StoreIntelligence

Content

AP Specifications

Output RF power max. is 20.5dBm max.
DC power source POE 48V @ 0.26A

This radio transmitter has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Antenna types: Monopole

Antenna gain (in dBi): 6

FCC statements:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
—Reorient or relocate the receiving antenna.
—Increase the separation between the equipment and receiver.
—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
—Consult the dealer or an experienced radio/TV technician for help.

This device has been tested and meets applicable limits for Radio Frequency (RF) exposure.

This equipment should be installed and operated with minimum distance 20 cm between the radiator & your body.

IC Statements:

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions: (1) This device may not cause interference. (2) This device must accept any interference, including interference that may cause undesired operation of the device.

This device has been tested and meets applicable limits for Radio Frequency (RF) exposure.

This equipment should be installed and operated with minimum distance 20 cm between the radiator & your body.

Responsible Party:
Store Intelligence Corp.
6700 Koll Center Parkway, Suite 109,
Pleasanton, CA, 94566, USA

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Chapter

1. Introduction

This chapter provides foreword about the Store Intelligence System Gateway system. The key components required to bring together ASG System that provides fastest method to display product details and product prices on the store shelves. This chapter includes:

- ➢ About Store Intelligence System
- ➢ Store Intelligence Application Software
- ➢ Store Intelligence Access Point
- ➢ Electronic Shelf Label

1.1 About Store Intelligence System

The Store Intelligence System provides faster method to display the product details and pricing accuracy on the store shelves. The system is designed to make the product detail and price change process dynamic, accurate and efficient in the short span of time. The Electronic Shelf Label (ESL) content includes a combination of text, images, barcodes and logos.

Features of Store Intelligence System:

➢ Spontaneous and accurate price and product details across the store.
➢ Reduces the operating costs associated with frequent ESL updates.
➢ Effortless process for the store personnel.
➢ The ESLs have different types of screens that are used to display various data information.
➢ Temperature monitoring sensors checks temperature on 24/7 basis to help stores comply with all food safety regulations (for detailed information on temperature sensors refer to ASG-User Guide).

1.2 Frequently Used Abbreviation

The commonly used abbreviations in the Store Intelligence Quick Start Guide are listed below and these abbreviations are used throughout the document.

AAP	Store Intelligence Access Point
ASGC	Store Intelligence System Gateway Console
ASP	Store Intelligence Server Platform
DSD	Direct Store Delivery
ESL	Electronic Shelf Label (ESL) or Tag

POS	Point of Sale
NIC	Network Interface Card
DHCP	Dynamic Host Configuration Protocol
POE	Power Over Ethernet
NTP	Network Time Protocol
SSH	Secure Shell
RF	Radio Frequency

1.3   Store Intelligence Components

Store Intelligence Components are organized of various hardware components that are physically connected to each other via cable or wireless system.

1.3.1 Store Intelligence Application Software

Store Intelligence application software is installed on Windows 10 (64 bit) machine provided by the user. You need to install / configure Store Intelligence Access Point, Store Intelligence Tethered Device, Store Intelligence Sync Manager(Optional), Store Intelligence Server Platform and Store Intelligence System Gateway on this machine.

Store Intelligence System Gateway application is the control center of the Store Intelligence System. It provides a web based frontend to control and monitor Store Intelligence Access Points (AAPs) and Electronic Shelf Labels (ESLs) or tags. It communicates with ESLs through Store Intelligence Access Point (AAP). The ESLs are enabled and linked through Store Intelligence Tethered Device (ATD). The ASM helps to synchronize AAP and ESLs else the connection is lost.

The recommended system requirements for ASG application to be installed successfully on your local machine are listed below.

Operating System	Windows 10 (64-bit edition), Windows Server 20012 or higher.
Processor	Dual Core processor (Intel core2duo, i5, i7 or Xeon).
Memory	4 GB RAM or higher
Hard Disk	Up to 20 GB free disk space or more

ASG can run on virtual machines also with the requirements similar to the standard system.

1.3.2 Store Intelligence Access Point

The Store Intelligence Access Point (AAP) is a radio device that talks to the Electronic Shelf Labels (ESLs) or Tags. These AAPs use a proprietary RF signal to update the content on the Electronic Shelf Labels (ESLs). The Store Intelligence Access Point RF uses the 2.45 GHz ISM band with a frequency hopping proprietary protocol.

