Inventory Synchronization for Magento 2.0 User's Guide

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1. Introduction

The Magento 2.0 Inventory Synchronization Module by Customer Paradigm is a dynamic tool for merchants in need of a solution to update inventory levels and/or stock status from external sources (outside of Magento). Managing inventory levels has never been easier.

The extension offers the ability to update your store's inventory stock levels and stock status. Multiple profiles can be configured to accept updates from any number of sources.

Each individual profile can be configured to accept an import file from one of four connection types to include: Local Server (your Magento 2.0 web server), HTTP (a direct URL), FTP, or SFTP. This provides the flexibility to reach out to remote locations and automatically update your inventory levels.

Each individual profile can also be configured to accept the most common file formats. These formats include: CSV, Tab Delimited, Text, and XML. The profile creation process will allow you to properly map file headers to the appropriate data – allowing for different file headers from different sources.

Once a profile has been created, you can run the profile in test mode (to test import results before running live), live mode (manually executed by user), and CRON (run at regular scheduled intervals). The CRON feature allows your storefront to automatically update your inventory without any further user interaction and can be setup to accommodate a wide range of import schedules.

A full record of all imports is maintained to provide tracking and transparency to changes being made. This includes an individual product id or SKU lookup to see changes being made by all profiles on a single product.

These are just a few of the features contained within this extension. The remainder of this user guide will provide much greater detail of the full capability of this extension.

Questions? Need help with this extension? Customer Paradigm is happy to provide support, training, installation and customization for your Magento 2.0 store. Visit us at www.CustomerParadigm.com or call: 303.473.4400.

2. Installation

Before using the extension, it must be properly installed to unpack the required database tables and notify Magento to the existence of the extension.

2.1 How to Install Extension

To install the Magento 2.0 Inventory Synchronization extension, please follow these steps:

1. (Recommended) Run a backup of the code base and database.
2. Download the installation package.
3. Unpack the installation package and upload to your store's root folder.
4. Using SSH, login and navigate to your store's root folder.
5. Enter the following command:

   php -f bin/magento module:enable CustomerParadigm_InventorySync

6. Then enter the following command:

   php -f bin/magento setup:upgrade

7. Please flush system cache by navigating to System->Tools->Cache Management from the admin panel.
8. Log out and log back into the admin panel.

If you have successfully processed these steps, you should now see the Magento 2.0 Inventory Synchronization extension by navigating to System -> Data Transfer -> Inventory Synchronization from the admin panel.

3. ACL SETUP

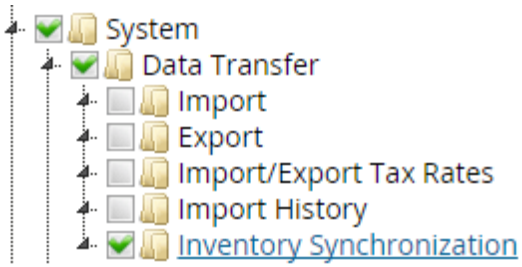
ACL stands for “Access Control Log” and allows the admin user to restrict access to the functionality of this extension by identying what users have rights to utilize this extension. What follows are instructions on how to setup ACL for various users.

3.1 How to Setup ACL

Once the extension has been properly installed, it is advised to setup the ACL (Access Control Log) for all users who will have access to use this extension.

To setup users, navigate to System->Permissions->User Roles. For each user group that will have access to this extension, follow these steps:

1. Click on the user group.
2. Select “Role Resources” tab (under “Role Information” on the left hand side of screen).
3. Scroll down the resource list and locate “Inventory Synchronization” resource (under System->Data Transfer).
4. Check the “Inventory Synchronization” box and click the “Save Role” button.



After the ACL Setup is complete, you are ready to proceed to creating a profile. To locate the extension, please navigate from the Admin panel to System->Data Transfer->Inventory Synchronization.

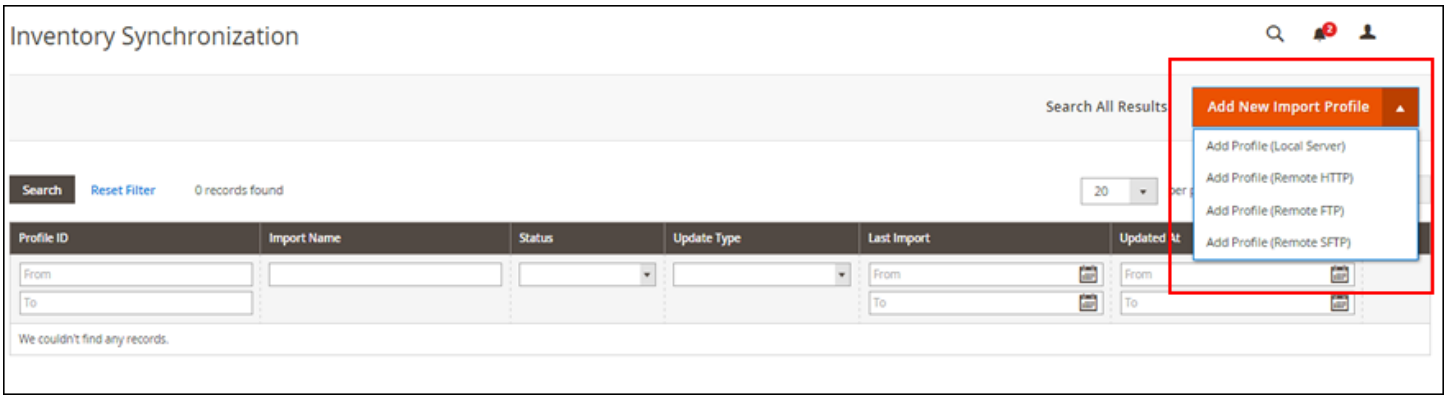
4. CREATE A PROFILE

Before using this extension, you must first create one or more profiles. A profile contains required information such as where the import file resides, what data format the file contains, and much more. This section will walk you though setting a new profile.

Important note – please prepare a sample import file for each new profile that will contain the data and format this profile will use.

4.1 Select a Profile Connection

To begin the process of creating a new profile, please navigate to the extension located at System -> Data Transfer -> Inventory Synchronization. Once there, the first step will be to select the type of profile connection. In the top right corner, there is a button labeled *Add New Import Profile.* Please click on the down arrow button to open up the options as shown below.



Defining the connection type it required in that it provides instructions on where your import file will be located. The current connection types supported include local server, HTTP, FTP, and SFTP. Each of these connection types are explained below.

Add Profile (Local Server)

This option should be selected if the import file will be located within the folder structure of the server hosting your Magento 2.X site.

Add Profile (Remote HTTP)

This option should be selected if the import file is in an accessible location via a direct URL. The file permission must be set for outside read access. An easy way to check this is whether you can see the file when navigating to the

Important note - the import file must have outside read permissions for the extension to process the data.

Important note - this connection type, it only supports a single file name (no wild cards allowed).

Add Profile (Remote FTP)

This option should be selected if the import file is located on a remote server with FTP credentials.

Add Profile (Remote SFTP)

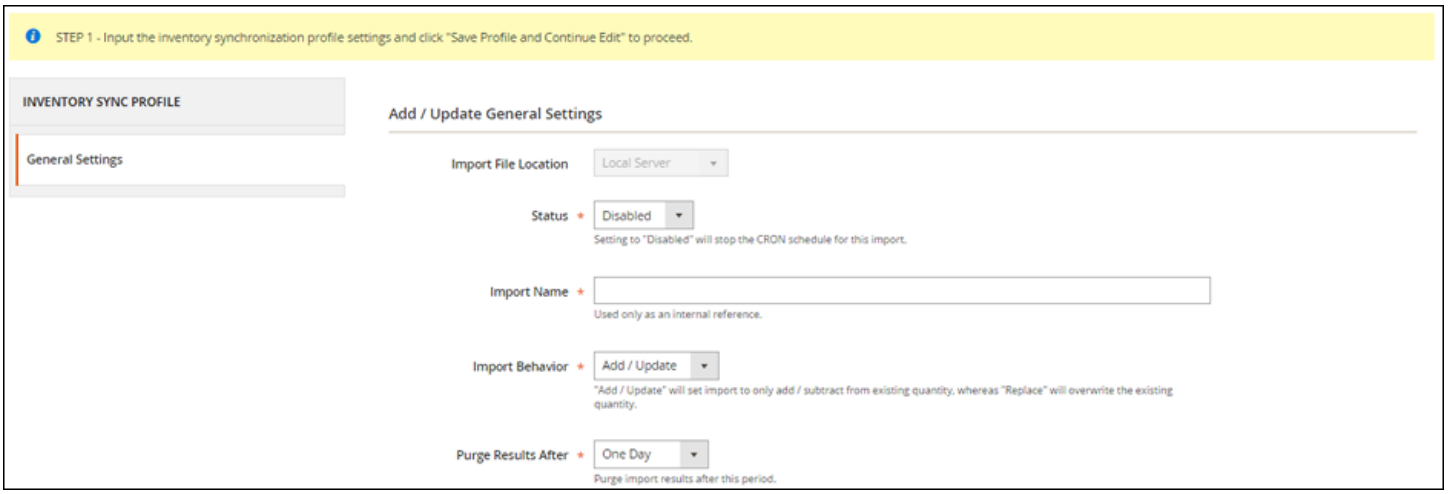
This option should be selected if the import file is located on a remote server with SFTP credentials.

It is important to note that the SFTP connection must have actual credentials (login name and password) as this extension does not currently support public / private keys.

Once you select a connection type, you will be redirected to the profile setup screen.

4.2 Step 1 – General Settings

Step 1 of creating a profile includes entering in basic information about your profile. The default tab will be presented as shown below.



There are five required entries that are described below.

Import File Location

This is not an editable field and will contain the connection selection you made in the previous step (local server, HTTP, FTP, or SFTP).

Status

This is set to enabled or disabled. If the profile is disabled, it will prevent the ability to run live inventory synchronization imports. It may be enabled / disabled at any time after the initial setup.

Import Name

This is simply used as a reference to distinguish the profile. You may name this whatever you would like.

