a module and only one of the enum options can be selected for a given module config property. When an enum option is selected the selected class will be appended to the list of classes to pass down to the module in the format propertyName\_propertyValue via this.props.config.className. Note that config types with type css will not be directly accessible from this.props.config as they are merged into this.props.config.className.

enum: For an enumerator type, the value must be set to "string".

**default**: The default value that is set if no value is set in the authoring tools.

**scope**: This field is used to scope the configuration to either a specific module instance or all modules on the site. Possible values are "**module**" and "**site**". If the value is set to "**site**", the module configuration does not appear on a page and can't be configured there. It appears and can be configured only at the site level. In this way, the value can be set one time for the whole site.

group: Groups are used to organize the configurations into organized groups in the authoring tools.

**required**: A flag that specifies whether a property must be set on the module. When "required" is set to true the authoring tools will show an error if the required property is not set, and an error will be displayed when the module is rendered.

#### MODULE RESOURCE SCHEMA

**resources**: Used for localizing resources. When resources strings are defined, the localized strings are pulled from corresponding json files. These files are stored under the /src/resources/modules/ directory and include a global.json for default locale values and any needed localized json files, example fr-fr.json.

**resourcekey**: The name of the resource. Resource keys can then be accessed in code via the this.props.resources.resourceKey property.

comment: Comment is a string used to identify the purpose of the string to aid in localization.

value: Resource string data that will be used in the module.

## MODULE DEFINITIONS SCHEMA

definitions: This field can contain complex config type definitions, which can be referenced in the config sections as extended types.

Below is a sample that shows the usage of various supported data types:

```
{
  "$type": "contentModule",
 "friendlyName": "Sample Config",
 "name": "sample-config",
 "description": "Sample Config",
  "categories": ["sample-config"],
  "tags": ["samples"],
 "dataActions": {},
  "config": {
      "title": {
          "type": "string",
          "friendlyName": "Title",
          "description": "example config value",
          "default": "Example Config Value",
          "scope": "module",
          "group": "Layout Properties"
      },
      "subTitle": {
        "type": "richText",
```

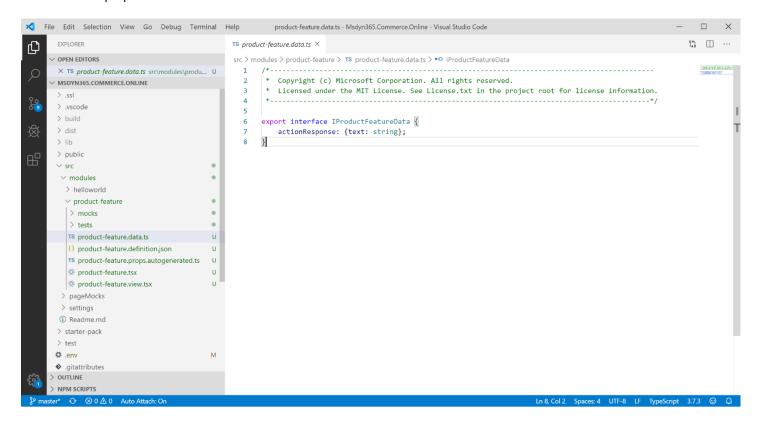
```
"friendlyName": "SubTitle",
  "description": "Sub title rich text field"
},
"bgImage": {
    "type": "image",
    "friendlyName": "Background image",
    "description": "Background image"
},
"images": {
    "type": "array",
    "friendlyName": "Images",
    "description": "Image Array",
    "items": {
        "type": "image"
    }
},
"backgroundImageSettings": {
    "type": "imageSettings"
    "friendlyName": "Background Image Settings",
    "description": "Image settings for background iamge settings",
},
"ambientVideo": {
    "type": "video"
    "friendlyName": "Ambient Video",
    "description": "Ambient Video",
},
"headingArray":{
    "type": "array",
    "friendlyName": "Heading Array",
    "description": "Heading Array",
    "items": {
        "$ref": "#/definitions/heading"
    }
},
"heading":{
    "$ref": "#/definitions/heading"
},
"heading2":{
    "type": "object",
    "friendlyName": "Heading2",
    "description": "Heading2 property with its own enum",
    "properties": {
        "style": {
            "type": "string",
            "enum": {
                "bold": "Bold",
                "underline": "Underline",
                "italics": "Italics",
                "strong": "Strong",
                "emphasized": "Emphasized",
                "none": "None"
            "friendlyName": "Style",
            "description": "Heading style"
```

```
}
        }
    },
    "textPlacement":{
        "friendlyName": "Text placement",
        "description": "Placement of the text",
        "type": "object",
        "enum":{
            "left": "Left",
            "right": "Right",
            "center": "Center"
        "default": "left"
    }
},
"definitions": {
    "heading": {
        "type": "object",
        "friendlyName": "Heading",
        "description": "Heading property",
        "properties": {
            "text": {
                "type": "string",
                "friendlyName": "Text",
                "description": "Heading Text"
            },
            "style": {
                "type": "string",
                "enum": {
                    "bold": "Bold",
                    "underline": "Underline",
                    "none": "None"
                },
                "friendlyName": "Style",
                "description": "Heading style"
            "showImage":{
                "type": "boolean",
                "friendlyName": "Show Image?",
                "description": "Should Show Image"
            },
            "bgImage": {
                "type": "image",
                "friendlyName": "Background image",
                "description": "Background image"
            },
            "imageArray":{
                "type": "array",
                "friendlyName": "Images",
                "description": "Image Array",
                "items": {
                    "type": "image"
            }
```

} } }

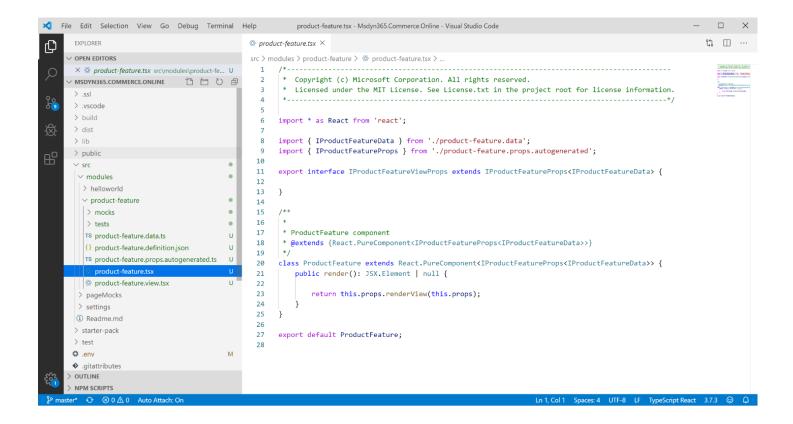
# MODULE\_NAME.DATA.TS

This \*.data.ts file contains the typings for data actions that are used by the module to fetch data. Once a data action gets its data it is stored in the properties in this file.



## MODULE\_NAME.TSX

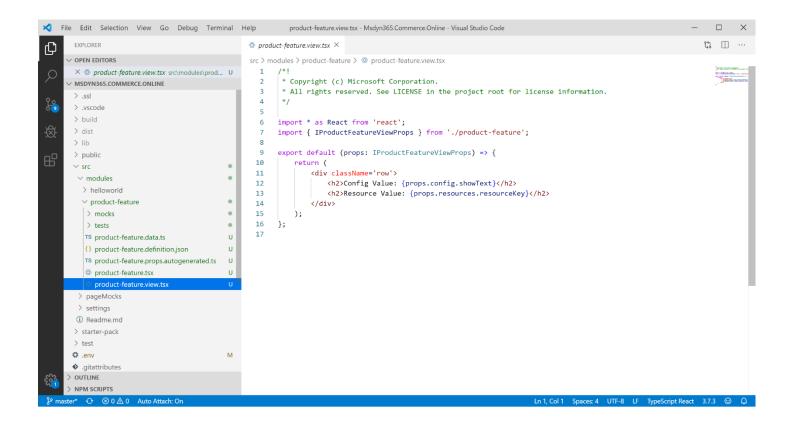
This file is a React component that controls the module's view model and calls the module view. You'll find a React "render()" method with some default embedded HTML.



Configuration properties that you defined (in the module definition file) can be accessed within this file using the "this.props.config.\*" API and data properties (as defined in the MODULE\_NAME.data.ts file) can be accessed within the file using the this.props.data.\* property.

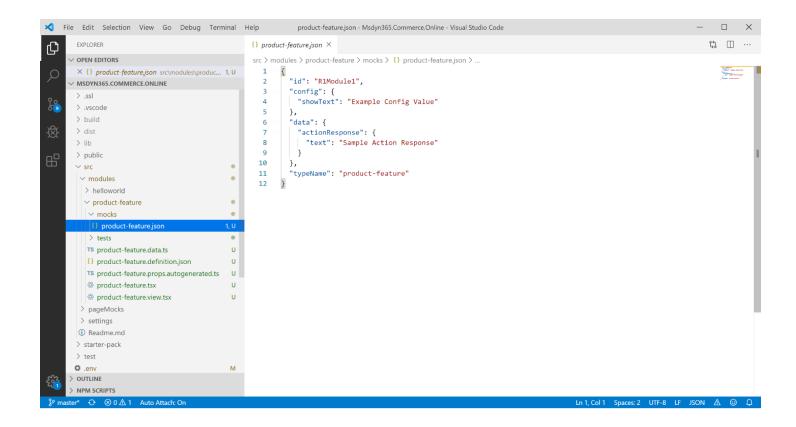
# MODULE\_NAME.VIEW.TSX

This file is the component that controls the module's view. Additional module views can be provided in various themes to render a module differently depending on the requirements of the theme.



## MOCKS/MODULE\_NAME.JSON

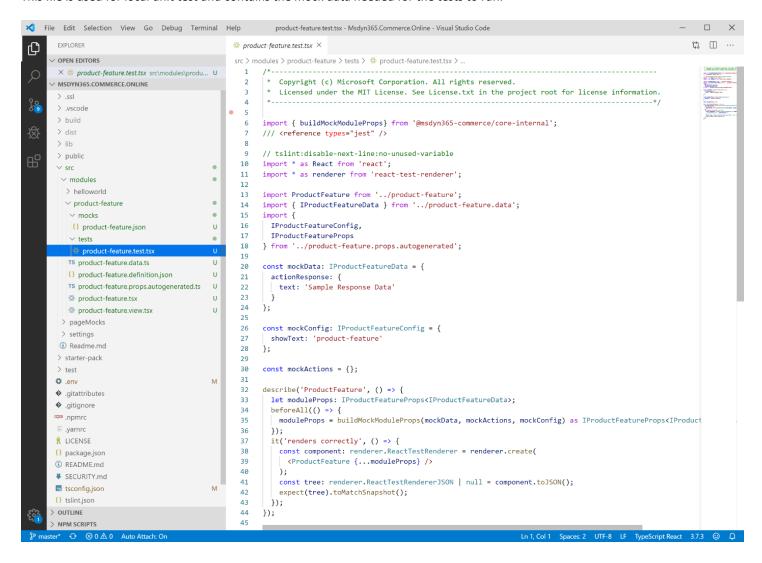
This json file under the "mocks" directory is used to configure mock data for your module to be tested locally. As you can see in this file there are two data properties "myTitle" and "myText" which have a default "text" string field and the "showText" config property also has some default text. When modules are run on a production server this data comes from the Dynamics CMS database as configured by the page authors instead of the mock file.



Note: later in this guide you'll learn about creating a "page mock" to test a page of modules together, where the above mock is only leveraged for testing a single module.

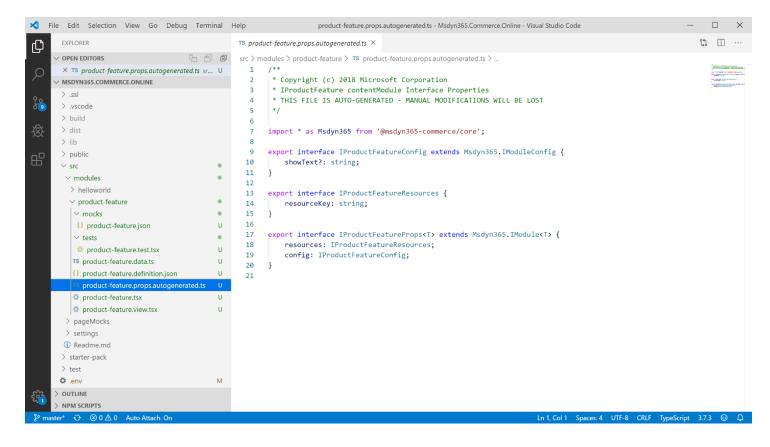
# TESTS/MODULE\_NAME.TEST.TSX

This file is used for local unit test and contains the mock data needed for the tests to run.



# MODULE\_NAME.PROPS.AUTOGENERATED.TS

This file is an auto generated typescript file that should not be manually touched. Adding new configuration values to your module definition file and saving the file will automatically rebuild this file with appropriate interfaces. The interfaces in here can be accessed via the module view and react files as needed.



We are now ready to test out our new module.

In the Command Prompt type in "yarn start", this will build your solution as we did in the previous section.



When the build is complete, we can load the module for testing locally with the below command (you may need to replace the module name product-feature' with the name of your module).

https://localhost:4000/modules?type=product-feature

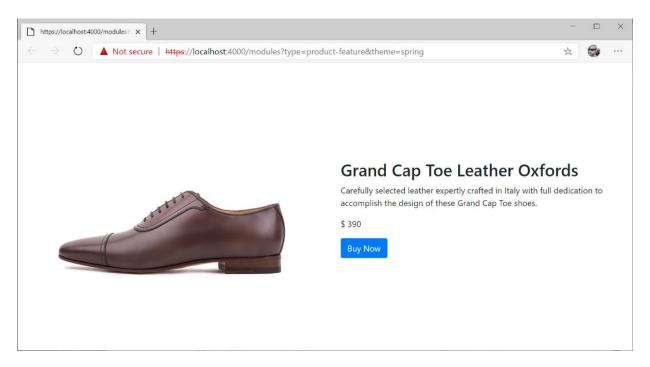
If everything works you should see your module render the html from the React component with the module template default as shown below:



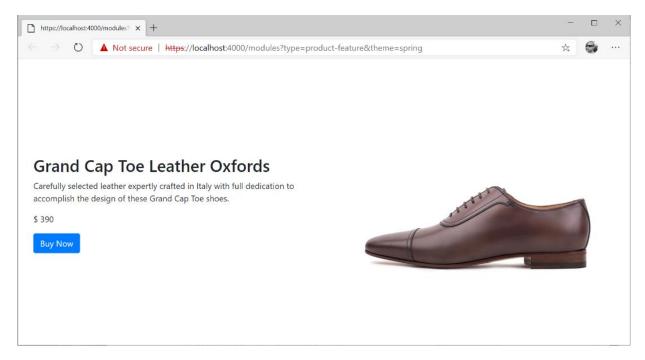
## **DESIGNING OUR MODULE**

There are various ways you can start designing your module. The approach we will be taking is to build the HTML structure using a static image and text to achieve the desired mockup. In further sections we will convert the static HTML to dynamic HTML leveraging config and data properties and finally getting product data from the Dynamics 365 Retail catalog.

We want our design to look like the below screen shot, which has an image on the left, a product title and description on the right as well as a call to action button.



We'll also be adding a layout configuration property to swap the image alignment from the left to the right side:



Start by adding static HTML to render the above mockup into our module React file "product-feature.tsx", add the below highlighted code (note you will be overriding the templated html code).

```
Copyright (c) Microsoft Corporation. All rights reserved.
   Licensed under the MIT License. See License.txt in the project root for license informati
on.
-*/
import * as React from 'react';
import { IProductFeatureData } from './product-feature.data';
import { IProductFeatureProps } from './product-feature.props.autogenerated';
export interface IProductFeatureViewProps extends IProductFeatureProps<IProductFeatureData> {
   productName: string;
    productInfo: string;
    productImageUrl: string;
    productPrice: string;
   buttonInfo: string;
/**
 * ProductFeature component
  @extends {React.PureComponent<IProductFeatureProps<IProductFeatureData>>}
class ProductFeature extends React.PureComponent<IProductFeatureProps<IProductFeatureData>> {
    public render(): JSX.Element | null {
        // set default product info values
        const ProductName = 'Retro Horn Rimmed Keyhole Nose Bridge Round Sunglasses';
        const ProductInfo = 'High-
quality and pioneered with the perfect blend of timeless classic and modern technology with h
int of old school glamor.';
        const ProductImageUrl = 'https://bit.ly/33cMGxr';
        const ButtonInfo = 'Buy Now';
        const ProductPrice = '129';
        const ProductFeatureViewProps = {
            ...this.props,
            productName: ProductName,
            productInfo: ProductInfo,
            productImageUrl: ProductImageUrl,
            productPrice: ProductPrice,
            buttonInfo: ButtonInfo
```

```
return this.props.renderView(ProductFeatureViewProps);
}
}
export default ProductFeature;
```

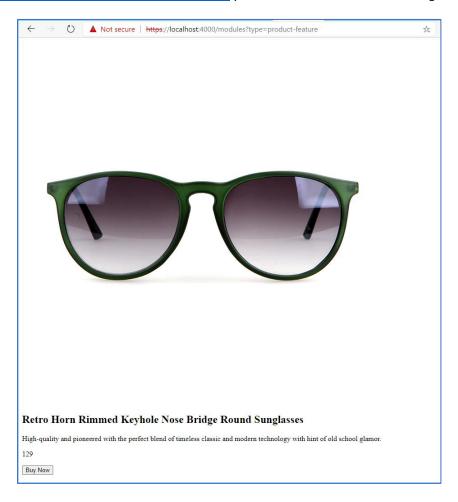
We'll also need to change our view file to render the new fields we're passing in, modify the product-feature.view.tsx file to match the below sample.

```
/*!
  Copyright (c) Microsoft Corporation.
 * All rights reserved. See LICENSE in the project root for license information.
import * as React from 'react';
import { IProductFeatureViewProps } from './product-feature';
export default (props: IProductFeatureViewProps) => {
    const {  productName, productInfo, productImageUrl, productPrice, buttonInfo } = props;
    return (
        <div className='row align-items-center'>
           <div className='col-sm-6'>
              <img src={productImageUrl} alt={productName} className='img-fluid p-3' />
           </div>
            <div className='col-sm-6'>
              <h2>{productName}</h2>
              {productInfo}
              {productPrice}
              <button type='button' className='btn btn-primary'>{buttonInfo}</button>
            </div>
       </div>
    );
};
```

Once you save the above file, you should notice a recompile was triggered in the Command Prompt (that you previously ran "yarn start"), when it's complete the command prompt should look similar to below indicating no errors.

```
| ./node_modules/@msdyn365-commerce/runtime-internal/dist/lib/utils/cookie-utils.js 7.64 KiB
| ./node_modules/@msdyn365-commerce/runtime-internal/dist/lib/app-initialization/initialization.js 1.66 KiB
| ./node_modules/@msdyn365-commerce/runtime-internal/dist/lib/app-initialization/render-component.js 6.87 KiB
| ./node_modules/@msdyn365-commerce/runtime-internal/dist/lib/_server/inteceptors/ttl-cache.js 4.1 KiB
```

If you open <a href="https://localhost:4000/modules?type=product-feature">https://localhost:4000/modules?type=product-feature</a> you should see the module rendering with the above changes.



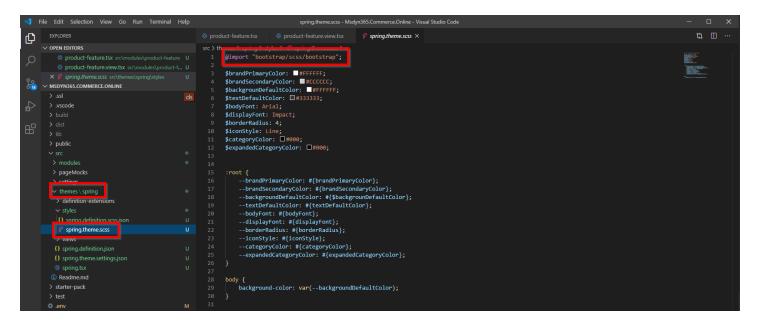
Notice the columns are not rendering as expected, this is because we are using Bootstrap SCSS classes in our html code but have not told the rendering to use Bootstap yet. For example, notice we have 2 div's with the class set to "col-sm-6", this should split each div into taking up half of the screen width for wider screens since Bootstrap defaults to a 12 column grid system.

To fix this we need to create a theme that pulls in the Bootstrap references. To create a new theme, we will use the CLI command "add-theme" and call our theme "spring". First stop "yarn start" if it is currently running and type the following command.

**Note**: you will need to hit ctrl-c in the command prompt to exit the Node server first.

yarn msdyn365 add-theme spring

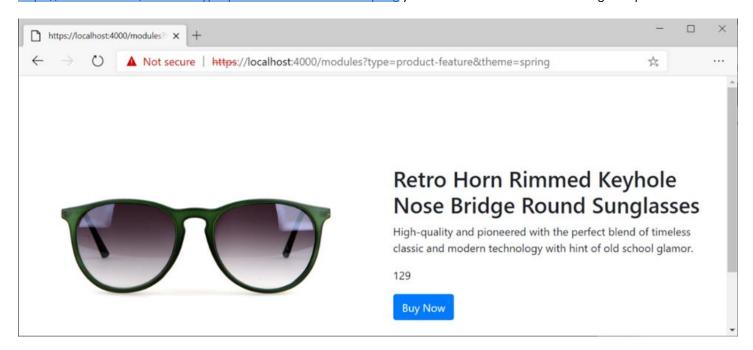
This will create a new theme named "spring" under the "themes" directory. SCSS files for the theme are stored in the theme styles directory (example: "\src\themes\spring\styles"). Open the \src\themes\spring \styles\spring.theme.scss file and notice the reference (import) to Bootstrap is already included.



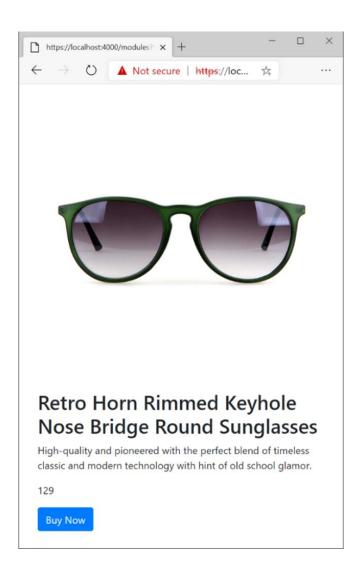
A theme is a special type of a module, notice the theme also has a definition file "\src\themes\spring\spring.definition.json". (The theme also has a basic tsx react file, which you will not need to modify).

```
"stype": "themeModule",
   "description": "This is SDK template theme module",
   "friendlyName": "spring",
   "name": "spring"
}
```

Now run **yarn start** again and add the theme query string parameter with the theme name to the URL: <a href="https://localhost:4000/modules?type=product-feature&theme=spring">https://localhost:4000/modules?type=product-feature&theme=spring</a> you should see the module rendering as expected.



It is also worth noting that if you resize the browser, you'll see the Bootstrap responsive design in action. Below screen shot shows the windows shrunk down to about a mobile size.

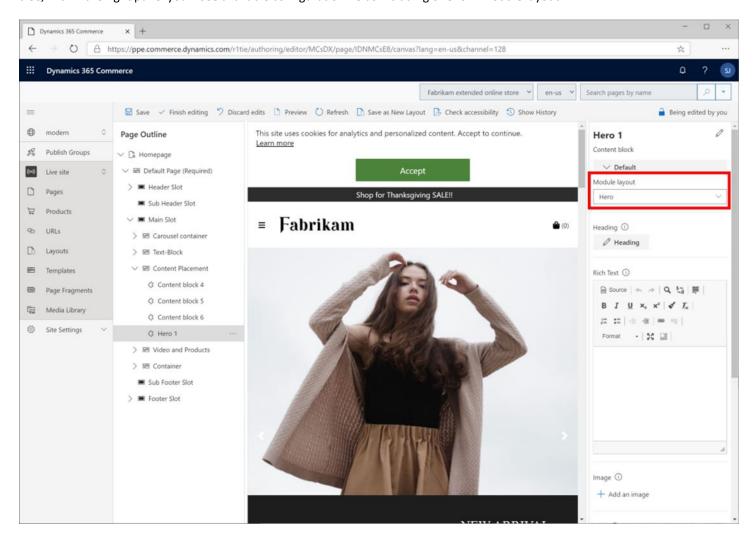


## ADDING MODULE LAYOUT CONFIGURATION FIELDS

Configurations fields (configs) can be exposed on a module that will be presented to page authors, giving them control of some of the module features. These features can be layout properties such as different views, alignment properties or even boolean switches to turn features on or off or could be heading strings, rich text marketing details, links or images.

This data is stored in the Dynamics CMS data store and can range from simple to complex data structures.

Below is a screen shot of how these fields show up in the site builder tool. Notice with the "Content block" module selected in the tree, within the right panel you'll see available configuration fields including one for "Module layout".



For our module we are going to add a configuration field to allow configuration of the image alignment. We will have two enum options: "Left" which will be the default and "Right".

Open up the **product-feature.definition.json** file, you should still see a default "showText" config setting in there, we'll replace it with the below "imageAlignment" config. Note, we can also add a better friendly name, description and category for our module, see section 2 under definition file details to see where these will show up in the authoring tools.

```
"$type": "contentModule",
    "friendlyName": "Product Feature",
    "name": "product-feature",
    "description": "Feature module used to highlight a product.",
    "categories": [
         storytelling"
    "tags": [
    "dataActions": {},
    config": {
        "imageAlignment": {
            "friendlyName": "Image Alignment",
            "description": "Sets the desired alignment of the image, either left or right on
the text.",
            "type": "string",
            "enum": {
                "left": "Left",
                "right": "Right"
            "default": "left",
            "scope": "module",
            "group": "Layout Properties"
     resources": {
        "resourceKey": {
            "comment": "resource description",
            "value": "resource value"
```

Take note of the "scope" property above. Module configs can be scoped to the "module" or "site" level if you'd like the module config value to be set at the site level only. If it is set at the site level it will become the default and can't be changed at the page level.

We will now set a mock value for the new config field we added above in the "mocks/product-feature.json" file. This will help us when rendering the module in our local dev environment.

```
{
  "id": "R1Module1",
  "config": {
     "imageAlignment": "left"
},
  "data": {
     "actionResponse": {
        "text": "Sample Action Response"
     }
},
  "typeName": "product-feature"
}
```

**Note**: you may notice yarn build errors reported on the 'tests/product-feature.test.tsx' file as you add/remove config types and save the file. We'll leave it to you as an exercise to fix these, however you should be able to ignore the errors or delete the test file altogether if desired.

The final change we need is to hook up the new config field in code to render the image on the left or the right of the text area.