Figure 1: Store Intelligence Access Point Device

The Figure 1 above shows the Store Intelligence Access Point device that has **Device Status LEDs, Power over Ethernet (POE) Port**,.

Device Status LEDs shows the current device status and the status can be:

➢ Green indicates AAP is online and connected to the ASG System.
➢ Yellow indicates AAP is ready for transmitting the data.

The Store Intelligence Access Point Ports has Power over Ethernet (POE) Port.

Power over Ethernet Port provides the power supply to the Store Intelligence Access Point device via Power over Ethernet (POE) using Ethernet transceiver cable.

Antenna in the AAP is used to convert the electrical energy into radio signals. The AAP transmits or receives the information using radio signals. Every ESL has a unique identity to connect to the ASG system.

1.3.3 Electronic Shelf Label

Electronic Shelf Label (ESL) or tag are battery operated LCD sign or E-Sign that are updated remotely through ASG system. The ESL has a short range radio that can talk to the Store Intelligence Portable Terminal (APT) or Store Intelligence Tethered Dock at a very short range and a long range radio that can talk with the Store Intelligence Access Point (AAP). After initialization with the APT or Store Intelligence Tethered Dock most of the communication with the ESLs will be from the AAPs. The ESL provides faster and dynamic method to display the product prices on store shelves accurately and efficiently. The ESL content includes a combination of text, images, barcodes and logos.

Figure 2: Electronic Shelf Label (ESL) or Tag

Chapter

2.Getting Started

This chapter provides you the details about the installation procedure of Store Intelligence Server Platform and Store Intelligence System Gateway using graphical user interface as well as command line interface method and includes:

➢ Connect Components
➢ Install Store Intelligence Server Platform
➢ Install Store Intelligence System Gateway

2.1 Connect Components

The Figure 3 below shows the Store Intelligence Network Layout that explains how the Store Intelligence System Gateway (ASG) works to perform dynamic pricing and product details using Electronic Shelf Labels (ESLs).

Figure 3 : Store Intelligence Network Layout

2.2 Install Store Intelligence Server Platform

The Store Intelligence Server Platform includes the infrastructure software required by ASG application. To install the ASP you should have administrative privileges.

The ASP installer is an executable program that installs the ASP software. The ASP installer performs the one-time installation of the Java (Java SE 8 Update 92(64 bit)), database server (PostgreSQL 9.5.2-1), Microsoft Visual C++ runtime libraries and application server (JBoss).

2.2.1 Install ASP using Graphical User Interface

To install or upgrade Store Intelligence Server Platform into your system, double-click the ASP installer (e.g. ASP_x64_ver_12.3.2_build_55.exe) and Store Intelligence Server Platform Setup wizard starts the installation process.

Follow the interactive steps of Store Intelligence Server Platform setup wizard:

➢ Accept the License agreement and click Next to continue.
➢ Read the setup wizard instructions and complete the installation process and ASP is installed successfully into your system.

2.2.2 Install ASP using Command Line Interface

You can install ASP using Command Line Interface. ASP contains built-in support for silent or unattended installations.

The sample command for ASP installation is shown below. The command runs to complete the ASP installation without any further requests.

> *start /w <asp installer.exe> /S /INSTALLDIRPOSTGRES C:\Program Files\PostgreSQL\9.5 /DATADIRPOSTGRES C:\Program Files\PostgreSQL\9.5\data /DBSUPERUSERPASSWORD postgres /DBUSERJBOSSPASSWORD jboss /ASGSYSTEMUSERNAME asg*

In case you omit any mandatory input in the Command Line Interface, the ASP installation fails.

2.3 Install Store Intelligence System Gateway

After successful installation of ASP, the Store Intelligence System Gateway (ASG) is installed.

2.3.1 Install ASG using Graphical User Interface

To install or upgrade Store Intelligence System Gateway into your system, double-click ASG installer (e.g. ASG-17.X.X-xx-x64.exe) and Store Intelligence System Gateway Setup wizard starts the installation process. To install ASG successfully you should have administrative privileges.

