



# xPlayer Player & Dashboard User's Guide





## Revisions

Revision	Date	Details
1.0	February 10, 2017	Initial Draft.
2.0	December 31, 2017	Update to support iBeacon and Eddystone UID beacon Attachments
2.1	January 11, 2018	Fixed formatting.
2.2	January 22, 2018	Updated screen cap. Sky News now used for World News feed.
2.3	April 20, 2018	Added Beacon Report functions and updated Beacon manager caps. Notification Icon Appendix also updated.
2.4	May 13, 2019	Updated GA components to support GA changes. Added references to wTags.
2.5	February 14, 2020	Updated description of Firebase for GA metrics and how to see them.



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## 1 Introduction

### 1.1 xPlayer Overview

The Deviceworx Technologies Inc (Deviceworx) xPlayer device is a digital signage player with built-in beaconing support. The xPlayer's "elevator pitch":

The xPlayer dramatically improves customer engagement. When users come near an xPlayer - display Wallet coupons, launch or install retailer apps or view retailer web pages. Increase foot traffic and purchases through promotions and offers. The xPlayer features extended temperature operation with optional cell data connection for outdoor use without a nearby Internet connection for content management.

The xPlayer uses the Chameleon for Digital Signage or C4DS cloud-based dashboard. C4DS is a very simple, easily configured signage dashboard capable of managing networks ranging in size from just a few xPlayers to thousands of xPlayers distributed globally. C4DS support comes pre-installed on xPlayers. Users simply plug in xPlayers, give them an internet connection and then manage them through the dashboard. Management tasks include tracking device connectivity and health, updating advertising campaigns or other graphical content, updating beacon IDs broadcast nearby, updating phone actions when beacons are received and viewing campaign statistics.

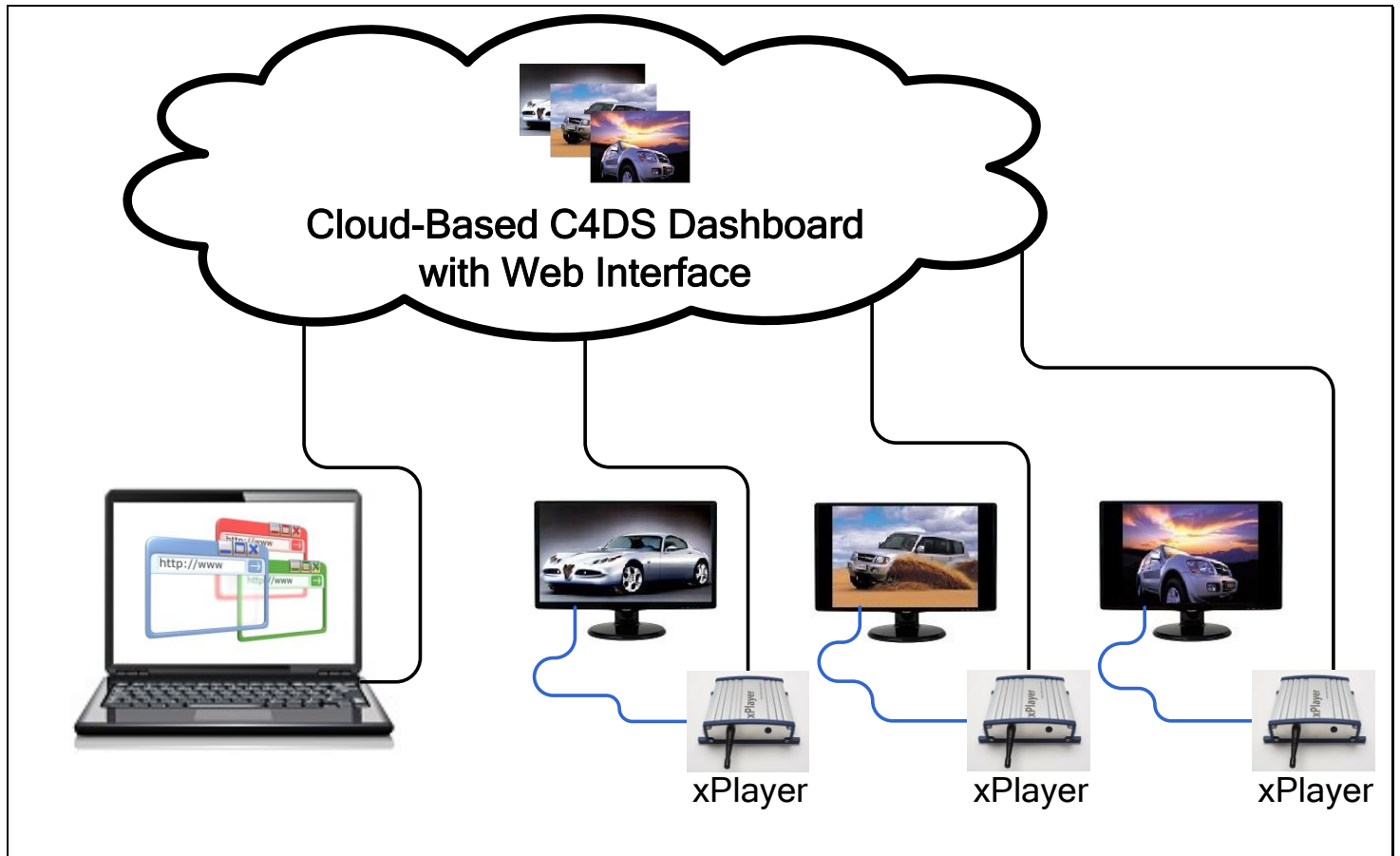


Figure 1 - C4DS Player Connectivity and Management



Features of the xPlayer with C4DS Dashboard management include:

- Connectivity to any screen with an HDMI interface.
- 1080p (1920 x 1080) graphics and video playback.
- Automated Static Website capture and playback to display news, weather, nearby airport departure/arrival information ... or any web content.
- Internet radio playback with selection from over 20,000 Shoutcast stations.
- Remote device monitoring.
- Simple campaigns that continuously play a collection of uploaded ads files and broadcast specified beacon IDs.
- Scheduled campaign playback, beacon ID transmission and Smartphone responses to beacon reception (i.e. which web page to show or which app to launch or what action to take within an app upon launch).
- Proof of Play graphic playback reporting with data export.
- Impression reporting (when users come into xPlayer beacon coverage and are provided with a notification).
- Click-through reporting (when users select notifications to launch apps or web pages).
- Advanced Impression and Click-through data including phone operating system, phone make/model, user geographic location, Android Advertising ID (AAID) and Apple ID for Advertising (IDFA).

## 1.2 Available Help Resources

This user's guide is the most comprehensive printed resource describing how to use an xPlayer and the C4DS dashboard. Additional printed resources are available as well as help in other media formats. Resources providing help include:

- xPlayer Quick Start Guide. Concise guide providing simple steps to plug in and use a C4DS player. Contact [support@deviceworx.com](mailto:support@deviceworx.com) for an electronic copy of this guide. Note that this guide should have been included with your xPlayer.
- Deviceworx YouTube Channel. Video Tutorials showing setup and use of Deviceworx products. See: [https://www.youtube.com/channel/UCSo2YF-X9\\_gYUwhr68OV7xA/feed](https://www.youtube.com/channel/UCSo2YF-X9_gYUwhr68OV7xA/feed)
- Deviceworx Support email. Any technical questions regarding Deviceworx products may be forwarded to [support@deviceworx.com](mailto:support@deviceworx.com) for a fast response.
- Deviceworx Sales Department. For assistance with the purchase of additional xPlayers, licensed features, or custom requirements, email [sales@deviceworx.com](mailto:sales@deviceworx.com) for a fast response.

## 1.3 Setup Steps in Typical Order of Execution

Most users will follow the steps below in the order listed to get their xPlayer installed and displaying content.

1. Contact Deviceworx to purchase xPlayer platforms and provide Deviceworx with information that can be used to setup a customer account. Deviceworx customer support will then provide dashboard login credentials for the new account. Any xPlayers purchased will be automatically provisioned within this customer account.
2. Receive and install xPlayers. If Ethernet is used to connect a player platform to the internet, plug-in of Ethernet, HDMI (to a monitor) and power is all that is required. If Wi-Fi is used to connect to the internet, HDMI and power connections are made and then a connection to a local Wi-Fi Access Point is made. Contact Deviceworx sales for details on how a Wi-Fi mini PCI express module or other device can be used with the xPlayer to support local Wi-Fi connectivity.
3. Confirm xPlayer device communication within the dashboard device list (connected xPlayer are shown in green).
4. Enter xPlayer configuration details within the dashboard including setting its local time zone.



5. Upload ads or other content and create a collection for playback (termed a “campaign”).
6. Select beacon transmission details for created campaigns including Smartphone reactions to beacon receptions (i.e. which app or web page to launch and user notification icons and text).
7. Optionally – schedule multiple campaigns to run at specified times.
8. Optionally – select an internet radio station for playback during each campaign.
9. Select a campaign for play within each xPlayer device.
10. Optionally – define different geographic locations or locales to describe xPlayer groupings within a network of xPlayer devices. These locales are used to more effectively list and organize player devices and support playback report filtering and breakdown. Example locales are divisions such as states or provinces, sites which may be physical locations and departments which are defined areas within sites.
11. Optionally – define additional users for account access.
12. View graphic and video playback reports.
13. Optionally - Export graphic and video playback reports to Excel or Adobe PDF files.
14. View advanced impression and click-through reports within Google Analytics.
15. Optionally - export advanced impression and click-through report data for additional analytics or for sale.



## 1.4 This Document

Sections included within this document describe user setup and configuration steps in the same order as those listed within [1.3 - Setup Steps in Typical Order of Execution](#).

- [Account Setup](#): Details the steps involved in setting up an account with Deviceworx customer service. Customers simply have to provide info to Deviceworx at this stage and Deviceworx customer service will handle the rest.
- [Player Setup](#): Outlines how to physically connect an xPlayer device to a screen, a power source and an Ethernet connection.
- [Dashboard Access](#): Shows the user how to login to the C4DS Dashboard. Dashboard functions are accessed within individual tabs (described in subsequent sections).
- [Dashboard Device Tab](#): Describes how xPlayer devices are listed and the configuration data provided within the device list. Additionally, this section describes how individual or groups of xPlayers can be configured and what configuration parameters can be changed along with their meanings.
- [Dashboard Ad Manager Tab](#): Provides details on how advertising files or other content are uploaded to the C4DS Dashboard (along with supported file types), how campaigns are created to play a file collection and how animations between the content display transitions are set. This section also provides detail on optional campaign features including scheduled campaigns and internet radio playback during campaigns.
- [Dashboard Beacon Manager Tab](#): Outlines how to create beacon definitions including beacon IDs and how apps respond to receiving beacons. These responses include launching apps or web pages. Rebranding of the Deviceworx iPhone and Android apps or altering existing apps to support xPlayer beacon reception is also discussed.
- [Dashboard Signage Play Reports Tab](#): Shows how to view proof of play reports. This includes selection of filter criteria and exporting of report results.
- [Dashboard Signage Play Reports Tab](#): All xPlayer impression and click-through data is stored within and exposed from Google Analytics (GA). This section describes what data is stored, how to access and use GA Dashboards and Reports and how data can be exported from GA.
- [Dashboard Administration Tab](#): This section describes completely optional C4DS functions such as creating additional users and setting up device locale for grouping of devices for listing and reporting purposes.