Import Behavior

This is important in that it dramatically changes the behavior of the inventory synchronization behavior. These options are further defined here:

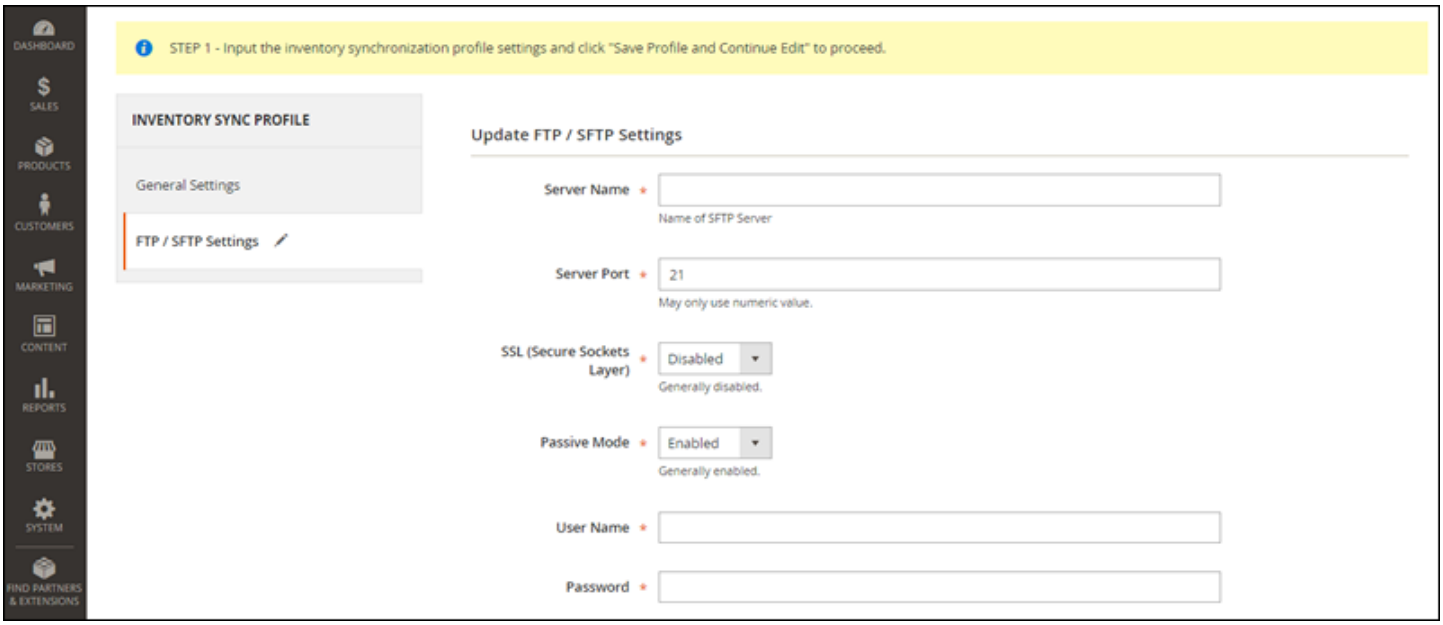
> *Add/Update* option will **add/subtract** whatever quantity is discovered in the import file(s) to your existing quantity. If the same SKU is discovered more than once in the import file(s), each occurrence will be processed starting at the top down within your import file.
>
> The *Replace* option will **replace** whatever quantity is discovered in the import file. If the same SKU is discovered more than once in the import file(s), the last occurrence will be the final values processed.

Purge Results After

Each time the profile is run (either live, test, or via CRON), the full results of the import are recorded. This can grow large quickly if you have a sizeable product catalog or run frequent imports. This option determines how long these results will be held before being purged.

4.3 Step 1 (continued) – FTP / SFTP Settings

This section will only appear if you have selected the FTP or SFTP connection type. This is the area where you will enter credentials to use when connecting to the remote server as shown below.



Each of the options presented here are required. The definitions of each option is described below.

Important note - you will have the option to revise this information at any point after the initial setup.

Server Name

This may be the IP address (xx.xxx.xx.xxx) or the actual host name. Do not include any folder path in this area as you will be set that up in a later step.

Server Port

This automatically defaults to port 21 for FTP and 22 for SFTP. These are standard default ports. Only change this if you are certain the connection requires a different port.

SSL (Secure Sockets Layer)

This option only appears for FTP connection types. Generally, this is disabled. Only enable if you are certain your FTP connection requires SSL.

Passive Mode

This option only appears for FTP connection types. Generally, this is enabled. Only disable if you are certain your FTP connection does not require passive mode.

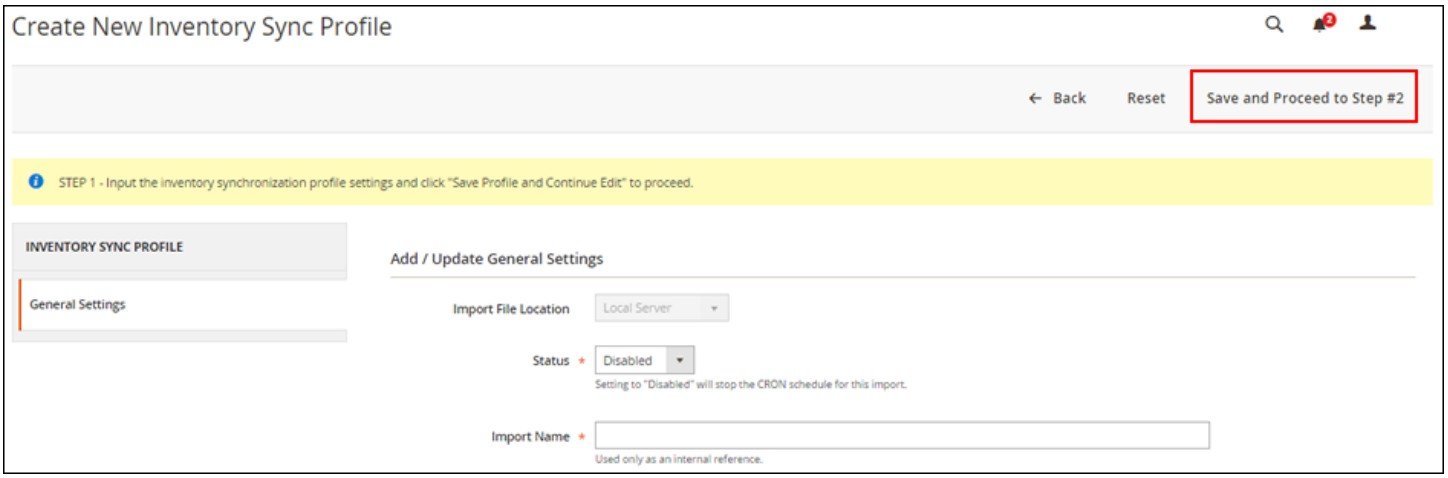
User Name

This is the actual user name of your FTP / SFTP credentials.

Password

This is the actual password of your FTP / SFTP credentials.

Once all required fields have been completed, please click the *Save and Proceed to Step #2* button in the top right corner as shown below.

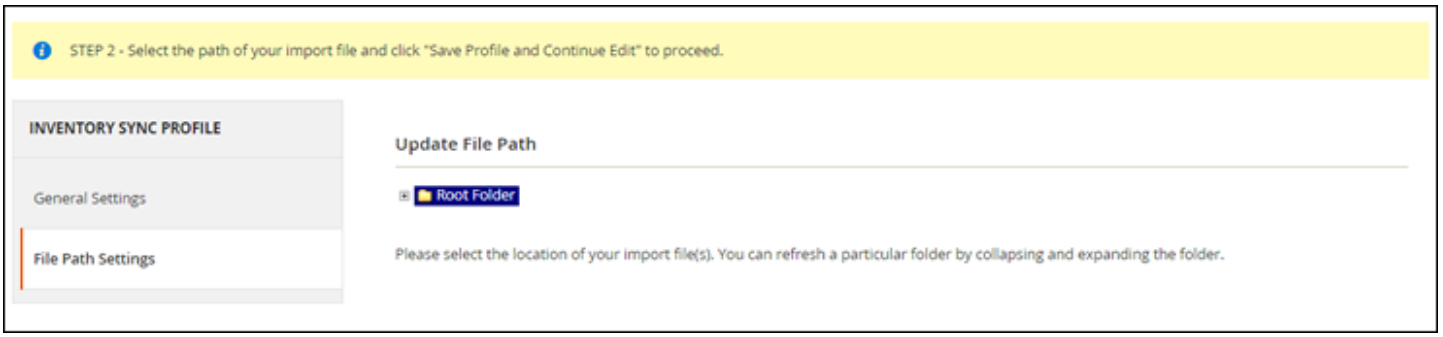


4.4 Step 2 – File Path Settings

In this step, you will define the specific location of where your import file resides. The interface differs depending on the type of connection you will use.

Local Server, FTP, and SFTP Connections

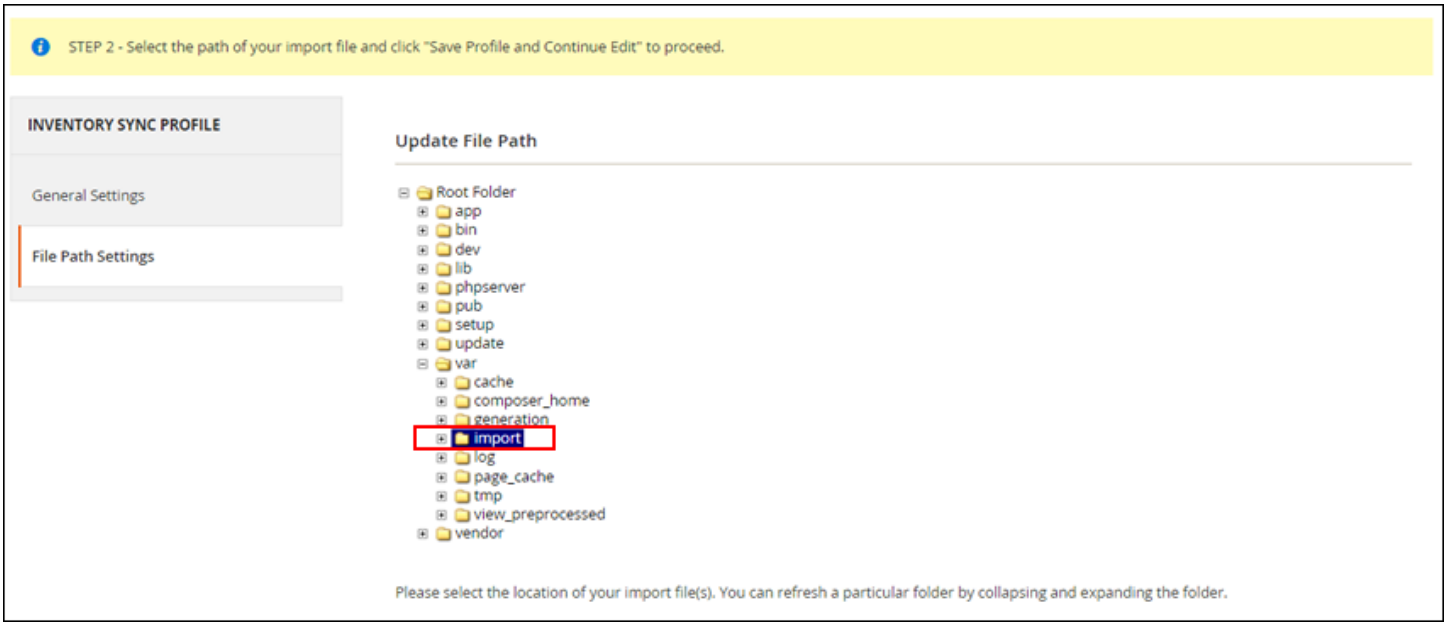
To start, we will first examine the interface for local server, FTP, and SFTP connections. You will see a screen as shown below.