Follow the interactive steps of ASG setup wizard instructions:

- ➢ Accept the License agreement and click Next to continue.
- ➢ Specify PostgreSQL super user password (as provided by Store Intelligence), click Next.
- ➢ ASG installation process starts and ASG is installed successfully into your system.
- ➢ Click Finish button and the ASG console opens as the 'View ASG console' check-box is selected. Please wait for few minutes and refresh the webpage again if the ASG Console is not ready yet.

You can log into to the Store Intelligence System Gateway Console (ASGC) with the URL as http://localhost:8080/Store Intelligence/asg/pages/welcome/login.jsp using login credentials provided by Store Intelligence. Login to ASG Console verifies the successful installation of the ASG application.

On successful login, the home page of the Store Intelligence System Gateway Console opens showing Update Summary, Batch Summary, Store Intelligence Access Point (AAP) information and list of Recent Batches.

Once the ASG and ASP are installed, you need to verify the programs that should be installed into your system.

To verify go to **Control Panel → Programs → Programs and Features** and check the programs listed in the screen below.

> You need to ensure that the ASP and ASG should have version compatibility. In case ASP and ASG have a version incompatibility, a warning message is displayed and the installation is halted.

2.3.2 Install ASG using Command Line Interface

You can install ASG using Command Line Interface. ASG contains built-in support for silent or unattended installations.

The sample command for ASG installation is shown below. The command runs to complete ASG installation without any further requests.

Start/w <asg installer.exe> /S /DBSUPERUSERPASSWORD postgres /DBUSERJBOSSPASSWORD jboss

Chapter 3

3. Configure Components

This chapter provides you the detail description about how to configure the components of ASG System. When the ASG system is properly configured and connected as per the requirement, you can run the ASG system successfully.

- ➤ Configure Store Intelligence Access Points
- ➤ Configure AAPs from ASGC

3.1 Configure Store Intelligence Access Points

Mount and connect Store Intelligence Access Point (AAP) devices. Connect the AAP to network and get the IP address assigned to it from the DHCP server. You can get the IP address from http://localhost/dhcpstatus.xml or from the dhcptrc.txt file located in the DHCP folder.

Figure 4 : Connect AAP

When AAP is successfully connected green LED turns on. To verify that the newly added AAP is reachable from ASG system, you need to ping the IP Address of AAP from ASG machine.

Similarly you need to ping all the AAPs and if the ping is successful that indicates that the AAPs are reachable.

Figure 5 : Verify AAPs

AAP does not have user interface and is to be configured through SSH (Secure Shell).

The next step is to SSH (Secure Shell) to the AAPs.

To download the free SSH utility follow the link provided below: http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html and pick the file <**putty-<version-number>-installer.exe**>.

To connect and configure AAP via ssh:

> ➢ Open Putty.
> ➢ In the **Host Name (or IP Address)** provide AAP IP address.
> ➢ Click **Open** button.