## 2 Account Setup

Deviceworx customer service will setup a new customer account including access credentials. Customers will be provided with a link to the C4DS Dashboard along with these credentials that they can then use to login to the Dashboard. All xPlayer devices purchased by the customer will be provisioned within this account. Users will be able to view a list of all provisioned xPlayer devices after they login. The device list will be the first screen shown after login. Below is a screen capture showing a single device within a customer account.

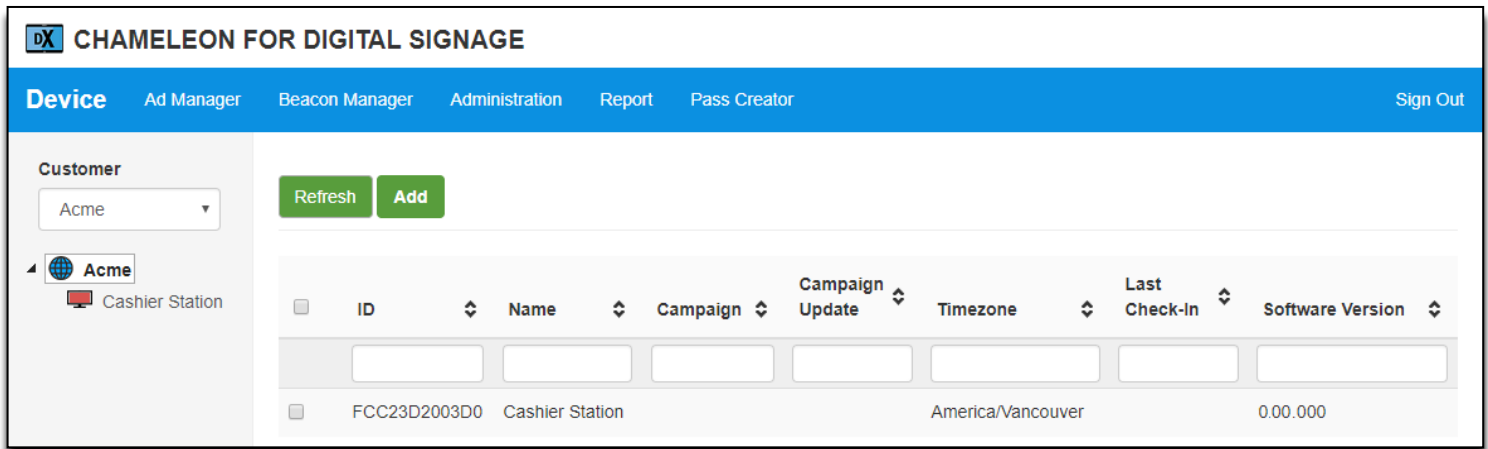


Figure 2 - New Account with Single Device Listed

To simplify account setup, customers should provide Deviceworx customer service with the information listed below. Then, Deviceworx can preset this data and administration tasks will be minimal.

- A company name (e.g. Acme). This is typically a formal company name.
- A desired account name (e.g. acme). This is a short name or label for the customer that can be quickly entered whenever account login is required.
- A desired administration username (e.g. acme\_admin) for login.
- A desired password (e.g. aCm3\_231\$) for login to the administration user.
- A desired PIN. (e.g. 12345). Users must enter this PIN to gain access to Android settings on the player device screen. Note that a pin of "12345" is set for each account by default if no other PIN is specified by customers during the account setup process.
- A desired player name for any purchased players (e.g. "Cashier Station").



## 2.1 Subsequent Provisioning

Whenever customers purchase additional player devices, Deviceworx will automatically provision these devices under their account. This occurs before the devices are received by customers. For this reason, additionally purchased units may show up within a customer's device list before they are delivered to a customer's location. See the screen cap below as an example of how a newly purchased player device (with customer specified name "Store Entrance") is shown.

The screenshot shows the 'CHAMELEON FOR DIGITAL SIGNAGE' interface. The top navigation bar includes 'Device', 'Ad Manager', 'Beacon Manager', 'Administration', 'Report', 'Pass Creator', and 'Sign Out'. On the left, a 'Customer' dropdown is set to 'Acme', and a sidebar lists 'Acme' with sub-items 'Cashier Station' and 'Store Entrance'. The main area features a table of devices with columns for ID, Name, Campaign, Campaign Update, Timezone, Last Check-In, and Software Version. Two devices are listed: 'Cashier Station' and 'Store Entrance'.

ID	Name	Campaign	Campaign Update	Timezone	Last Check-In	Software Version
FCC23D2003D0	Cashier Station			America/Vancouver	2017-11-06 21:54:02 GMT	1.01.005
FCC23D1FDB8F	Store Entrance			America/Vancouver		0.00.000

Figure 3 - Provisioned Device Enroute

### 3 Player Setup

This section contains detailed instructions for initial setup of C4DS Players. For abbreviated instructions, please consult the Quick Start Guide referenced in [1.2 - Available Help Resources](#).

#### 3.1 xPlayer Box Contents and Connections

C4DS Set-top Box Players ship with the contents shown below.



Figure 4 - C4DS Set-top Box Player Package Contents

Contents numerically labelled in the figure above are:

- 1 - xPlayer
- 2 - Power supply for the player
- 3 - Ethernet cable
- 4 - HDMI cable for screen connection

Not included with the package are the following optionally used items.

- USB connected keyboard and mouse (for access to xPlayer Android screen elements ... should never be required).



### 3.1.1 Connection to a Screen

Use the HDMI cable shown as item 3 within [Figure 4 - C4DS Set-top Box Player Package Contents](#) to directly connect a screen to the xPlayer. Note if a longer cable is required, purchase one from a variety of electronics retailers. Any HDMI version 1.3 compatible cable will suffice for 1080p graphical support. HDMI cables are available in lengths to 15 meters (49 feet).

If using a screen that does not support HDMI, but supports DVI instead, purchase a DVI to HDMI adapter for direct mount to the screen and then utilize an HDMI cable to connect to the adapter. Below is a picture showing what these adapters look like.



Figure 5 - DVI to HDMI Adapter

As another option, a cable supporting DVI connection to the screen and HDMI connection to the xPlayer can be purchased in lengths to 15 meters (49 feet). This option may be cheaper if the HDMI cable provided with the player is not long enough for the install (i.e. cheaper than purchasing both a longer HDMI cable and DVI to HDMI adapter). Below is a picture showing what these cables look like. Ensure that the cable meets the standards described above for either 1080p or 4K (UHD) screens.



Figure 6 - DVI to HDMI Cable



### 3.1.2 Connection to Power

The power supply included with the xPlayer (item 2 within [Figure 4 - C4DS Set-top Box Player Package Contents](#)) has pins matching North American power system standards, but this supply supports all voltages and frequencies in use worldwide (100 to 240 Vac at either 50 Hz or 60 Hz). Simply utilize a pin adapter to use this supply outside of North America. Alternately, contact Deviceworx Sales ([sales@deviceworx.com](mailto:sales@deviceworx.com)) when placing volume orders to receive an alternative power supply with your player that directly supports your local power system (i.e. no pin adapter required).

Plug in the power supply at the xPlayer and then plug in the power supply to a wall plug to boot the xPlayer. Consider avoiding a wall plug that may be turned off when a power switch is turned off to avoid frequent power cycling on the xPlayer. As the xPlayer uses negligible power, it should be left on all the time. Connected screen power can be turned off whenever a digital sign must be turned off (i.e. via screen remote control).

### 3.1.3 Connection to the Internet

An internet connection is required for xPlayer devices to support device communications with the dashboard. These communications support configuration updates, updating xPlayer stats and acquiring web page captures.

The simplest way to connect an xPlayer to the Internet is via Ethernet. Purchase an Ethernet cable that is the correct length for the install. Maximum Ethernet cable length is 100m (300 feet). These cables are sometimes called patch cables and are Category 5e or 6 (i.e. cat5e or cat6). Note that "crossover" cables cannot be used (incorrect pinout). Patch cables must be used. Simply plug the Ethernet cable into the "LAN" port (found on the back of the xPlayer) and then into an Internet router.

If an Ethernet connection is unavailable, it is possible to the Internet using an available Wi-Fi wireless network. Note that an Ethernet connection is **strongly preferred** as Wi-Fi network connections are susceptible to noise and configuration changes (e.g. Wi-Fi Access Point name changes, password changes and coverage changes). Because Wi-Fi connections are problematic, it is common for devices connected via Wi-Fi to require multiple site visits over the course of their deployment. Contact [support@deviceworx.com](mailto:support@deviceworx.com) for details on how to get Wi-Fi support within xPlayer devices.

Note that xPlayer internet connection reliability and speed is very important. Without a reliable connection, operators will never know whether their xPlayer is not functioning or simply cannot talk to the dashboard. Unnecessary site visits may be required to simply verify that a xPlayer is fully operational, but lacking a connection. Using Ethernet, instead of Wi-Fi, will support a connection that is more reliable. If an xPlayer's connection is slow, campaigns that include large content files such as videos can take hours to download and have a higher likelihood of corruption. A connection speed of at least 10MBit/sec is recommended whenever video playback is to be supported.

## 3.2 Initial Start-up

After a screen connection is made and power is applied to the xPlayer, it will start. One or more Android splash screens may be shown during the player startup cycle. After the player starts Android, xPlayer software that is pre-installed on the system will automatically boot and show a "Starting" status screen similar to the figure below.