The root folder should be initially selected. For local server connections, this will represent the root Magento folder. For FTP and SFTP connections, this will represent the base folder when you initially login.

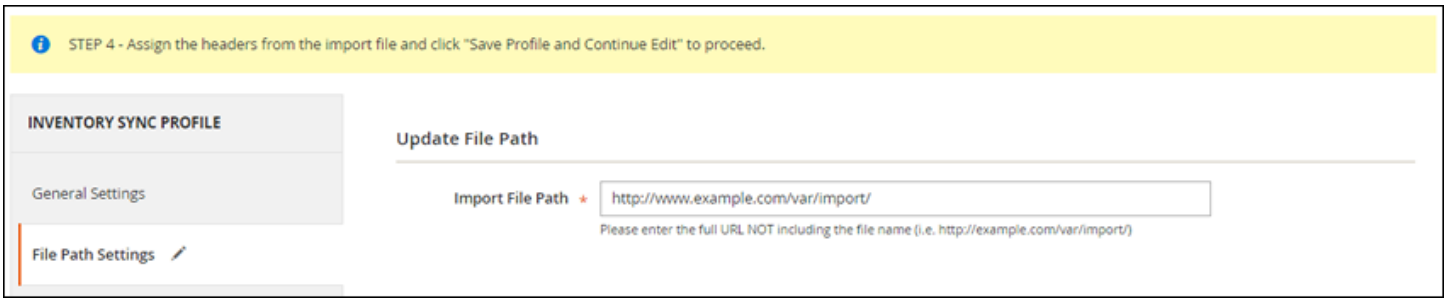
To expand the selection, you simply click the + button. The menu will refresh with all additional subfolders. You can continue to expand various subfolders until you reach the final folder where your import file(s) reside. Once this folder is shown, you simply click on the folder name to select (it will be highlighted in blue). An example of this is shown below.

Import note – only one folder may be selected per profile. To process import files in more than one folder, please setup an individual profile for each folder.



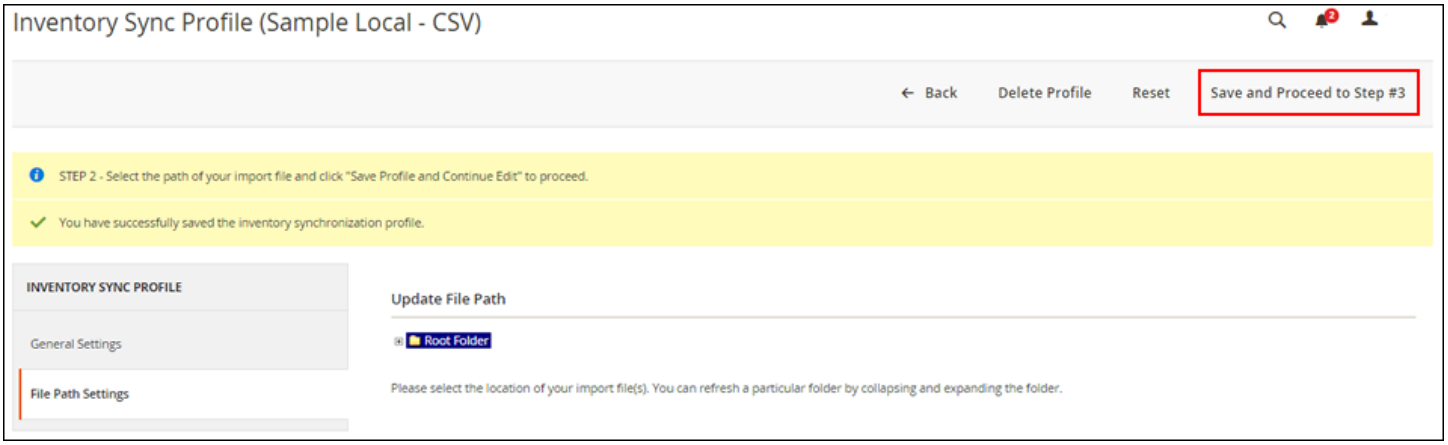
HTTP Connections

When using HTTP as your connection, there are limited abilities to scan the destination folder for available files. As such, this connection type does not present a drop down file structure. You must enter the full URL to where the import file is located (without the actual file name as this will be entered on in a later step).



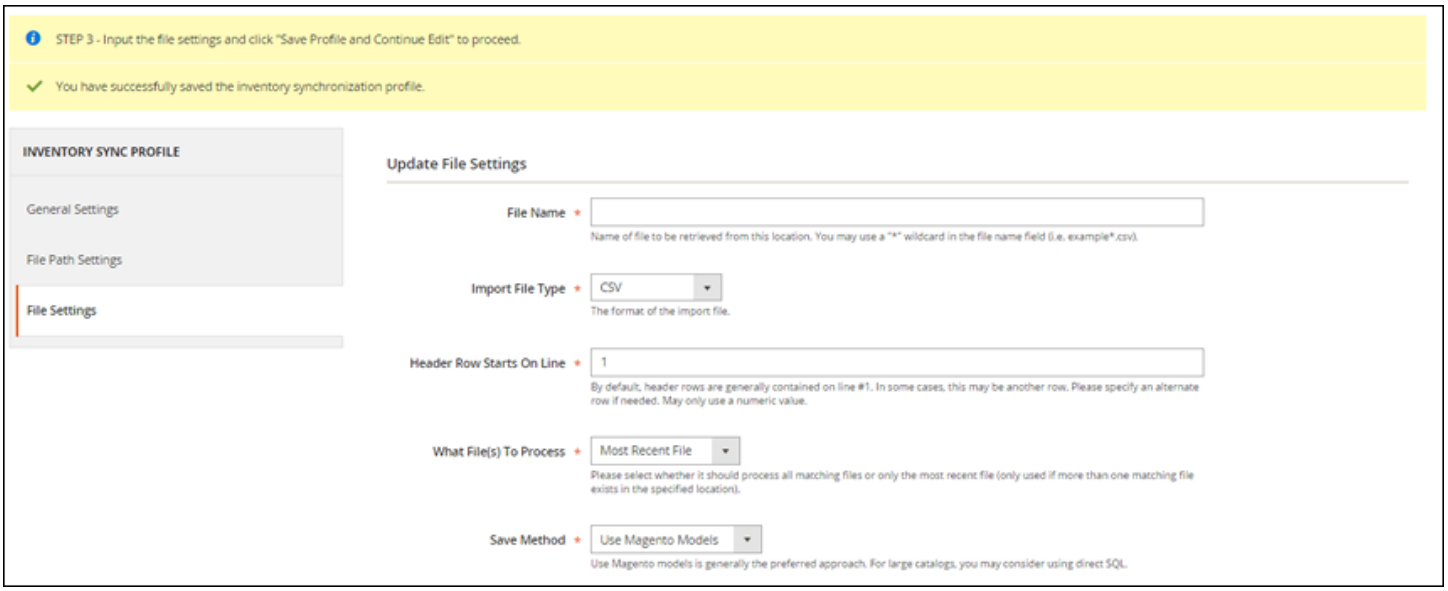
Important Note: When using HTTP connections, the remote file will need to have appropriate read/write privileges to access the file.

Once this step has been completed, please click the *Save and Proceed to Step #3* button in the top right corner as shown below.



4.5 Step 3 – File Settings

This step involves setting up required information as it relates to your import file settings. Each of the five fields are required. These fields are shown below complete with an explanation of each field.



File Name

This will be the name of the file that will be processed by this profile. For all import types (local server, FTP, and SFTP) other than HTTP, you may use wild cards in the file name such as example*.csv. It will process all matching files.

Important note – if there is more than one matching import file, the files will be processed based on their respective "Last Updated" timestamp from oldest to newest. This means the newest file will contain final precedence.

Import File Type

This is where you enter the file type. The supported file types are CSV, Tab Delimited, XML, and Text. For text files only, you will also be required to enter the delimiter.

Important note - in the event of a text file, the delimiter is limited to a single character.

Header Row Starts On Row

Each file requires a header row to ensure the columns are mapped to the proper data fields. Generally, the header row is on the first line within your import file – in which case you would enter the numeric value *1* in this field. If the header row exists on an alternate row, please enter the numeric value in this field.

Important note – the first line of your import file is considered row 1, so this field must contain a positive value (one or greater).

Important note - only data contained in rows below the header row will be processed.

What File(s) To Process

This is important when using a wild card in the file name and there is possibly more than one file that could match. In such a case, you have the option to select from the following:

Most Recent File – this will only process the most recent matching file using the "last updated" timestamp from the file.