The Figure 6 below shows the Putty Configuration to connect to the AAP with IP address as '*192.168.100.1*'and Port as '*22*'.
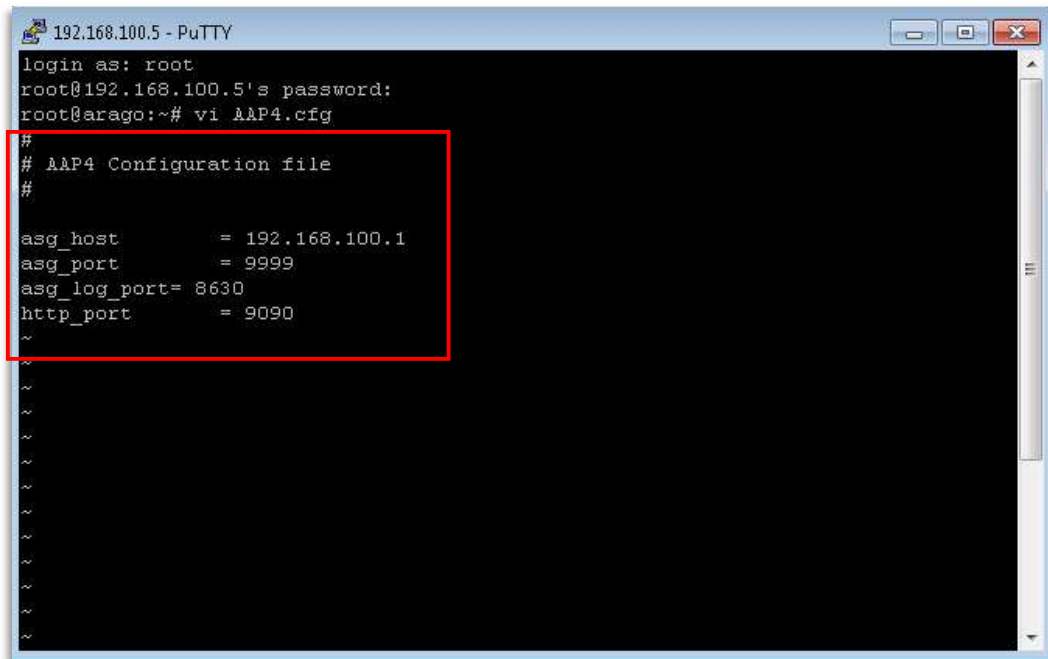
Figure 6 : Putty Configuration 1
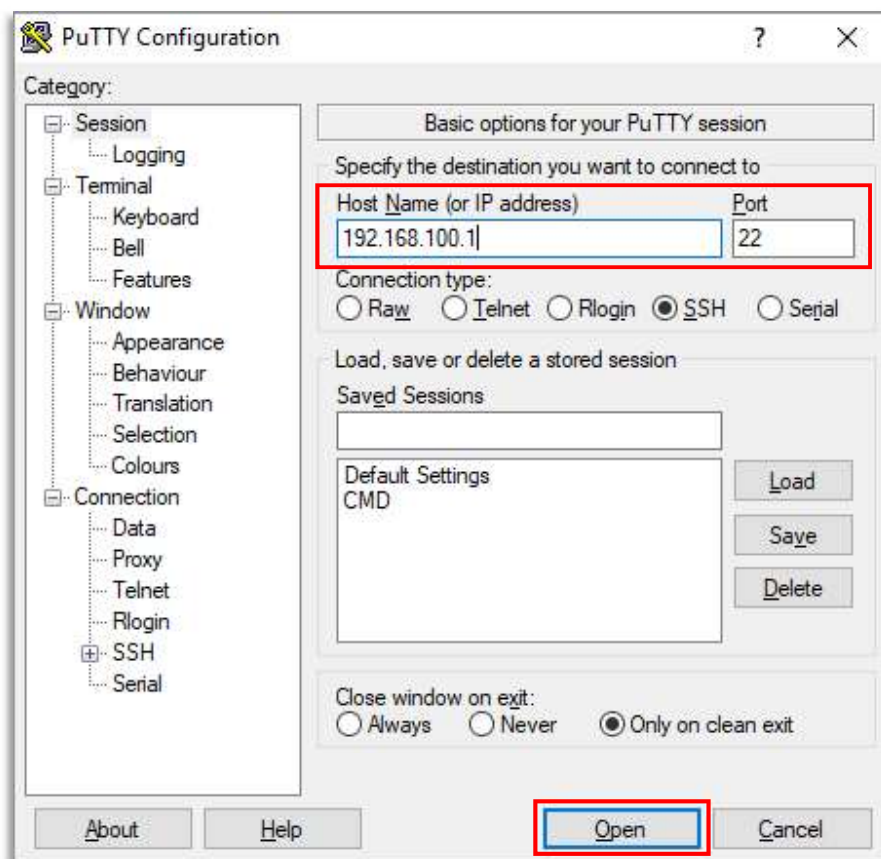
> ➢ Now provide Default credentials , **Login** as '*root*' and **Password** as '*Store Intelligence'.*
> ➢ Open AAP5.cfg file (AAP Configuration file) by running command "vi AAP5.cfg"
> ➢ The AAP5.cfg configuration file should shows asg_host and asg_port as specified by you.

➢ Figure 14 below shows asg_host as *<192.168.100.1>* and asg_port as *<9999>*. In case asg_host and asg_port are inaccurate, you need to edit configuration file and save it.

Figure 7 : Putty Configuration2

➢ Reboot the AAP by "reboot" command.

Figure 8 : Putty Configuration 3

➢ Similarly, configure all the AAPs.

3.2 Configure AAPs from ASGC

In the next step you need to configure AAPs from ASG Console.