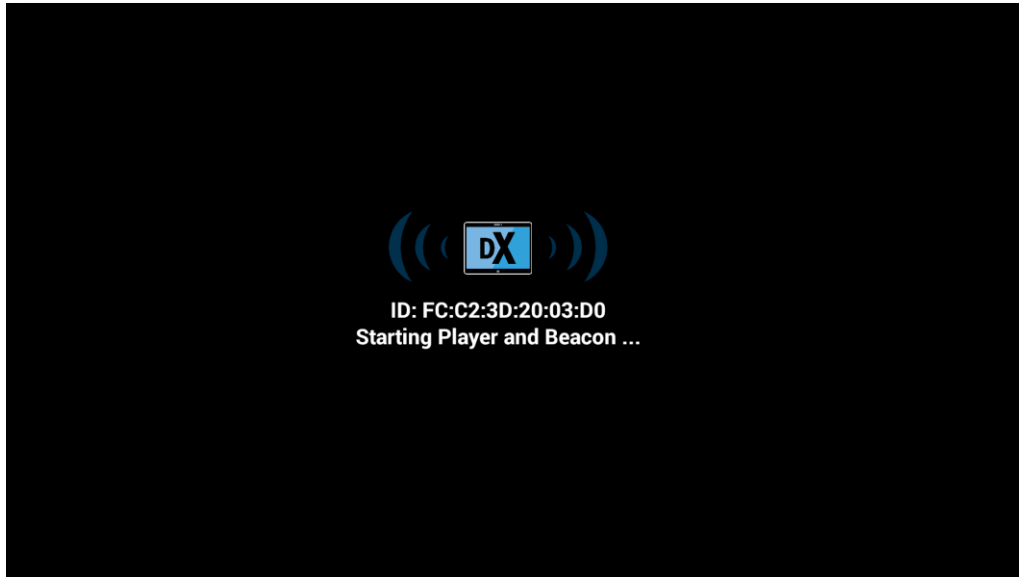


Figure 7 - Starting Status Screen

This status screen will be shown for approximately 30 seconds as C4DS software initializes. During this startup, C4DS player software will communicate with the dashboard to download any configured ads and campaigns. To support this communication, an Internet connection must be made.

At the end of the startup cycle, the selected campaign will begin to play. If there is no setup or selected campaign, a "Playback Error" status screen will be shown similar to the figure below.

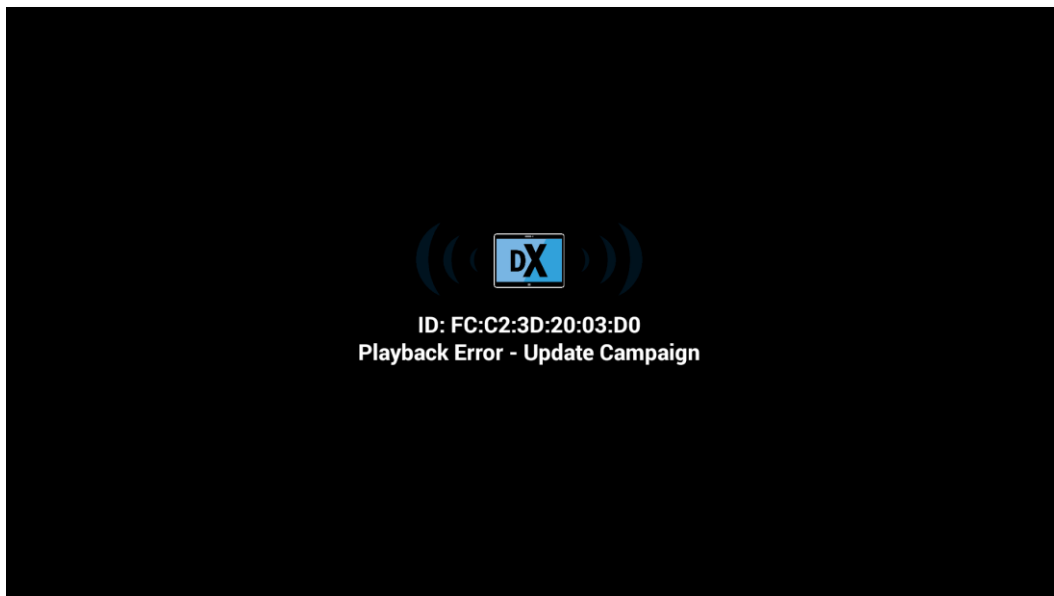


Figure 8 - Playback Error Status Screen

Note that the Playback Error status screen may be shown after xPlayer startup if xPlayer software has not finished downloading all content files configured for a selected campaign. If this occurs, the Playback Error status screen will

automatically disappear and the selected campaign will automatically play after all content file downloads to the player have completed.

### 3.3 Screen Interaction

xPlayers can be controlled using a USB mouse and keyboard (or combination keyboard touchscreen device) as described in a section that follows.

#### 3.3.1 Player USB Mouse and (Optional) Keyboard

Plug any USB mouse into one of the USB 2.0 Host connectors on the bottom of the xPlayer (bottom view with USB connectors below).



Figure 9 - xPlayer USB Connections

After plug in of the USB mouse, move it and notice that the pointer automatically is displayed on the screen. Whenever a control requiring user text entry is selected, an on-screen keyboard will be automatically shown within Android. Point and click on keys within the keyboard to enter text.

For faster text entry, plug a USB keyboard into any of the additional USB 2.0 Host ports within the figure above.



### 3.4 Access Android Settings

xPlayer software takes complete control of Android. This is beneficial as player platforms are rendered useless for other tasks and are a poor candidate for misuse and theft. The only Android controls that users should have to change are:

- System volume (if audio streaming or video with audio is used without an external audio amplifier - which has its own volume control).
- Enabling Wi-Fi and connecting to a Wi-Fi access point for internet connectivity when Ethernet is unused.

If these settings are to remain unchanged, accessing Android settings should not be required.

If access to settings is required, simply hold down the left mouse button on a USB connected mouse for 5 or more seconds and then release. A login screen will be shown upon release (see [Figure 10](#) below). Enter your customer Pin (default is 12345) and press the on-screen OK button to access Android settings. Note that this default pin may have been changed during account setup (details within [2 - Account Setup](#)). A pop up error will be shown if an incorrect Pin is entered. Select the on-screen Cancel button to restart xPlayer software.

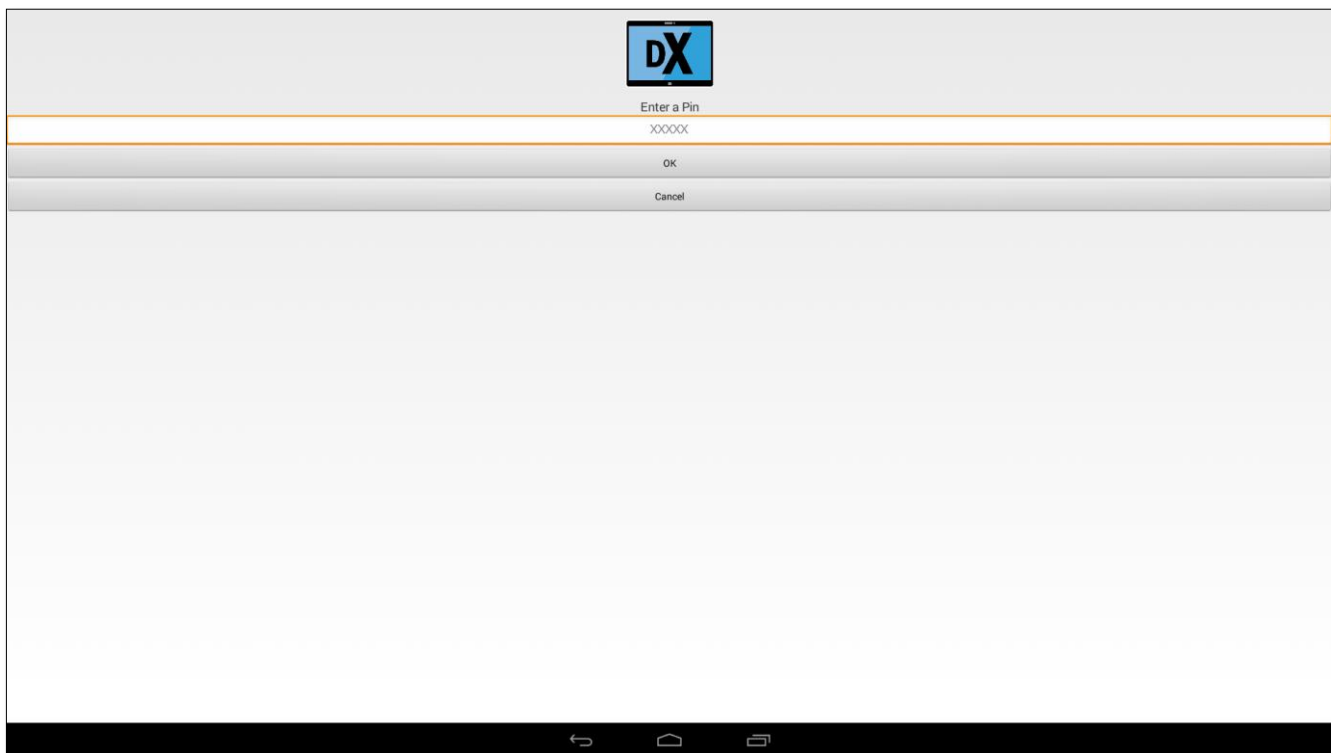
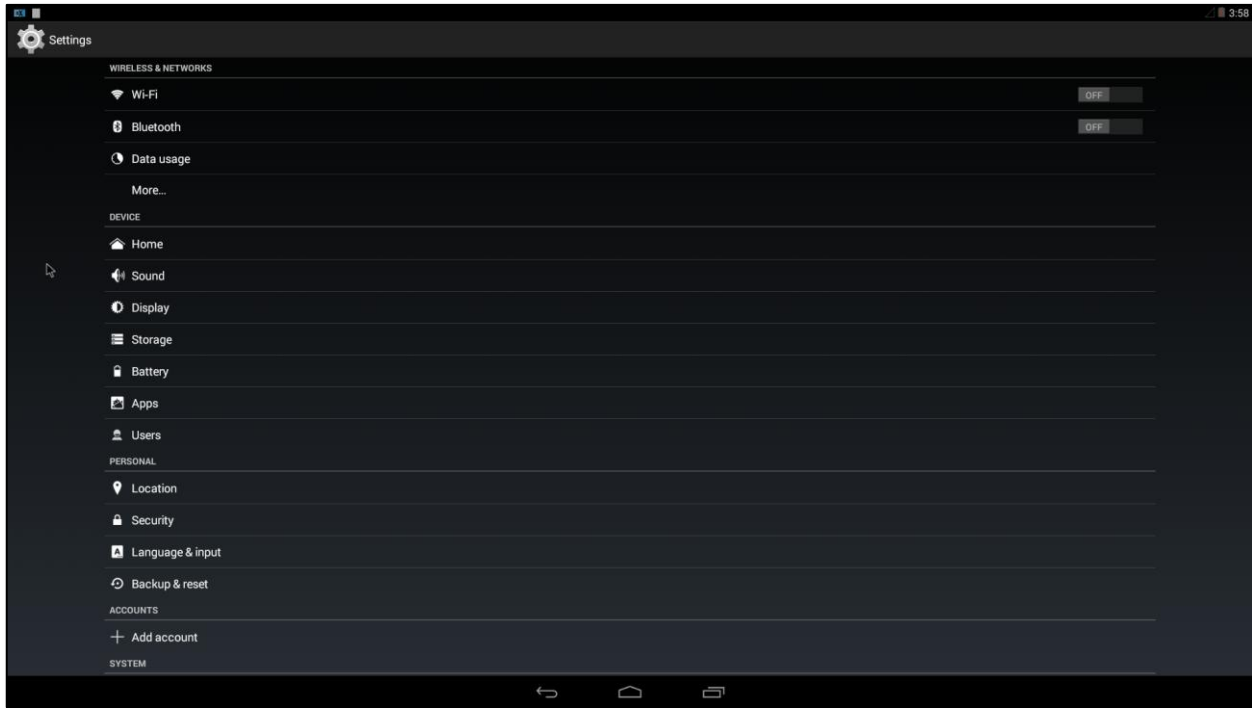