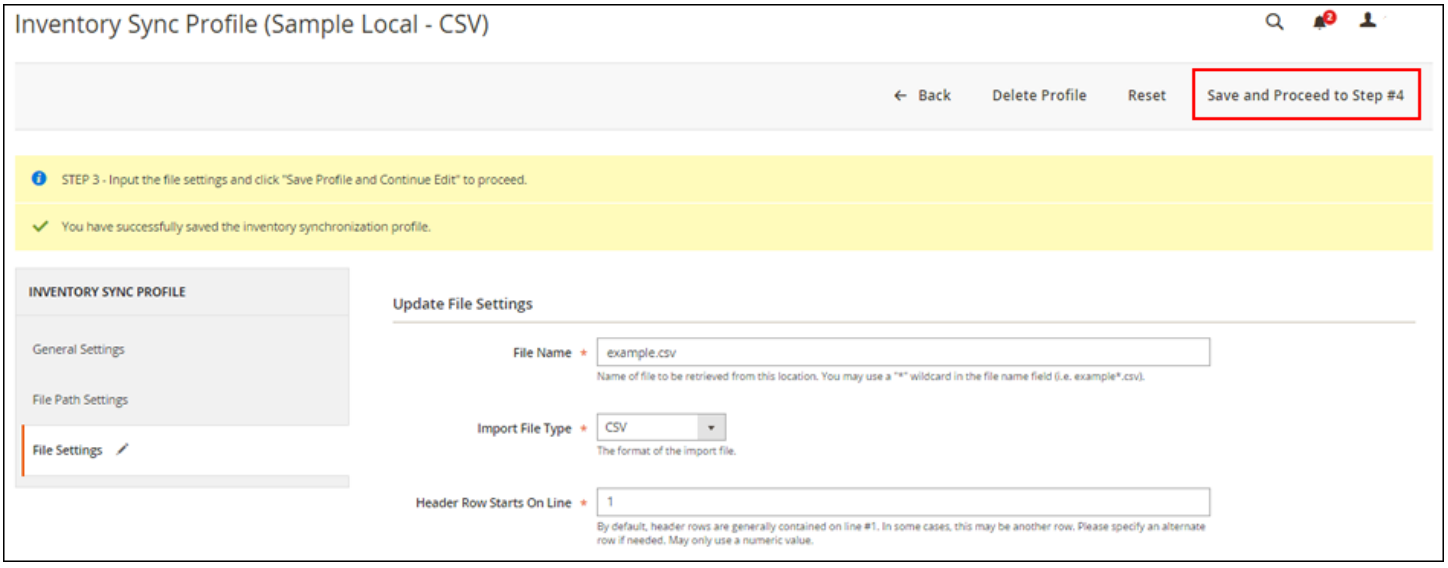
All Matching File(s) – this will process all matching file(s). In the event of multiple matching files, they will be processed in order using the "last updated" timestamp from the file starting at the oldest date to newest date.

Save Method

Generally, it is recommended to use the built in Magento models for updating. Using this approach, it will trigger various "events" to notify the system of the changes (an example would be a site re-index). The downside is this process is relatively slow. If your import file sizes are large, there is an option to *Use Direct SQL*. This will write the updates directly to the database and will perform much quicker.

Important note – times will vary depending on your server configuration and other factors, but a rough estimate to help you gauge the time of each method would be approximately 3 products per second using the Magento models approach vs. 100+ products per second using the Direct SQL approach.

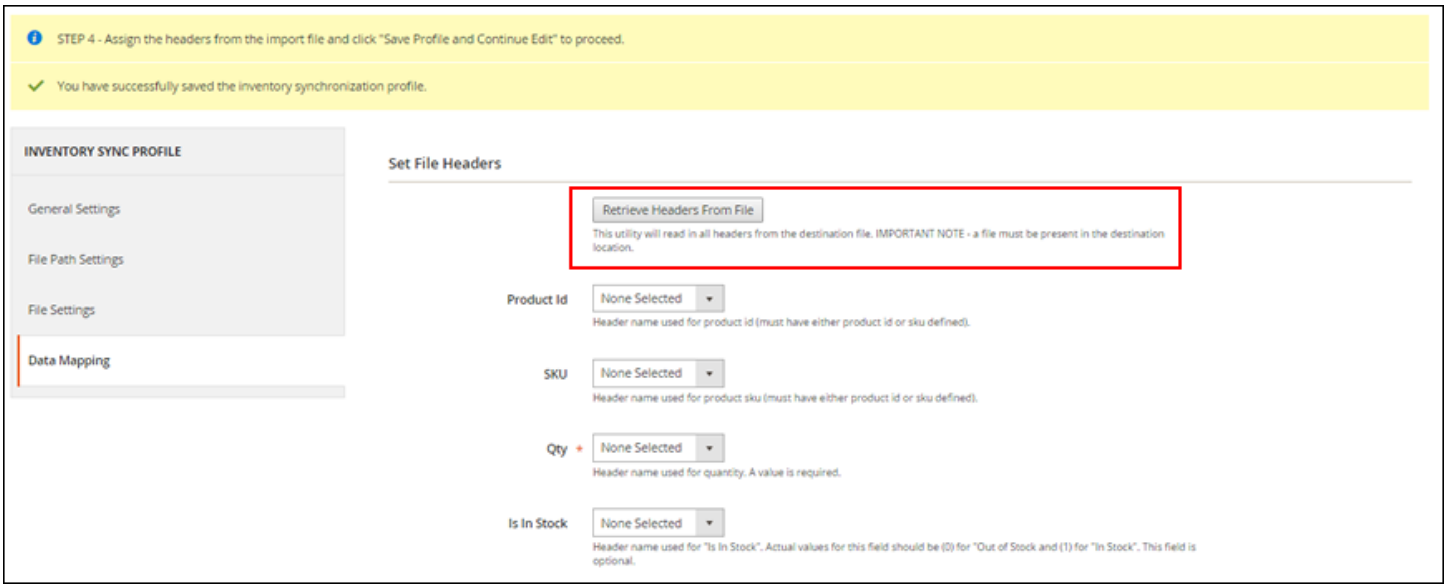
Once this step has been completed, please click the *Save and Proceed to Step #4* button in the top right corner as shown below.



4.6 Step 4 – Header Settings

This step involves identifying the headers contained within the import file. As mentioned ealier, your import file must contain a row of headers to properly map to your catalog. The header names can be named in any fashion you would like as you map the header name from your import file to the appropriate field. To start, please click the *Retrieve Headers from File* button as shown below. This will reach out to the import file and read in the row you specified as your header row.

If you receive the error *Unable to locate headers in file. Please check the file / connection settings and try again*, this indicates it could not (a) connect to the remote server or (b) could not find a matching file located in the folder. Please verify a file matching the file name exists in the selected folder. In addition, please check the credentials (if FTP or SFTP connection) to ensure these are correct and try again.



Once you receive the message y*ou have successfully retrieved headers*, you are ready to map your file headers to the proper data field. Each of these field are described below.

Product Id (optional)

Please select the header column that contains the product id in your product catalog. Leave the default *Not Selected* option if this column does not exist.

SKU (optional)

Please select the header column that contains the sku in your product catalog. Leave the default *Not Selected* option if this column does not exist.

Important note – you must map at least one product id or sku column to proceed. This is required to identify the product in your catalog.

Qty

This is a required field. Please select the header column that contains the qty to update.

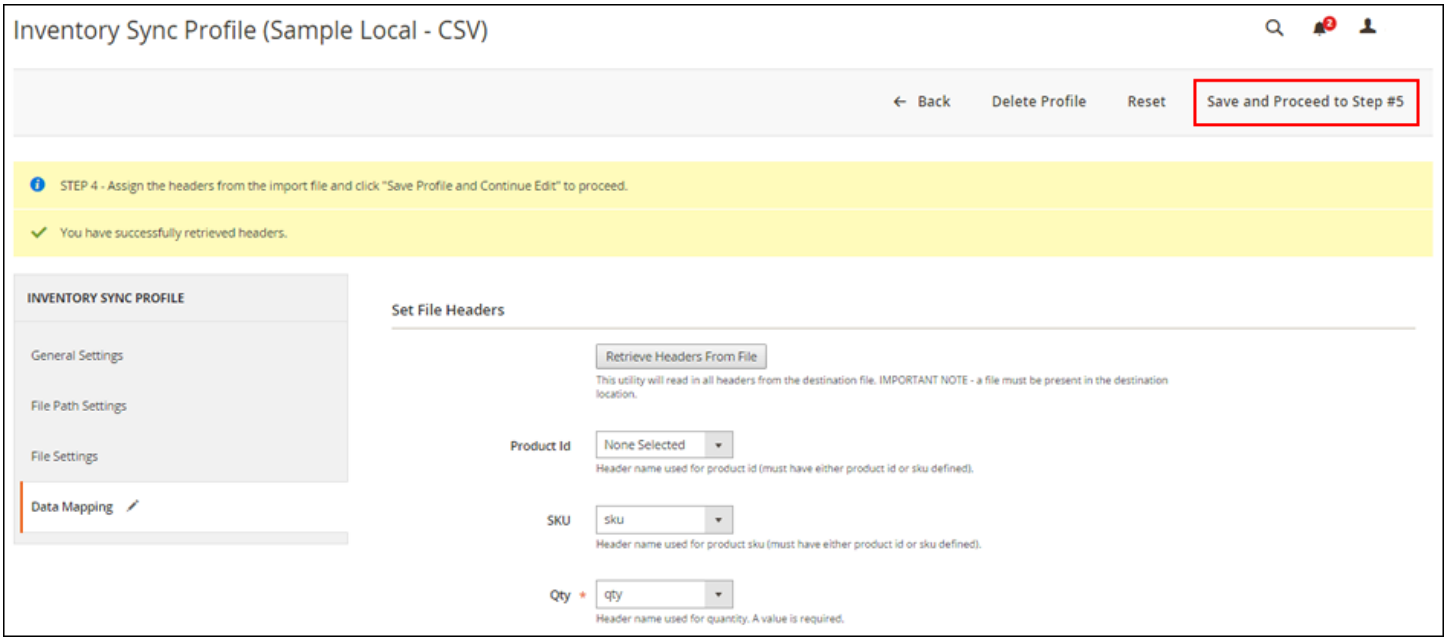
Is In Stock (optional)

If you have a column in your header file that contains the stock status (in stock / out of stock) flag, please select that column here. If set, it will adjust the *is in stock* flag for the respective product.

Important note – the data in this column must contain either a 0 (out of stock) or 1 (in stock) to be processed. Any other value will be ignored and not processed.