The below code change in product-feature.tsx will pass on the new config property in the props to the module view.

```
@extends {React.PureComponent<!ProductFeatureProps<!ProductFeatureData>>}
class ProductFeature extends React.PureComponent<IProductFeatureProps<IProductFeatureData>> {
    public render(): JSX.Element | null {
        const { config } = this.props;
        // set default product info values
        const ProductName = 'Retro Horn Rimmed Keyhole Nose Bridge Round Sunglasses';
        const ProductInfo = 'High-quality and pioneered with the perfect blend of timeless classic
and modern technology with hint of old school glamor.';
        const ProductImageUrl = 'https://bit.ly/33cMGxr';
        const ButtonInfo = 'Buy Now';
        const ProductPrice = '129';
        const ProductFeatureViewProps = {
            ...this.props,
            productName: ProductName,
            productInfo: ProductInfo,
            productImageUrl: ProductImageUrl,
            productPrice: ProductPrice,
            buttonInfo: ButtonInfo,
            alignment: config.imageAlignment
        };
        return this.props.renderView(ProductFeatureViewProps);
export default ProductFeature;
```

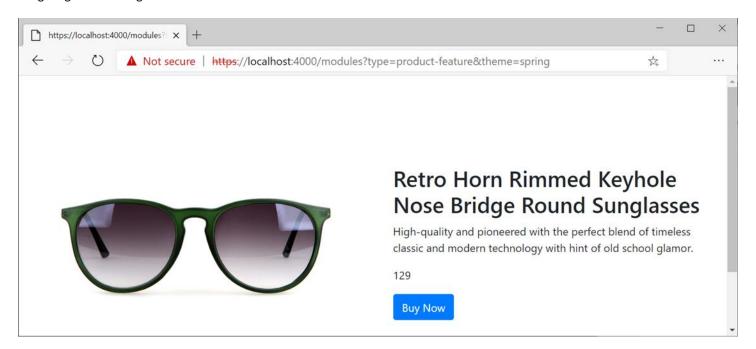
Finally, the below code change in product-feature.view.tsx uses an "if" statement to check the new imageAlignment config field and renders the appropriate HTML. When finished save the files and it will auto compile (check your command prompt window where you ran "yarn start").

```
/*!
  * Copyright (c) Microsoft Corporation.
  * All rights reserved. See LICENSE in the project root for license information.
  */
import * as React from 'react';
import { IProductFeatureViewProps } from './product-feature';
import { imageAlignment } from './product-feature.props.autogenerated';

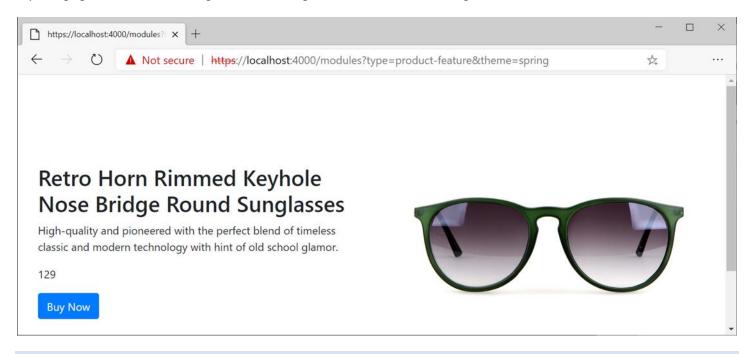
const _renderImage=(productImageUrl: string, productName: string): JSX.Element => {
    return <img src={productImageUrl} alt={productName} className='img-fluid p-3' />;
};
```

```
const _renderInfo=(productName: string, productInfo: string, productPrice: string, buttonInfo:
string): JSX.Element => {
    return (
        <div className='container'>
            <h2>{productName}</h2>
            {productInfo}
            {productPrice}
            <button type='button' className='btn btn-primary'>{buttonInfo}</button>
        </div>
export default (props: IProductFeatureViewProps) => {
    const { productName, productInfo, productImageUrl, productPrice, buttonInfo, alignment } =
props;
    let left;
   let right;
    if (alignment === imageAlignment.left) {
        left = renderImage(productImageUrl, productName);
        right = _renderInfo(productName, productInfo, productPrice, buttonInfo);
        right = _renderImage(productImageUrl, productName);
        left = _renderInfo(productName, productInfo, productPrice, buttonInfo);
    return (
        <div className='row align-items-center'>
            <div className='col-sm-6'>
                {left}
            </div>
            <div className='col-sm-6'>
                {right}
            </div>
       </div>
```

Save all the above files you edited and refresh the module in your browser (<a href="https://localhost:4000/modules?type=product-feature&theme=spring">https://localhost:4000/modules?type=product-feature&theme=spring</a>). It should render with the image on either the left or right depending upon the mock value you set on the imageAlignment config field.



Try changing the mock value, saving it then refreshing the browser to see the change.



# ADDING ADDITIONAL CONFIGURATION FIELDS TO A MODULE

In this section we will be replacing all the static content we added to our module with CMS Data configuration fields so page authors can provide this data from within the site builder tool.

For our product placement module, we will want fields for:

- Product title heading
- Product details paragraph
- Product image href and alt text
- Button label

Make the below changes to product-feature.definition.json and save the file.

```
"$type": "contentModule",
    "friendlyName": "Product Feature",
    "name": "product-feature",
    "description": "Feature module used to highlight a product.",
    "categories": [
        "storytelling"
    ],
"tags": [
    "dataActions": {},
    "config": {
        "imageAlignment": {
            "friendlyName": "Image Alignment",
            "description": "Sets the desired alignment of the image, either left or right on the t
ext.",
            "type": "string",
            "enum": {
                "left": "Left",
                "right": "Right"
            "default": "left",
            "scope": "module",
            "group": "Layout Properties"
        "productTitle": {
            "type": "string",
            "friendlyName": "Product Title",
            "description": "Product placement title"
        "productDetails": {
            "type": "richText",
            "friendlyName": "Product Details",
            "description": "Rich text representing the featured product details"
         'productImage": {
            "type": "image",
"friendlyName": "Product Image",
            "description": "Image representing the featured product"
```

```
"buttonText": {
    "type": "string",
    "friendlyName": "Button Text",
    "description": "Text to show on the call to action button"
}

},
    "resources": {
        "resourceKey": {
            "comment": "resource description",
            "value": "resource value"
        }
}
```

Next, we need to add mock data so we can test the fields out when we run it locally since we are not connected to the Dynamics Commerce CMS.

Open "/mocks/product-feature.json" and make the below changes to the "data" section:

```
"id": "R1Module1",
    "config": {
        "imageAlignment": "left",
        "productTitle": "Retro Horn Rimmed Keyhole Nose Bridge Round Sunglasses",
        "productDetails": "High-
quality and pioneered with the perfect blend of timeless classic and modern technology with hint of old school glamor.",
        "productImage": {
        "src": "https://bit.ly/33cMGxr",
        "altText": "Retro Horn Rimmed Keyhole Nose Bridge Round Sunglasses"
      },
      "buttonText": "Buy Now"
    },
    "data": {
        "actionResponse": {
            "text": "Sample Action Response"
      },
      "typeName": "product-feature"
}
```

The last thing we need to do is replace the static text in our React component (product-feature.tsx) with our new data fields. We'll also do a safety check to make sure data was provided, otherwise we'll add default text.

```
/*-----*
* Copyright (c) Microsoft Corporation. All rights reserved.
```

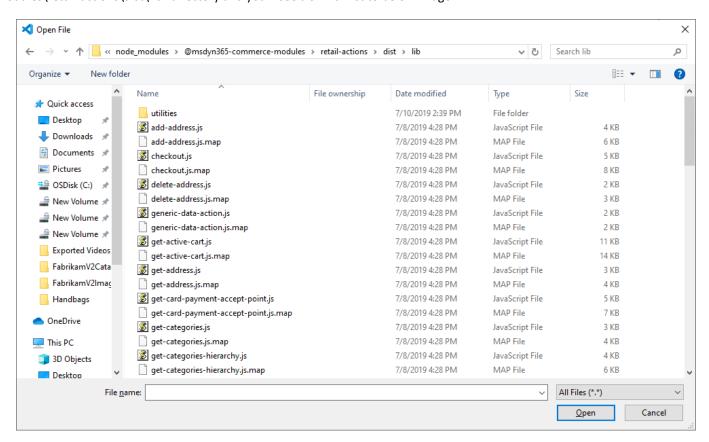
```
Licensed under the MIT License. See License.txt in the project root for license information.
import * as React from 'react';
import { IProductFeatureData } from './product-feature.data';
import { imageAlignment, IProductFeatureProps } from './product-feature.props.autogenerated';
export interface IProductFeatureViewProps extends IProductFeatureProps<IProductFeatureData> {
    productName: string;
    productInfo: string;
    productImageUrl: string;
    productPrice: string;
    buttonInfo: string;
    alignment: imageAlignment;
/**
 * ProductFeature component
  @extends {React.PureComponent<IProductFeatureProps<IProductFeatureData>>}
class ProductFeature extends React.PureComponent<IProductFeatureProps<IProductFeatureData>> {
    public render(): JSX.Element | null {
        const { config } = this.props;
        // set default product info values
        const ProductName = config.productTitle ? config.productTitle : 'No product name defined';
        const ProductInfo = config.productDetails ? config.productDetails.toString() : 'No product
details defined';
        const ProductImageUrl = config.productImage ? config.productImage.src : '';
        const ButtonInfo = config.buttonText ? config.buttonText : 'No button text defined';
        const ProductPrice = '129';
        const ProductFeatureViewProps = {
            ...this.props,
            productName: ProductName,
            productInfo: ProductInfo,
            productImageUrl: ProductImageUrl,
            productPrice: ProductPrice,
            buttonInfo: ButtonInfo,
            alignment: config.imageAlignment
        };
        return this.props.renderView(ProductFeatureViewProps);
export default ProductFeature;
```

Save the file and refresh your browser (<a href="https://localhost:4000/modules?type=product-feature&theme=spring">https://localhost:4000/modules?type=product-feature&theme=spring</a>) to see the new module now rendering content from CMS data mocks. You can try changing the data from the mocks/product-feature.json, saving it and a page refresh should pick up your change.

#### CALLING A PLATFORM CORE DATA ACTION

In this section we will call a data action to get product details into our module. This change will allow the page author to provide a product Id and we will pull the product title, details and price from the Dynamics Retail server. The online SDK provides several prebuild data actions for common functions like getting Retail categories or product information. A later section will cover creating your own custom data action.

To see a list of data actions that are available open (CTRL-O in VS Code) the "\node\_modules\@msdyn365-commerce-modules\retail-actions\dist\lib" directory and you'll see a similar list to below image.



We will be using the "get-simple-products" data action to get product details, which returns an array of products. We will start with declaring the data action we're using in our module definition file:

```
"$type": "contentModule",
    "friendlyName": "Product Feature",
    "name": "product-feature",
    "description": "Feature module used to highlight a product.",
    "categories": [
        "storytelling"
],
    "tags": [
        ""
```

```
],
"dataActions": {
            "products": {
    "path": "@msdyn365-commerce-modules/retail-actions/dist/lib/get-simple-products",
    "runOn": "server"
},
"config": {
             "imageAlignment": {
                         "friendlyName": "Image Alignment",
                         "description": "Sets the desired alignment of the image, either left or right on
                         "type": "string",
                         "enum": {
                                     "left": "Left",
                                     "right": "Right"
                         },
"default": "left",
" "module",
                         "scope": "module",
                         "group": "Layout Properties"
             "productTitle": {
                         "type": "string",
"friendlyName": "Product Title",
                         "description": "Product placement title"
            },
"productDetails": {
    "richText

                         "type": "richText",
                         "friendlyName": "Product Details",
                         "description": "Rich text representing the featured product details"
            },
"productImage": {
   "image": "
                         "type": "image",
"friendlyName": "Product Image",
                         "description": "Image representing the featured product"
             "buttonText": {
                         "type": "string",
"friendlyName": "Button Text",
                         "description": "Text to show on the call to action button"
            },
             "productIds": {
                         "friendlyName": "Product ID",
                         "description": "Provide a Product Id that the module will display",
                         "type": "string",
"scope": "module",
                         "group": "Content Properties"
},
"resources": {
            "resourceKey": {
                         "comment": "resource description",
```

```
"value": "resource value"
     }
}
```

Notice the "runOn" property is set to "server" which could also be set to "client". You'll generally always want data actions to run on the server but you may want to set to client while debugging.

Also, take note that a config property for the page author to provide a product ID in the product-feature.definition.json file was also added called "productIDs". This config will also become the input for the core data action we are using. You can see this if you examine the Javascript source code for the data action (get-simple-products) not shown here.

We also need to define the return type from the data action in the product-feature.data.ts file along with the return type as seen in below highlighted section. Note how the name property "products" is defined in both the definition file above and file below.

Next, we'll need specify a Product ID in our Mock file for testing, we'll be using a known product ID from our sample data (which may not exist on your Retail server). Inside of the mocks\product-feature.json add the below highlighted code:

```
"id": "R1Module1",
  "config": {
    "imageAlignment": "left",
    "productTitle": "Retro Horn Rimmed Keyhole Nose Bridge Round Sunglasses",
    "productDetails": "High-
quality and pioneered with the perfect blend of timeless classic and modern technology with hint o
f old school glamor.",
    "productImage": {
        "src": "https://bit.ly/33cMGxr",
        "altText": "Retro Horn Rimmed Keyhole Nose Bridge Round Sunglasses"
      },
      "buttonText": "Buy Now",
      "productIds": "68719498121"
      },
      "data": {
        "actionResponse": {
            "text": "Sample Action Response"
      }
    }
},
```

```
"typeName": "product-feature"
}
```

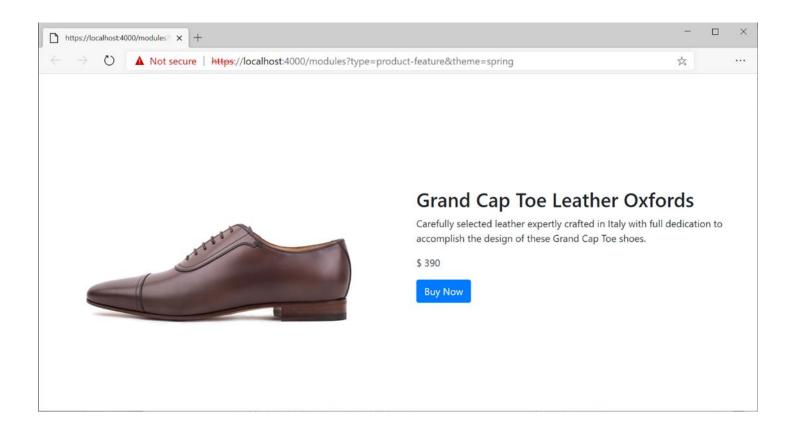
The last thing we need is to wire up the returned data in our React component. In product-feature.tsx make the below changes. We are also adding the product price.

```
Copyright (c) Microsoft Corporation. All rights reserved.
   Licensed under the MIT License. See License.txt in the project root for license information.
import * as React from 'react';
import { IProductFeatureData } from './product-feature.data';
import { imageAlignment, IProductFeatureProps } from './product-feature.props.autogenerated';
export interface IProductFeatureViewProps extends IProductFeatureProps<IProductFeatureData> {
   productName: string;
   productInfo: string;
   productImageUrl: string;
   productPrice: string;
   buttonInfo: string;
   alignment: imageAlignment;
/**
 * ProductFeature component
  @extends {React.PureComponent<IProductFeatureProps<IProductFeatureData>>}
class ProductFeature extends React.PureComponent<IProductFeatureProps<IProductFeatureData>> {
    public render(): JSX.Element | null {
       const {
           config,
          data: { products }
        } = this.props;
        // set default product info values
        let ProductName = config.productTitle ? config.productTitle : 'No product name defined';
        let ProductInfo = config.productDetails ? config.productDetails.toString() : 'No product
details defined';
        let ProductImageUrl = config.productImage ? config.productImage.src : '';
        const ButtonInfo = config.buttonText ? config.buttonText : 'No button text defined';
        let ProductPrice = '129';
       // if product details were returned from Retail server, then we'll use that info instead
of config values
        if (products && products.length) {
           ProductName = products[0].result && products[0].result.Name ? products[0].result.Name
 'Invalid product data';
```

```
ProductInfo = products[0].result && products[0].result.Description ?
products[0].result.Description : 'Invalid product data';
            ProductImageUrl = products[0].result && products[0].result.PrimaryImageUrl ?
products[0].result.PrimaryImageUrl : '';
            ProductPrice = products[0].result && products[0].result.Price ? `$
${products[0].result.Price}` : '';
        const ProductFeatureViewProps = {
            ...this.props,
            productName: ProductName,
            productInfo: ProductInfo,
            productImageUrl: ProductImageUrl,
            productPrice: ProductPrice,
            buttonInfo: ButtonInfo,
            alignment: config.imageAlignment
        };
        return this.props.renderView(ProductFeatureViewProps);
    }
export default ProductFeature;
```

Adding a new Data Action to the module definition file requires restarting the server, so in your opened command prompt break out (CTRL-C) if it is still running and restart with "yarn start".

Refreshing the module in the browser (<a href="https://localhost:4000/modules?type=product-feature&theme=spring">https://localhost:4000/modules?type=product-feature&theme=spring</a>) should now look similar to below screen shot. We can see the title, details, price and image are now leveraging data directly from the Commerce 365 Retail server. Note: this will only render data if the .env file is configured with a valid retail server. See next section to use MOCK data if you do not have an environment available.



#### MOCKING CORE DATA ACTIONS

It may be useful to test your module without invoking the actual action using an action mock. You'll need to do this if you haven't configured your Retail server in the ".env" file as we did in section 1.

To create a data action mock, create a new file under "src/module/MODULE\_NAME/mocks/" directory for your module, called **myModuleMock.actionmock.json** (note: this file name must have the extension ".actionmock.json" but can start with any name).

Ex:

```
/src/modules/product-feature/mocks/mymodulemock.actionmock.json
```

The data action we are using in this section returns a SimpleProduct object, to mock this you will need to simulate the same object structure that the data action returns. In Visual Studio Code if you open the productFeature.data.ts file we edited above, you can right click on the SimpleProduct type and select "Go to definition" to see the interface, which looks like:

```
SimpleProduct entity interface.
export interface SimpleProduct {
   RecordId: number;
    ItemId?: string;
   Name?: string;
   Description?: string;
   ProductTypeValue: number;
   DefaultUnitOfMeasure?: string;
   BasePrice: number;
   Price: number;
   AdjustedPrice: number;
   MasterProductId?: number;
   Components?: ProductComponent[];
   Dimensions?: ProductDimension[];
   Behavior?: ProductBehavior;
   LinkedProducts?: SimpleLinkedProduct[];
   PrimaryImageUrl?: string;
    ItemTypeValue?: number;
    ExtensionProperties?: CommerceProperty[];
```

Our module does not use all of the available product fields, so we'll only add the required ones we need to the mocks. Add the following mock data to the new JSON file and save the file.

```
[
{
    "CacheObjectType": "SimpleProduct",
    "CacheKey": "*",
    "Mock": {
```

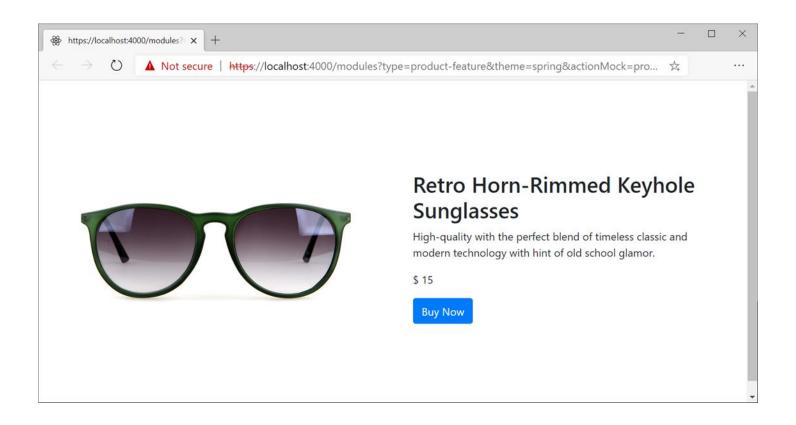
```
"RecordId": 22565423455,
            "ItemId": "2101",
            "Name": "Retro Horn-Rimmed Keyhole Sunglasses",
            "Description": "High-quality with the perfect blend of timeless classic and
modern technology with hint of old school glamor.",
            "ProductTypeValue": 3,
            "DefaultUnitOfMeasure": "Ea",
            "BasePrice": 15,
            "Price": 15,
            "AdjustedPrice": 14,
            "MasterProductId": null,
            "Components": null,
            "Dimensions": null,
            "Behavior": null,
            "LinkedProducts": null,
            "PrimaryImageUrl": "https://bit.ly/33cMGxr",
            "ExtensionProperties": null
```

To use the action mock locally, you just need to include the 'actionMock' query string parameter using the name of the module along with the file name for the mock file created above "MODULE\_NAME:MOCK\_FILE\_NAME" (note you should not add the mock extension .actionmock.json):

## Example:

https://localhost:4000/modules?type=product-feature&theme=spring&actionMock=product-feature:mymodulemock

If you refresh the module preview, you should now see data similar to the below image:



#### MODIFYING STARTER KIT MODULES

You cannot modify an existing Starter Kit module directly; however, you can clone it and change the source as you wish, but the module name must be different. Module views can be extended to avoid cloning modules, but in some cases cloning might be necessary. See section later in the document on module view extensions.

Modifying an existing module from the Starter Kit is as simple as running the CLI command 'yarn msdyn365 clone STARTER\_KIT\_MODULE\_NAME NEW\_MODULE\_Name'.

Example: 'yarn msdyn365 clone content-block super-content-block'

Once the command is run you should see the source code for the module under the 'src/modules' directory. At this point you can modify the module as you wish. You may also need to fix up some references in the module.

If you no longer want to keep the modified module (or any other under the 'src') you can just delete it, however if you upload your customization package with missing modules they will be gone and pages that have those modules configured will still render but without that module.

Ensure you test your site well if removing a module.

Note: Module dependencies are not automatically pulled down when you clone a module. Before you build the module, you must run Yarn and fix any missing dependencies.

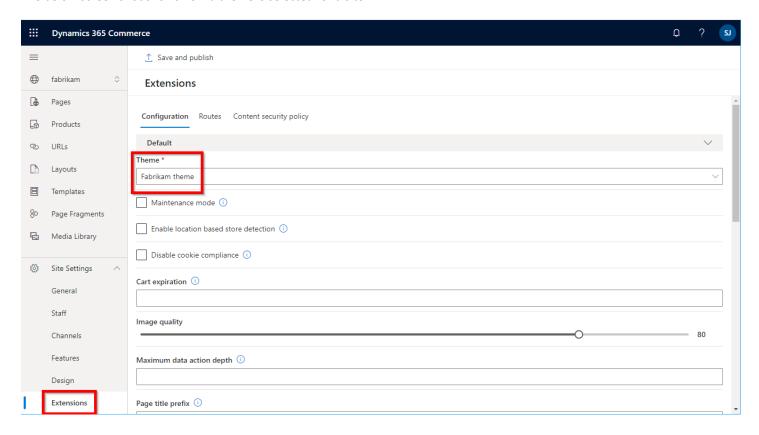
## CREATING A CUSTOM THEME

Dynamics 365 e-Commerce allows you to apply a SCSS theme to your whole site.

This section will show you how to create a new theme. Once a theme is created and uploaded to your production site, the site builder tool will allow you to set the theme on your site, within a master/shared template or on a single page. When an e-Commerce page is rendered, the appropriate theme will be applied, giving all the modules on that page a consistent look and feel.

Themes can also contain store starter kit module view and config extensions which allow a theme to change any modules view reducing the need to clone a module to make modifications.

The below screen shot shows how a theme is selected for a site.



#### GENERAL INSTRUCTIONS IN CREATING A CUSTOM THEME

- Create a new theme using the CLI command "yarn msdyn365 add-theme NEW\_THEME\_NAME" which will create a theme in the "/src/themes/" folder.
- Under the styles directory you will find the SCSS entry point file for the theme which uses name pattern "THEME NAME.theme.scss".
- Themes are created as special modules and contain a definition file which includes the theme friendly name and description, as well as a template react component.
- There is no limit to the number of ".scss" files your theme may contain.
- Your theme entry point may import other ".scss" files using relative paths.

### **BEST PRACTICES**

- Starter Kit modules are built using Bootstrap 4 classes, so the recommended scss framework to include in any theme is either **Bootstrap 4** or **Bootstrap 4** RTL.
- Starter Kit modules and components are built using Font Awesome glyphicons, so **FontAwesome** should be included in the scss.

#### RECOMMENDED STRUCTURE

Import or define the following:

- 1. Fonts and glyph icons
- 2. Mixins and functions
  - Bootstrap: dependencies, excluding components and utilities
  - Shared components: dependencies, excluding components and utilities
  - Custom theme mixins and functions
- 3. Theme variables
  - Custom theme variables
  - Bootstrap: theme variable defaults (fallbacks)
- 4. Components and modules scss
  - Shared components: components
  - Custom components and modules
- 5. Utilities
  - Bootstrap, shared component, and custom utilities

# THEMING MODULES

Starter Kit modules allow targeting by any theme by defining a class name matching a module name. This class name should be the first class name applied to the outermost element rendered by the React component. Developers may allow for more granular themability options by providing additional class names on elements or features of a module that may be targetable by custom themes.

See Bootstrap 4 theming guide for further details on Bootstrap: https://getbootstrap.com/docs/4.0/getting-started/theming/

#### MODULE VIEW EXTENSIONS

Themes can group together multiple module 'view' changes without having to clone the original module. This can include your own module or starter kit modules.

Earlier we created a theme called "Spring", we can create a view extension for our module (product-feature) we created earlier in our 'spring' theme execute the following command:

# yarn msdyn365 add-view-extension spring product-feature

Notice a new file was added to the ".../src/themes/spring/views" directory with the following naming pattern "MODULE\_NAME.view.tsx". Example you should see ".../src/themes/spring/views/product-feature.view.tsx". This is a copy of the module view file and notice the import path was auto corrected.

```
ដ Ⅲ ...
Ф
                                                               product-feature.view.tsx >

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✓ MSDYN365.COMMERCE.ONLINE

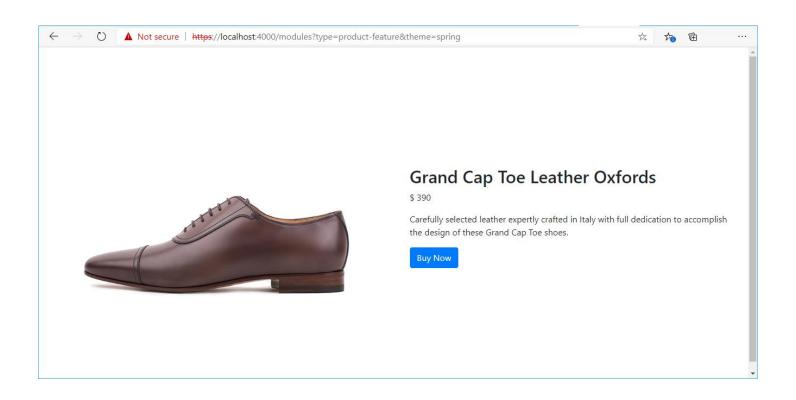
128
       > .vscode
                                                                       import { IProductFeatureViewProps } from '../../modules/product-feature/./product-feature';
import { imageAlignment } from '../../modules/product-feature/./product-feature.props.autoge
                                                                           ist _renderImage=(productImageUrl: string, productName: string): JSX.Element => {
   return <img src={productImageUrl} alt={productName} className='img-fluid p-3' />
          > helloworld
         > pageMocks
                                                                       const _renderInfo=(productName: string, productInfo: string, productPrice: string, buttonInfo: string): JSX.Element => {
         > settings
                                                                                  {productInfo}
                                                                                      {productPrice}
           > definition-extensions
                                                                       export default (props: IProductFeatureViewProps) => {
                                                                             const { productName, productInfo, productImageUrl, productPrice, buttonInfo, alignment } = props;
                                                                            let left:
                                                                            let right;
                                                                            if (alignment === imageAlignment.left) {
        > starter-pack
                                                                                 left = _renderImage(productImageUrl, productName);
```

Make a minor change to the HTML below to re-order the productInfo and productPrice. between the highlighted lines below. and save the file.

```
/*!
  * Copyright (c) Microsoft Corporation.
  * All rights reserved. See LICENSE in the project root for license information.
  */
import * as React from 'react';
import { IProductFeatureViewProps } from '../../../modules/product-feature/./product-feature';
import { imageAlignment } from '../../../modules/product-feature/./product-
feature.props.autogenerated';
const _renderImage=(productImageUrl: string, productName: string): JSX.Element => {
```

```
return <img src={productImageUrl} alt={productName} className='img-fluid p-3' />;
};
const _renderInfo=(productName: string, productInfo: string, productPrice: string, buttonInfo: str
ing): JSX.Element => {
    return (
        <div className='container'>
            <h2>{productName}</h2>
            {productPrice}
            {productInfo}
            <button type='button' className='btn btn-primary'>{buttonInfo}</button>
        </div>
    );
};
export default (props: IProductFeatureViewProps) => {
    const { productName, productInfo, productImageUrl, productPrice, buttonInfo, alignment } = pro
ps;
    let left:
    let right;
    if (alignment === imageAlignment.left) {
        left = _renderImage(productImageUrl, productName);
        right = _renderInfo(productName, productInfo, productPrice, buttonInfo);
    } else {
        right = _renderImage(productImageUrl, productName);
        left = renderInfo(productName, productInfo, productPrice, buttonInfo);
    }
    return (
        <div className='row align-items-center'>
            <div className='col-sm-6'>
                {left}
            </div>
            <div className='col-sm-6'>
                {right}
            </div>
        </div>
    );
};
```

Run "yarn start" from the command prompt window and navigate to <a href="https://localhost:4000/modules?type=product-feature&theme=spring">https://localhost:4000/modules?type=product-feature&theme=spring</a> and you should see the changes to the module. Note the price now shows up above the product details in the below image.