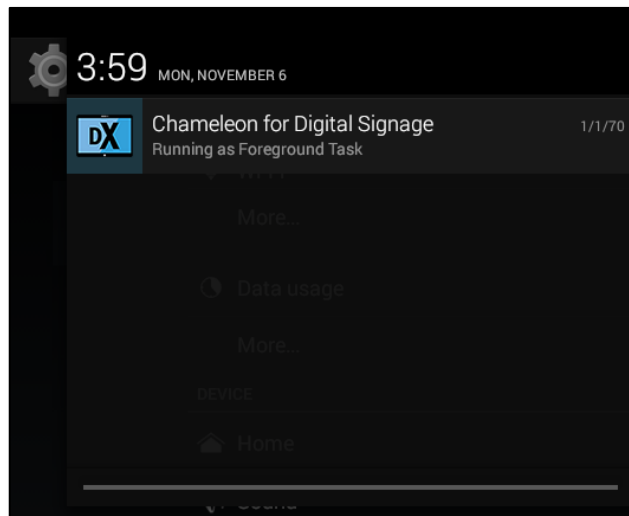
Figure 10 - Pin Entry for Settings Access

On the xPlayer, the Android settings will be shown as in [Figure 11](#) below.



**Figure 11 - Settings Screen**

After setting changes are complete, restart the xPlayer software by cycling device power or by selecting the xPlayer software within the Android notification bar (can be dragged from the top of the screen) as shown below.



**Figure 12 - Select xPlayer Chameleon software within Android Notification Bar for Restart**



## 4 Dashboard Access

All xPlayer content control and monitoring is accomplished using the C4DS dashboard. C4DS users access the dashboard by first opening the general Deviceworx dashboard access page at <https://ops.deviceworx.com> (shown below).

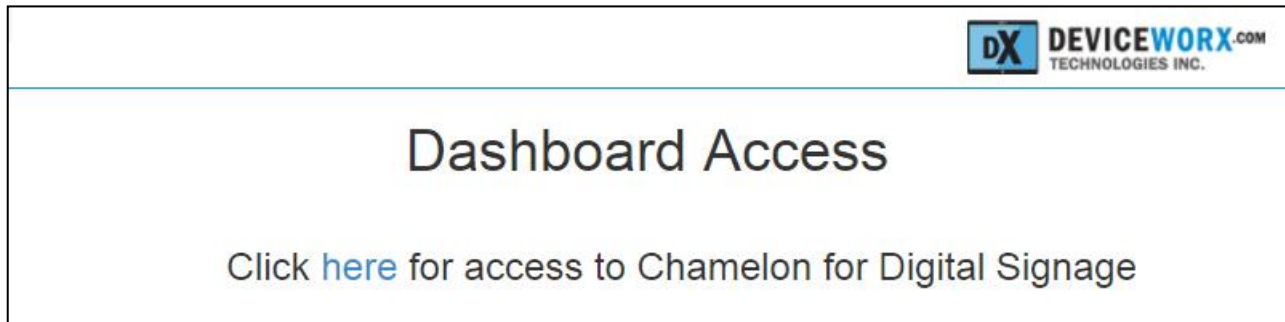


Figure 13 - Deviceworx Dashboard Access

This page supports accessing all Deviceworx dashboards.

After selection of the "Chameleon for Digital Signage" dashboard, users must login to the C4DS dashboard as shown below.

Figure 14 - C4DS Dashboard Login

Enter the Account, Username and Password provided to you by Deviceworx customer service and discussed within [2 - Account Setup](#). After login, the C4DS dashboard will be opened and the Device tab within the dashboard will be selected by default. Controls within this tab and their use are discussed in detail within section [5 - Dashboard Device Tab](#) that follows.

## 5 Dashboard Device Tab

The "Device" tab is selected automatically after each user login. This tab, like all others, can be selected at any time within the blue dashboard header. The selected tab is always highlighted and slightly larger than de-selected tabs. When the "Device" tab is selected the device tree and list will be shown.

### 5.1 Device Tree

The figure below shows a typical device tree for a customer with two players: one running (Green) and one disconnected (Red).

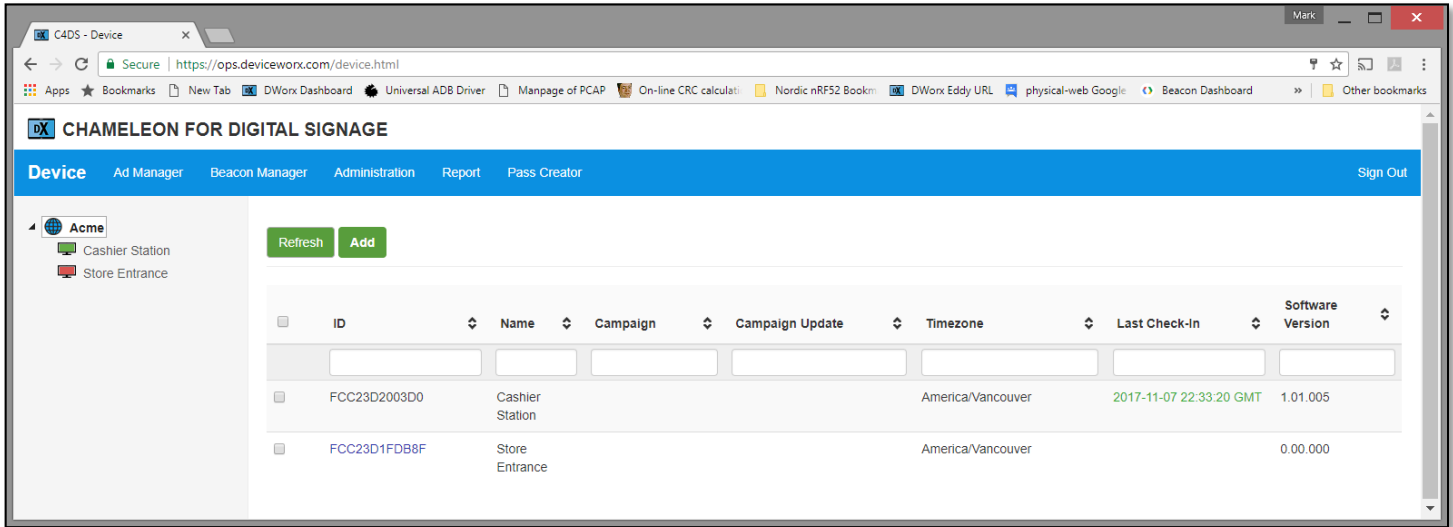


Figure 15 - Basic Device Listing

The tree control on the left side of the screen shows all xPlayers assigned to a customer account. The trunk of the tree is the customer ("Acme" in the figure above). Within their system, customers can define geographic divisions, sites and departments. This definition is described in detail (as device "Locale") within section 10 - Dashboard Administration Tab that follows. When defined, these geographic areas are shown as branches within the tree. xPlayers can be allocated directly under a customer account (i.e. directly under the trunk of the tree) or within a descriptive division, site or department. In Figure 15 - Basic Device Listing, both xPlayers are allocated directly to "Acme".

Player icon colors represent their current connection status. xPlayers represented by a red screen icon have not communicated with the dashboard in more than 10 minutes. xPlayers represented by a green icon have communicated within the last 10 minutes.

The figure below shows an updated "Acme" account wherein customer locales are added and xPlayers are added to these locales.



ID	Name	Campaign	Campaign Update	Timezone	Last Check-In	Software Version
FCC23D1FDB8F	Store Entrance			America/Vancouver		0.00.000
FCC23D1FF810	Regional Office Entry			America/Vancouver		0.00.000
FCC23D200FA5	HQ Demo			America/Vancouver		1.01.005
FCC23D2003D0	Cashier Station			America/Vancouver	2017-11-09 22:00:09 GMT	1.01.005

Figure 16 - Device Listing with Closed Branches

The figure above shows customer-defined divisions. For "Acme", each division denotes a Canadian province. The "HQ Demo" xPlayer is shown outside of these divisions as this xPlayer is not assigned to any locale (division, site or department). The "HQ Demo" xPlayer is assigned to the customer account directly under the trunk of the tree. A triangle is next to the "BC" division indicating that it includes sub-branches. Open the "BC" division by clicking on the triangle next to it. The result is shown in the figure below.

ID	Name	Campaign	Campaign Update	Timezone	Last Check-In	Software Version
FCC23D1FDB8F	Store Entrance			America/Vancouver		0.00.000
FCC23D2003D0	Cashier Station			America/Vancouver	2017-11-09 22:02:09 GMT	1.01.005

Figure 17 - Device Listing with Open Division

Now, a "Regional Office Entry" xPlayer (assigned to the "BC" division) is shown in the tree in addition to the "HQ Demo" xPlayer. A site under "BC" called "Store 12543" is also shown in the tree. A triangle next to "Store 12543" indicates that there are additional sub-branches within it.

Note that when selecting "Store 12543" (as in the figure above), the list on the right side of the screen only shows two players within "Store 12543" (i.e. those xPlayers under "Store 12543" in the tree). When any branch of the tree is selected, only players under that branch are listed.

Opening "Store 12543" (by selecting the triangle next to it) results in the screen below.