- Log into the Store Intelligence System Gateway Console (ASGC) with the URL as http://localhost/Store Intelligence/asg/pages/welcome/login.jsp or double-click ASG

  Console icon [ASG Console] on your desktop.
- Login to ASG Console as an administrator using login credentials.

> To access the ASG Console from other machines than ASG machine, use 'IP address' of the ASG machine instead of 'localhost' in the URL. For example, to connect to the machine with IP address as '192.168.100.1', the URL will be http://192.168.100.1:8080/Store Intelligence/asg/pages/welcome/login.jsp.

- On successful login home page of ASG Console opens.

Figure 9 : ASGC – Home Page

- Now click **Admin** page and by default **AAP Admin** page opens. The **AAP Admin** page shows AAP List. The AAP list shows **#, Offset, Name, IP Address, Status, Last Started** and **Zone List** of each AAP.
- Click AAP **Name** in the AAP LIST section to view the Access Point details.

Offset	Shows offset value configured for the AAP.
Name	Shows AAP device name and by default AAP name is same as MAC address of the AAP which is printed on the bottom label of the [Click AAP Name to view the Access Point Details]
IP Address	Shows IP address assigned to AAP, after configuring the device with ASG.
Status	Shows current configuration state of the AAPs on the network. Status can be **Offline**, **Online**, and **Ready**.

Last Started	Shows last started date and time of access point device.
Zone List	Shows location or coverage areas of the AAPs.

➢ To edit Access Point Details, click **Name** link of the AAP and the Access Point Details is displayed. Now click **Edit AAP** button to edit the AAP details. The Access Point Details includes Name, Total Tags, IP Address, Status, Master, Sync State, Last Start Time, Zone, Frequency Offset, MAC Address, Firmware Version and Firmware Update.

Figure 10: Access Point Details

➢ In the **AAP Edit form**, editable fields are **New AAP Name, OffSet, Zone** and **Master.** Set OffSet value and Zone and select the Master check box field. Click **Save** button to save the details.

> Provide Frequency Offset from the recommended list of offsets and Zone to '**Hyper**'. Offset between 0-80 and preferably with a difference of 19 , i.e. in case of multiple APs , kindly use Offsets as 0 , 19 , 38 , 57 , etc.

Click to Edit AAP

Figure 11: AAP Edit Form

Old AAP Name	Shows current name of AAP.
New AAP Name	Provide new name for AAP.
Offset	Provide offset value (you can provide offset value from the recommended list of offsets).
Available Zone Names	Shows names of available zones.
Zone	Provide zone name.
Master	Select checkbox to make AAP as Master AAP.

After configuring AAP, wait until AAP is in Ready state (typically it takes 5 minutes).

In the AAP device, ensure that green LEDs is liet. This indicates that AAP is online and ready for transmission as shown in Fig 21.

Figure 12: AAP Status 2

When Store Intelligence Sync Master is not connected to ASG system, this indicates AAP is not in the Sync State. When AAP is not in sync state, this is shown with red indicator on the ASG console.