#### MODULE DEFINITION EXTENSIONS

To create a definition extension, create a "definition-extensions" directory under the theme directory if it does not exist and create a new file with the pattern "MODULE\_NAME.definition.ext.json". For example, create /src/themes/spring/definition-extensions/product-feature.definition.ext.json file. Paste in the following to add a new string config for a subtitle.

```
{
    "$type": "definitionExtension",
    "config": {
        "productSubTitle": {
            "type": "string",
            "friendlyName": "Product Sub-Title",
            "description": "Product placement sub title"
        }
    }
}
```

When you run "yarn start" a new \*.autogenerated.ts file will be added to the same directory. You'll need to do this to proceed to the next step.

You can now modify the view extension (\themes\spring\views\product-feature.view.tsx) to use the new property. Below shows an example with the changes highlighted to consume the new config via the props.config object

```
/*!
 * Copyright (c) Microsoft Corporation.
 st All rights reserved. See LICENSE in the project root for license information.
import * as React from 'react';
import { IProductFeatureViewProps } from '../../modules/product-feature/./product-feature';
import { imageAlignment } from '../../modules/product-feature/./product-
feature.props.autogenerated';
import { IProductFeatureProps } from '../definition-extensions/product-
feature.ext.props.autogenerated';
const _renderImage=(productImageUrl: string, productName: string): JSX.Element => {
    return <img src={productImageUrl} alt={productName} className='img-fluid p-3' />;
};
const _renderInfo=(productName: string, productInfo: string, productPrice: string, buttonInfo:
string, subTitle?: string): JSX.Element => {
    return (
        <div className='container'>
            <h2>{productName}</h2>
            {productInfo}
           {p>{subTitle}
            {productPrice}
            <button type='button' className='btn btn-primary'>{buttonInfo}</button>
        </div>
    );
```

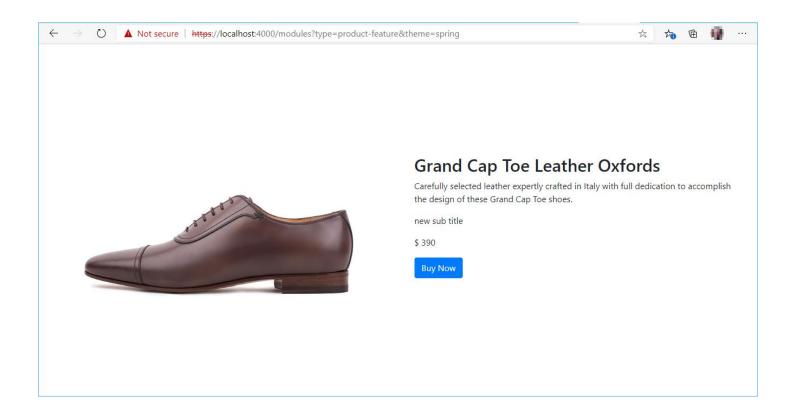
```
export default (props: IProductFeatureViewProps & IProductFeatureProps<{}>) => {
    const { productName, productInfo, productImageUrl, productPrice, buttonInfo, alignment } =
props;
    const { productSubTitle } = props.config;
    let left;
    let right;
    if (alignment === imageAlignment.left) {
        left = renderImage(productImageUrl, productName);
        right = _renderInfo(productName, productInfo, productPrice, buttonInfo, productSubTitle);
    } else {
        right = _renderImage(productImageUrl, productName);
        left = renderInfo(productName, productInfo, productPrice, buttonInfo, productSubTitle);
    }
    return (
        <div className='row align-items-center'>
            <div className='col-sm-6'>
                {left}
            </div>
            <div className='col-sm-6'>
                {right}
            </div>
        </div>
    );
};
```

Next you can add additional mock data to the original module under the \src\modules\product-feature\mocks\product-feature.json file:

```
{
   "id": "R1Module1",
   "config": {
        "imageAlignment": "left",
        "productTitle": "Retro Horn Rimmed Keyhole Nose Bridge Round Sunglasses",
        "productDetails": "High-
quality and pioneered with the perfect blend of timeless classic and modern technology with hint o
f old school glamor.",
        "productImage": {
            "src": "https://bit.ly/33cMGxr",
            "altText": "Retro Horn Rimmed Keyhole Nose Bridge Round Sunglasses"
        },
        "buttonText": "Buy Now",
        "productIds": "68719498121",
        "productSubTitle": "new sub title"
        },
        "data": {
            "actionResponse": {
```

```
"text": "Sample Action Response"
    }
},
"typeName": "product-feature"
}
```

Running "yarn start" and previewing the module with the theme should now render the extra "productSubTitle" config.



## BUILDING A THEME BASED OFF STARTER KIT "FABRIKAM" THEME

A great place to start with theme development is to leverage the "Fabrikam" theme code which was downloaded along with the SDK to your development environment. This section will show how to make a copy of this theme and then changes can be made to the CSS which can change the look and feel of the starter kit modules and default CSS.

As shown in a previous section, the online SDK provides a CLI command to **clone** a module, and we've mentioned themes are a type of module, so we'll use this to make a copy of the Fabrikam theme that is included in the starter kit.

If interested the source code for the starter kit Fabrikam theme module can be found here:

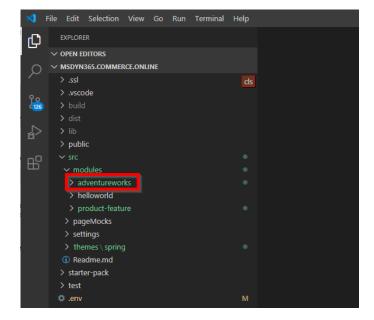
"c:\repos\Msdyn365.Commerce.Online\node\_modules\@msdyn365-commerce-modules\fabrikam-design-kit\src\modules\fabrikam" directory.

From within the Visual Studio Code terminal window stop the Node server if it is running by hitting Ctrl-C and then type the following command to clone the "Fabrikam" theme module into a new one called "adventureworks".

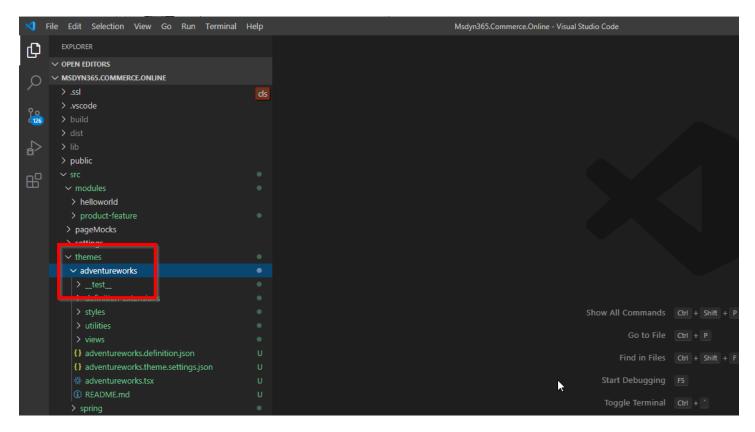
# yarn msdyn365 clone fabrikam adventureworks



You should now see the theme module under the "src/modules" directory as shown below.



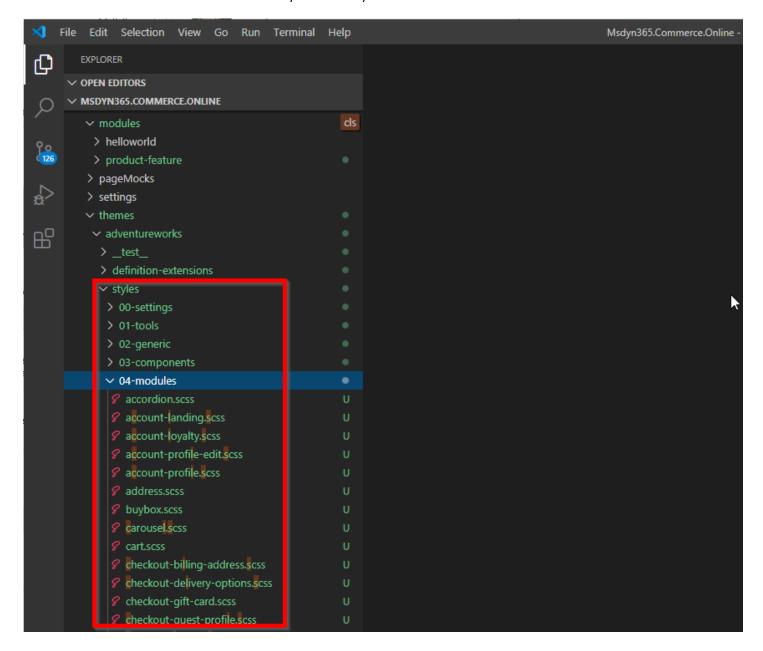
We have to make one more change, theme modules are treated a bit differently than regular modules and need to be under the themes directory. You should be able to drag the "adventureworks" theme directory and drop it under the themes directory as shown below.



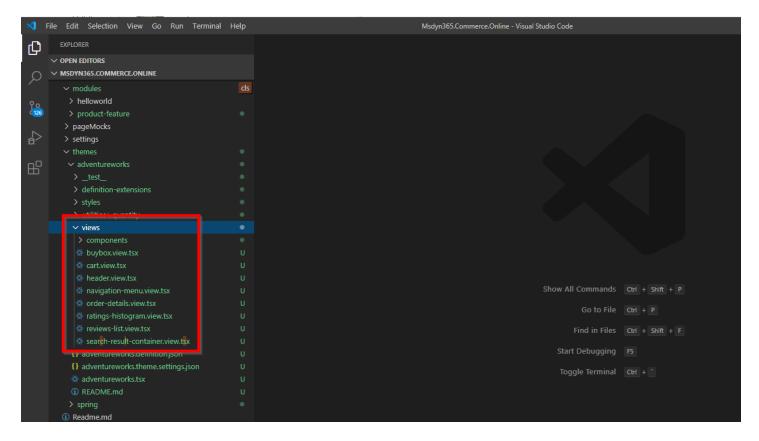
Next, open the new adventureworks.definition.json file and modify the friendly name and description, this is the name that will show up in the site builder tool when configurint themes.

```
{
    "$type": "themeModule",
    "friendlyName": "Adventure Works",
    "name": "adventureworks",
    "description": "This is the Adventure Works theme."
}
```

We now have a new theme based on the Fabrikam theme. If you look inside the theme files, you'll notice the Fabrikam theme contains SCSS files for each module under the "styles" directory.



Themes can change a modules view (layout / html), this can include starter kit modules as well as custom modules. The "views" directory contains module view overrides. Notice the Fabrikam theme has several starter kit module view overides already.



You can also extend a starter kit modules configuration properties inside of a theme, these are done with module defintion extension files added to the "definition-extensions" directory, you'll see a few have already been changed in the Fabrikam theme.

You can modify these files as needed and under the styles directory you can modify any of the default SCSS including module SCSS..

## TESTING YOUR CUSTOM THEME

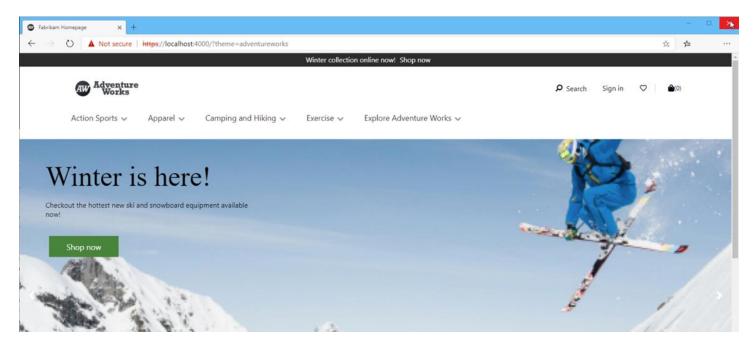
If you setup the .env file to point to your host site, you can also see your theme rendering against your live site. To do this first run "yarn start" from the terminal window.

You can now navigate in a Browser to see our live site rendered in the local development environment.

Try <a href="https://localhost:4000">https://localhost:4000</a>, this should render your live site using the default Fabrikam theme.

To render using our new theme use this URL: <a href="https://localhost:4000/?theme=adventureworks">https://localhost:4000/?theme=adventureworks</a>

For now the theme should look the same as Fabrikam.

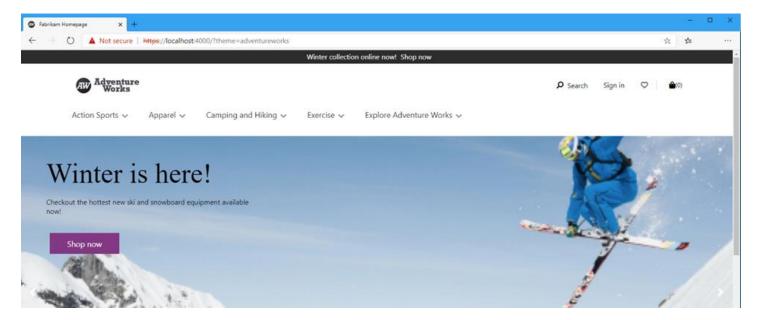


If you now make theme changes you can see them on your online site.

For example, change the primary color in the /src/themes/adventureworks/styles/00-settings/colors and save the file.

```
...
$msv-primary: rgb(129, 58, 131);
$msv-primary-hover: rgb(63, 44, 99);
...
```

Notice in the below image how the buttons on the site change to match the color changes.



#### MODULE DEFINITION EXTENSIONS

To show another module definition extension in action, we'll make a small change to the buybox starter kit module.

The below example shows how to modify the buybox.view.tsx to add a share link to send the product as an email. Notice it already exists under the "/src/themes/adventureworks/views" directory, however if it wasn't or you want to extend a different module's view for your theme. a CLI command is available (example: varn msdvn365 add-module-view-extension adventureworks buybox).

Open the file and make the following highlighted changes.

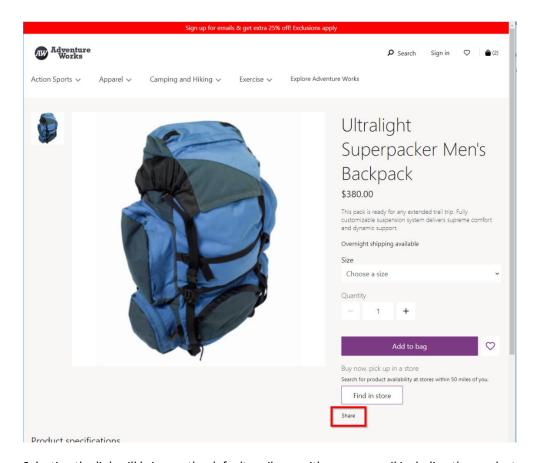
```
-----
   Copyright (c) Microsoft Corporation. All rights reserved.
   Licensed under the MIT License. See License.txt in the project root for license information.
import * as React from 'react';
import {
    IBuyboxAddToCartViewProps,
    IBuyboxAddToWishlistViewProps,
    IBuyboxCallbacks,
    IBuyboxData,
    IBuyboxFindInStoreViewProps,
   IBuyboxProductConfigureDropdownViewProps,
    IBuyboxProductConfigureViewProps,
    IBuyboxProductQuantityViewProps,
    IBuyboxProps,
    IBuyboxState,
    IBuyboxViewProps
} from '@msdyn365-commerce-modules/buybox';
import { Module, Node } from '@msdyn365-commerce-modules/utilities';
import { IBuyboxProps as IBuyboxExtentionProps, IBuyboxResources as IBuyboxExtentionResources } fr
om '../definition-extensions/buybox.ext.props.autogenerated';
import { Quantity } from '.../utilities/quantity';
const BuyboxView: React.FC<IBuyboxViewProps & IBuyboxExtentionProps<IBuyboxData>> = props => {
    const { ModuleProps, MediaGalleryContainerProps, ProductInfoContainerProps, addToCart, addToWi
shlist, configure, description, findInStore, quantity, price, title, rating, callbacks, state, res
ources } = props;
   return (
        <Module {...ModuleProps}>
            <Node {...MediaGalleryContainerProps}>
                {props.mediaGallery}
            </Node>
            <Node {...ProductInfoContainerProps}>
                {title}
                {price}
                {description}
                { renderTextBlock(props.slots.textBlocks)}
                {rating}
                {configure && renderConfigure(configure)}
                {quantity && _renderQuantity(quantity, callbacks, props, state, resources)}
                 _renderCartAndWishlistDiv(addToCart, addToWishlist)}
```

```
{findInStore && renderFindInStore(findInStore)}
                {_renderShareLink(props.data?.product?.result?.Name, props.context.request.url.rec
uestUrl.href)}
            </Node>
        </Module>
    );
};
const _renderShareLink = (productName?: String, productLInk?: String): JSX.Element | undefined =>
    if (!productName | !URL) {
        return undefined;
    const hrefContent=`mailto:?body=Check out this product ${productName}!\n ${productLInk}\n\n &s
ubject=I want to recommend this product from Adventure Works!`;
    return (
        <a className='a-link-normal email' title='Share via e-mail' href={hrefContent}>Share</a>
const _renderTextBlock = (textBlocks: React.ReactNode[]): JSX.Element | undefined => {
    if (!textBlocks || textBlocks.length === 0) {
        return undefined;
    return (
        <>
            {textBlocks[0]}
    );
};
const <u>renderCartAndWishlistDiv</u> = (addToCart?: IBuyboxAddToCartViewProps, addToWishlist?: IBuyboxA
ddToWishlistViewProps): JSX.Element | undefined => {
    if (!addToCart && !addToWishlist) {
        return undefined;
    return (
        <div className='product-add-to-cart'>
            {addToCart && addToCart.errorBlock}
            {addToWishlist && addToWishlist.errorBlock}
            <div className='buttons'>
                {addToCart && addToCart.button}
                {addToWishlist && addToWishlist.button}
            </div>
        </div>
    );
};
const _renderConfigure = (configure: IBuyboxProductConfigureViewProps): JSX.Element => {
    const { ContainerProps, dropdowns } = configure;
```

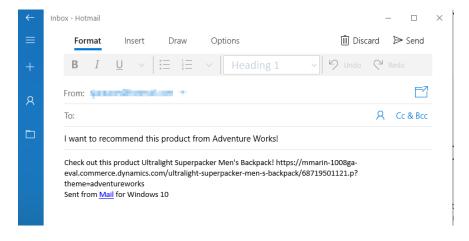
```
return (
        <Node {...ContainerProps}>
            {dropdowns.map( renderConfigureDropdown)}
        </Node>
    );
};
const <u>renderConfigureDropdown</u> = (dropdown: IBuyboxProductConfigureDropdownViewProps): JSX.Element
    const { ContainerProps, LabelContainerProps, heading, errors, select } = dropdown;
    return (
        <Node {...ContainerProps}>
            <Node {...LabelContainerProps}>
                {heading}
                {errors}
            </Node>
            {select}
        </Node>
    );
const renderFindInStore = (findInStore: IBuyboxFindInStoreViewProps): JSX.Element => {
    const { ContainerProps, storeSelector, heading, description, errors, button } = findInStore;
    return (
        <Node {...ContainerProps}>
            {storeSelector}
            {heading}
            {description}
            {errors}
            {button}
        </Node>
    );
};
const renderQuantity = (quantityComponent: IBuyboxProductQuantityViewProps, callbacks: IBuyboxCal
lbacks, props: IBuyboxProps<IBuyboxData>, state: IBuyboxState, extentionResources: IBuyboxExtentio
nResources): JSX.Element => {
    const { ContainerProps, LabelContainerProps, heading, errors } = quantityComponent;
        resources,
        context: {
            app: {
                config: {
                    maxQuantityForCartLineItem
            }
    } = props;
        quantity,
```

```
} = state;
    const onChange = (newValue: number) => {
        if (callbacks.updateQuantity) {
            callbacks.updateQuantity(newValue);
    };
        <Node {...ContainerProps}>
            <Node {...LabelContainerProps}>
                {heading}
                {errors}
            </Node>
            <Quantity
                id='ms-buybox__product-quantity-input'
                max={maxQuantityForCartLineItem || 10}
                currentCount={quantity}
                onChange={onChange}
                inputQuantityAriaLabel={resources.inputQuantityAriaLabel}
                decrementButtonAriaLabel={extentionResources.decrementButtonAriaLabel}
                incrementButtonAriaLabel={extentionResources.incrementButtonAriaLabel}
        </Node>
    );
};
export default BuyboxView;
```

The below output shows what the module change will look like.



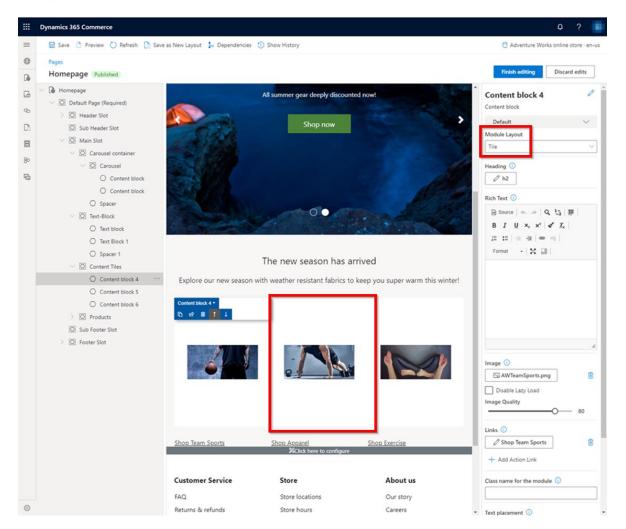
Selecting the link will bring up the default mail app with a new e-mail including the product name and link.



## THEME SETTINGS

Theme designers can specify various layouts for each module and can control specific layout options for images that the module renders. The layouts are specified in the THEME\_NAME.theme.settings.json file located in the root of the theme folder. For example, you should see a src/themes/adventureworks/adventureworks.theme.settings.json file.

To see this in practice, earlier in Unit 2 we swapped out some marketing images on our homepage. Notice however, since the images were a different aspect ratio, they are rendering additional white space around the image (as shown in image below).



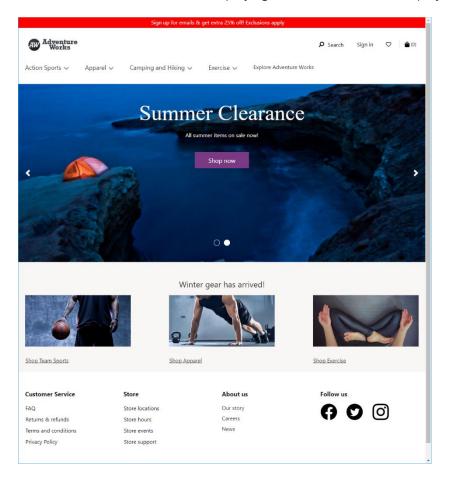
This is due to the auto image resizer using the image settings provided in the Fabrikam theme. If you open adventureworks.theme.settings.json file you'll find the following definition for the "content-block" module "Tile" layout:

```
"tile": {
    "friendlyName": "Tile",
    "description": "Image with text as tiles",
    "type": "layout",
    "properties": {
         "image": {
             "friendlyName": "Tile Image Settings", "description": "Tile Image Settings",
              "type": "imageSizes",
             "properties": {
                  "xs" · 〔
                      "width": 343,
                      "height": 457
                  "md": {
                       "width": 427,
                      "height": 569
                  "x1": {
                      "width": 427,
                      "height": 569
```

Notice the image width and heights provided above are for a larger image with a different aspect ratio. The ones we provided in the assets zip file were 312x152. So we can fix up the sizes here as shown below.

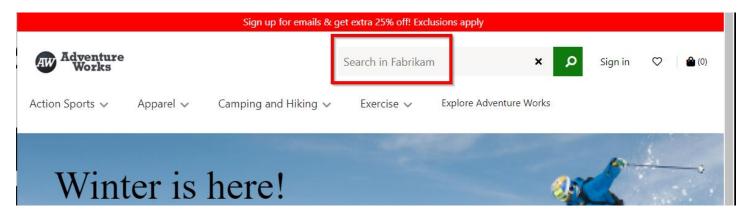
```
"tile": {
   "friendlyName": "Tile",
   "description": "Image with text as tiles",
   "type": "layout",
   "properties": {
       "image": {
            "friendlyName": "Tile Image Settings",
           "description": "Tile Image Settings",
           "type": "imageSizes",
           "properties": {
                   "width": 312,
                   "height": 152
                "md": {
                    "width": 312,
                   "height": 152
                "x1": {
                   "width": 312,
                   "height": 152
```

You will need to deploy this file to see the proper rendering, debugging on the local dev environment will not leverage this file. See the next section on deploying the extensions. Once deployed the home page will now look like the below.



## CHANGING THE STARTER KIT MODULE RESOURCE STRINGS

You may find situations where you want to change a resource string that was included as part of the starter kit. For example the placeholder search text has been hard coded to "Search in Fabrikam".



Module resource are stored in a global.json file and can be found under the C:\repos\Msdyn365.Commerce.Online\node\_modules\@msdyn365-commerce-modules\resources\src\resources\modules directory.

If you open this file and search for searchplaceholderText you should find the resource as shown below.

```
"searchplaceholderText": {
        "value": "Search in Fabrikam",
        "_value.comment": "Text for search place holder"
    },
```

We can easily override this setting by creating a new directory under our src directory "resources" and then "modules" under that and adding a new file global.json. For example, "C:\repos\Msdyn365.Commerce.Online\src\resources\modules\global.json".

We can now override any values, see below example to change the text to "Search".

```
{
    "@msdyn365-commerce-modules.searchplaceholderText": {
        "value": "Search"
        "comment": "Text for search place holder",
    }
}
```

#### BUILDING AND DEPLOYING E-COMMERCE EXTENSION PACKAGE

To deploy your new/modified customizations of modules, data actions and/or themes onto a test or production server, a customization package must be created, then uploaded via LCS.

In this section, we will cover how to create a configuration package and upload the package via LCS and deploy to release servers.