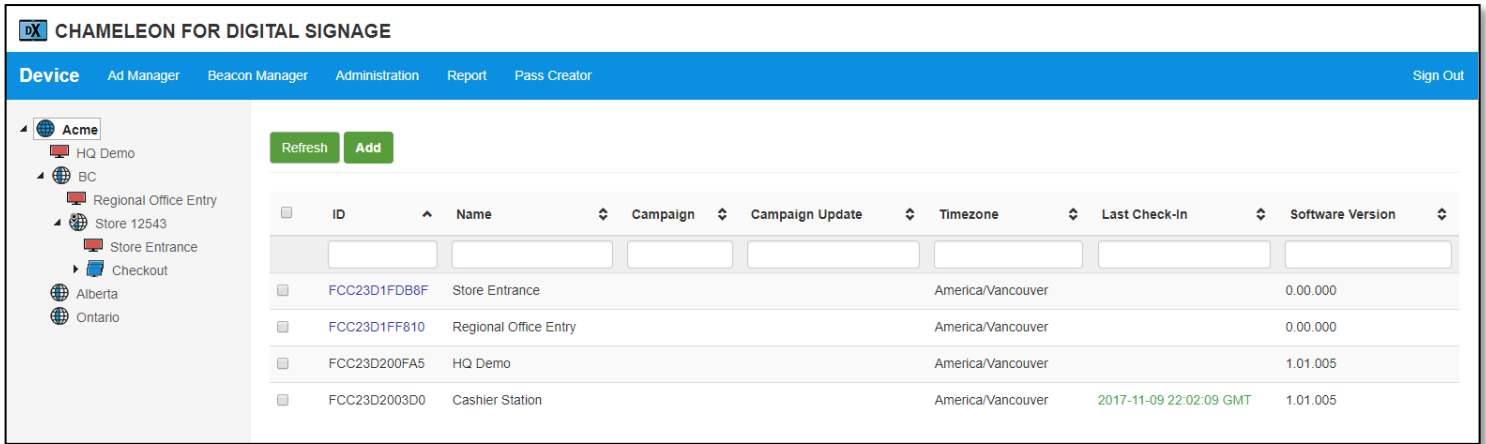


Figure 18 - Device Listing with Open Site

Now, a "Checkout" department is listed with a triangle indicating that it contains another element. A "Store Entrance" xPlayer is also shown in the tree as this player is assigned to the now open "Store 12543". The selection within the tree control is now "Acme", so all devices are shown within the list (i.e. regardless of their locale). Open the "Checkout" department by selecting the triangle next to it. The resulting screen is below.

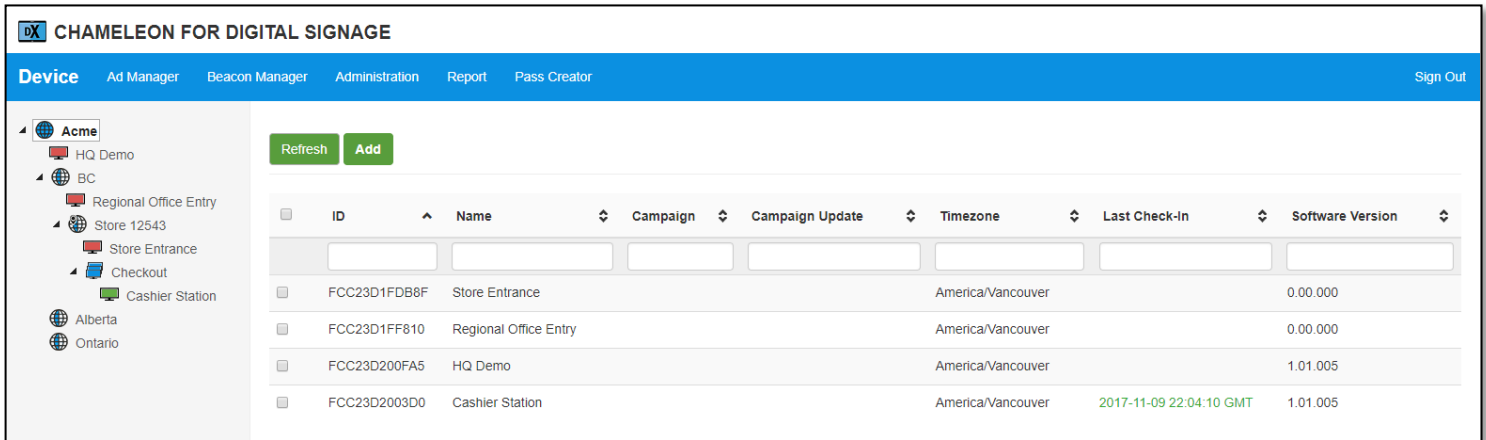


Figure 19 - Device Listing with Open Department

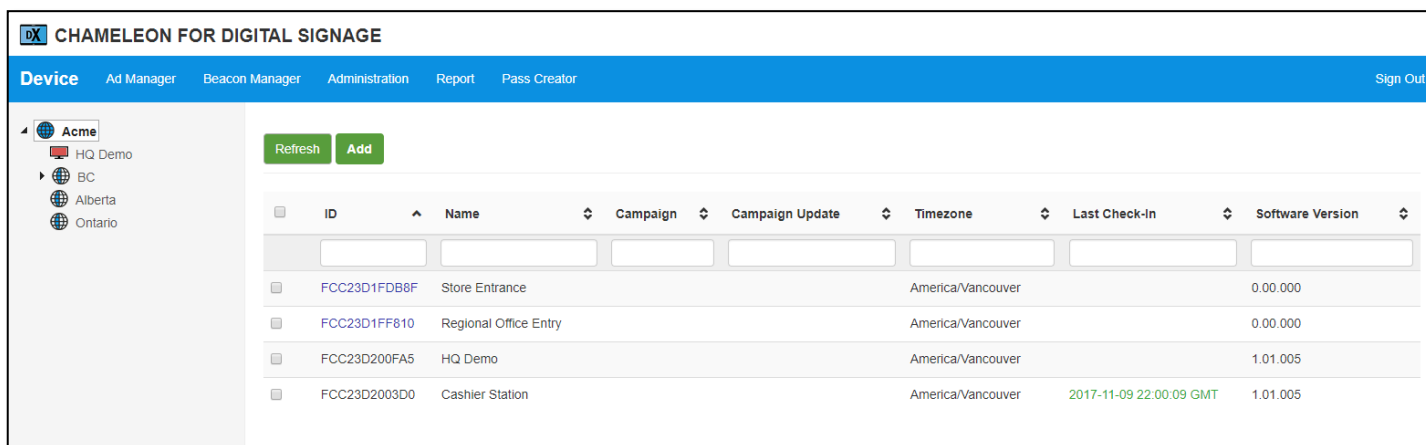
In the figure above, all tree branches under "BC" have been opened and all xPlayers under the defined division ("BC"), site ("Store 12543") and department ("Checkout") are visible within the tree. Because the trunk of the tree ("Acme") is still selected, all xPlayers are listed. xPlayer connectivity state is clearly indicated based on the player icon color within the tree.

Below are some general notes regarding the xPlayer device tree control and list:

- The trunk of the tree shows the customer label and any players directly assigned to a customer (not to any locale) are directly under this trunk.
- When any branch shows a triangle on its left, it contains hidden tree elements. Selection of the triangle shows these elements. Subsequent triangle selection hides these elements.
- Selecting any branch lists all xPlayers under that branch (including sub-branches) on the right of the dashboard page. Selecting the trunk lists all customer xPlayers.
- Branches describe locales that include divisions, sites within divisions and departments within sites. These locales are setup within section [10 - Dashboard Administration Tab](#).

## 5.2 Device List

Whenever the customer trunk or sub-branch to the trunk is selected within the tree control on the "Device" page, the list on the right of the "Device" page will change to list all xPlayers under the selected trunk or sub-branch. The figure below shows all xPlayer assigned to "Acme" (after the trunk is selected).



ID	Name	Campaign	Campaign Update	Timezone	Last Check-In	Software Version
FCC23D1FDB8F	Store Entrance			America/Vancouver		0.00.000
FCC23D1FF810	Regional Office Entry			America/Vancouver		0.00.000
FCC23D200FA5	HQ Demo			America/Vancouver		1.01.005
FCC23D2003D0	Cashier Station			America/Vancouver	2017-11-09 22:00:09 GMT	1.01.005

Figure 20 - Full Customer Player Device List

The list contains the following fields:

- ID: The unique identifier for each xPlayer within the C4DS system. This ID is shown on the player screens during startup. This ID is helpful in matching installed xPlayers with their dashboard configuration. Note that this ID may also be found on a label under xPlayers.
- Name: A friendly name that customers assign to each xPlayer to help identify where they are installed and what kind of content they are used to display.
- Campaign: The last selected campaign for the xPlayer. Campaigns are lists of advertising or other content for screen playback and are described in detail within [6 - Dashboard Ad Manager Tab](#).
- Campaign Update: The date and time (Greenwich Mean Time or GMT) when the last selected campaign was downloaded by the xPlayer.
- Timezone: The selected xPlayer timezone by location (Continent and City).
- Last Check-In: The date and time (GMT) when the xPlayer last communicated with the C4DS dashboard.
- Software Version: The version of C4DS xPlayer software currently running on the xPlayer.



Some field records will be shown in different colors to denote status:

- ID: A **Blue** xPlayer ID will be shown whenever a configuration change has been made for the xPlayer within the dashboard and that change has not been read by the device itself. **Blue** is commonly shown for xPlayers for which configuration changes have been made, but the xPlayer has not checked into the dashboard to read those changes. **Blue** xPlayer IDs are shown when devices have not been plugged in yet, or they cannot (for whatever reason) communicate with the dashboard. When the xPlayer communicates with the dashboard and reads pending changes, the ID will change from **Blue** to Black.
- Campaign: A **Blue** campaign name will be shown whenever a campaign change has been made within the dashboard (selected components within a previously selected campaign changed or the selected xPlayer campaign changed). After campaign updates have been read by the xPlayer, the Campaign will change from **Blue** to Black. Note that a change in Campaign selection within a device is also an xPlayer configuration change, so the ID will also change to **Blue** until the new campaign data has been read into the xPlayer wherein it will change to Black.
- Last Check-In: A **Red** GMT date and time will be shown whenever the dashboard considers an xPlayer to be disconnected (the xPlayer has not communicated with the dashboard for 5 minutes or more). When connected, this date and time will be shown in **green**. The color of the GMT date and time will match that of the xPlayer icon shown within the branch on the left side of the Device screen.
- Software Version: A **Blue** version indicates that an xPlayer software update is pending. Deviceworx operations have requested a software update, but that update has not been read and used by the xPlayer. When the update has been downloaded and the xPlayer is using that update, the new version will be shown in Black.

### 5.2.1 Selecting xPlayers

xPlayer devices are commonly selected so that they can be deleted or modified individually or in groups. After selecting one or more xPlayers, "Modify Selected" and "Delete Selected" buttons are shown above the list. The figure below shows the selection of two players and these buttons.