Important note – if a SKU is referenced more than once in an import file with the is in stock flag, the final row (from top to bottom) will hold final precedence.

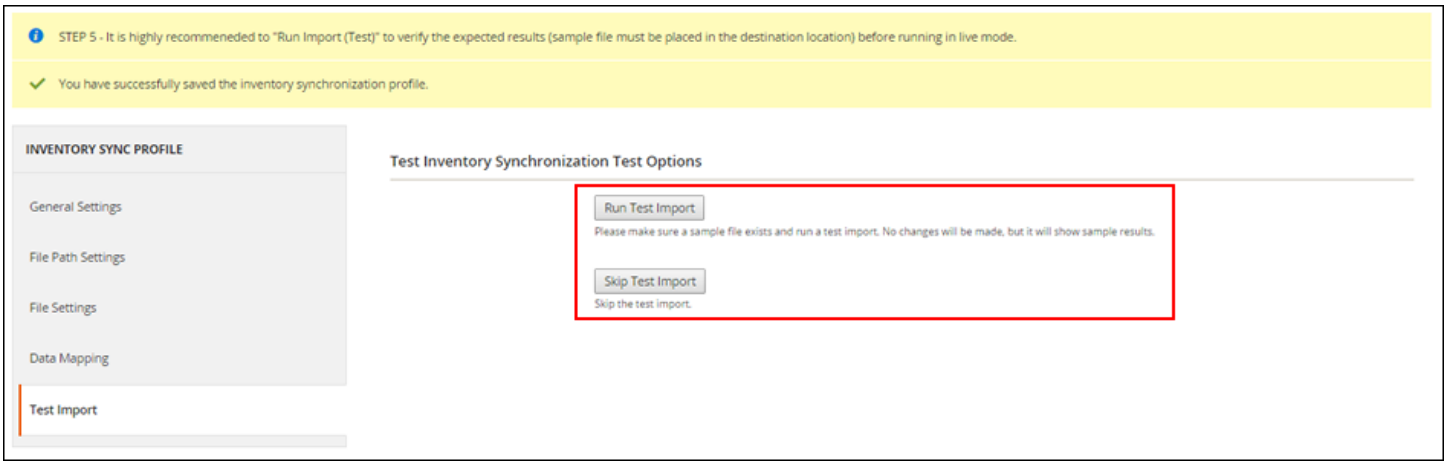
Once this step has been completed, please click the *Save and Proceed to Step #5* button in the top right corner as shown below.



4.7 Step 5 – Run Profile (test mode)

This step is designed to allow you to run a test import. It will record the results and show what would have been adjusted had it been run in live mode. This is highly recommended prior to running in live mode to ensure the expected results. In this step, you must press the *Run Test Import* or *Skip Test Import* button as shown below. If you elect to skip the test import, it will automatically proceed to the next step.

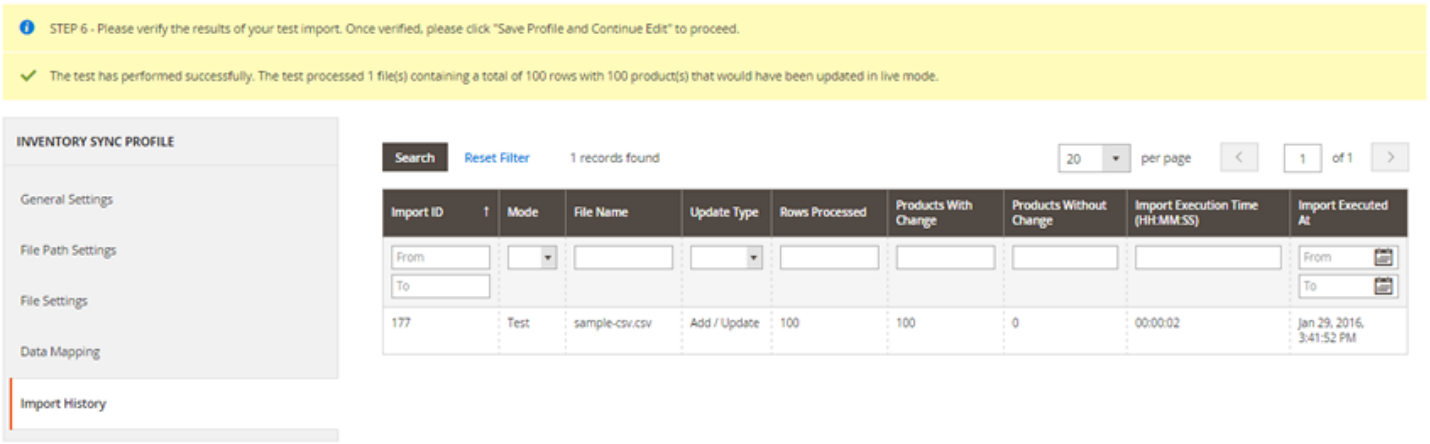
Important note – while running in test mode, no updates will be made to your catalog. This is only intended to demonstrate what would have been edited to verify the results before running in live mode.



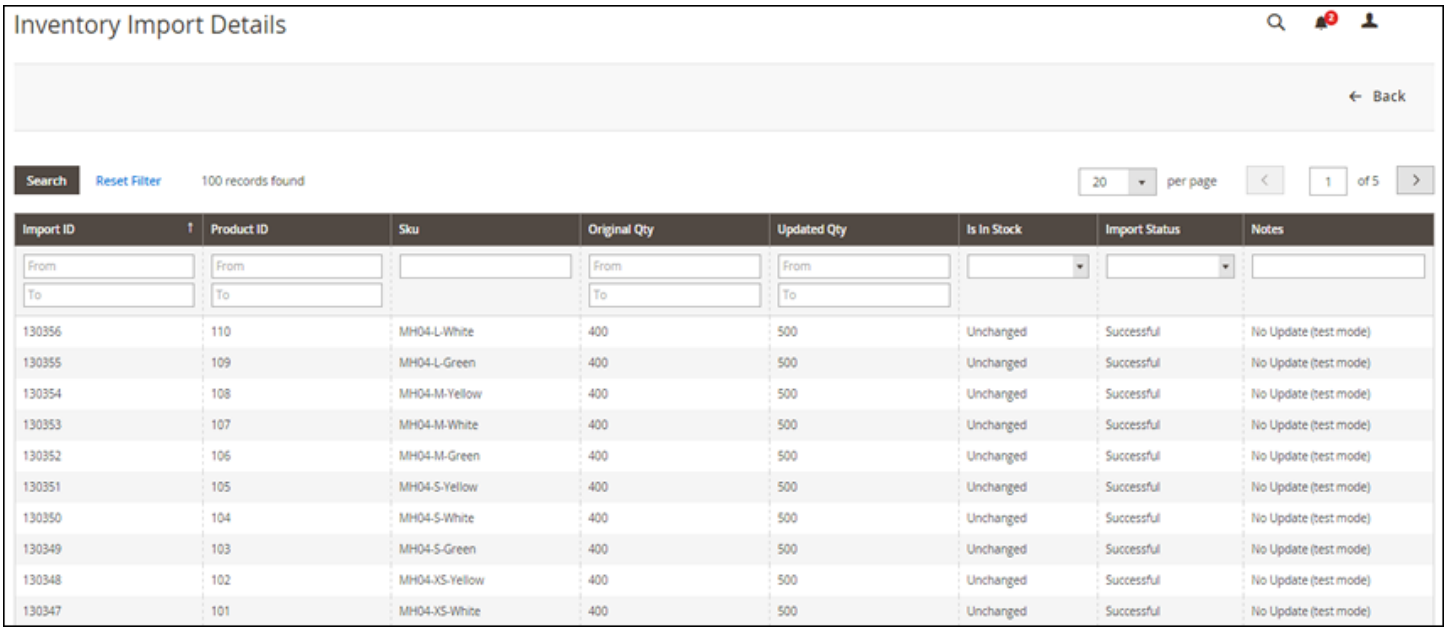
4.8 Step 6 – Verify Test Results

This step will only appear if you elected to *Run Test Import* in Step 5. Of you elected to *Skip Test Import*, please skip ahead to Step 7.

This step will show the results of the test mode. The initial grid that appears as shown below will provide a great deal of information about the data that was processed. For more information on understanding these results, please see section 5.1 Import History Explained for a more detailed explanation. Please review carefully and ensure the results appear accurate.



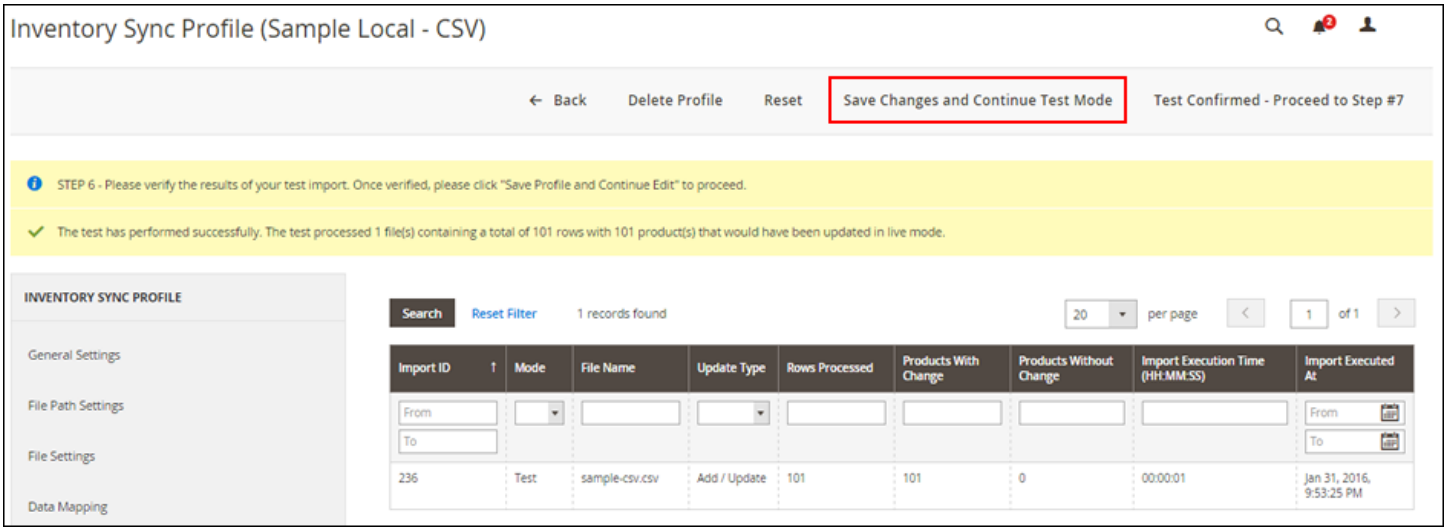
Simply click on the one of the rows that display to open up the detailed results as shown below. This screen will provide details on an individual product basis as it relates to your test import. The *Updated Qty* column shows what the qty would have been edited to had this been a live import. Likewise, the *Is In Stock* column shows whether the Is In Stock field would have been updated. Each of the columns may be sorted / filtered to locate specific products or results. Press the *Back* to return to the primary screen.