## CREATE A CONFIGURATION PACKAGE

To package your local customizations, open a Command Prompt and navigate to the root folder of the installed SDK and use the 'yarn msdyn365 pack" command, below is an example:

## C:\repos\Project.Rushmore>yarn msdyn365 pack

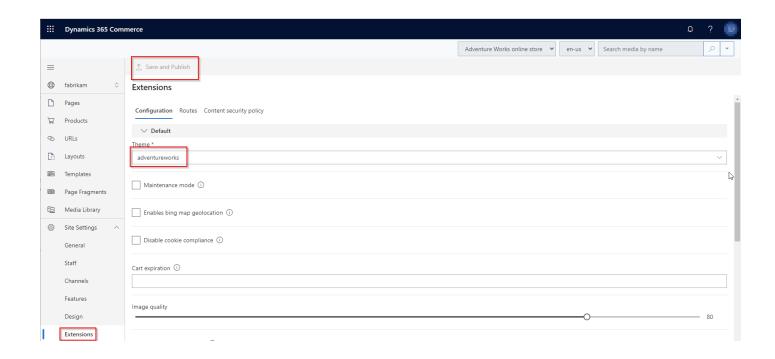
This could take a couple of minutes to complete and there should now be a new package file (.zip) in the same directory. This file will then be uploaded to LCS.

It will then create a zip file with a name similar to "Msdyn365.Commerce.Online-1.0.0.zip" under the SDK root directory (Example: c:\repose\Msdyn365.Commerce.Online).

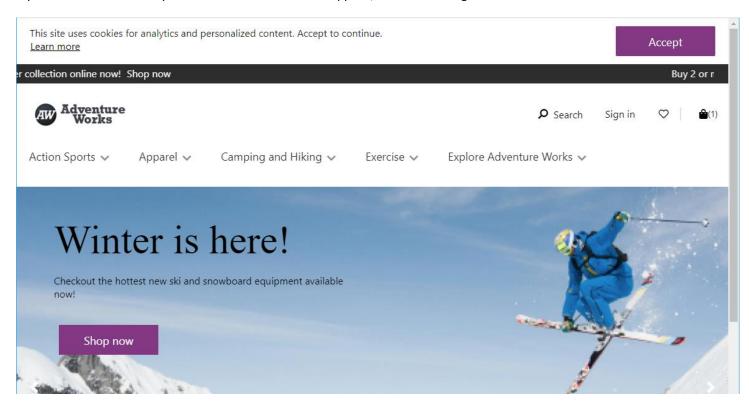
This file is now ready to upload and deploy via LCS, follow the <u>Package configurations and deploy them to an online environment</u> doc to do this.

Once deployed follow the below steps to set the new theme for the site in the Site Builder tool.

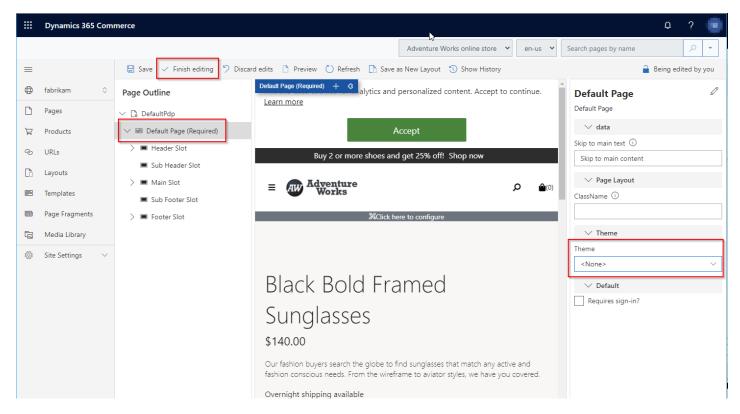
- Select "Extensions" page under the "Site Settings"
- Select "adventureworks" under the Theme drop down
- Select "Save and Publish"
- **NOTE**: there is currently a bug that the "Save and publish" won't be enabled due to a missing property in Content security policy, enable the "Enable Report Only Mode" option.



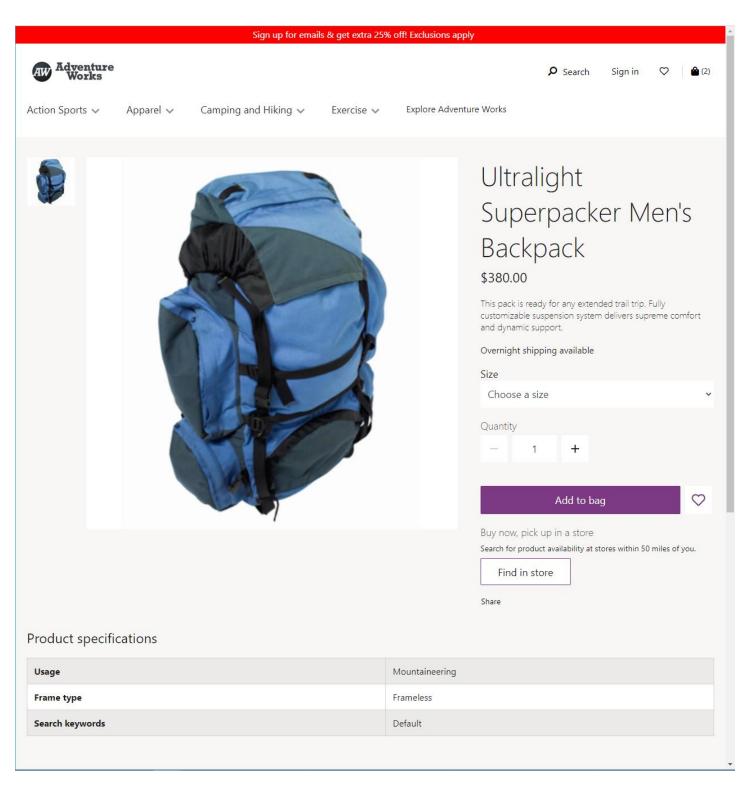
If you now refresh the site you should see the new theme applied, notice the changed button colors:



We also need to disable the PDP page theme selection it has been set to "Fabrikam" by default. Select the "Pages" tab and "DefaultPDP" page, click "Edit". Now select the "Default Page" node in the tree and change the "Theme" to "<None>". Click "Finish editing" and "Publish".



Also, if you navigate to a PDP page you can see the buy box module view extension changes as shown below.

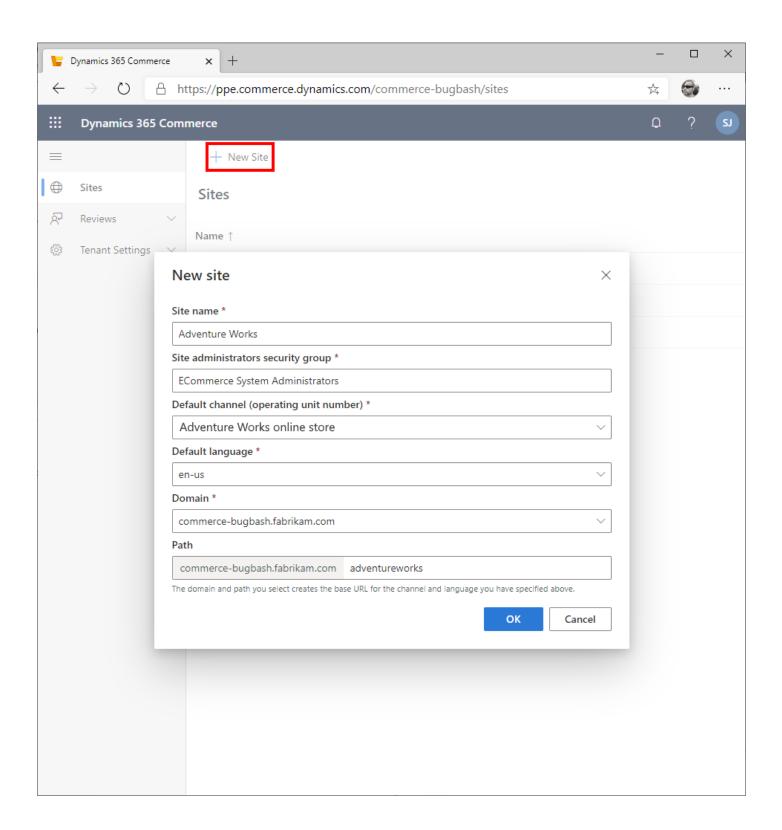


This completes unit 3, for more advanced extensibility topics visit the online SDK documentation.

# APPENDIX A - CREATING A NEW E-COMMERCE SITE

In the scenario where you need to create a brand-new e-Commerce site inside of the Site Builder tool, you will notice, no starter pages, templates, images, ... are included. Starter pages are only included with the first run experience of the "Fabrikam" site as configured in Unit 2. This section provides detailed instructions on creating a new site and the starter pages that go with it.

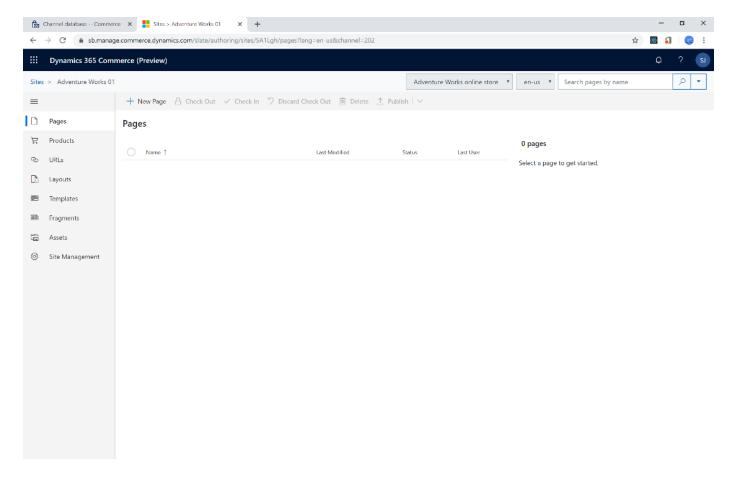
The home page of the Site Builder tool should look like the below screen shot. Select the "New Site" button to create a new site.



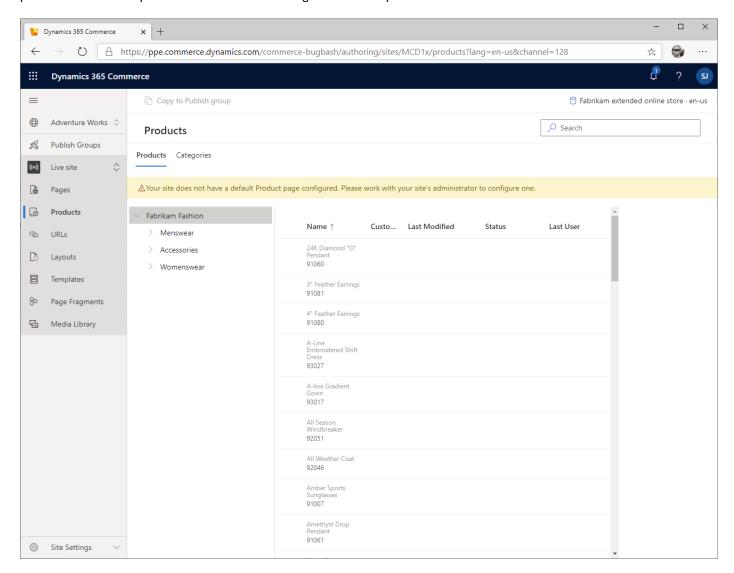
Next you need to fill out some site information

- Site name friendly name for your site
- Site administrator's security group this is the AD account that will have admin access for this group
- Select the **default channel** this is the new online channel created earlier in this guide
- Set a default language
- Select a domain name (these were provided when the e-Commerce component was provisioned in LCS)
- Path add a path for the site for the selected domain

You should now be taken to the new site, which is blank (no layout/pages/...).



To confirm our channel is setup correctly, select the "**Products**" node on the left (ignore the error message for now), you should see products in it list that you added to the channel navigation hierarchy and assortment.



# APPENDIX B - CREATE SITE CONTENT PAGES

## **OVERVIEW**

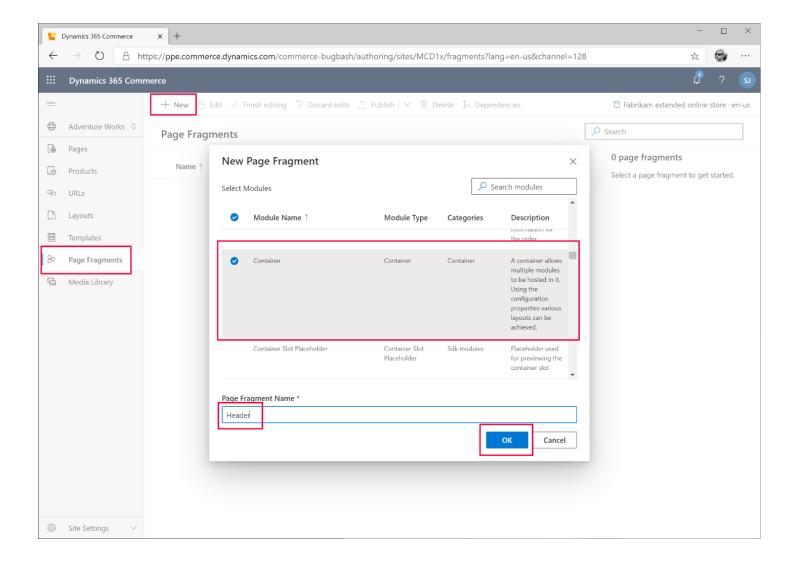
In the following sections we will show how to hand craft various pages that make up an e-Commerce site. These pages can also be found pre-created as part of the Store Starter Kit. We will walk through the general setup to get a home page, category page and product details page created. There are many other pages needed for a full site configuration and looking at the starter kit is a great way to see and learn how to create those.

We will start with creating a branded header and footer for each page. We will create these as "fragments" which allows you to create a re-usable module (or set of modules) that can be placed on templates or pages. This will allow us to create/configure in a single location and not on every page.

## CREATE A HEADER FRAGMENT

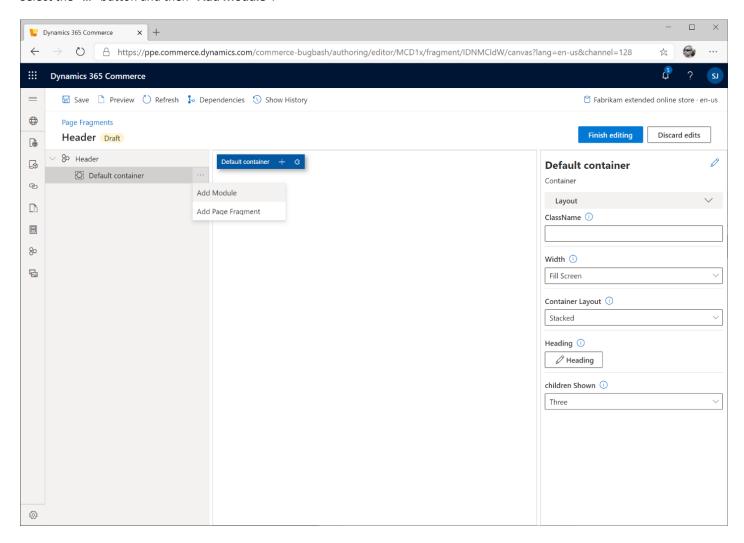
Select the "Fragments" on the left followed by the "New" button.

We want this fragment to be made up of the "Header" module. This module is considered a "container" module, which defines various slots (think of slots as UI regions) where it will layout parts of the header. These parts include a logo, category hierarchy and search box. The Header module is designed to hous e a navigation menu and search, however we want our header to be more flexible and contain a cookie compliance notice and a promotional banner. So, we will make the parent of our fragment a generic "Container" module. Select "Container" from the list of modules and provide a fragment name such as "Header" and click the "OK" button.



You should now be in the fragment editor, notice a tree view of the Fragment structure on the left, a preview in the middle and a properties column on the right. Note: you can select the top left 'hamburger' menu to collapse the left side tabs to get more room on the page.

The top level of the tree represents our fragment and the "Default container" is our container module. Select the "Default container" module and notice module configuration properties show up on the left side, we'll leave these as their default values. Select the "…" button and then "Add Module".



Add a total of 3 modules to the "Default container"

- Cookie consent
- Promo banner
- Header

Select the "Cookie consent" and add the following configurations

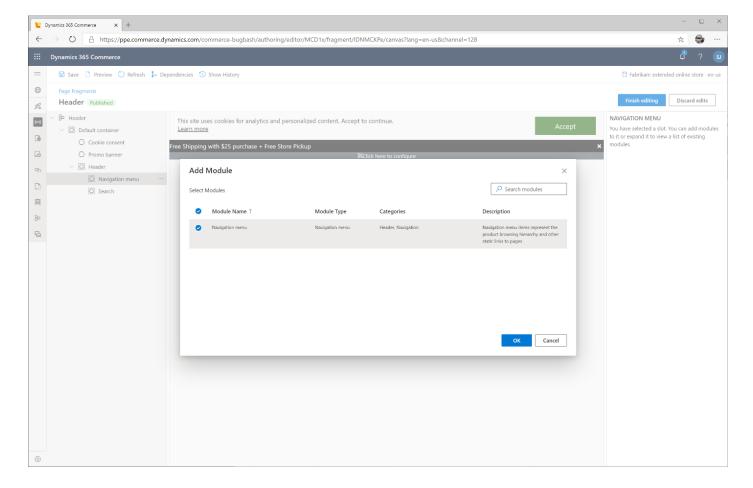
- "Rich text" configuration: "This site uses cookies for analytics and personalized content. Accept to continue."
- "Links" -> select "Add Action Link" then select the new "Action Link" button and add "Learn more" to the "Link Text", we'll leave the "Link target" empty for now since we don't have a page built to link it to.

Select the "Promo Banner" and configure the following

Select "Add Message" button and add the following message "Free Shipping with \$25 purchase + Free Store Pickup"

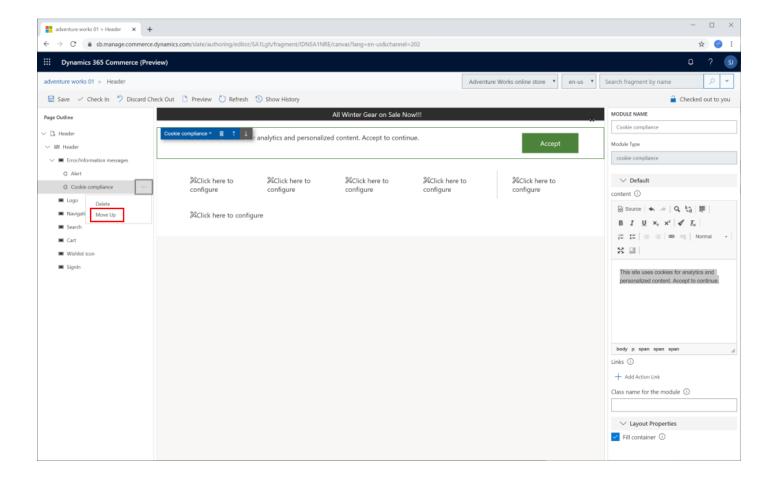
The "Header" module contains two "slots" that can be configured. Within each slot you can add other modules or fragments. We'll be adding other modules into each slot. Select the "Navigation menu" slot and then the "..."

You should see the "Add Module" dialog box, this will only show modules that are 'allowed' to be added to the selected slot. (Note: when modules are created, the Module developer has the ability to define which modules are allowed with each slot, they can also choose to allow 'any' module).

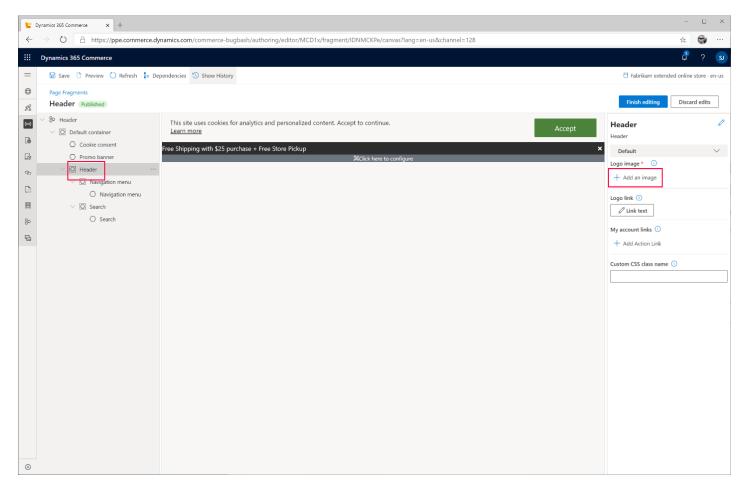


Select the "Navigation menu" module and click the "OK" button. This module is used to show a message at the top of a page. It can be configured to have a dismiss button if desired.

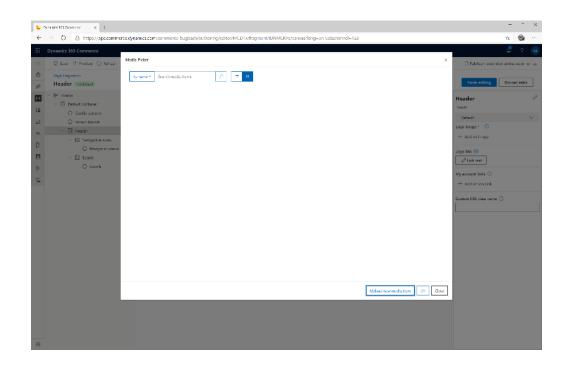
Select the "Search" slot and then "..." followed by "Add Module" and select the "Search" module.



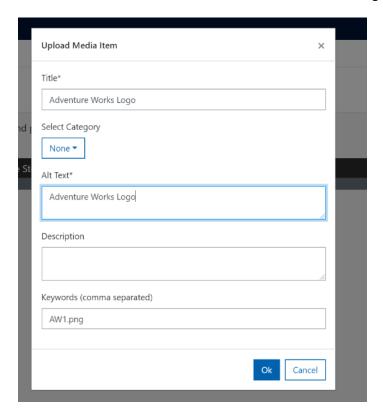
Select the "Header" module and "Add an image" to upload a logo.



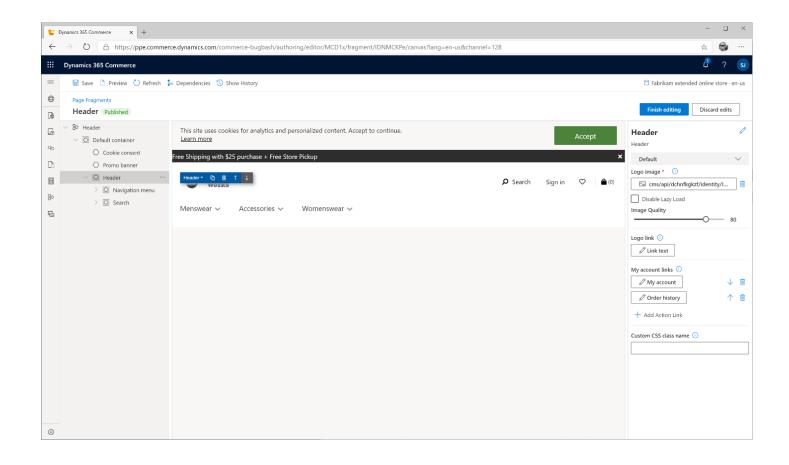
The "Media Picker" dialog will appear, select the "Upload new media item" button and upload a logo.



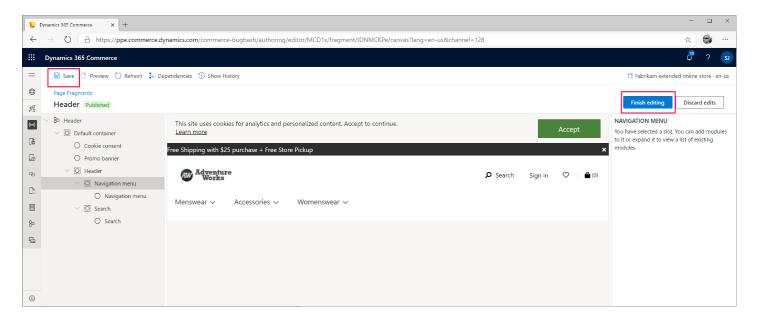
Add a title and "Alt Text" and click "OK". Next select the new image and click ok.



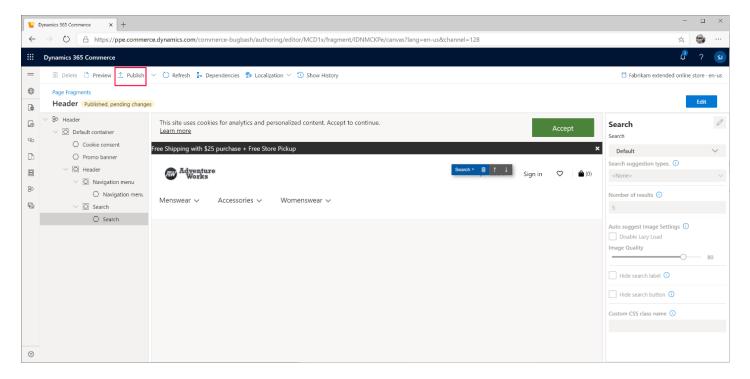
Under the "My account links", add 2 one for "My account" and another for "Order history", we'll leave the links empty for now until we have pages to link those to.



Now select "Save" and the image will be updated in the rendered view. We are now finished so select "Finish editing" button, you can optionally provide a note with the changes. You can also select the "Preview" button at any time which will open the fragment into a new tab.

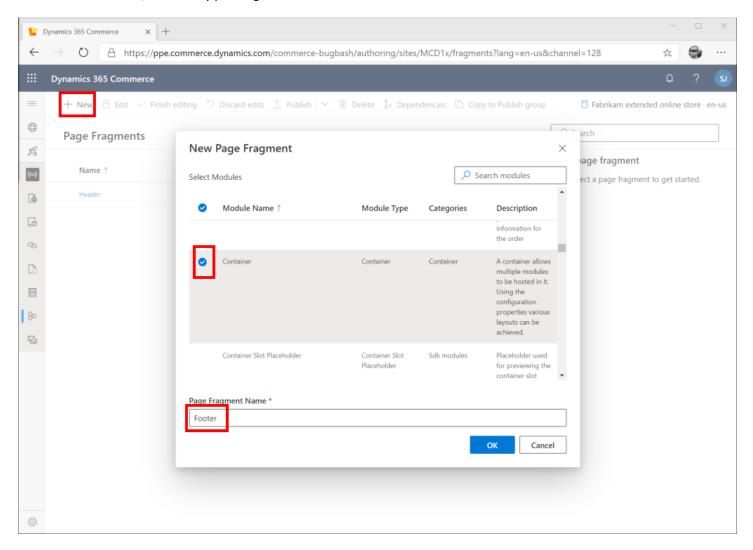


We can now publish the fragment which makes it live by pressing the "Publish" button.



## CREATE A FOOTER FRAGMENT

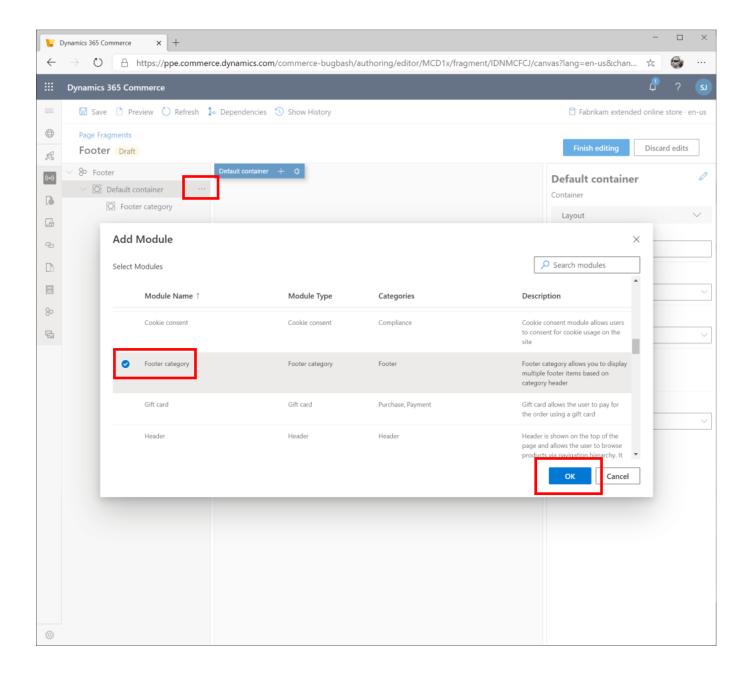
We're now going to create a footer fragment. Ensure the "Fragment" tab is selected and click the "+ New" button to bring up the "New Page Fragment" dialog box. Select the "Container" module, which will be our root module for this fragment and provide a name such as "Footer", followed by pressing the "OK" button.