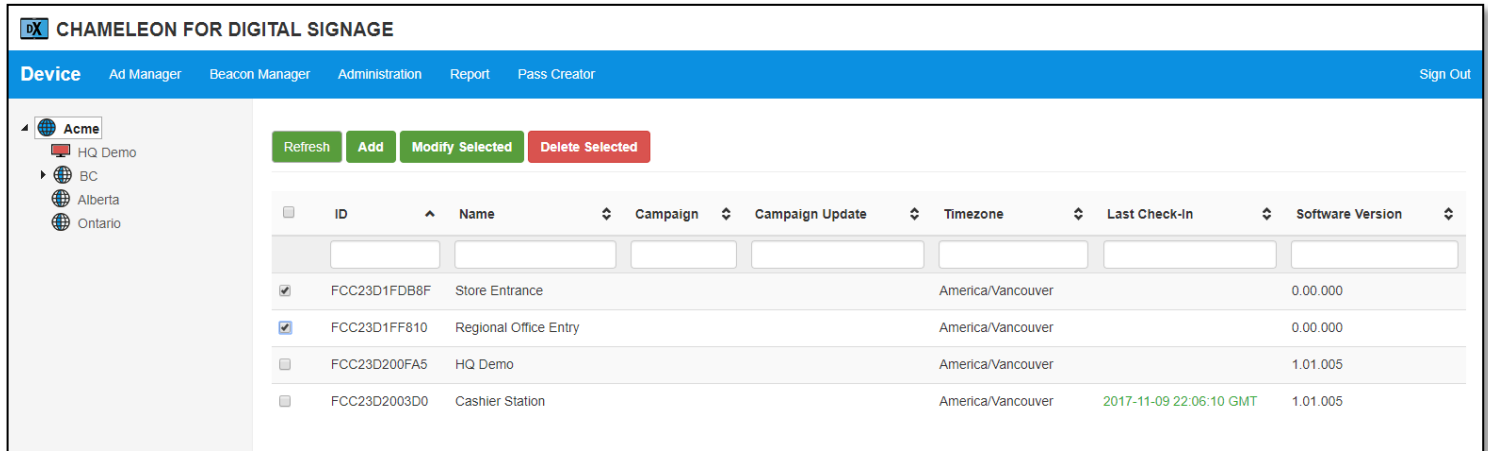


Figure 21 - Multiple xPlayer Selection in Device List

To select any xPlayer, check the checkbox (  ) next to it. Select additional xPlayers as required by checking the checkbox for each xPlayer. Select the checkbox at the top of the list to select all listed xPlayers. Un-checking this top checkbox de-selects all listed xPlayers.

Modification of xPlayers is discussed in detail within section [5.4 - Device Attributes and Setup](#). If a single xPlayer modification is required, simply clicking on the xPlayer in the list will open the form that supports editing device details (described in [5.4](#)).

Deletion of xPlayers is discussed in greater detail within section [5.3 - Adding / Deleting xPlayer Devices](#).

### 5.2.2 Sorting Players

The list can be sorted based on any of the fields. Select the icon next to the field on which to sort. This icon is visible within the list header. An initial sort that is top down will be made. Field items will be sorted lowest (top) to highest (bottom) based on alphanumeric values (0 through 9, then a or A through z or Z). The sort icon will be changed to . Select this icon to change the sort to be highest to lowest. The sort icon will then be changed to .

### 5.2.3 Filtering xPlayers

Filter boxes are provided directly below the device list field labels (e.g. "ID", "Name", etc). Entering filter text within these boxes will dynamically change the device list to ONLY list xPlayers with field data that include the filter text. For example, entering filter text "Entry" within the "Name" filter box will result in a full customer list automatically truncating to list only players with "Name" values that include " Entry" as shown in the figure below.

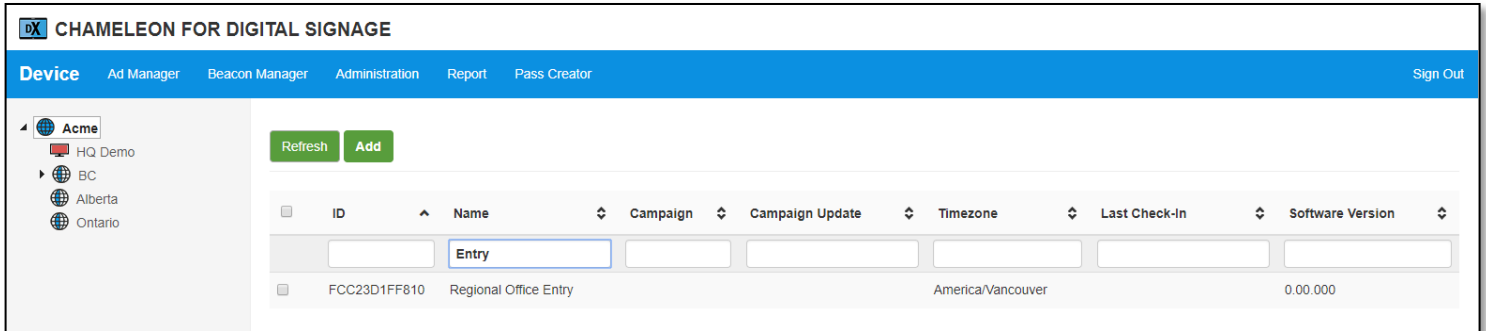


Figure 22 - Filtered Device List

### 5.2.4 Refreshing

List controls are updated infrequently. For immediate refresh of screen contents, select the "Refresh" button provided. Note that using the browser refresh will completely reload the Device page and some page contents will revert to their default state.



### 5.2.5 Suggestions for Use

The device list supports these common tasks:

- Quick reference of xPlayers within a given locale (division, site or department).
- Easily locate a named xPlayer within a large network where xPlayer locale is unknown. By viewing all xPlayers (listed after selecting the tree control trunk) and then sorting based on "Name", a specific xPlayer can be found within a network. Alternately, use the "Name" filter to find the xPlayer within the list.
- Easily locate an xPlayer based on "ID" where locale is unknown. View a listing of all xPlayers and then sort on "ID" or utilize the "ID" filter.
- Determine which xPlayers (system wide or within a selected locale) are running a specific campaign. Sort on "Campaign" or use the "Campaign" filter after selection of a device list.
- Track disconnected xPlayers (system wide or within a selected locale) by sorting on "Last Check-In".
- Selection of multiple xPlayers for modification or deletion.

### 5.3 Adding / Deleting xPlayer Devices

xPlayers are commonly provisioned within the C4DS dashboard by Deviceworx customer service. If required, customers can delete and add their own devices within the dashboard. Large customers may, for example, purchase a large volume of xPlayer devices and may only wish to provision xPlayer devices within the dashboard when these devices are pulled from storage and put into use. This will reduce the number of visible xPlayers in their list and improve their system manageability.

To add an xPlayer, select the "Add" button that is always visible above the device list. This will open a device details form that includes an entry for "ID", "Name" and many other player details. As a minimum, enter the "ID", a "Name", select a timezone for the player and then select the "Save" button within the form. The newly added xPlayer will then be included within the xPlayer device list. To obtain the ID for a xPlayer, restart it. The ID can be viewed within all xPlayer screen savers including the xPlayer start-up screen. On xPlayers, this ID is also visible on the label attached to the bottom of the device.

Deleting xPlayers is as simple as selecting them within the list and pressing the "Delete Selected" button (shown in [Figure 21 - Multiple xPlayer Selection in Device List](#) above).



## 5.4 Device Attributes and Setup

xPlayer device attributes are changed by selecting one or more xPlayers within the device list. Selecting a single device (by clicking on it within the list or tree control) opens an attributes form within the "Device" tab to the right of the tree control. This form displays all player attributes and supports editing all attributes with the exception of the "Device ID", which can only be set when adding a xPlayer to the dashboard. xPlayer attributes are shown in the example figure below.

**CHAMELEON FOR DIGITAL SIGNAGE**

Device | Ad Manager | Beacon Manager | Administration | Report | Pass Creator | Sign Out

Acme  
HQ Demo  
BC  
Regional Office Entry  
Store 12543  
Store Entrance  
Checkout  
Cashier Station  
Alberta  
Ontario

### Device Attributes

Device ID: FCC23D2003D0

Device Name: Cashier Station

Timezone:  Label: America/Vancouver Offset from GMT in Minutes: -480

### Control

Mode: Started  Restart Device on Next Check-In

Bluetooth Power (dbm): 4 dbm

### Ad Selection

Campaign Type: Simple Campaign

Select Simple/Daily/Scheduled Campaigns:  
Afternoon Specials  
Evening Specials

### Locale

Locale Type: Department

Division: BC Site: Store 12543 Department: Checkout

### Advanced Control

[Click Here to Show](#)

Figure 23 - Attributes for a Single Selected xPlayer Device



All standard attributes are listed within the form shown in the figure above. "Advanced Control" attributes (described in a section that follows) are infrequently edited and may be ignored by most users.

Editable attributes are:

- Device Name: A name typically describing the xPlayer location or display category (e.g. "South Wall" or "Daily Specials").
- Timezone: The timezone in which the xPlayer has been installed. Select the "Set Timezone" button to open the "Region Offset" window as shown in the figure below.

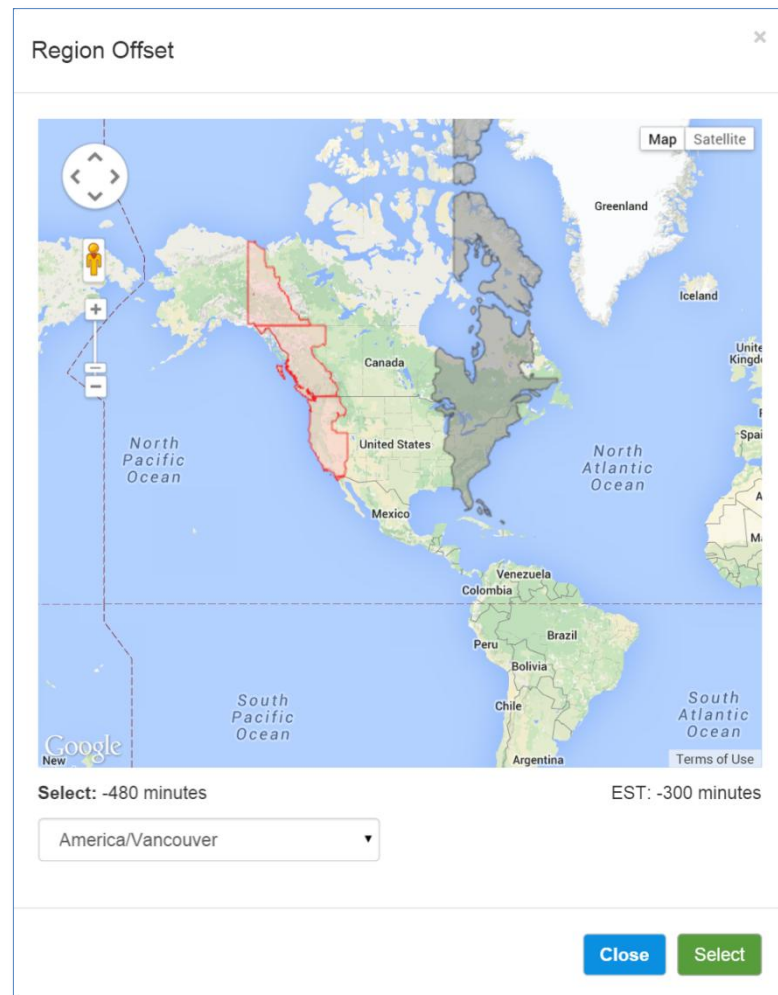


Figure 24 - Region Offset Selection Window

Within "Region Offset", current timezone selections are in red. The specific location within the timezone is listed below the map ("America/Vancouver" in the figure above). To change the selected timezone, there are 2 options.