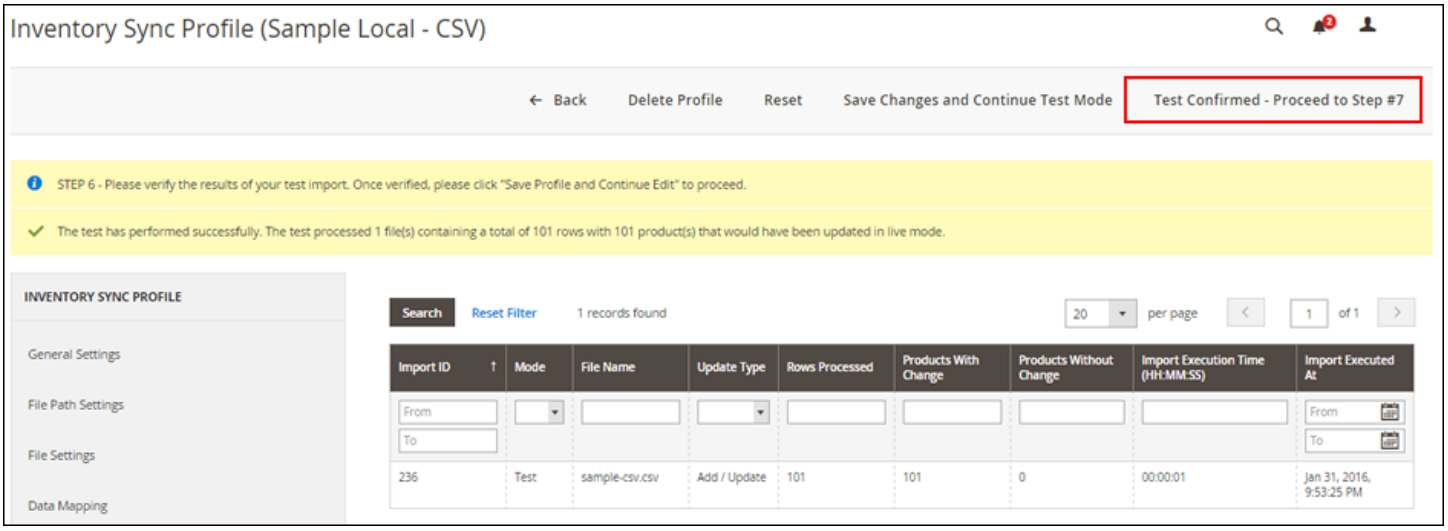
Important note - this same report will be shown for each live import that is run to maintain a record of results and changes made.

After you have reviewed the test results, you will have two options to proceed.

The first option is *Save Changes and Continue Test Mode* as shown below. Use this if the test import did not produce the expected results. You may continue to make adjustments to any of your profile's settings, save those changes, and continue to run test imports until the results properly.



The second option is *Test Confirmed – Proceed to Step #7* as shown below. Use this if the test import produced the expected results and you are prepared to move forward on the profile setup.

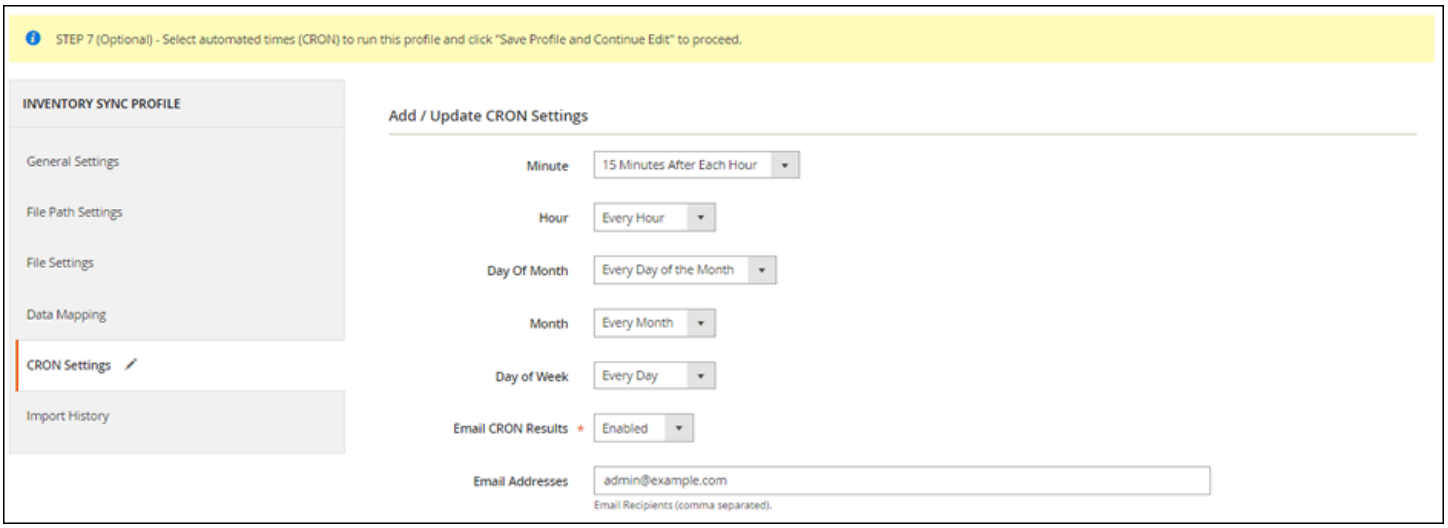


4.9 Step 7 – CRON Settings

The final step to setup a profile is optional. CRON allows you to run this profile by system CRON – or at regular scheduled intervals without any user further user interaction.

You may skip the CRON settings and set this at any point later. To skip this optional step, simply leave all fields with the default *Not Selected* option and click the *Save and Proceed to Step #8.*

To setup CRON settings, simply enter the desired times you would like this profile to be executed (the maximum frequency is once every 15 minutes) as shown below.



Below is a definition of each of these fields.

Minute

This can be scheduled as frequently as four times per hour in 15 minute increments or at a specific interval on the hour.

Hour

This can be scheduled as frequently as every hour or a specific hour within the day.

Day of Month

This can be scheduled to run every day or on a specific day of the month.

Month

This can be scheduled to run every month or on a specific month of the year.

Day of Week

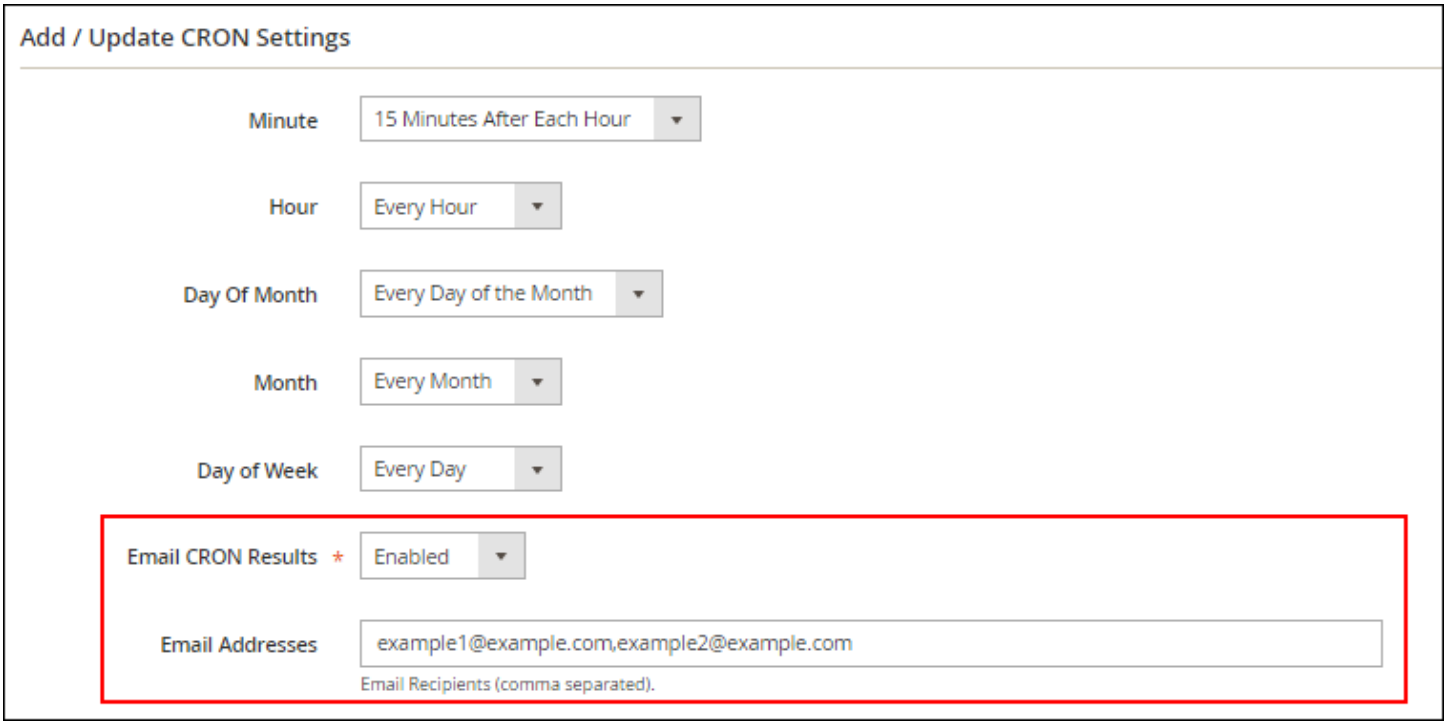
This can be schedule to run every day of the week or on a specific day of the week. It is important to note that if you select a specific day of week in combination with a day of month, the specific day of month would have to also fall on the selected day of week.