We'll be generating a footer that looks similar to the below image.

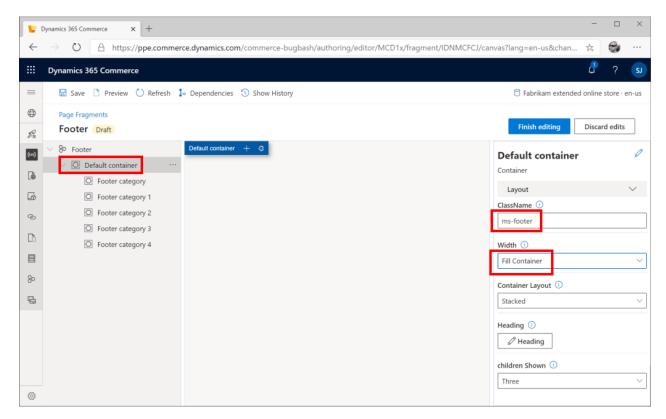
Customer Service	Fabrikam Store	About us	Follow us	
FAQ	Store locations	Our story	() O ()	
Returns & refunds	Store hours	Careers with Fabrikam	<b>(7 0</b> 0	
Terms & conditions	Store events	News		

To achieve this, the Footer module can render columns using the "Footer category" module. So for the 4 columns shown in the image above we'll add five "Footer category" modules to the "Default container" module. Select "Default container" in the tree then the "..." button and "Add Module" button to bring up the "Add module" dialog box. Find the "Footer category" module and add it.

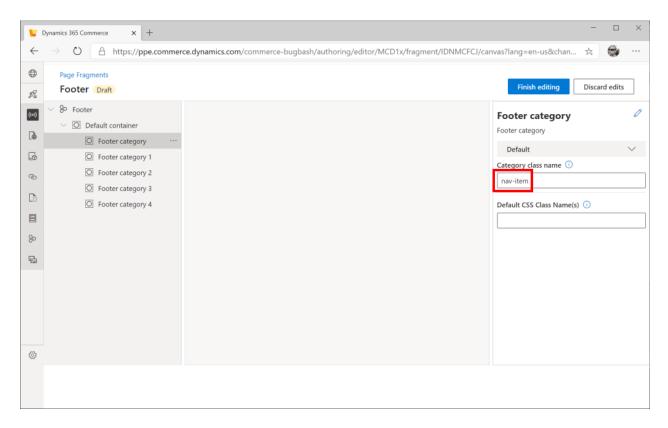


Do the same until you have 5 "Footer categories".

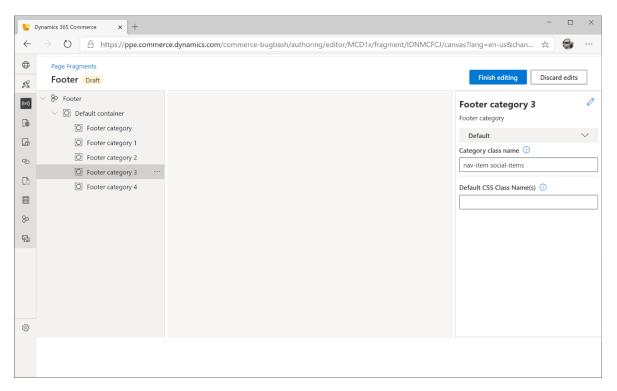
Select the "Default container" and configure the ClassName to "ms-footer" and the Width to "Fill container".



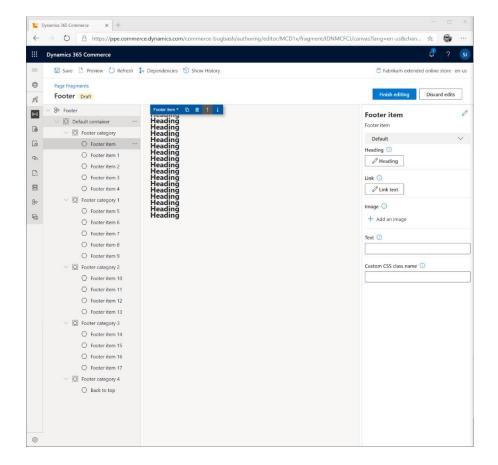
For each Footer category we need to configure the "Category class name". For example, the first "Footer category", set the configuration to "nav-item" as shown below.



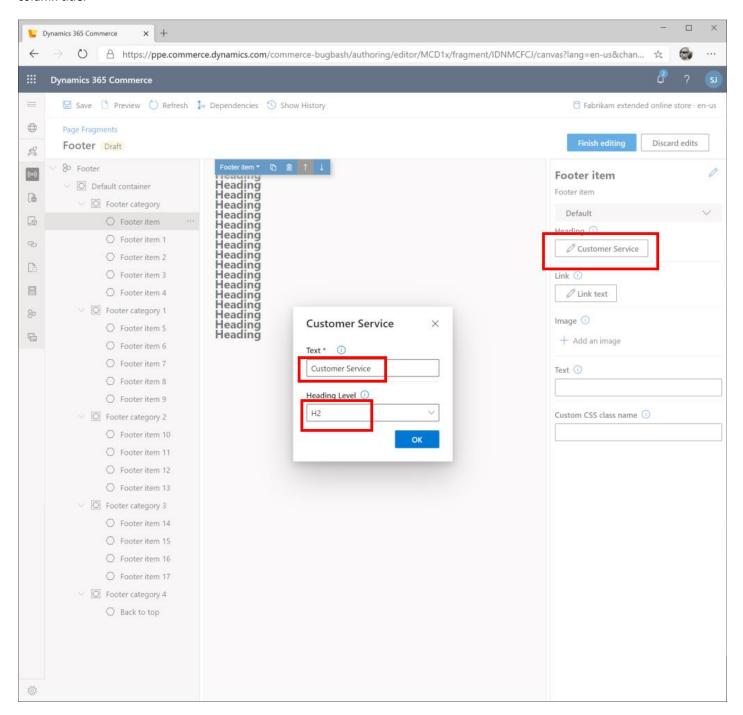
For "Footer category 3" set "Category class name" to "nav-item social-items" and leave "Footer category 4" class name empty.



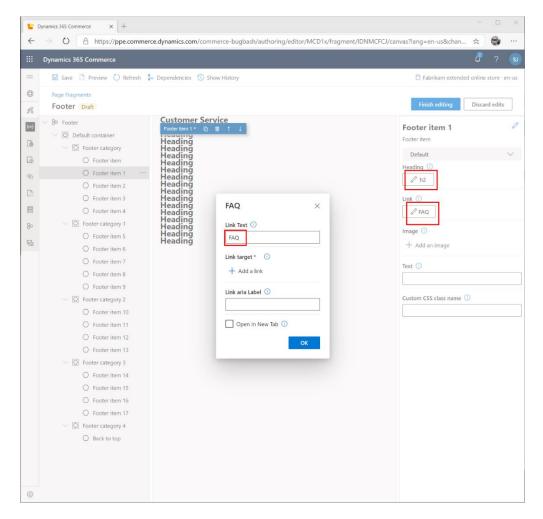
We will now add items to each category. Add five "Footer item" modules to "Footer category", "Footer category 1" and four to "Footer category 2" and "Footer category 3". Finally add a "Back to top" module to "Footer category 4".



Select the top footer item in "Footer category" and set the "Heading" text to "Customer Service" with "H2". This will serve as the column title.



Select "Footer item 1" and make the "Heading" config an empty string and set the "Link text" config to "FAQ". Since we don't have a FAQ page yet, we'll leave the link empty.



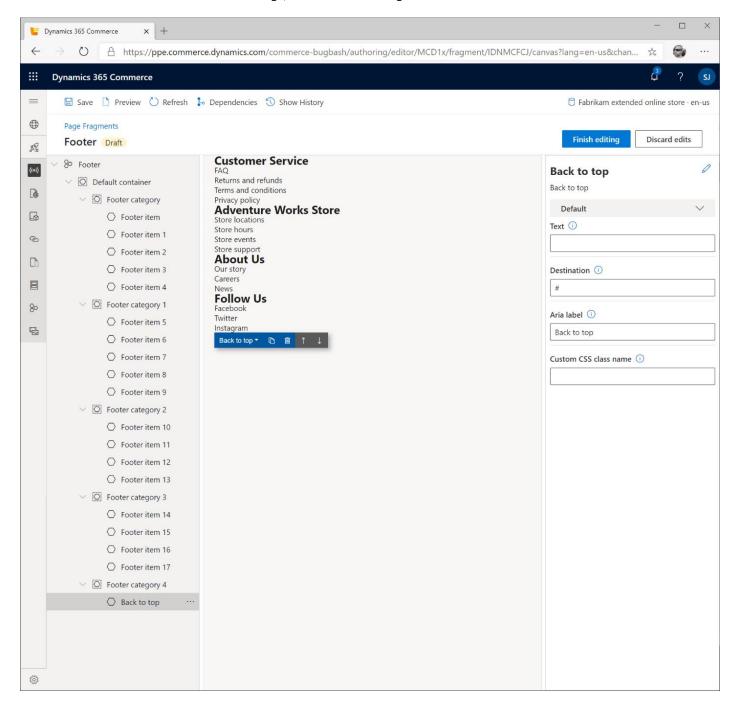
Set the remainder category strings as follows:

- Customer Service
  - o FAQ
  - o Returns and refunds
  - o Terms and conditions
  - Privacy policy
- Adventure Works Store
  - Store locations
  - o Store hours
  - Store events
  - Store support
- About Us
  - o Our story
  - o Careers
  - o News
- Follow Us

- o Facebook
- o Twitter
- o Instagram

For the "Back to top" module configure the "Destination" with "#" and "Aria label" to "Back to top".

The final footer should look like the below image, select "Finish editing" then "Publish".

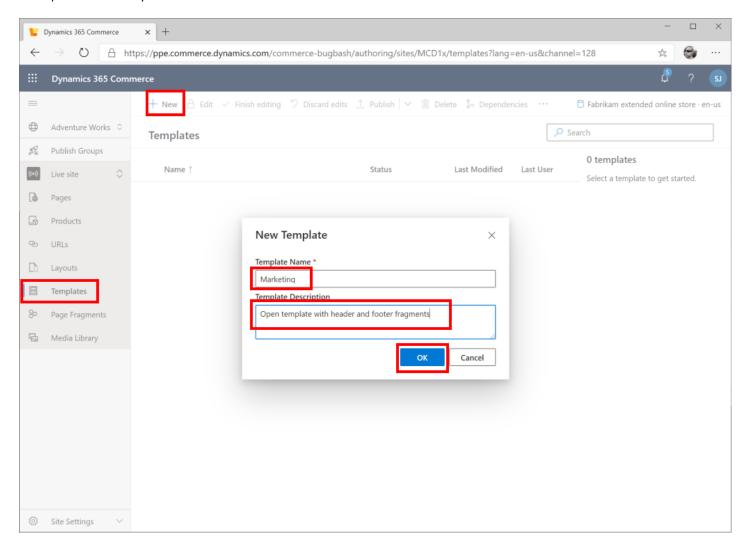


## CREATE A HOME TEMPLATE AND PAGE

All e-Commerce pages must adhere to a template which provides page options. This section will show you how to create and configure a template. We will start with a generic template that has a locked header and footer but will allow any content in between. This will then be used to create our Homepage in the next section.

## CREATE A HOME TEMPLATE

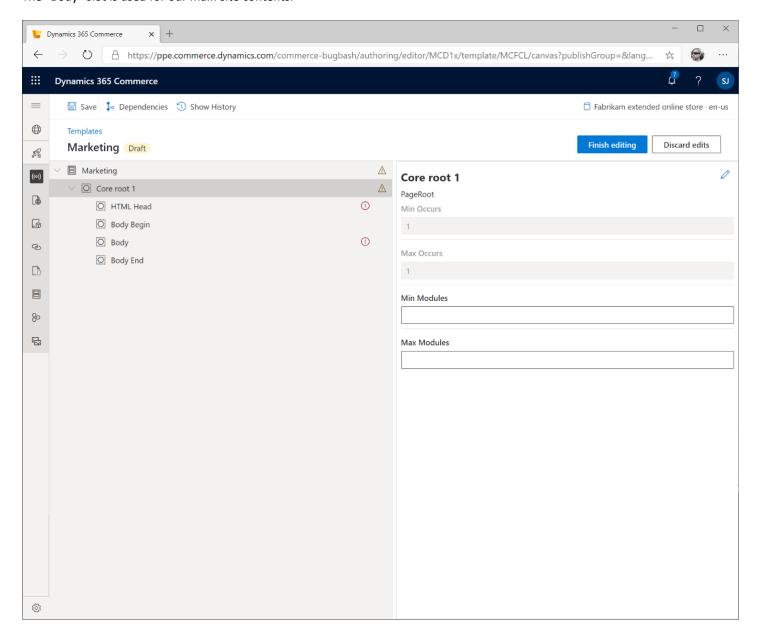
From the Site authoring tools, select the "**Templates**" tab followed by the "New" button. Provide a name such as "Marketing" and a description followed by the "OK" button.



The template page editor should now appear, notice how a tree view of the page shows up in the left column and the configurations in the right column similar to the fragment editor, but there is no rendered view in the middle. This is because a template isn't binding and data to it, but just provides the set of rules for a page.

Notice the layout module has some pre-defined slots (similar to slots we saw in the Header Fragment earlier)

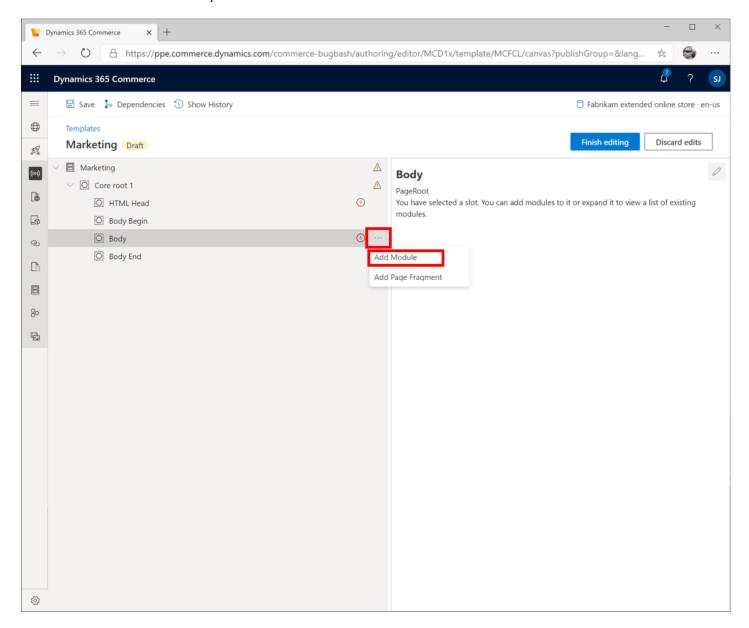
The "HTML Head", "Body Begin" and "Body End" are special slots for a few of the modules including meta data tags and scripting. The "Body" slot is used for our main site contents.



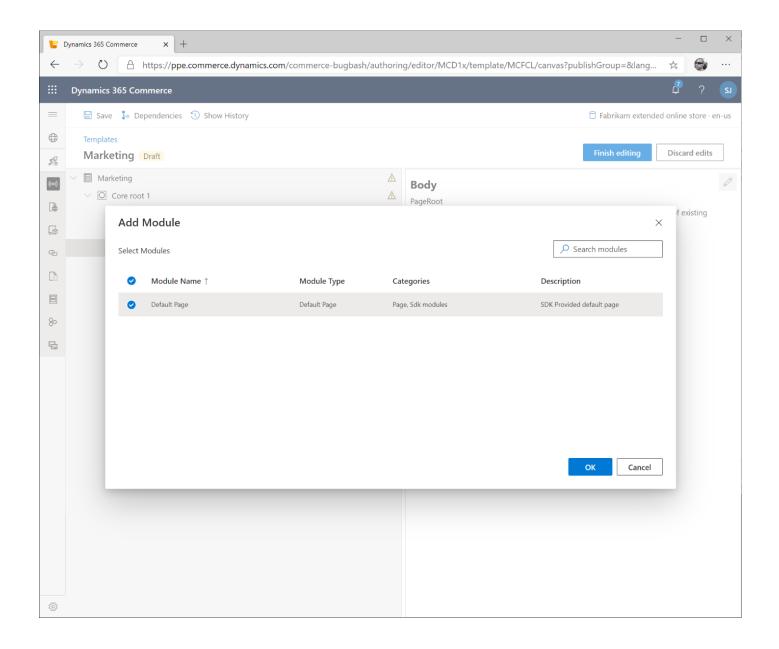
## ADD A PAGE MODULE

All pages must have a root Page module, it is a special module that defines the page layout. The page module must be added to "Body" slot.

Select "Add Module" from the Body slot "..." menu as shown below.



The module picker will now only show "Page" modules. Select the "Default Page" module and click "OK".

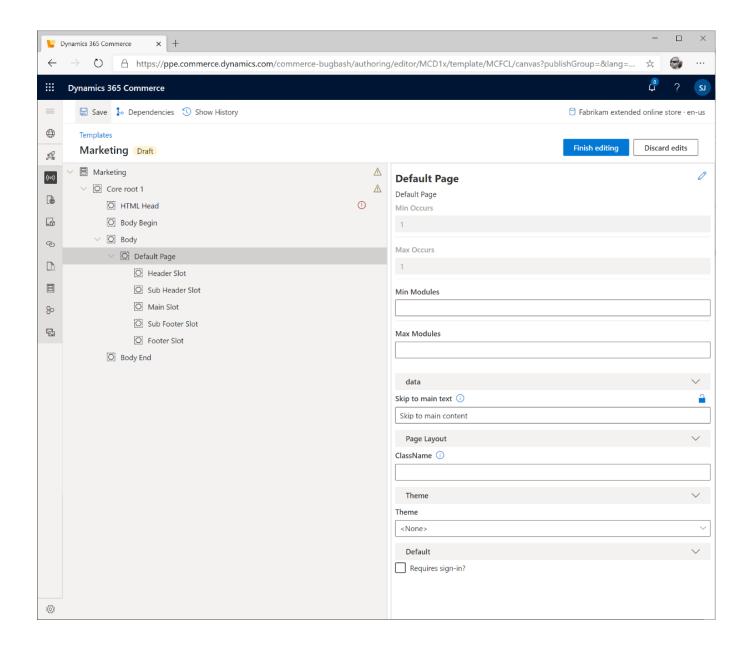


The "Body" slot should now contain a "Default Page" module, which itself has several slots defined including:

- "Header Slot"
- "Sub Header Slot"
- "Main Slot"
- "Sub Footer Slot"
- "Footer Slot"

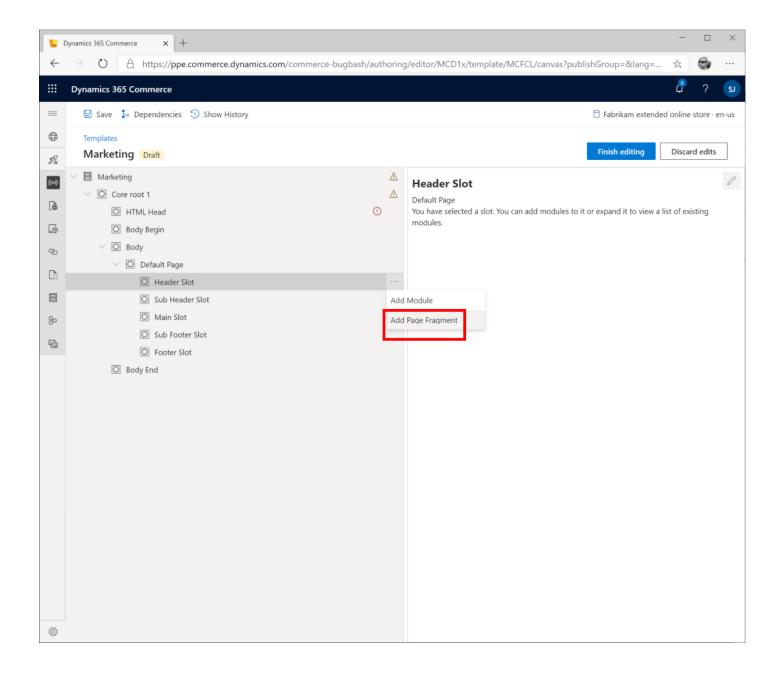
We'll be placing our header fragment in the "Header Slot", our main page modules will go inside the "Main Slot" and the "Footer Slot" will contain our Footer Fragment. Additionally pages could use the "Sub Header Slot" and "Sub Footer Slot" to render modules between the main content and the Header or Footer respectively.

We won't change any of the configuration settings on the "Default Page" but notice if we wanted pages created from this template to use a different "Theme" one can be set here, otherwise the default will be the one set on the site configurations, set earlier in this guide.

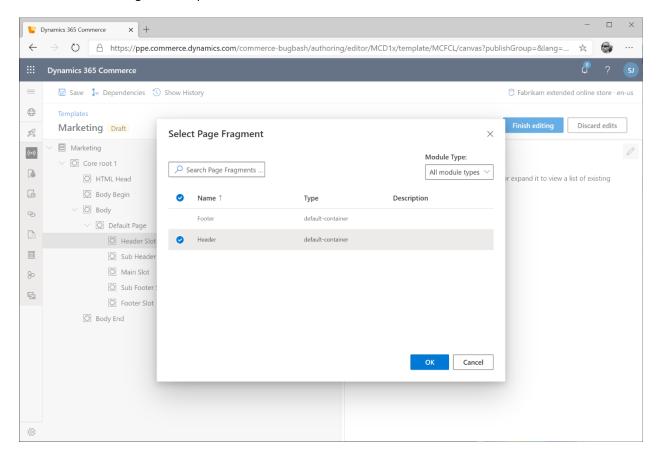


# ADD HEADER FRAGMENT

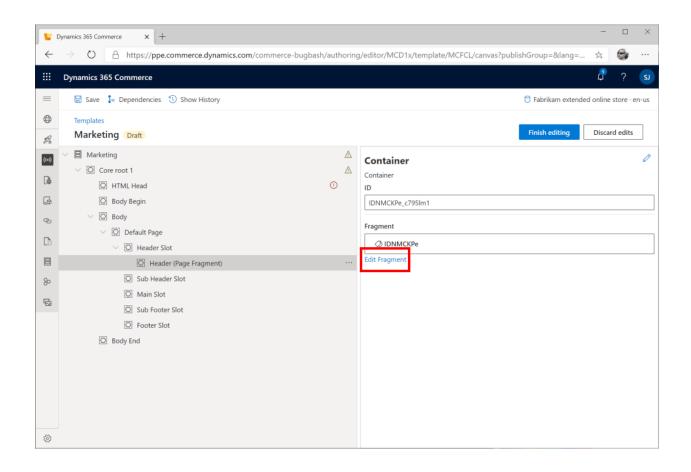
Now we will add the previously created Header fragment to the template. Select the "..." menu on the "Header Slot" and select "Add Fragment" to bring up the Fragment Picker.



Select the Header Fragment and press the "Select" button.

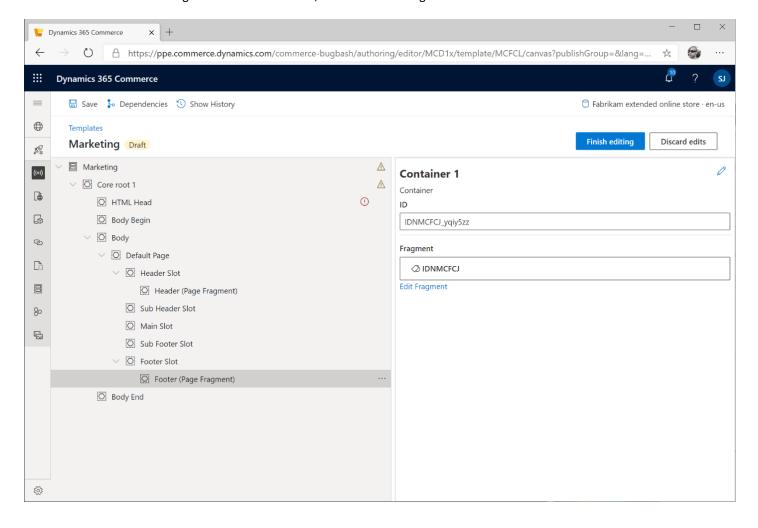


Notice the Header fragment configuration properties cannot be modified in the template. Since it's a fragment, it can only be edited in the fragment editor. There is a link to the editor if you select the "Edit Fragment" link, which will open up in another tab.



## ADD FOOTER FRAGMENT

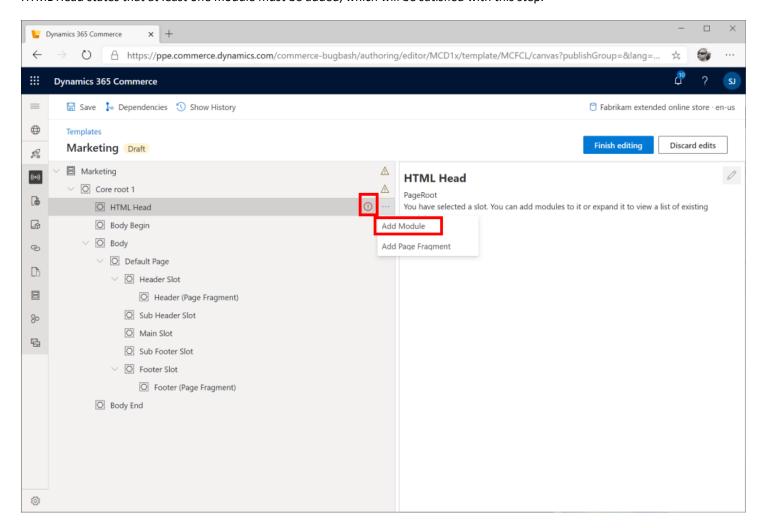
Similar to how the header fragment was added above, add the Footer fragment to the "Footer Slot".



## ADD HTML HEAD MODULES

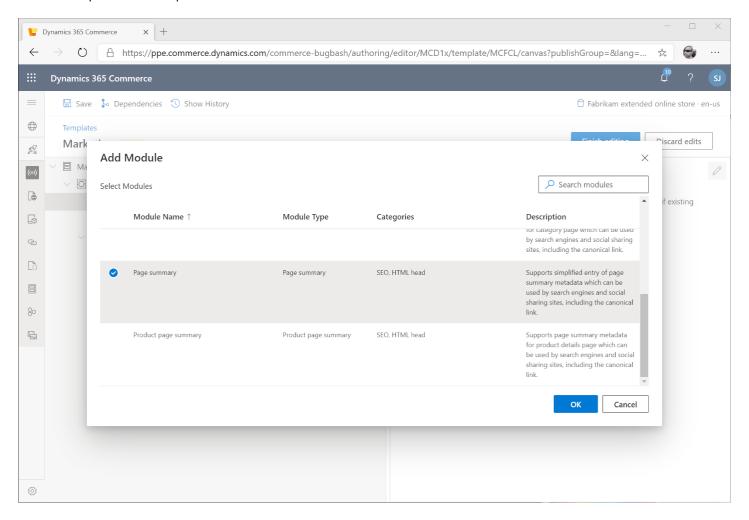
The HTML Head slot can contain some special modules for meta data, scripts (ex: Google Analytics) and a special page summary module.