- On the map, hover over timezones with a mouse and they will change to grey. This shows timezone geographic limits. Select the exact location in the grey timezone and it will be set within the list below the map (or the nearest location within the list).
- Select the exact xPlayer location (or nearest location in the same timezone) from the list below the map.

- Control: Control provides a means for remote disable of playback if required. When playback is "Stopped", the player screen will show what is within the figure below.

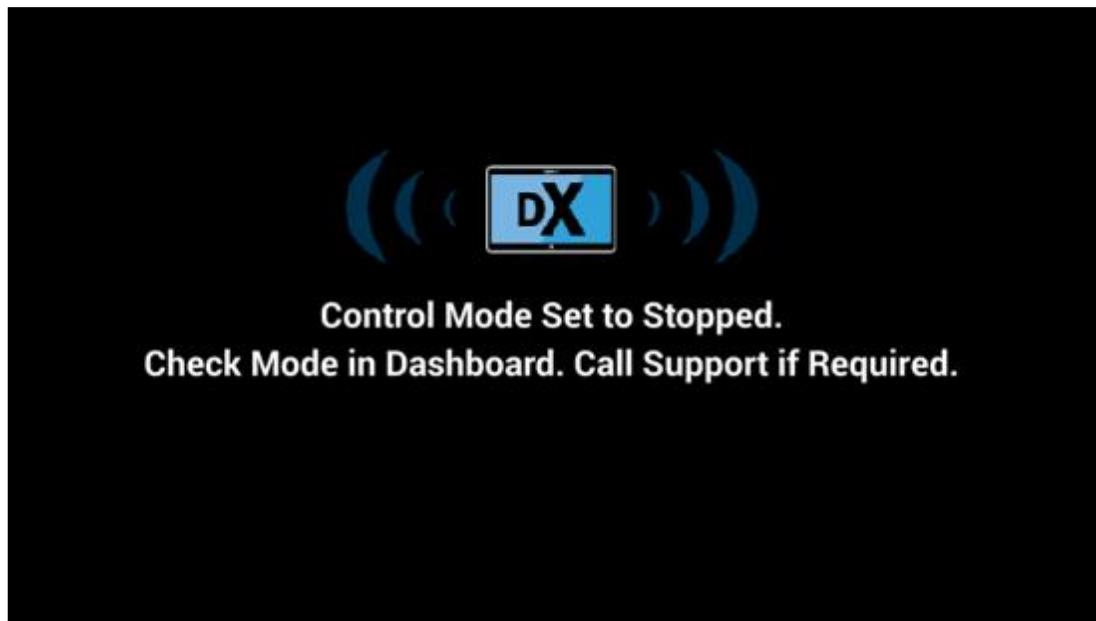
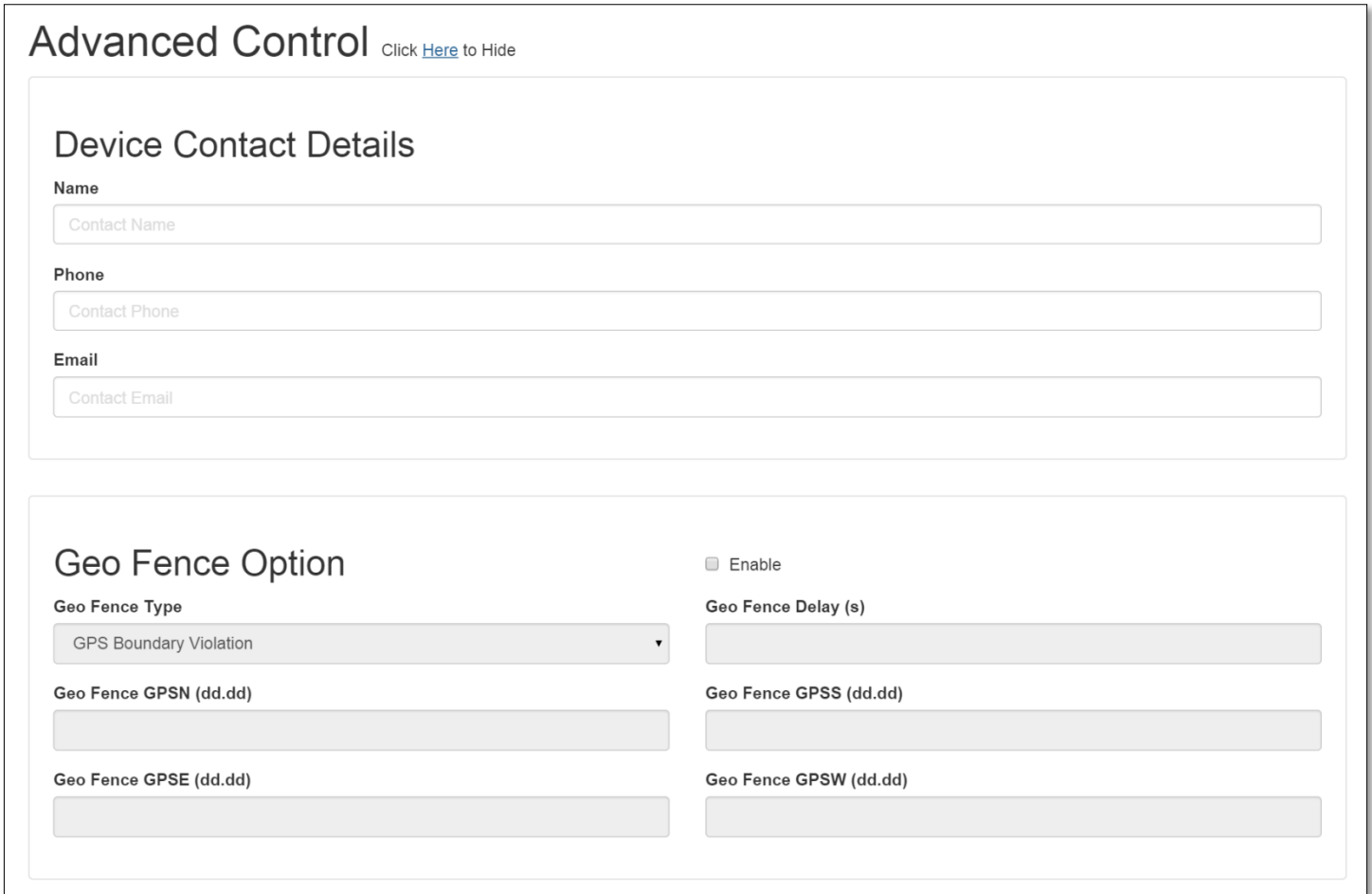


Figure 25 - Stopped Playback Control

- Ad Selection: Choose the list of ads or other content to play and their playback order, animation, timing and any independent audio playback. These attributes are all defined within one of three selectable campaign types (Simple, Daily and Scheduled). Typically campaigns are first created and then later selected as xPlayer device attributes within this form. Ads and campaign configuration are discussed in detail within section 6 - [Dashboard Ad Manager Tab](#).
- Locale: Optionally select which defined locale group (division, site or department) that the device is assigned to. Customer locales are described in detail within section [10.2 - Locale Administration](#). Locales must first be defined (as described within [10.2](#)) before they are selectable within this "Device Attributes" form.

In addition to standard device attributes, Advanced Control attributes can be displayed using the link provided. These controls are shown within the figure below.



The screenshot displays the 'Advanced Control' interface. At the top, it says 'Advanced Control' with a link 'Click [Here](#) to Hide'. Below this is a section titled 'Device Contact Details' with three input fields: 'Name' (with placeholder 'Contact Name'), 'Phone' (with placeholder 'Contact Phone'), and 'Email' (with placeholder 'Contact Email'). The second section is 'Geo Fence Option', which includes an 'Enable' checkbox, a 'Geo Fence Type' dropdown menu (set to 'GPS Boundary Violation'), a 'Geo Fence Delay (s)' input field, and four input fields for 'Geo Fence GPSN (dd.dd)', 'Geo Fence GPSS (dd.dd)', 'Geo Fence GPSE (dd.dd)', and 'Geo Fence GPSW (dd.dd)'.