For example, if you select to run the profile only on the 15th day of each month in combination with Sunday for day of week, then the profile will only execute if the 15th day of the month happens to be a Sunday.

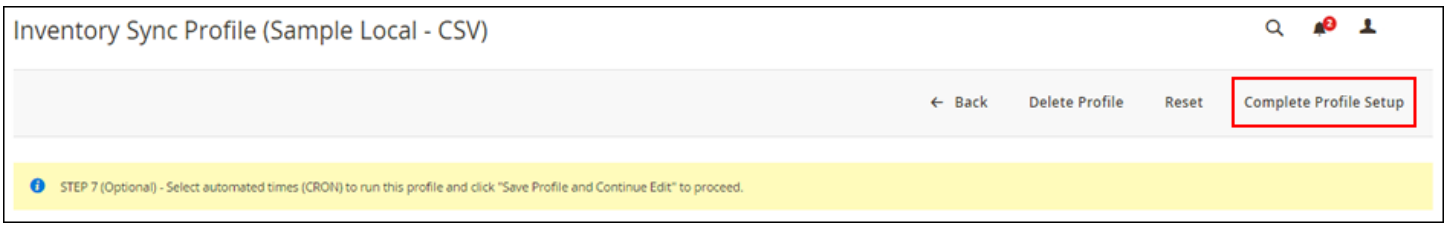
Email CRON Results

If this option is enabled (see screen shot below), it will open up a new field to enter the email address to send the results. If there is more than one email address, please separate each email address with a comma.

The email summary will provide important information about each import run to include whether the import was successful, how many rows were processed, how many products were updated, and more.



Once you have completed the CRON settings, please click the *Complete Profile Setup* button in the top right hand corner as shown below.



Important note – for this extension to properly process the import files, it is required that CRON has been properly configured for Magento 2.0. For more information on setting this up, please visit http://devdocs.magento.com/guides/v2.0/config-guide/cli/config-cli-subcommands-cron.html.

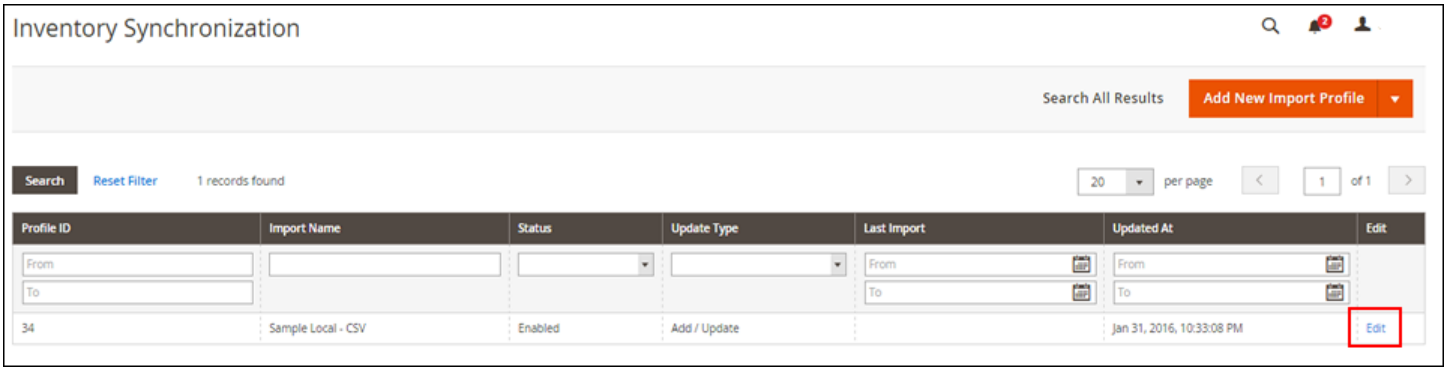
Congratulations, you have now successfully setup your profile! You may go into each profile and update any of these settings as needed going forward or to monitor import results.

5. Managing Profiles

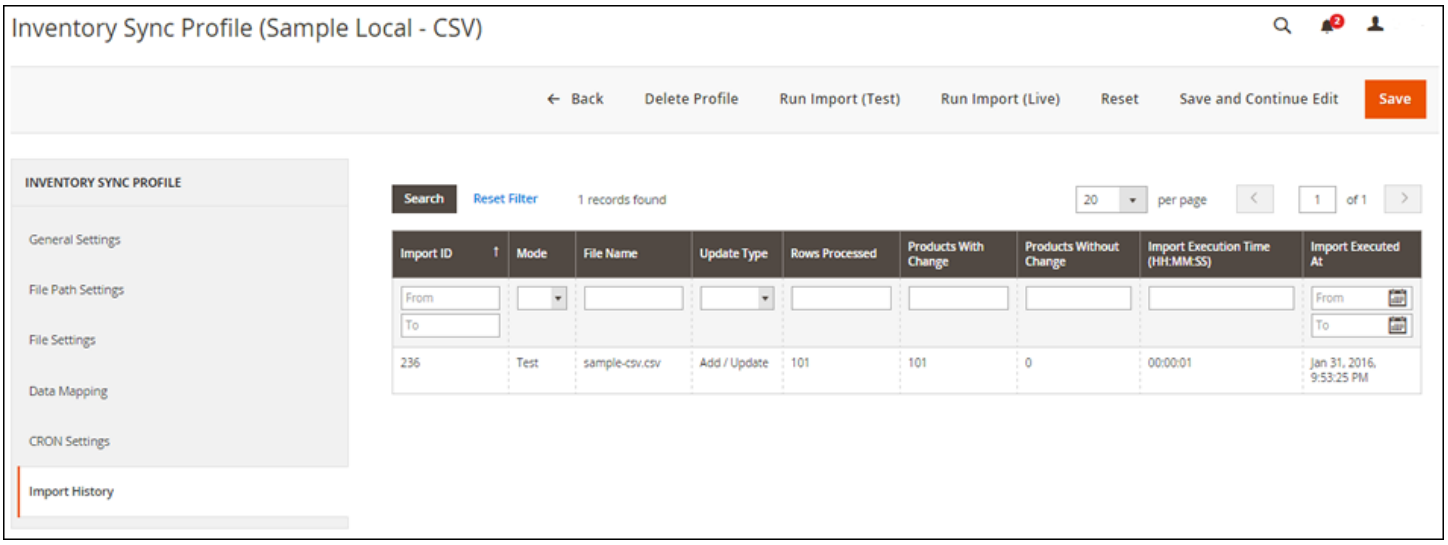
After your profile(s) have been setup and configured, there is important information as it relates to managing these profiles. This section will explain these additional features.

5.1 Import History Explained

After a profile has been run in either test mode, live mode, or by CRON – a full report on the results will be saved. This is important information to ensure your profile is processing the data as expected. To get to the individual profile results, start by clicking the edit button on the desired profile as shown below.



Once you have selected a profile and clicked the *Edit* button, it will open directly into the *Import History* tab. This tab will show all recent (depending on how frequent you selected to purge these results) activity as it relates to this specific profile as shown below.



The various fields are explained in detail below.

Import ID

This is simply a unique identifier for each import run.

Mode

This indicates whether the displayed results were run in test mode, live mode, or via CRON.

File Name

The name of the file that was processed during this import run.

Update Type

This will display whether the results were run in *Add/Update* or *Replace* mode.

Rows Processed

This identifies how many rows were processed in the import run. This only displays rows processed after the header row (for all file types other than XML).

Products with Change

This displays the total number of products discovered in your import file where either (a) the quantity was adjusted or (b) the in stock flag was changed.

Important note - for test mode, it will still display this data although no actual changes will be made to your catalog.

Products without Change

This displays the total number of products discovered in your import file where the data provided did not require any changes to your catalog. This means the quantity was the same and the in stock flag was unchanged.

Import Execution Time

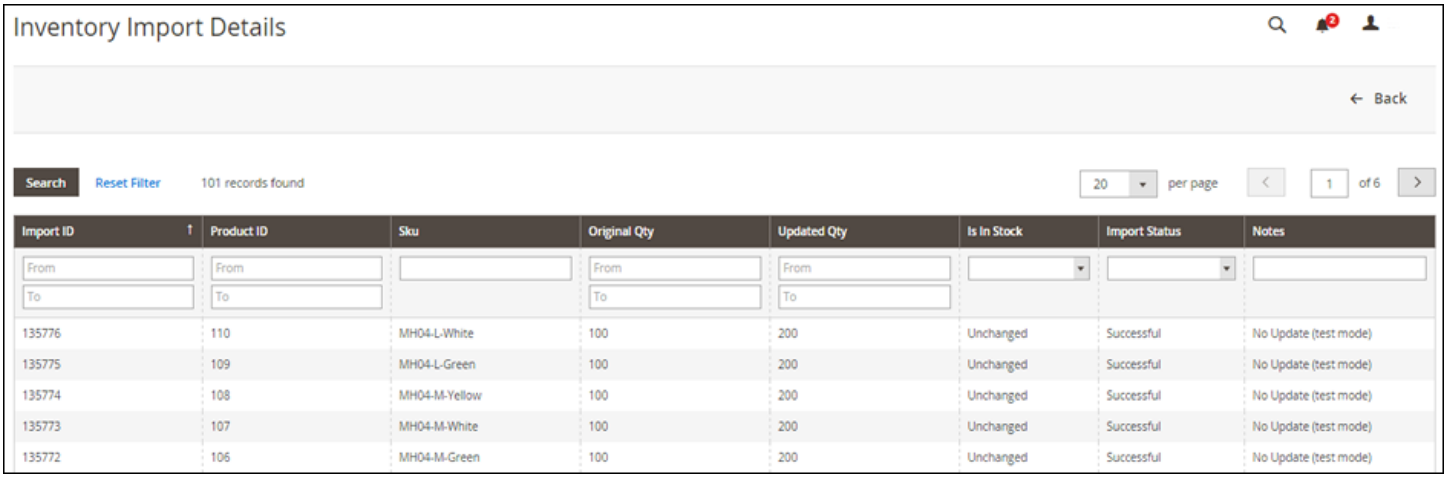
This displays the total amount of time in hours, minutes, and seconds that the import took to run through to completion.