We will only be adding a default page summary module, others can be added later if required. Also, notice the warning icon on the HTML Head states that at least one module must be added, which will be satisfied with this step.

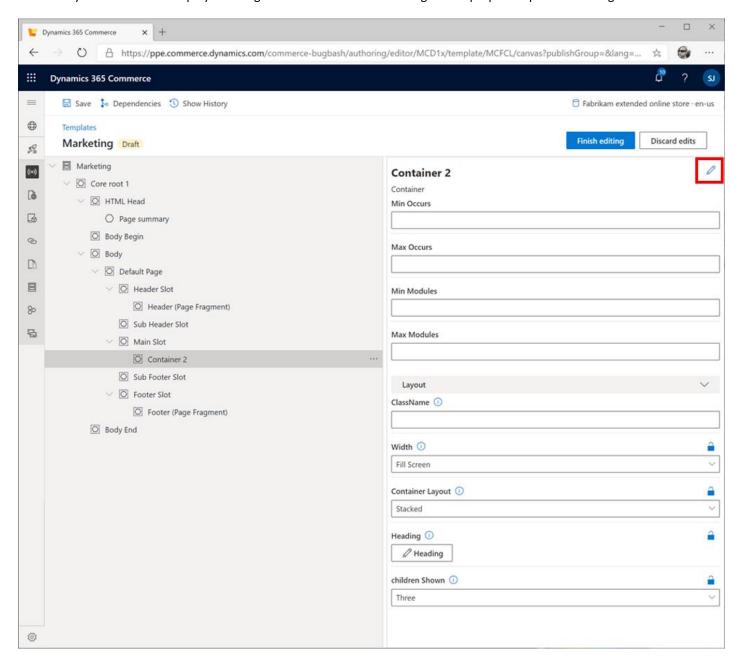


Select the "HTML Head" slot followed by "..." and "Add Module" to bring up the module picker. Select the "Page summary" module. By adding this module, each page that derives from this layout will be able to set extra configurations on each page including a favicon and search keywords.

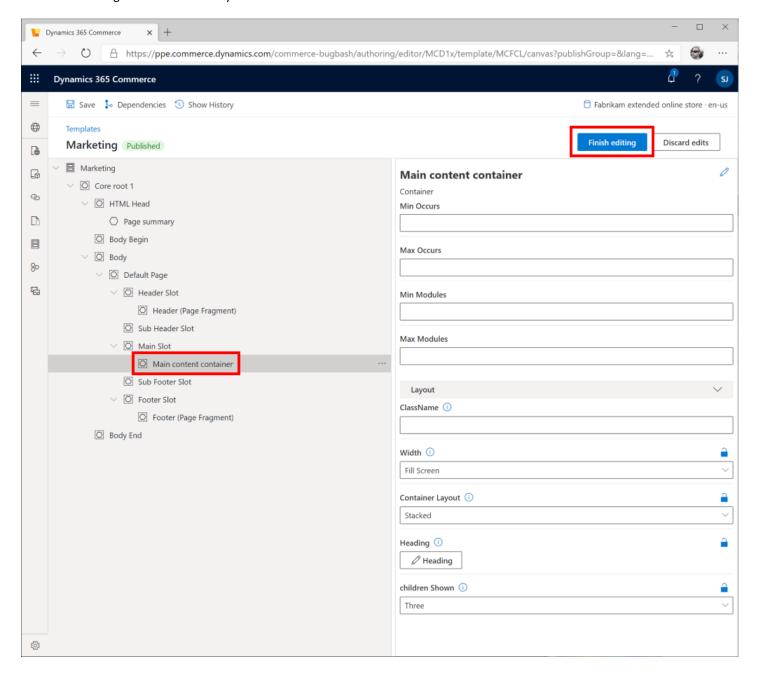
Save the template when complete.



Last, we'll add a "container" slot to the "Main Slot", pages will use this slot to add their content modules. We can then also change the friendly name that shows up by selecting the "edit" button in the configuration properties panel on the right.



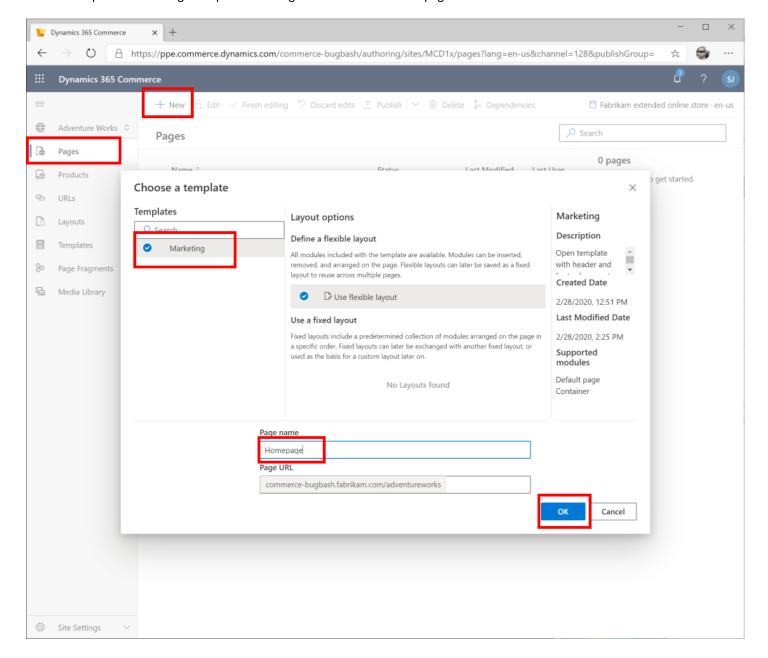
Below you can see the container name changed to "Main Content Container". We are now complete with our Template page. Click the "Finish editing" button followed by "Publish".



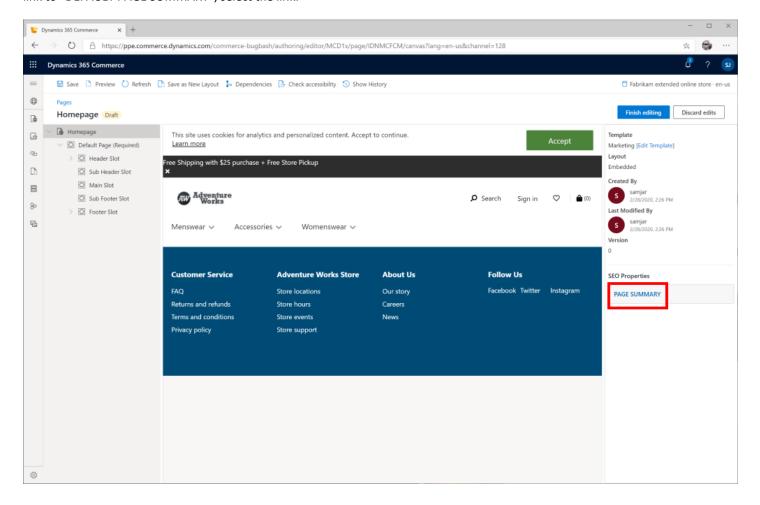
## CREATE A HOME PAGE

We are now ready to create our Home Page for our site. Navigate back to our site by selecting the site name in the top breadcrumb.

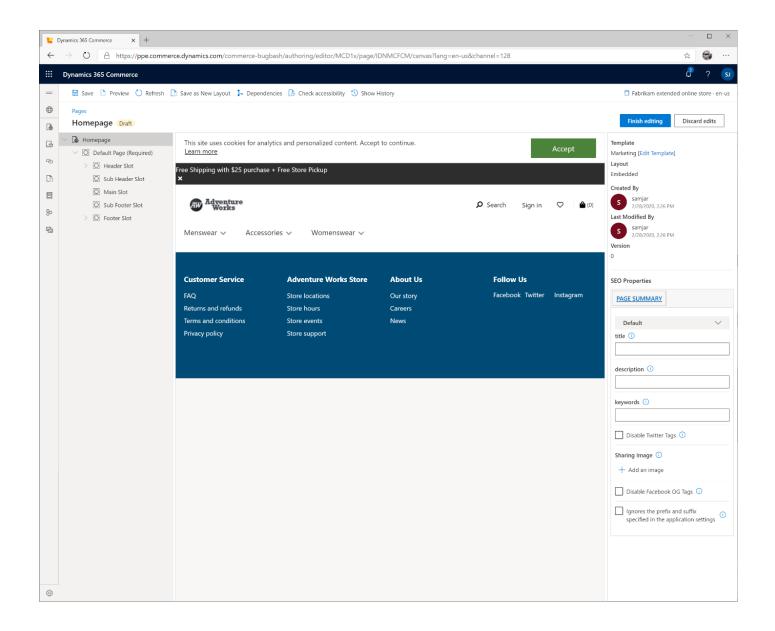
Next select the "Pages" tab in the left pane, followed by "New Page" to bring up the New Page dialog box. Select the previously created template "Marketing" and provide a "Page name" such as "Homepage".



You should now see the page rendered in the middle pane with our header and footer. Notice if you select the root node, there is a link to "DEFAULT PAGE SUMMARY", select the link.

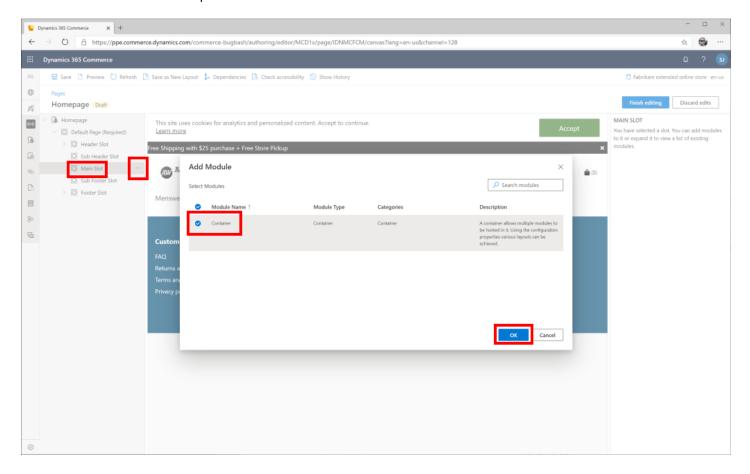


You should now see the same set of properties we saw on the template we created earlier. Here these configurations can be changes for this page. For example notice the favicon URL that was set in the layout page is set here as the default. It can be overridden if desired.

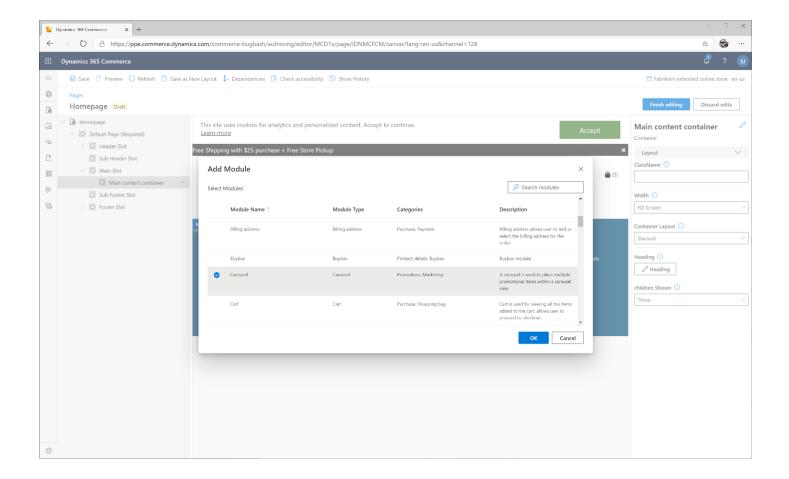


## ADD CONTENT MODULES TO PAGE

Select the "Main Slot" followed by "…" and "Add Module" to bring up the module picker. You should now see the single module "Container" listed which the template defined as an allowed child of the "Main slot". Select the module and click the "OK" button.

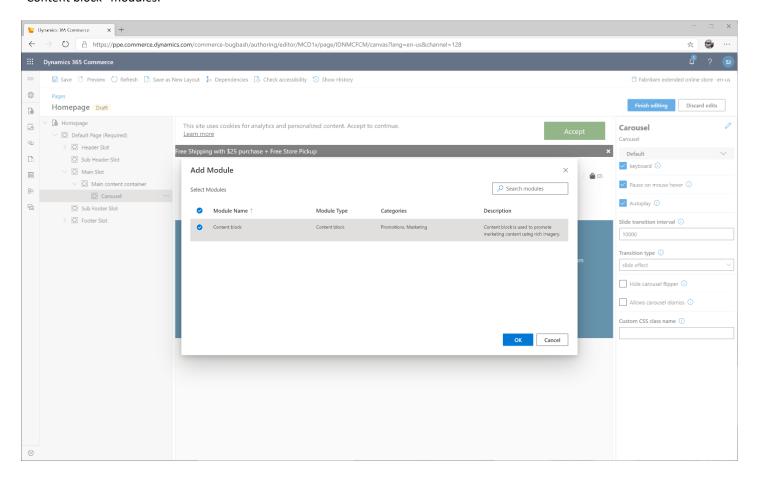


Select the new "Main content container" module followed by "…" and "Add Module" to bring up the module picker. You should now see a full list of available modules. Pick the "Carousel" container module and select the "OK" button. We'll leave all configurations at there defaults.

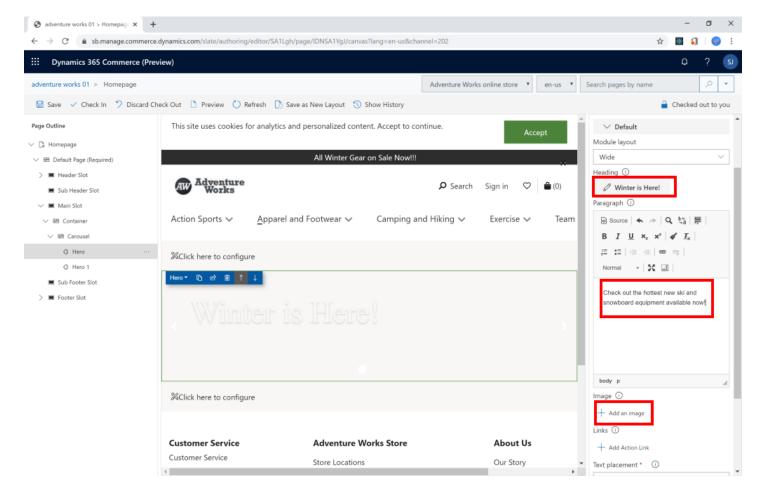


Select the new Container module in the tree and add a new "Carousel" module.

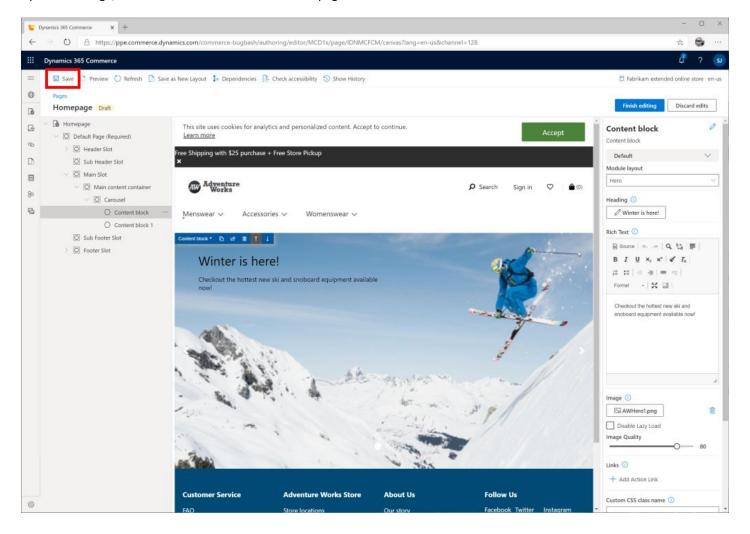
We can now add individual modules that will rendered as individual carousel items. Select the "Carousel" module and add two "Content block" modules.



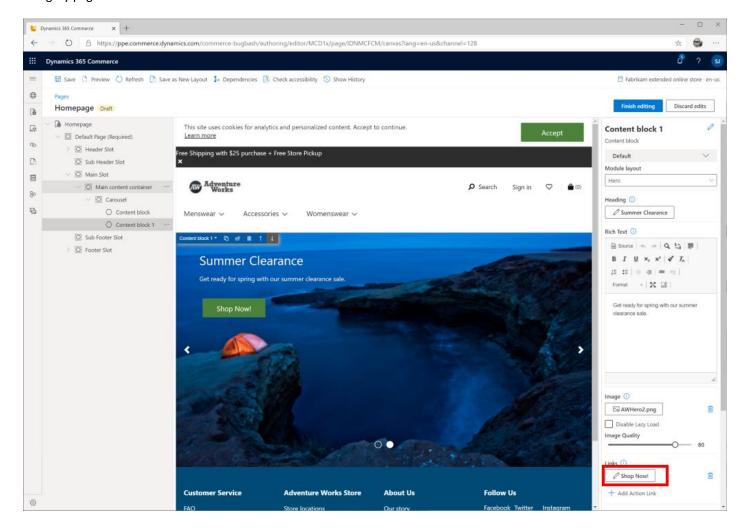
Configure the "Content block" modules. Select each and select "Module layout" = "Hero" and provide a "Heading" text Paragraph and select "Add an image" to bring up the image picker.



Upload an image, select it and click save to refresh the page.



Similarly configure the second Hero module. Notice below that an action link is also added, later this can be linked to a product category page.



Next we'll add the remaining modules to make up our page. Add a new "Container" module to the "Main Slot" with the following children:

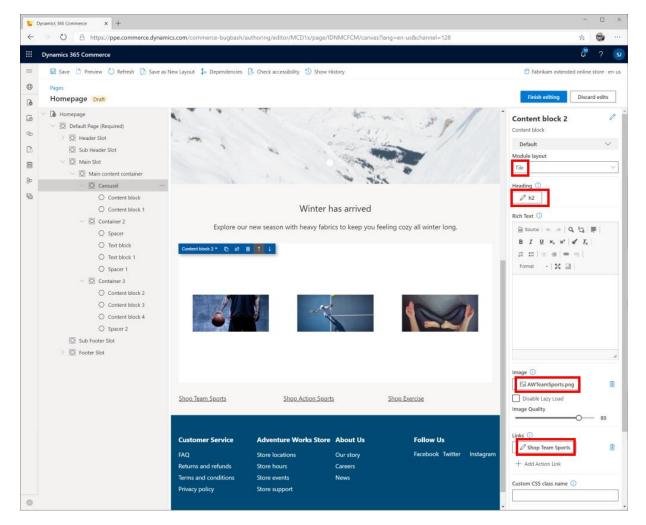
- "Spacer" with "Spacer height" set to 2x
- "Text block" with text "Winter has arrived", with "Alignment" = center and "Font size" = X-large
- "Text block" with text "Explore our new season with heavy fabrics to keep you feeling cozy all winter long.", with "Alignment" = center and "Font size" = Large
- "Spacer" with "Spacer height" set to 3x

Add another "Container" module to the "Main Slot" and set "Width" = "Fill Container" and "Container Layout" = "Flow".

Next add 3 "Content block" module children with the following configuration:

- "Module layout" = "Tile"
- Empty out the "Heading" text
- Upload an image for the module
- Set the "Tile Size" to 3
- Add an "Action Link" for each (just add the text, we can add a link later)

Last add a spacer module and set "Space height" = 3x.

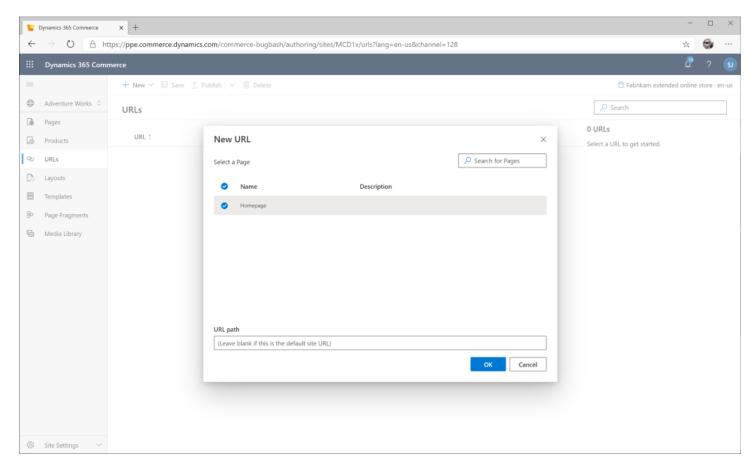


Once complete, select Save and "Finish editing". Select "Preview" to preview the page. If you're happy with changes, select "Publish".

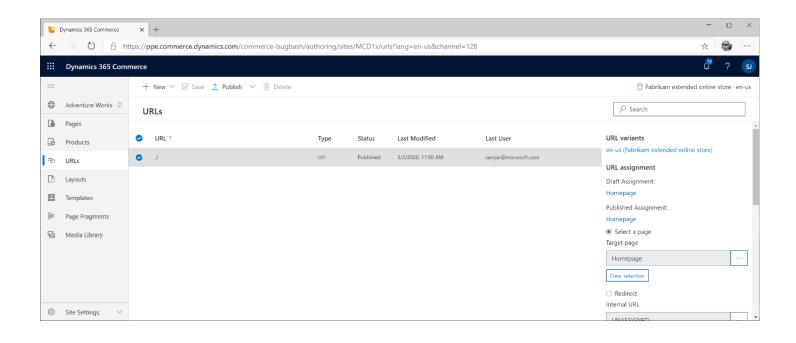
## SETTING URL FOR HOME PAGE

We now want to set the page as the default page for our site. Select the "URL" tab then the "+New" button followed by "New URL" to create a new URL.

Select the Homepage we created and leave the URL empty and press "OK".



Select the new URL and press "Publish" and you should now see it published in the URL list.

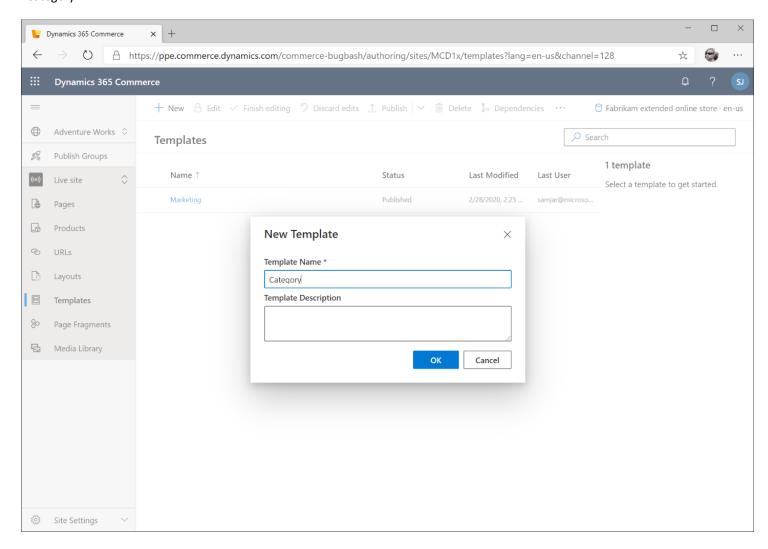


#### CREATE A CATEGORY LAYOUT AND PAGE

This section will cover creating a category layout and page that will be used when a category is selected from the product hierarchy. It will also be used to display search results.

#### CREATE A CATEGORY LAYOUT

First, we will create a Category Layout Page, select the "Templates" tab and "New Template". Provide a Template name such as "Category".



Add the following modules to the template and leave each configuration at its default values.

Under "HTML Head" slot add "List page summary" and configure favicon configuration as done previously when creating Homepage template with the same URL.

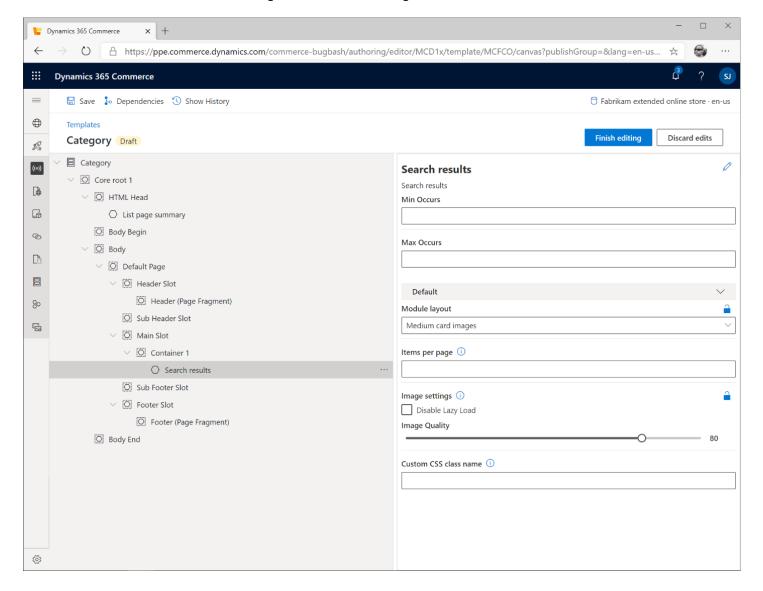
Under the "Body" slot, add a "Default page" module and you should now see several new slots. Configure them as follows.

"Header Slot" add the "Header" fragment created earlier

"Footer Slot" add the "Footer" fragment created earlier

Under "Main Slot" add a "Container" add the "Search results" module

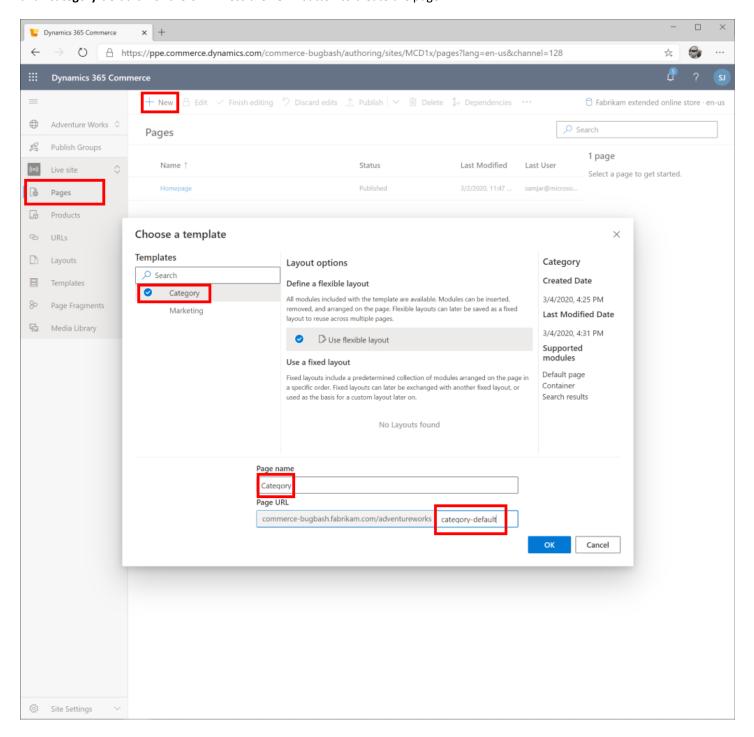
The tree should look similar to the below image. Click "Finished editing" and Publish



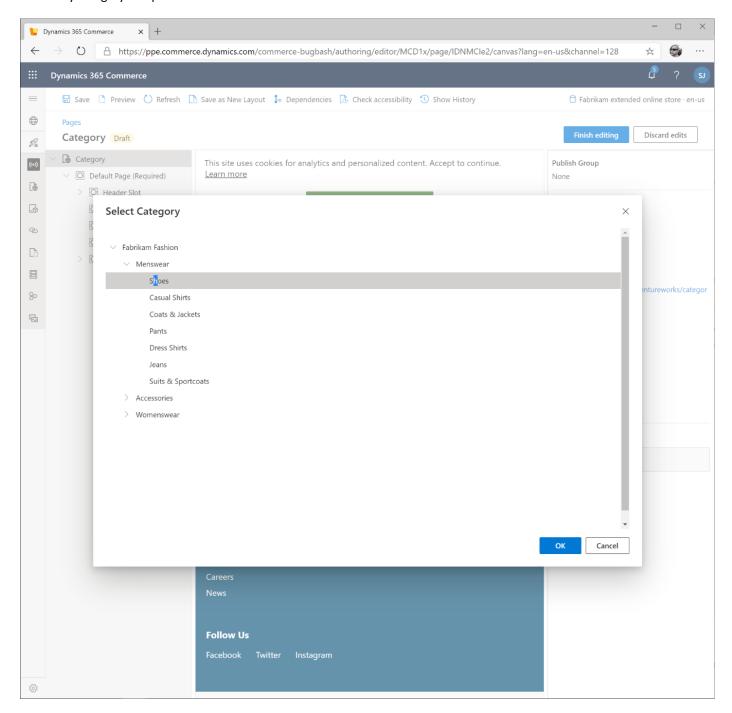
#### CREATE A CATEGORY PAGE

We will now create a page based on the template we just created. Navigate back to the site and select the "Pages" tab on the left column.