Figure 13: AAP Status3

4. Register ESLs

This chapter provides you the detail description about how to add layout files, add price files, update layout, update price, enable ESLs, link and test ESLs. When the ASG system is ready with the installation and configuration, you should proceed with the following:
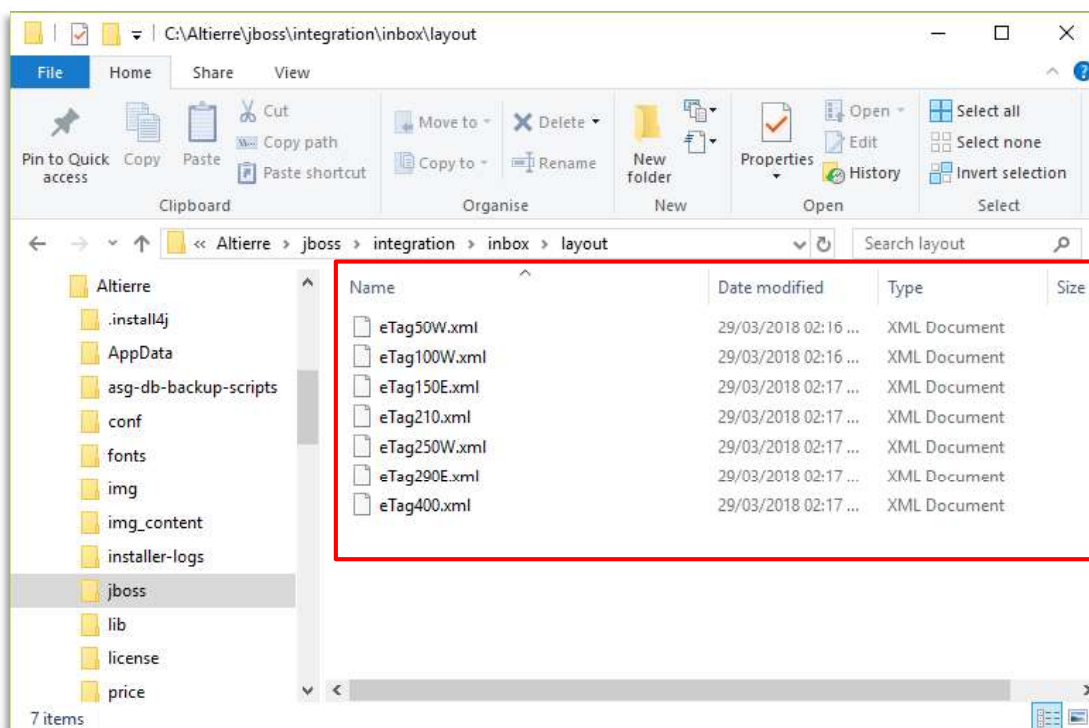
➢ Add Layout
➢ Add Price
➢ Link ESLs
➢ Update Layout
➢ Update Price

4.1 Add Layout

To add layout files into ASG, you need to copy the layout files into the designated folder and process the files using ASG console. Steps to process the layout files are explained below:

➢ Copy the conf files is present under C:\Store Intelligence\jboss\server\Store Intelligence\conf directory.
➢ Copy all the layout files from the source folder (i.e. place where the layout files exists).
➢ Paste the selected layout files into **C:\Alierre\jboss\integration\inbox\layout** folder.

Figure 14: Process Layout Files 1

➢ Now open ASG console and login to the application with administrator's privileges.
➢ Click **Sign Update** page, Sign Update List and Layout Update List sections are displayed.
➢ The Layout Updates List displays **Name**, **Date** and **Status** of all the layout files to be processed.
➢ Select all the layout files by clicking **Select All** button (or select specific layout files) and click **Process Update** button.

Note that the status of the files will be 'pending'.

Figure 15: Process Layout Files 2

Now, click **Home** page to verify that all the layout files are processed successfully.

Figure 16: Process Layout Files 3

ID	NAME	ESL COUNT	START TIME	DURATION	STATUS
9	eTag50W.xml	0	04/11/2018 16:08:49 IST	00:00:09	✓
8	eTag420E.xml	0	04/11/2018 16:08:49 IST	00:00:10	✓
7	eTag400W.xml	0	04/11/2018 16:08:49 IST	00:00:09	✓
6	eTag290E.xml	0	04/11/2018 16:08:48 IST	00:00:10	✓
5	eTag250W.xml	0	04/11/2018 16:08:48 IST	00:00:10	✓
4	eTag210E.xml	0	04/11/2018 16:08:48 IST	00:00:10	✓
3	eTag150W.xml	0	04/11/2018 16:08:48 IST	00:00:10	✓
2	eTag150E.xml	0	04/11/2018 16:08:48 IST	00:00:10	✓
1	eTag100W.xml	0	04/11/2018 16:08:48 IST	00:00:11	✓

4.2 Add Price

To add price data files into ASG, you need to copy the price files in designated folder and process the files using ASG console. The steps to process price files are explained below:

➤ Copy all the price files from the source folder (i.e. place where the price files exists).
➤ Paste the selected price files into **C:\Alierre\jboss\integration\inbox\price** folder.