Import Executed At

This represents the specific date and time the import ran.

5.2 Import Details Explained

To open up the Import Details grid, please click on a row in your Import History tab (see Import History Explained in the previous step). This will present a grid with detailed information on an individual product basis as it relates to the import as shown below.



The various fields in this view are explained below.

Import ID

This is simply a unique number assigned to each individual product discovered during the import.

Product Id

This is the product id that is assigned to the respective product in your actual Magento catalog.

Sku

This is the SKU that is assigned to the respective product in your actual Magento catalog.

Original Qty

This is the the starting quantity of the respective product before the import profile executed.

Important note – if a SKU is referenced more than one time in the import file and your import configuration is set to add/update, the original quantity will display the accumulative quantity on subsequent line items to include changes made on previous rows.

Update Qty

This is the new quantity that is assigned based on the data discovered in your import file. In live mode or CRON, this is the quantity that was written to your product.

Is In Stock

This will display any change made to the in stock flag. If no flag was provided or this flag remained the same, it will simply show *Unchanged* in this column.

Import Status

This will display whether the row was successfully processed.

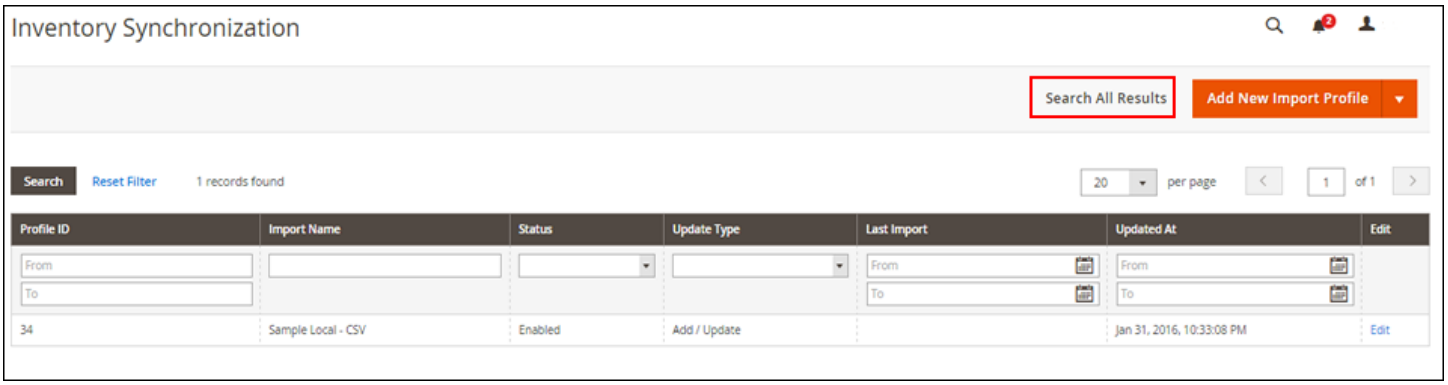
Notes

This will display important notes on an individual product basis as it relates to the import.

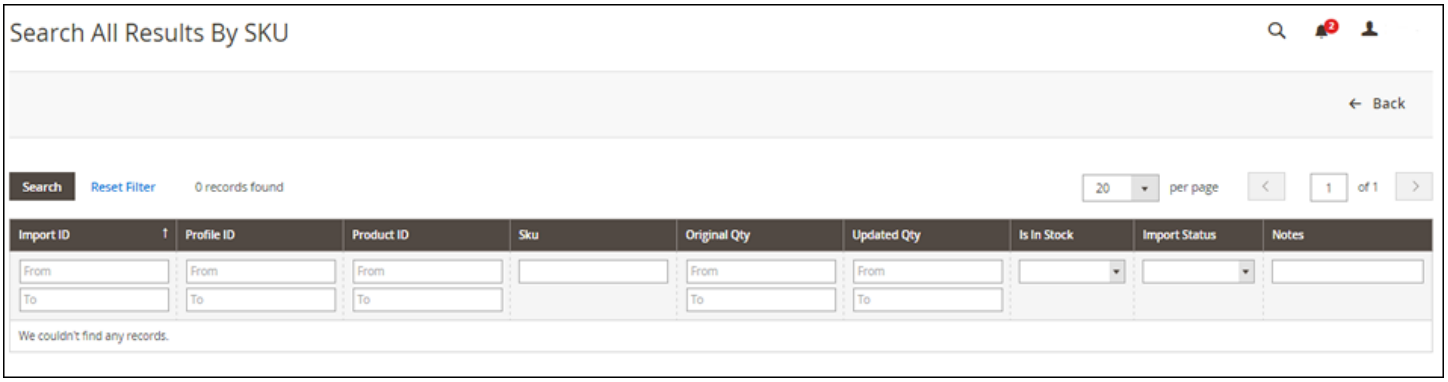
Press the *Back* button to return to the profile page.

5.3 Search All Results Explained

At times, you may want to examine changes made to an individual SKU across all profiles. This becomes especially useful when trying to troubleshoot unexpected results. To assist with this, a feature has been added called *Search All Results* that provides this functionality. To access this feature, go to (from your admin panel) System -> Data Transfer -> Inventory Synchronization. From the grid that appears, click the *Search All Results* as shown below.



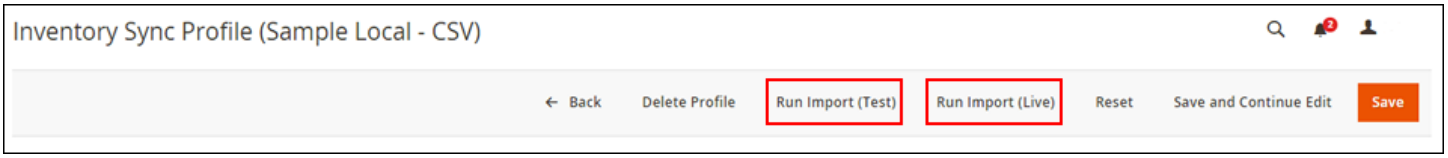
After clicking the *Search All Results* button, it will open up all results across all profiles as shown below. From this menu, you can search / filter by a specific product id or sku to see what changes were made within each profile.



Once you have located the SKU in question, it will show changes made to include the Profile Id that made the changes. Use this information to examine the results of multiple profiles that may impact your quantity available or stock status.

5.4 Manually Execute Profile Import

Once a profile has been created and fully configured, you will have two new buttons that will appear at the top of each profile to include *Run Import (Test)* and *Run Import (Live)* as shown below.



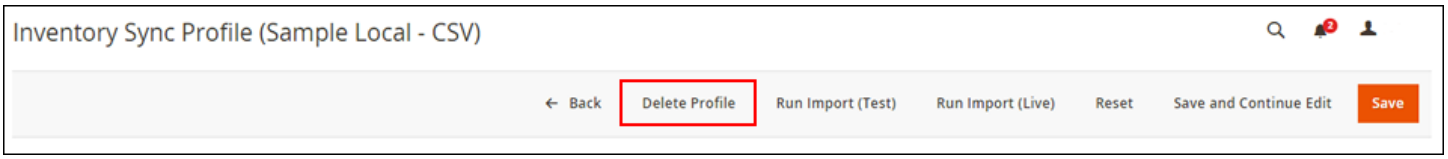
The *Run Import (Test)* may be executed at any time after setting up a profile and is used to examine the behavior of the import without making actual changes to your catalog.

The *Run Import (Live)* may be executed at any time after setting up a profile and is used to fully process the import file and will write the results to your catalog.

5.5 Delete a Profile

To remove an existing profile at any time, simply click the *Delete Profile* button as shown below. You will be prompted to make sure you want to delete the profile before proceeding.

Important note – deleting a profile will also delete the full history of all imports associated with this profile.



6. General Troubleshooting / Questions

What follows are common questions and answers as it relates to this extension.

6.1 Common Questions

There is an import file in the destination location but when I try to run the profile, it states that no file is found?

> To prevent processing the same file over again, the profile compares the *Last Updated* timestamp on any matching file in the destination folder against the timestamp the profile was last run. If the profile was last run at a time that is newer than the *Last Updated* timestamp, it will skip this file.

When I try and collect headers in profile setup step #4, it simply states no file was found?

> This is the result of (a) no matching file in the destination folder or (b) the file does not have proper permissions to be processed or (c) the credentials used to connect are not valid. Please check that a matching file exists in the destination folder, has proper read privileges, and that your credentials are listed properly.

What if there is more than one row in a file that contains data for a given SKU?

> The behavior of the import in this circumstance depends on your profile settings. If you selected *Add/Update* under the *General Settings* tab, it will process each row and continue to update the SKU for each row processed. This means it will add/subtract from your available quantity with each reference. If you selected *Replace* under the *General Settings* tab, the last row (from top to bottom) will take precedence and be used to edit your catalog.

How can I see changes made to a SKU across all profiles?

> A feature has been added called *Search All Results* that provides this functionality. Please see section 5.3 for more information on this.

7. Uninstall Extension

Magento 2.0 does not have a fully defined mechanism with which to fully uninstall an extension. What follows is a detailed list of steps to fully remove the code and custom database tables associated with this extension.

7.1 How to Uninstall Extension

To uninstall the Magento 2.0 Inventory Synchronization extension, please follow these steps:

1. (Recommended) Run a backup of the code base and database.
2. Using SSH, login and navigate to your store's root folder.
3. Enter the following command:

   php -f bin/magento module:uninstall CustomerParadigm_InventorySync

Please flush system cache by navigating to System->Tools->Cache Management from the admin panel. To ensure the extension has been disabled, please navigate (from the admin panel) to System -> Data Transfer and make sure the *Inventory Synchronization* link no longer exists.

You may now delete all of the code associated with the extension located (from your Magento root folder) at app/code/CustomerParadigm/InventorySync.

This only leaves the custom database tables remaining. Using your preferred DB tool (or command line), you can remove the following tables:

- cp_inventorysync_cron
- cp_inventorysync_headers
- cp_inventorysync_main
- cp_inventorysync_results
- cp_inventorysync_results_detail
- cp_inventorysync_settings

Once the extension has been disabled, the code has been removed, and the DB tables have been removed – the extension has been fully removed.