Navigate back to the "Pages" tab and press the "New" button. Select the "Category" template and provide "Category" for the name and "category-default" for the URL. Press the "OK" button to create the page



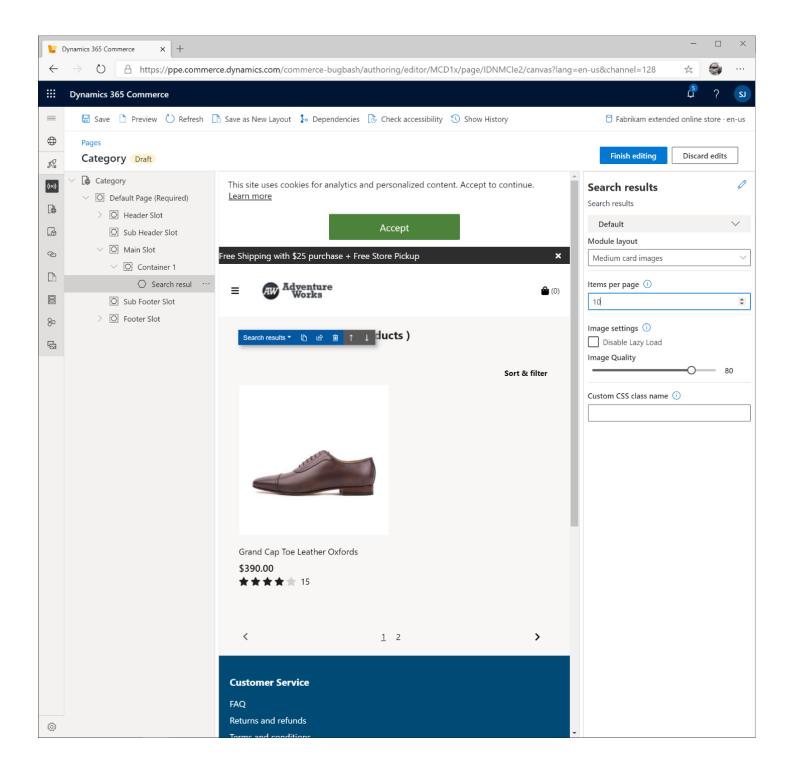
Since this is a category page, when it opens it will ask you to pick one of your category pages to use so that it has data to render. Select any category and press "OK".



We will now add modules to the page. Even though we added modules to the layout, templates only dictate them as options, we still need to add them to the page.

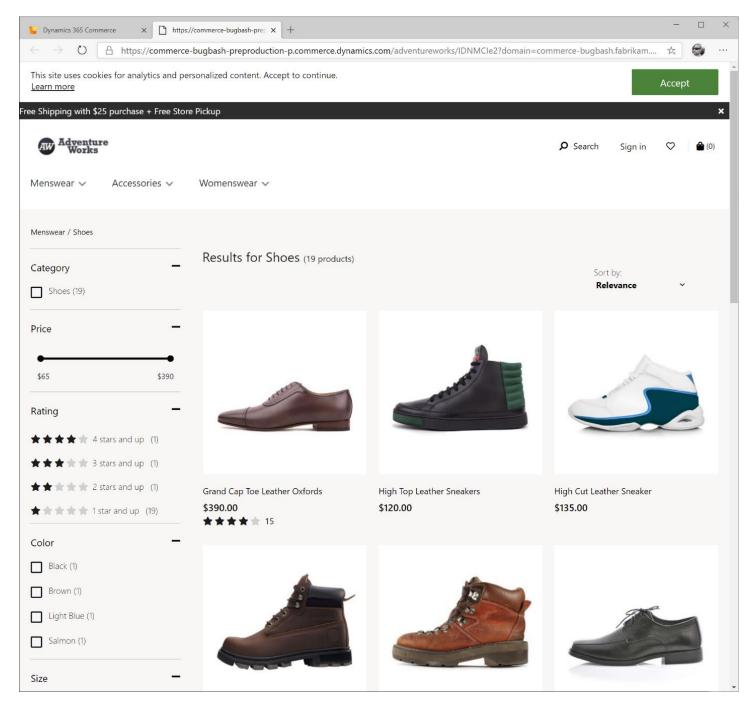
Add the following modules to their respective slots:

- "Main Slot"
  - o Add "Container"
    - Set "Width" to "Fill Container"
- "Container"
  - Add "Search result"
    - Set "items per page" = 10



Now you can "Finish editing", "Preview" and "Publish" the page.

When you preview the page, you should see a page that looks like the below page. Notice as you select different categories, they will load the appropriate set of products.

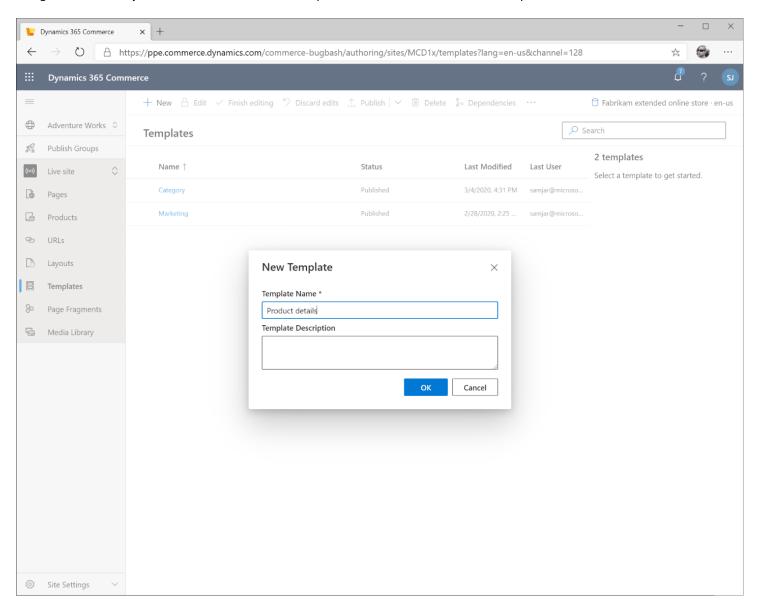


#### CREATE A PRODUCT DETAIL TEMPLATE AND PAGE

In this section we will create the needed template followed by a page for the product details page.

### CREATE A PRODUCT DETAIL PAGE TEMPLATE

Navigate to the "Templates" tab and select "New" and provide "Product details" for the template name.



Under the "HTML Head" slot add a "Product page summary" module. Leave the configuration properties at their defaults.

Under the "Body" add a "Default Page" module.

Under the "Default Page", "Header Slot" add the "Header fragment".

Under the "Default Page", "Footer Slot" add the "Footer fragment".

We will now focus on the main content structure for the PDP page.

Inside the "Main slot" add a "Container" module and se the "Width" to "Fill Container".

Add a "Buybox" module to the "Container".

In the "Media Gallery" slot add a "Media Gallery" module.

In the "Store Selector" slot add a "Store selector" module.

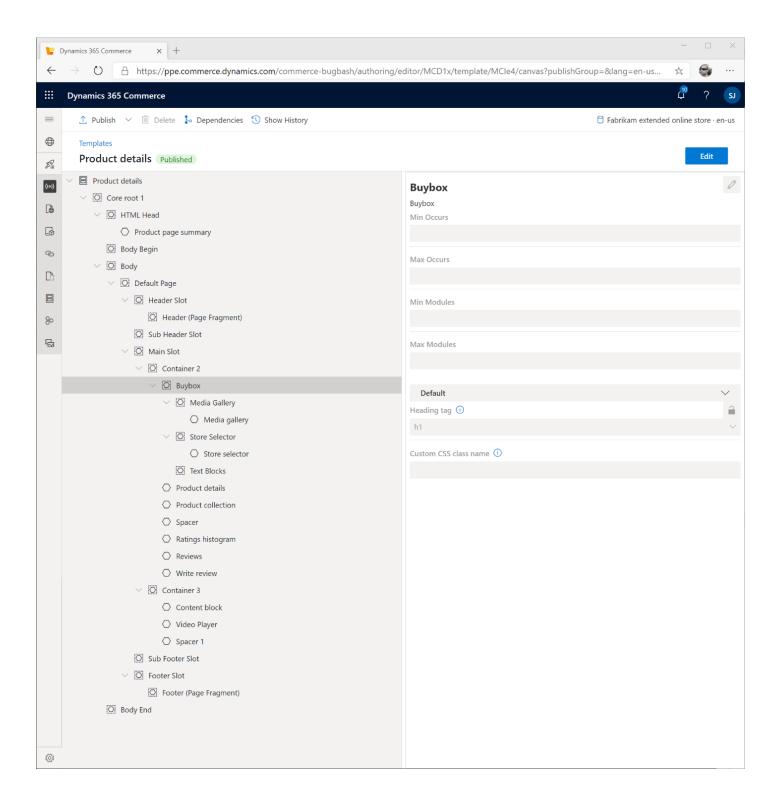
Inside of the same "Container" we added the Buybox above also add the following modules:

- Product Details
- Product Collection
- Spacer (Set Spacer height to 2x)
- Ratings histogram
- Reviews
- Write review

Under the second "Container" under the "Main Slot" add the following modules

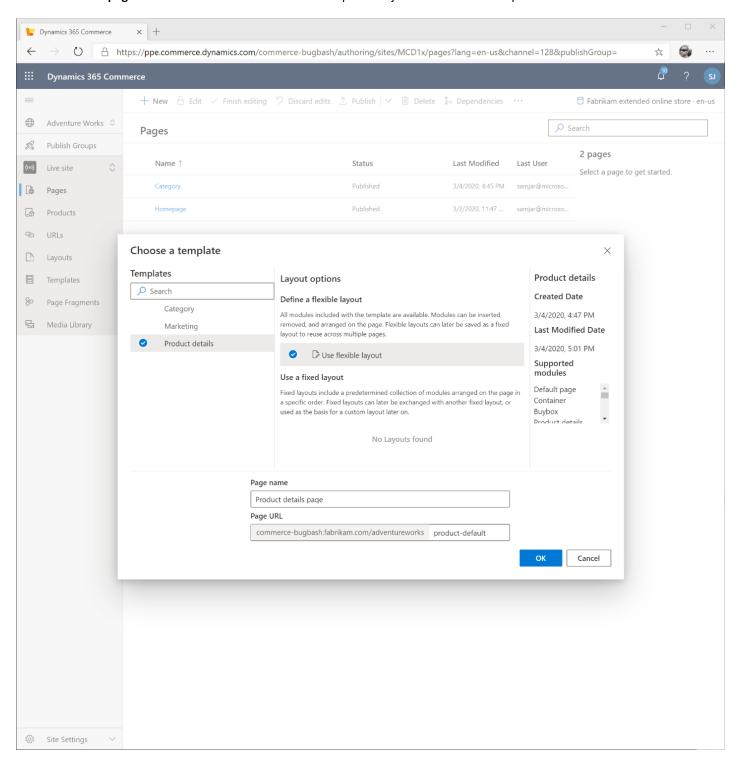
- Content block
- Video Player
- Spacer 1

Select "Finish editing" and "Publish"

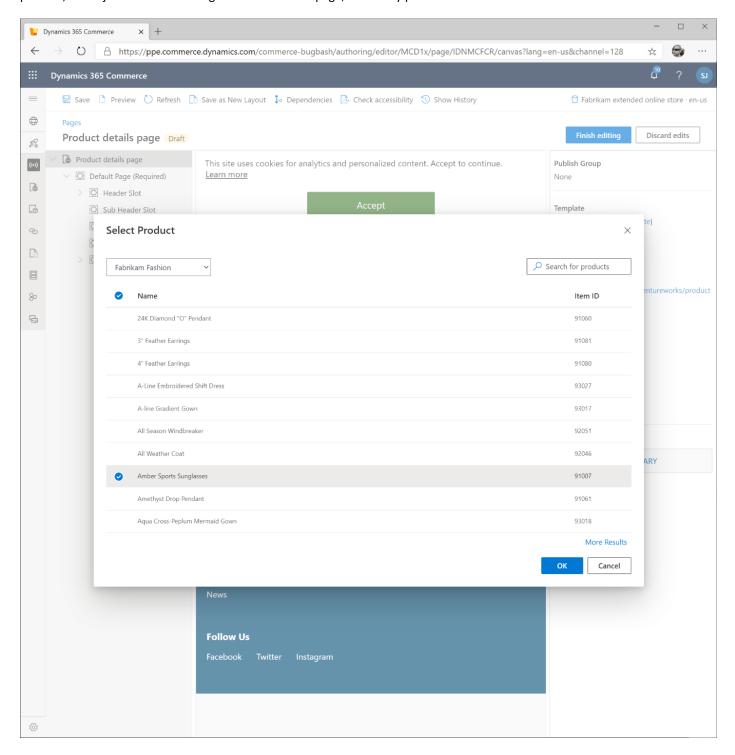


#### CREATE A PRODUCT DETAIL PAGE

Now that we have a PDP template, we can create a page. Navigate back to the "Pages" tab and click "New Page". Give it the name "Product details page" and select the "Product details" template we just created and add "product-default" for the URL.



As with the category page, we needed to select a category to render content in the page editor, we also get prompt to select a product, this is just used for rending a test view of our page, select any product.



We can now add the following modules to our page

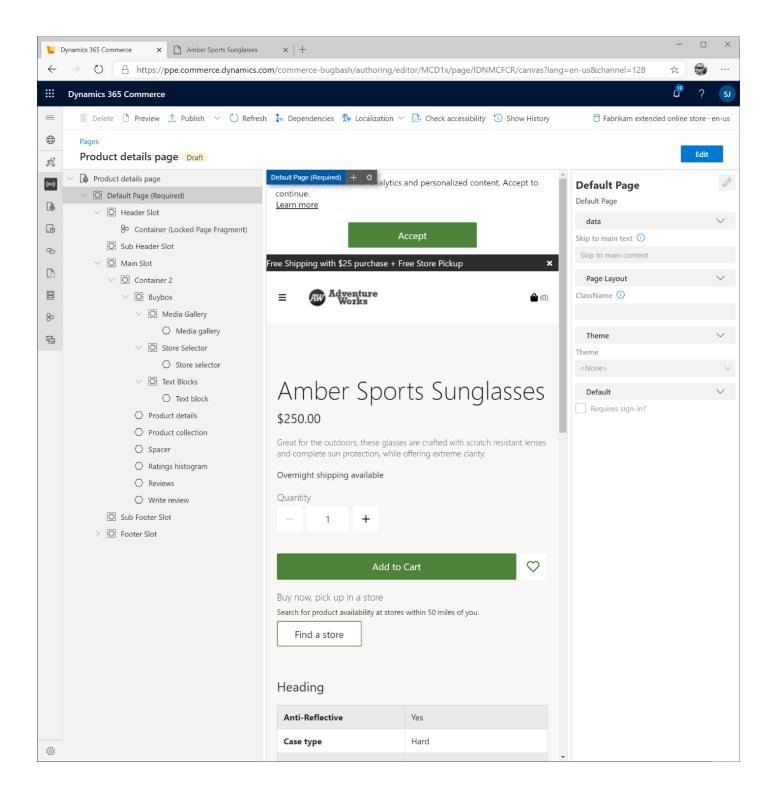
Under "Main Slot" add a "Container" module,

#### Then under this add a

- "Buybox" module and under it add
  - Media Gallery Slot
    - o Media Gallery module
  - Store Selector Slot
    - o Store selector slot
  - Text Block
    - Text block" module and set text to "Overnight shipping available"
- Product details
- Product collection
- Spacer
- Ratings historgram
- Reviews
- Write Review

As you add the modules, you should see updates happening live in the middle panel against the product you chose when you opened this page.

Click "Finish editing", Preview, and Publish when complete. Try navigating to different categories and selecting different products and the PDP page should reflect the product you specified.

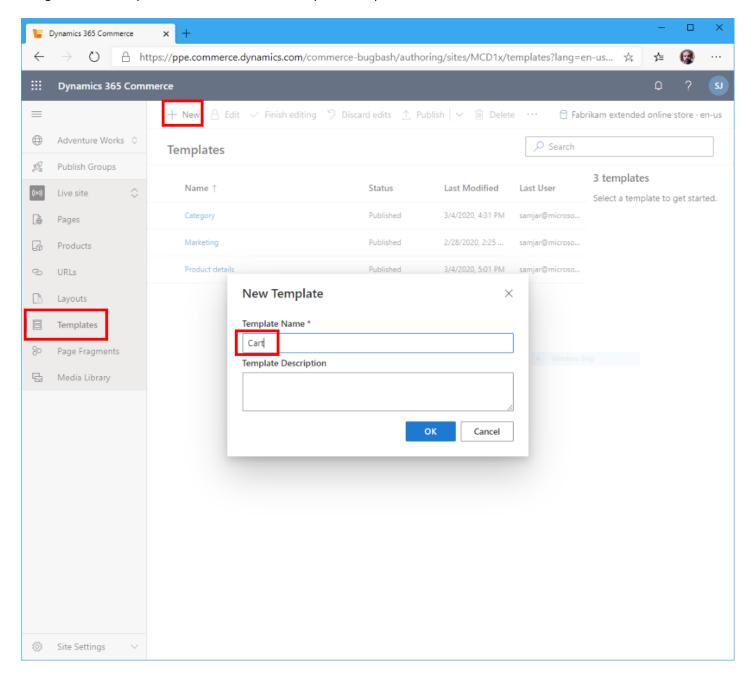


#### CREATE A CART TEMPLATE AND PAGE

As we did with previous pages, we will start by creating a template and then the page.

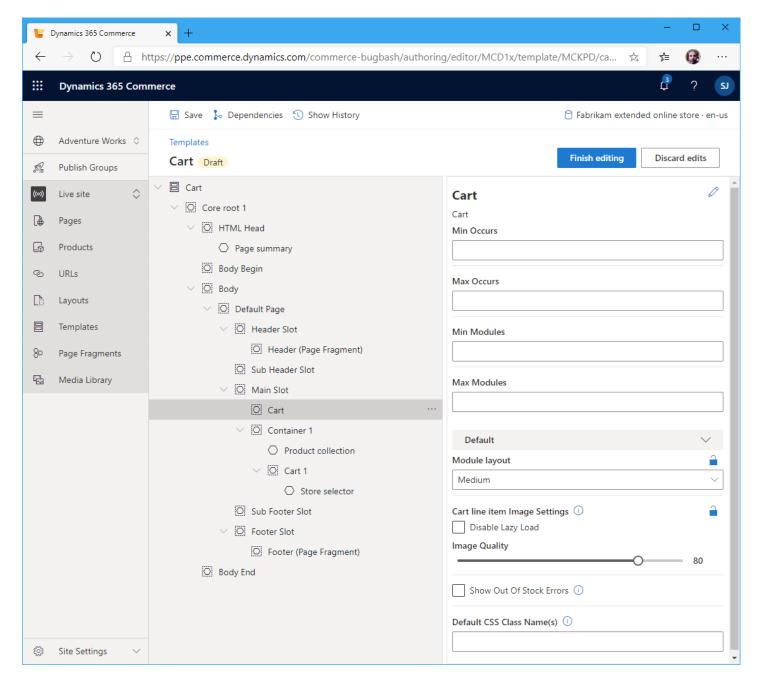
### CREATE A CART TEMPLATE

Navigate to the "Templates" tab and select "New Template" and provide a name such as "Cart".



# Next add the following to the specified slots:

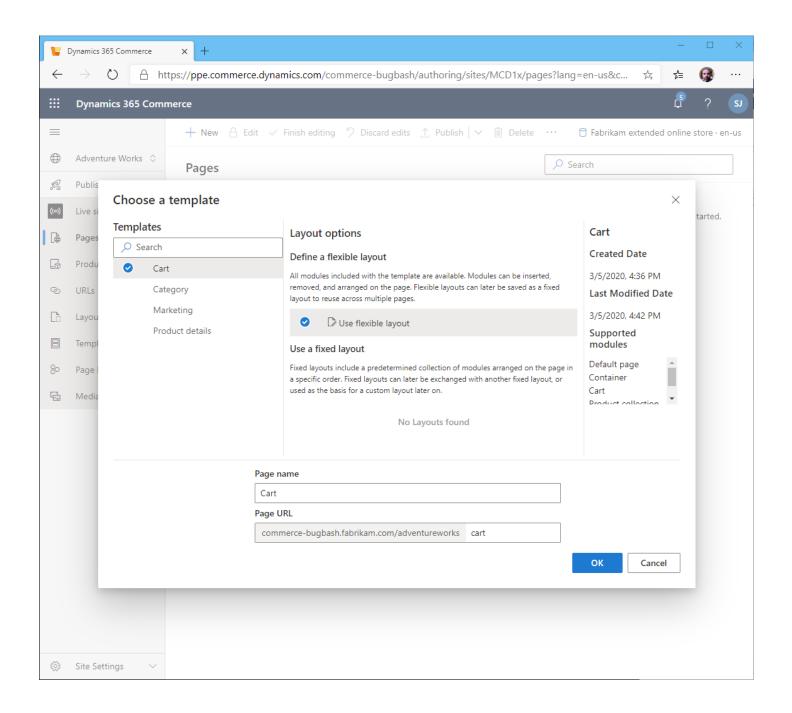
- HTML Head
  - o Add "Page summary" module
- Body Slot -> Add "Default page" then:
  - o "Header Slot" add Header fragment
  - o "Footer Slot" add Footer fragment
  - o "Main Slot" Add the following
    - "Cart" module
    - "Container" module and add:
      - "Product collection"
      - Cart module and add a child
        - o "Store selector"



"Finish editing" and Publish the template

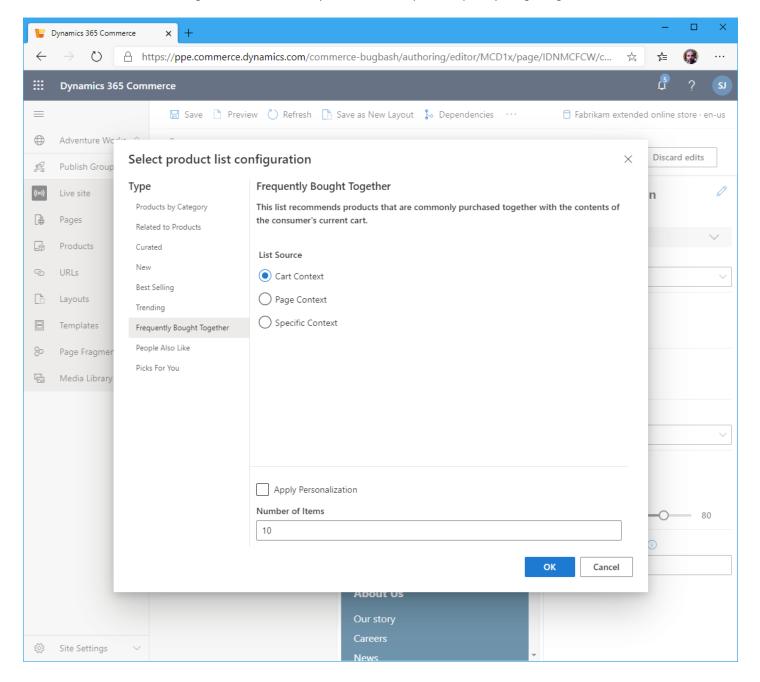
## CREATE A CART PAGE

Navigate to the "Pages" tab and select "New". Provide the name "Cart" and select the "Cart" template and specify "cart" as the URL. Click "OK" button to create the page. Add all of the modules we added in the template.



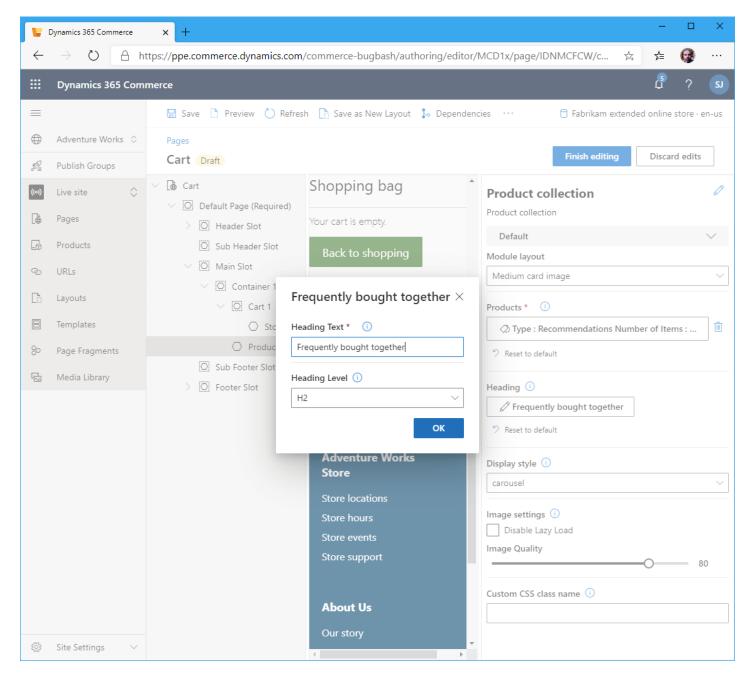
### Under the Main slot, add:

- "Container" module and set Width to "Fill container" then
  - Add "Cart" module then
    - Add "Store selector" module
  - o Add Product collection module
    - Configure "Product" "Add a product list" and pick "frequently bought together"



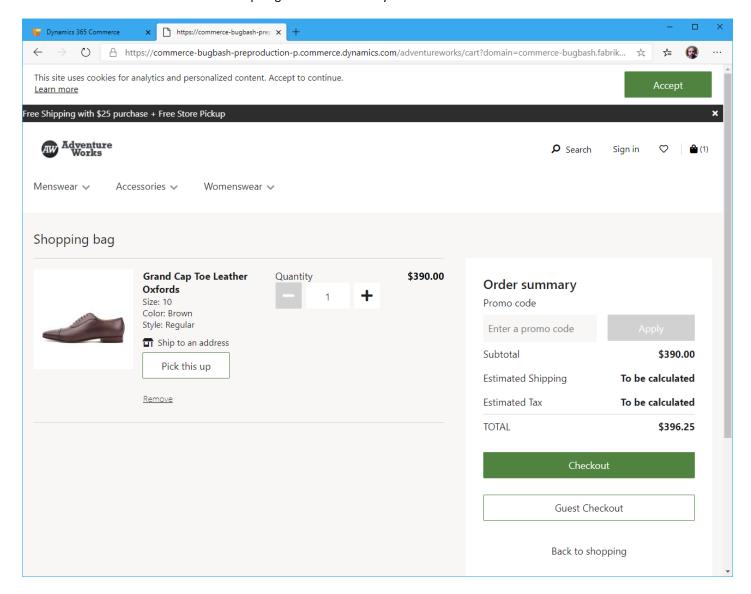
We'll now configure the frequently bought together recommendations.