Figure 17: Process Price Files 1
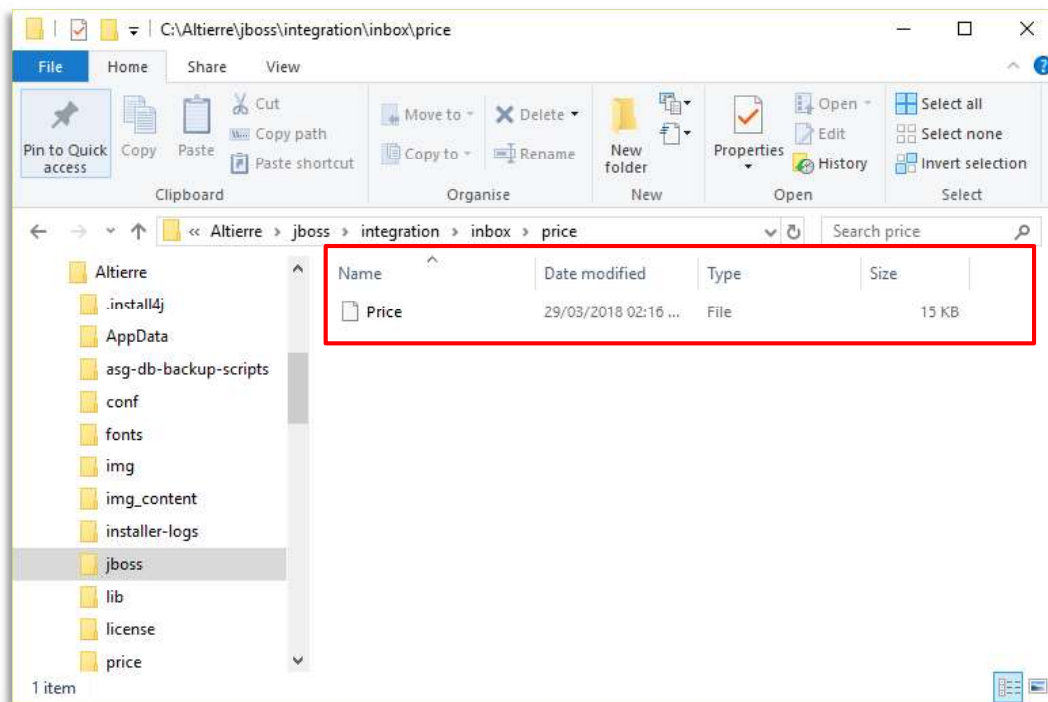
- In **Sign Update** page, Sign Update List displays **Name**, **Date** and **Status** of all the price files to be processed.
- Select prices file by clicking **Select All** button (or select the specific price file by clicking against the check box) and click **Process Updates** button.

Figure 18: Process Price Files 2
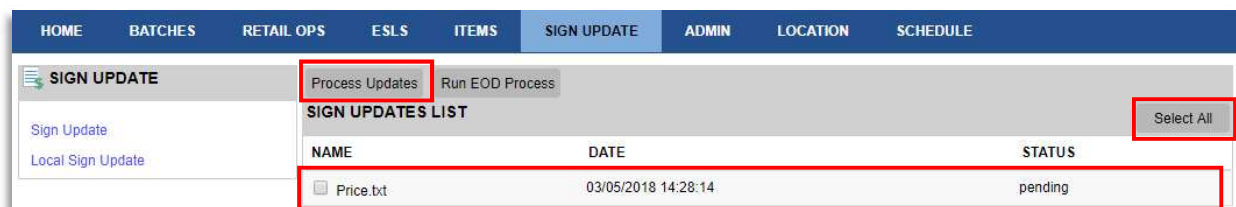
- Click **Home** page to verify that all the price files are processed successfully.

Figure 19: Process Price Files 3

➢ Now click **Items** page to verify that all the items and their corresponding UPC are available in the list. Ensure to click **'Show Items with Zero Tags'** check box**.**

Figure 20: Verify Items

4.3 Update Layout

To update layout files into ASG, you need to copy updated layout files in the designated folder and process files using ASG console. The steps to process the updated layout files are similar to the Add Layout files. Refer to section 4.1 for details.

Once the layout files are updated, it may take few minutes to update or display new ESL content on the ESL screen based on the updated Layout.

Figure 21: Updated ESL

4.4 Update Price

To update price files into ASG, you need to copy updated price files in the designated folder and process files using ASG console. The steps to process the updated price files are similar to the Add Price files. Refer to section 4.2 for details.

Once the price files are updated, it may take few minutes to update or display new ESL content on the ESL screen.