Select the "Product collection" module and configure the "Heading" text to "Frequently bought together"

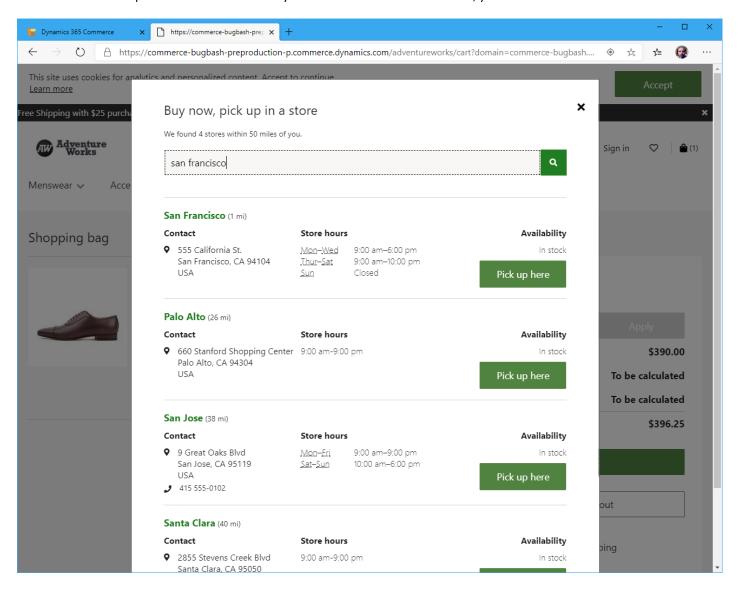


Click "Finish editing" and publish.

Now go back to your home page and preview it. Select a product and add it to the cart. The new cart page should now show up. You can also click the cart button at the top to get to the cart at any time.



The "Pick this up" button should work to look up inventory at one of the stores. If you are using the demo data products that start with 9xxxx then most products will have inventory in the "San Francisco" retail store, you can search for it in the UI as shown below.

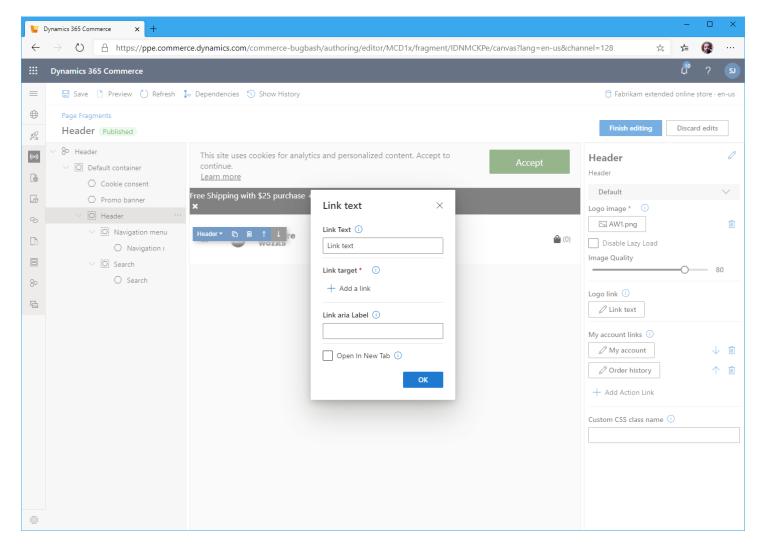


# APPENDIX C - CONFIGURE CONTENT PAGES

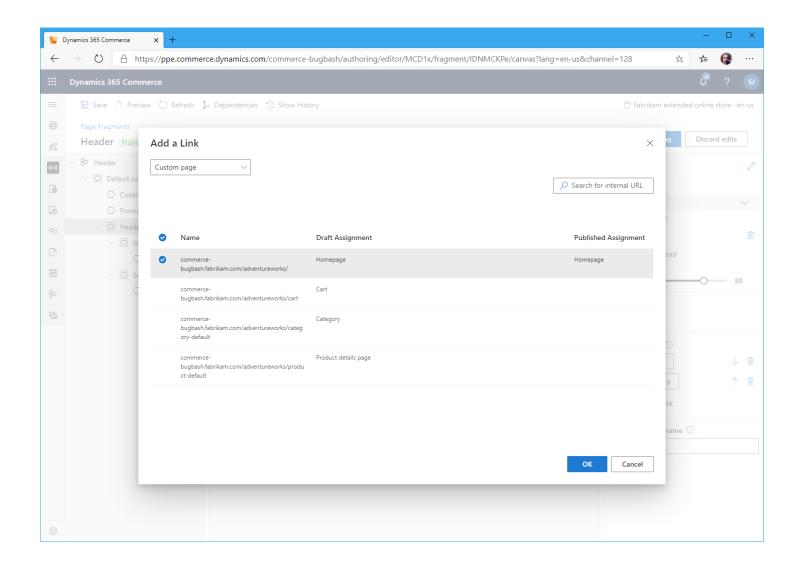
Now that we have a Home page, Category page and Product Details page we need to fix up a few links.

We'll start with linking the logo to navigate pack to the home page. Navigate back to the Header Fragment and select "Edit".

Select the "Header" module then select the "Logo Link" configuration property which will pop up a link picker.



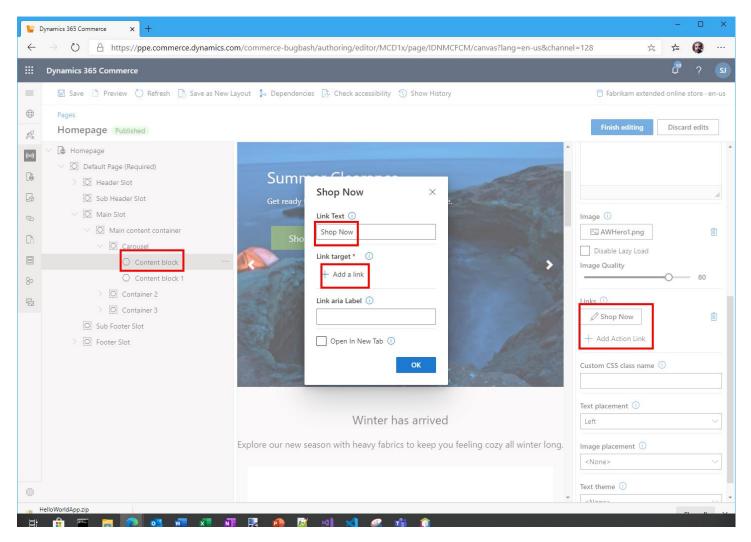
Select "Add a link" and choose the "Homepage" and OK. Click "Finish editing" and "Publish" then preview to test it out.



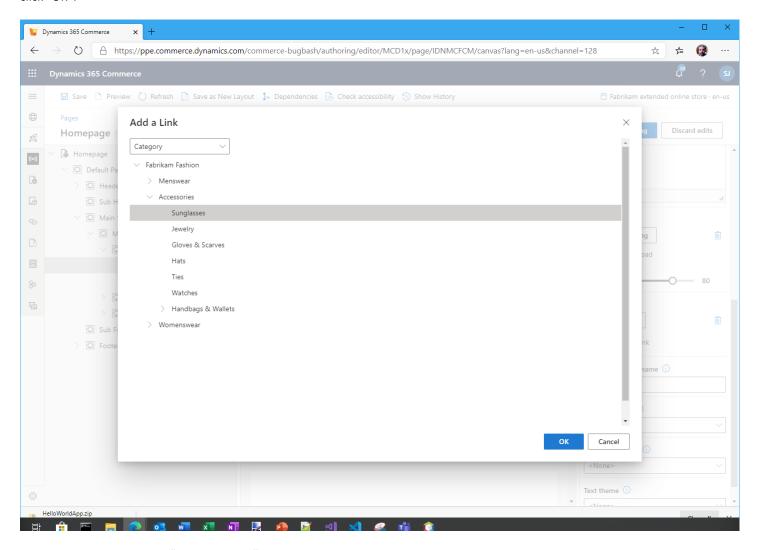
If you now preview any page and navigate around, the logo in the header will always take you back to the home page. This is a great example to see how useful fragments are, we modified it once and every page picks up the change since it's used inside each of the templates we've created so far.

Next, we'll fix up links on the home page. Go back to the "Pages" tab and select the "Homepage" and "edit" the page.

Select the first "Content block" module and add an action link if one is not there and set the name to "**Shop Now**" and click the "**Add** a link" button to bring up the link picker.

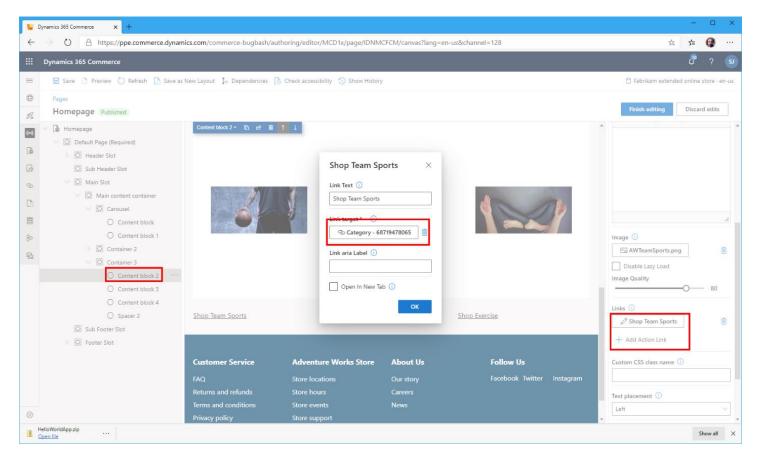


Select "Category" from the drop down to show category links which will then show the channel category hierarchy. Select one and click "OK".



Similarly, select the second "Content Block" and select another category link.

We will next link the three content placement item modules to individual categories.



Once complete, click "Finish editing" and "Preview" to test out the buttons. When satisfied, publish the page.

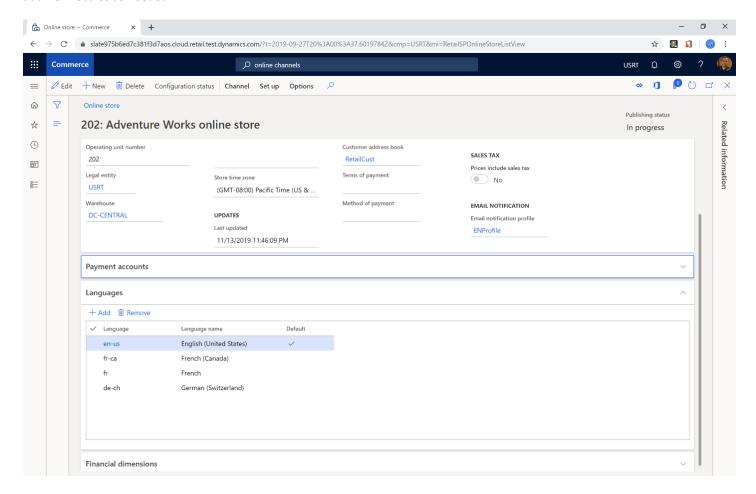
There are some links we have not configured yet like the static links in the footer. We'll leave this as an exercise. Each page would need to be created and you should be able to re-use the "Marketing" template we created and used for our home pages to create new pages. Once the page is created and checked in you can add the link for each item in the footer as well as the "Contact" link we created in the Header module.

There are also some pages we have not shown how to build like the sign-in page, accounts management, checkout, wish list, ... You should be able to look at the Fabrikam starter kit set of pages, templates and fragments to further build these out.

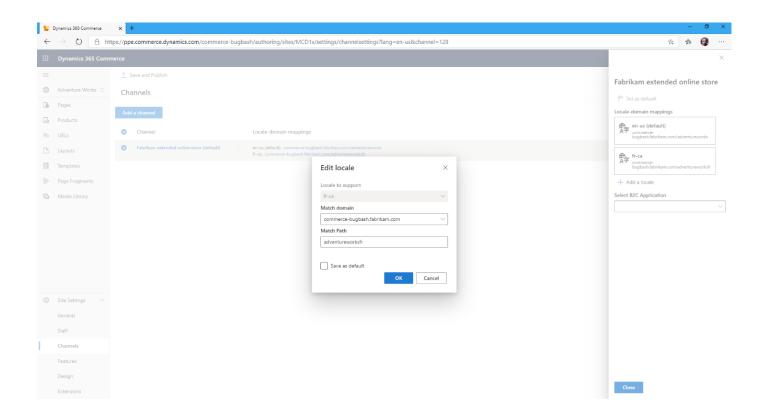
# APPENDIX D - LOCALIZATION

You may want to localize your site to support multiple languages and markets.

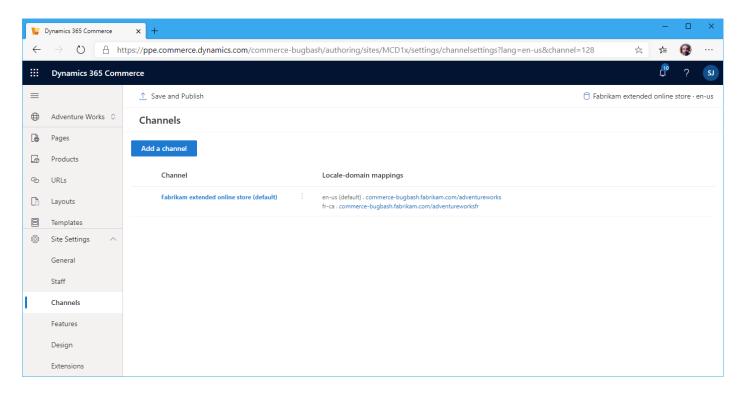
From within Headquarters makes sure the online channel supports the locales you would like to support on your e-Commerce site. From within Headquarters navigate to "Online channels" then select the channel you are using. Expand the "Languages" section and add new locales as needed.



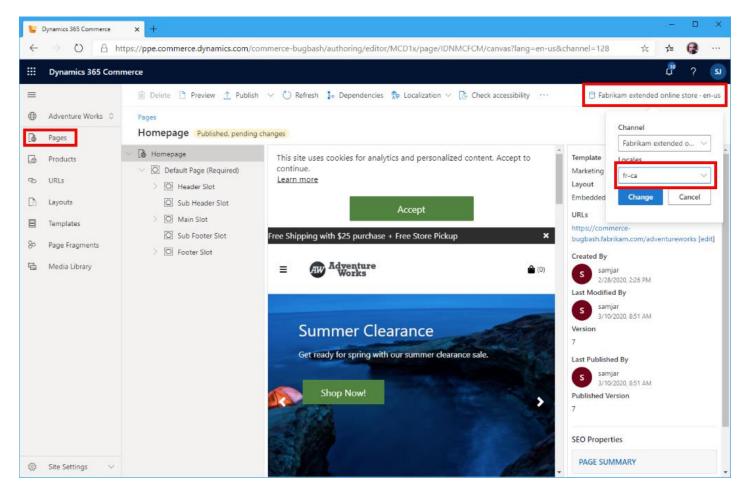
From within the Site Builder tool, select the "Channels" tab under the "Site Settings" and select the Channel and click the "Add a locale" button. You should see all available locale's in the "Locale to support" drop down.



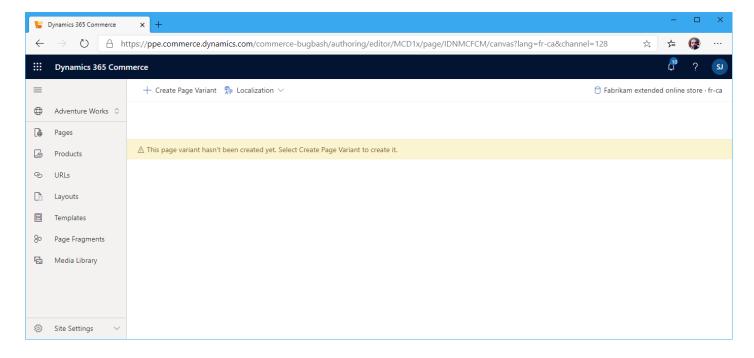
You should now see multiple Locale-domain mappings listed next to the channel as shown below. Once added, select "Save and Publish" at the top.



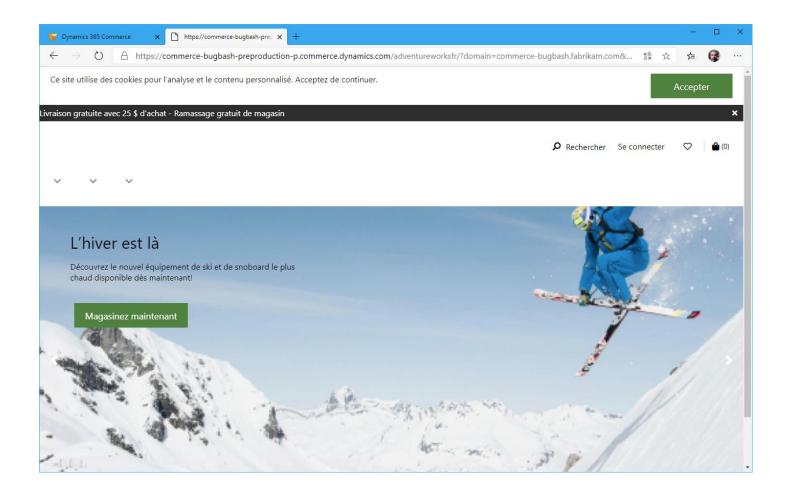
If you navigate back to a page in site builder, there is a drop down in the top right where you can switch the supported locale and configure the localized version of the page.



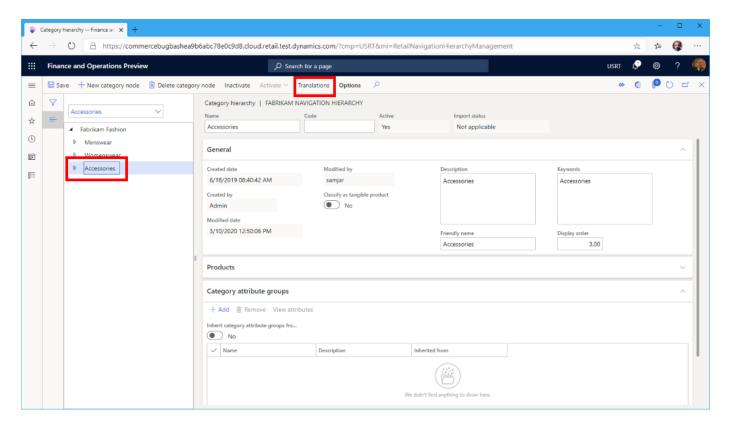
Select the locale you would like to configure and click the "Change" button. If it's the first time the page is being configured, you will see a message that the page variant hasn't been created yet. Select "Create Page variant" button.



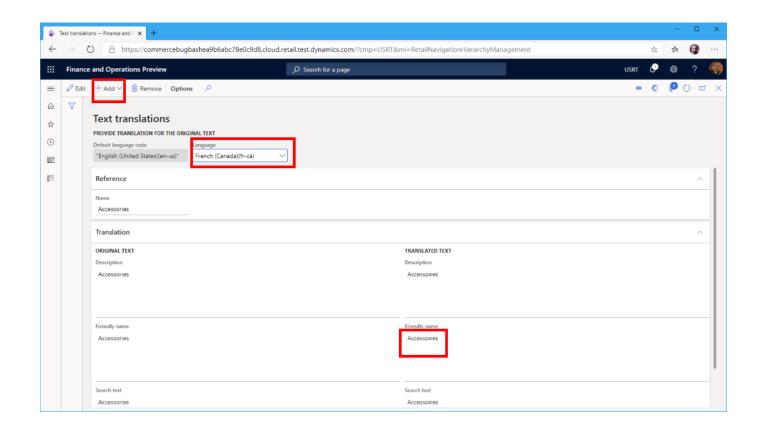
You can now configure the page as desired. The page can match the other locales or can be completely different if desired. Once complete, click "Finish editing" and publish the changes. Similarly, you'll also need to create a localized variant of the Header and Footer fragments. Once those are complete and published the rendered page should look similar to the below image. Notice how the navigation hierarchy names are not showing up. This is because the names are not localized in Retail server.



To localize the category names, launch the Headquarters site and search for "Commerce navigation categories" and select the channel hierarchy you are using. Select "Edit category hierarchy" button at the top. Select each node and click the "Edit" button, followed by the **Translations** link.

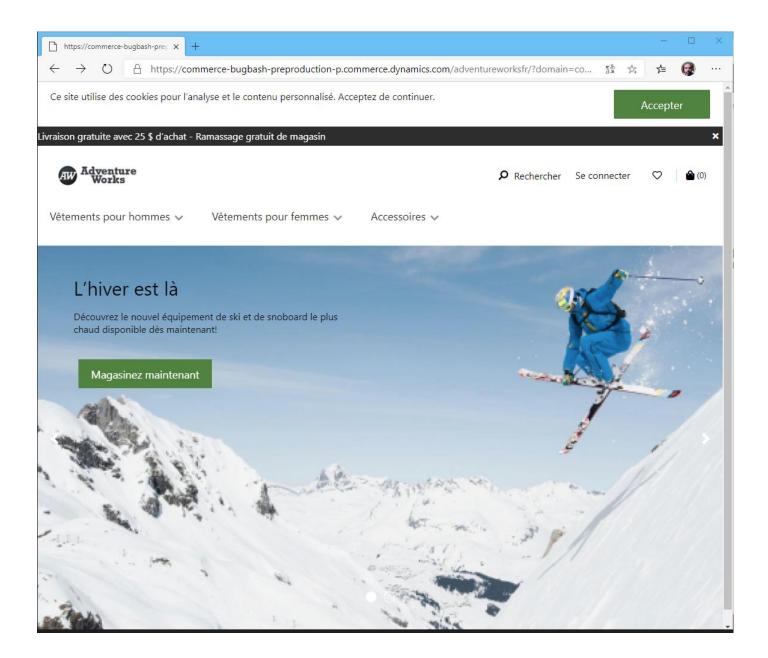


Select the appropriate locale in the "Language" drop down or if it is not listed add it with the "Add" button at the top. In the Translated text section, change the "Friendly name" of the category to the localized version.



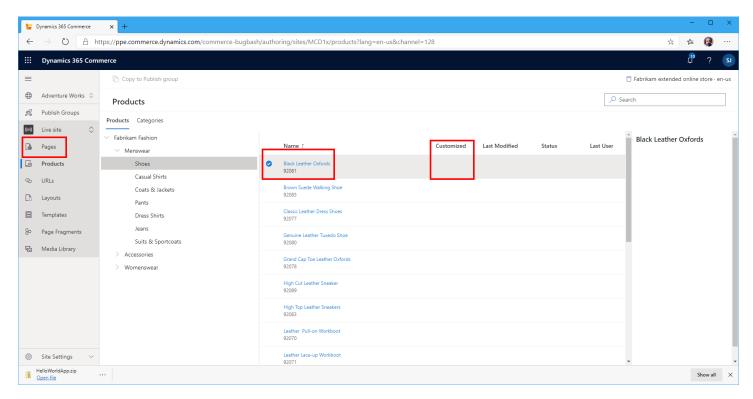
When complete click save and to ensure all the data gets sync'd to the cloud scale unit.

- Search for "Channel categories and product attributes", select the channel and click the "Publish channel updates" button.
- Search for "Channel Database" and select the appropriate Channel Database ID from the list then run a "Full data sync" 9999.

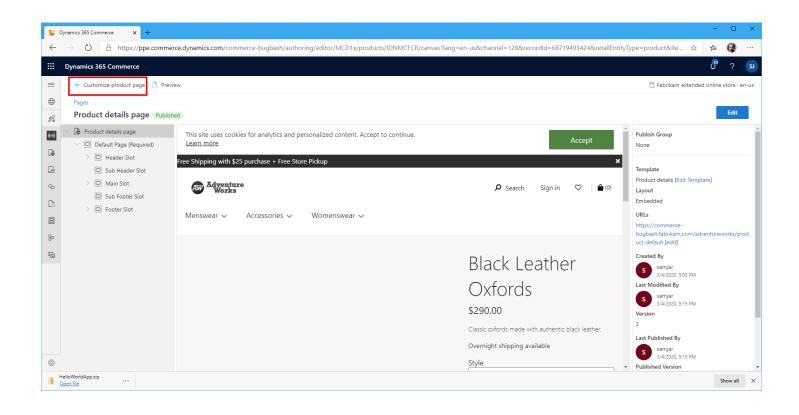


### APPENDIX E - CUSTOMIZING A PRODUCT DETAIL PAGE

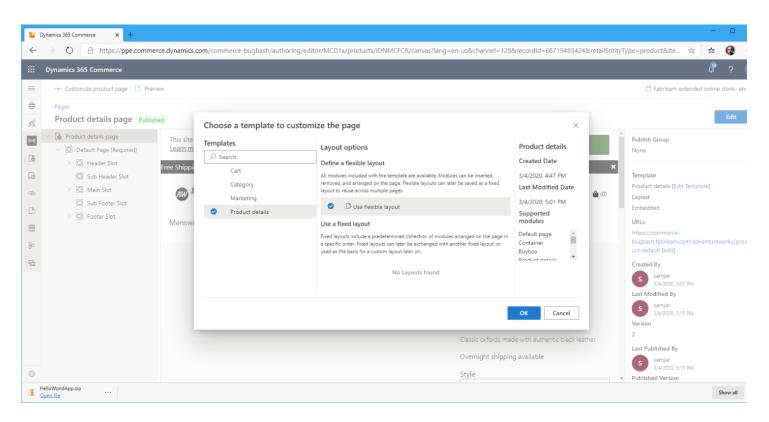
By default, all product details pages derive from the same root page, there are times when we want to make a product special and stand out. This is where customizing a page comes in. To customize a page, navigate to the "Products" tab and find the product you want to customize, and notice the customized column should be empty.



Select the link to the product. This will load the product in the page editor, select the top "Customize product page" button.

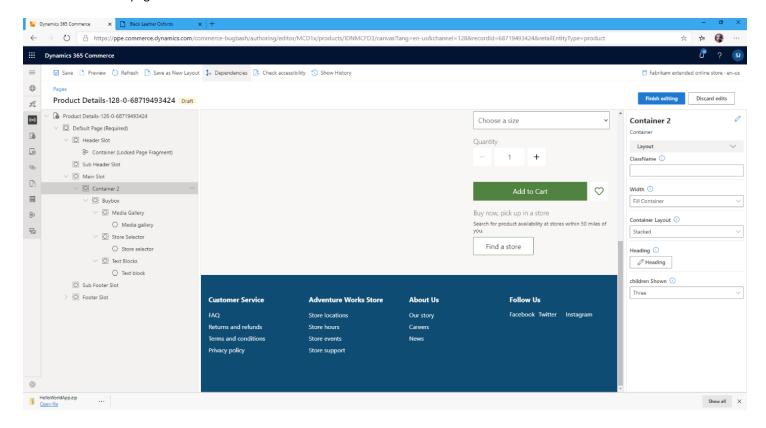


We will then be asked which Template we'd like the new page to adhere to. We could build out new templates, but we'll pick the Product details page we already created.



We can now edit the page as we like and make any modifications desired for this page. Make some changes and save/preview/check In and Publish when complete

Notice in below example, we have a streamlined PDP with no ratings/reviews or collections, but additional modules can also be added. Note the template may restrict to only a select set of modules, so you may need to modify the PDP template or create a new one for customized pages.



Select "Finish editing" and publish when complete. If you now navigate around your site, you should find that only the new PDP will load up as customized and all of the others will continue to use the default page. You'll also find this new page listed when you select the "Pages" tab on the left side as shown below.