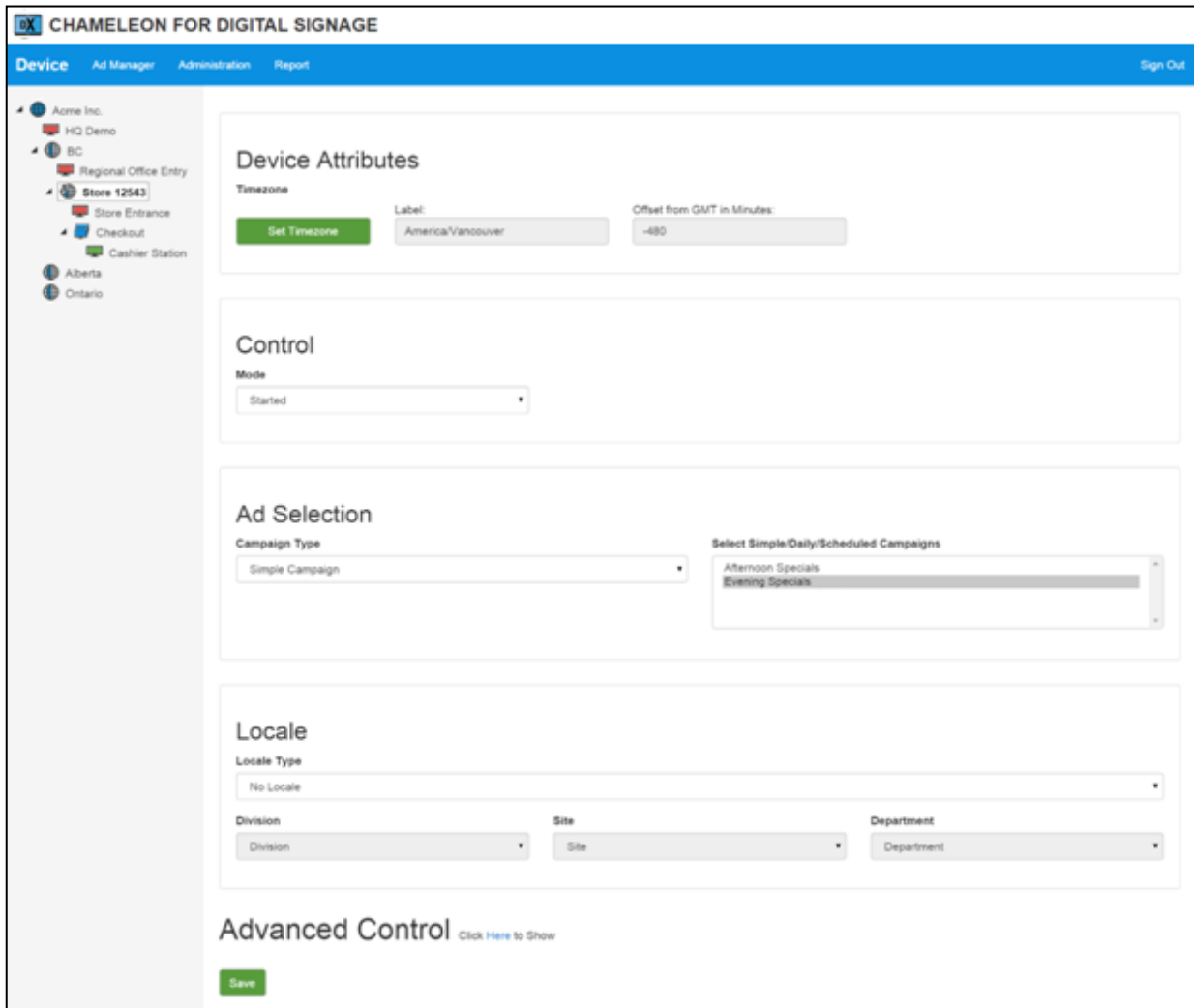
Figure 26 - xPlayer Device Advanced Control Attributes

Editable Advanced Control attributes are:

- Device Contact Details: The Name, Phone and Email of a contact at the location where the xPlayer is installed. Typically such contacts are called or emailed when there is a problem with a player (e.g. unplugged) and local assistance is required.
- Geo Fence Option: **This option is not supported on xPlayer devices**. The xPlayer digital signage support (i.e. software) can be installed on portable devices including tablet computers. When installed on a portable device, the Geo Fence option can be used to trigger an alarm whenever the tablet leaves a Geo Fenced area (i.e. when the tablet is stolen from a store). Contact Deviceworx sales ([sales@deviceworx.com](mailto:sales@deviceworx.com)) if tablet signage support is required. Note that beaconing is not currently supported from tablet computers.

## 5.5 Setting Device Attributes for Multiple Devices

The attributes for multiple xPlayer devices can be set at one time. Using the checkbox controls within the device list that are discussed in 5.2.1 - [Selecting xPlayers](#), select the xPlayers to be modified and then "Modify Selected". A device Attributes form **similar** to that shown in [Figure 23 - Attributes for a Single Selected xPlayer Device](#) will be shown. This form is shown below and varies from [Figure 23](#) only in that it does not support editing device names (must be unique for each player) and does not show a device ID (not valid when attributes for multiple devices are shown as each device has its own unique ID).



The screenshot displays the 'CHAMELEON FOR DIGITAL SIGNAGE' web application. The top navigation bar includes 'Device', 'Ad Manager', 'Administration', and 'Report', with a 'Sign Out' link on the right. A left sidebar shows a hierarchical tree view of the organization structure, including 'Acme Inc.', 'HQ Demo', 'BC', 'Regional Office Entry', 'Store 12543', 'Store Entrance', 'Checkout', 'Cashier Station', 'Alberta', and 'Ontario'. The main content area is titled 'Device Attributes' and contains several sections:
 

- Timezone:** Includes a 'Set Timezone' button, a 'Label' dropdown menu (currently showing 'America/Vancouver'), and an 'Offset from GMT in Minutes' input field (currently showing '-480').
- Control:** Features a 'Mode' dropdown menu (currently showing 'Started').
- Ad Selection:** Includes a 'Campaign Type' dropdown menu (currently showing 'Simple Campaign') and a 'Select Simple/Daily/Scheduled Campaigns' dropdown menu (currently showing 'Afternoon Specials' and 'Evening Specials').
- Locale:** Includes a 'Locale Type' dropdown menu (currently showing 'No Locale'), a 'Division' dropdown menu (currently showing 'Division'), a 'Site' dropdown menu (currently showing 'Site'), and a 'Department' dropdown menu (currently showing 'Department').
- Advanced Control:** A section with a 'Click Here to Show' link and a 'Save' button.

Figure 27 - Attributes for Multiple Selected xPlayer Devices



## 6 Dashboard Ad Manager Tab

Forms within this tab support uploading of ad files and selecting how those ads are played within ad campaigns. Once ads are uploaded and defined within campaigns, these campaigns can be selected for playback within xPlayers.

### 6.1 Supported Ad File Types

The following static graphic file types are supported by C4DS software running within xPlayers:

- .png
- .jpg

png files are strongly recommended if the original ads are to be scaled to fit the screen in any way. .jpg files should only be used when their resolution matches that of the player screen resolution.

For best results, always create graphical content matching the screen resolution used. When possible, use 1080P (FHD) screens with 1080P graphics (1920 x1080) as 1080P graphics present products, promotions, retailer data and other messaging exceptionally well.

The following video file types are supported by xPlayers (with related encoding in brackets):

- .3gp (H264, MPEG4-SP)
- .mp4 (H263, H264)
- .webm (VP8)

Videos should be encoded at a frame rate of at least 30 frames per second (fps) for smooth playback. A video resolution that matches the resolution of the xPlayer-connected screen should be used.

## 6.2 Uploading Ad Files

Select the "Ad Manager" tab within the blue dashboard header. Within this tab, both ads and collections of ads called campaigns are shown and managed. At any time, select "Ads" from the upper left list box to view and manage ads within the dashboard or select either "Simple Campaigns", "Daily Campaigns", or "Scheduled Campaigns" to view or manage any of these campaign types (described in detail within sections of this guide that follow). Whenever the "Ad Manager" tab is selected, "Ads" are shown by default. When there are no ads within the system, the ad list will look like the figure below.

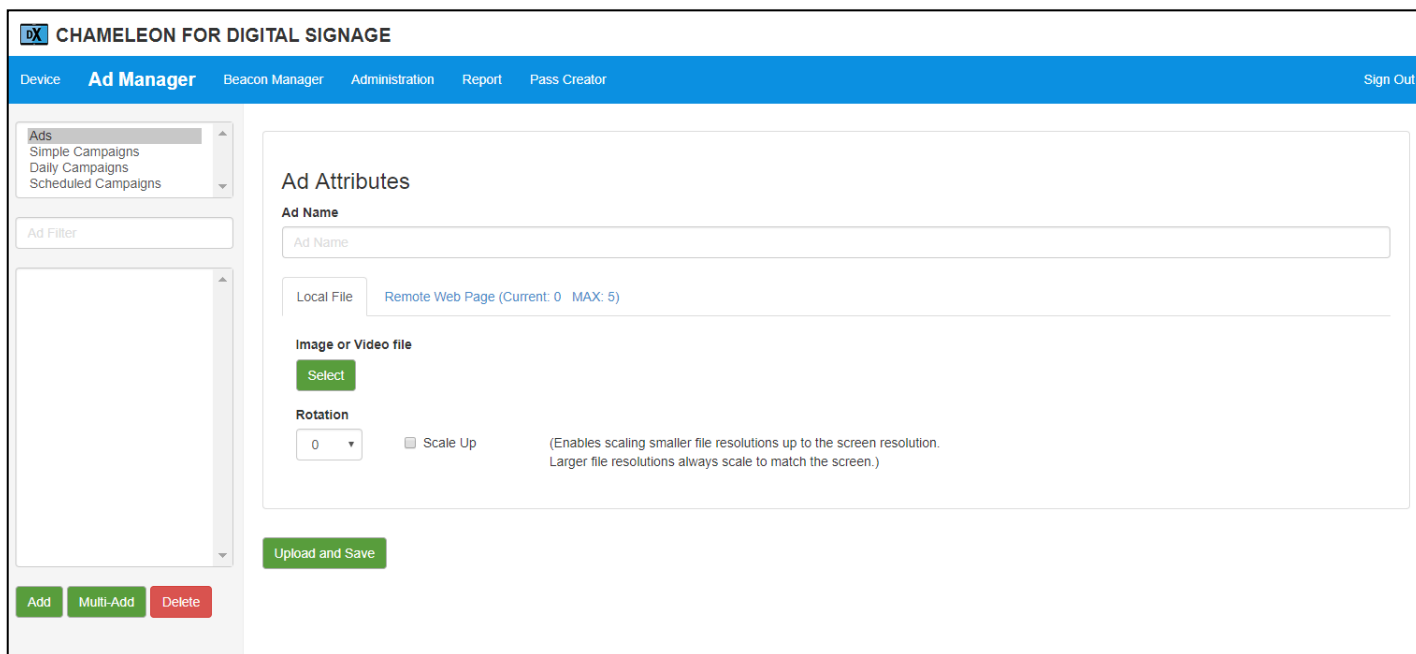


Figure 28 - Empty Ad List

Files can be uploaded individually or multiple files can be uploaded at once for efficiency.

To upload a single file, select "Add". The screen will not change from that shown in [Figure 28 - Empty Ad List](#) above. Enter an "Ad Name" that properly represents the contents of the ad, then choose "Select" to pick the file within a host PC. Next, check the "Scale Up" checkbox if scaling up from the original file resolution to the screen resolution is required. Android will always scale image files down to the max screen resolution as required. If rotation of an image is required, select the angle of rotation. Rotation of "0" degrees is the default (no rotation). Select "90" degrees to rotate an image 1/4 turn in the clockwise direction or select "-90" degrees to rotate an image 1/4 turn in the counterclockwise direction. Note that video files are not scaled or rotated. Last, select "Upload and Save" to save the file within the dashboard and add it to the ad listing. During upload, a progress bar is shown as below.

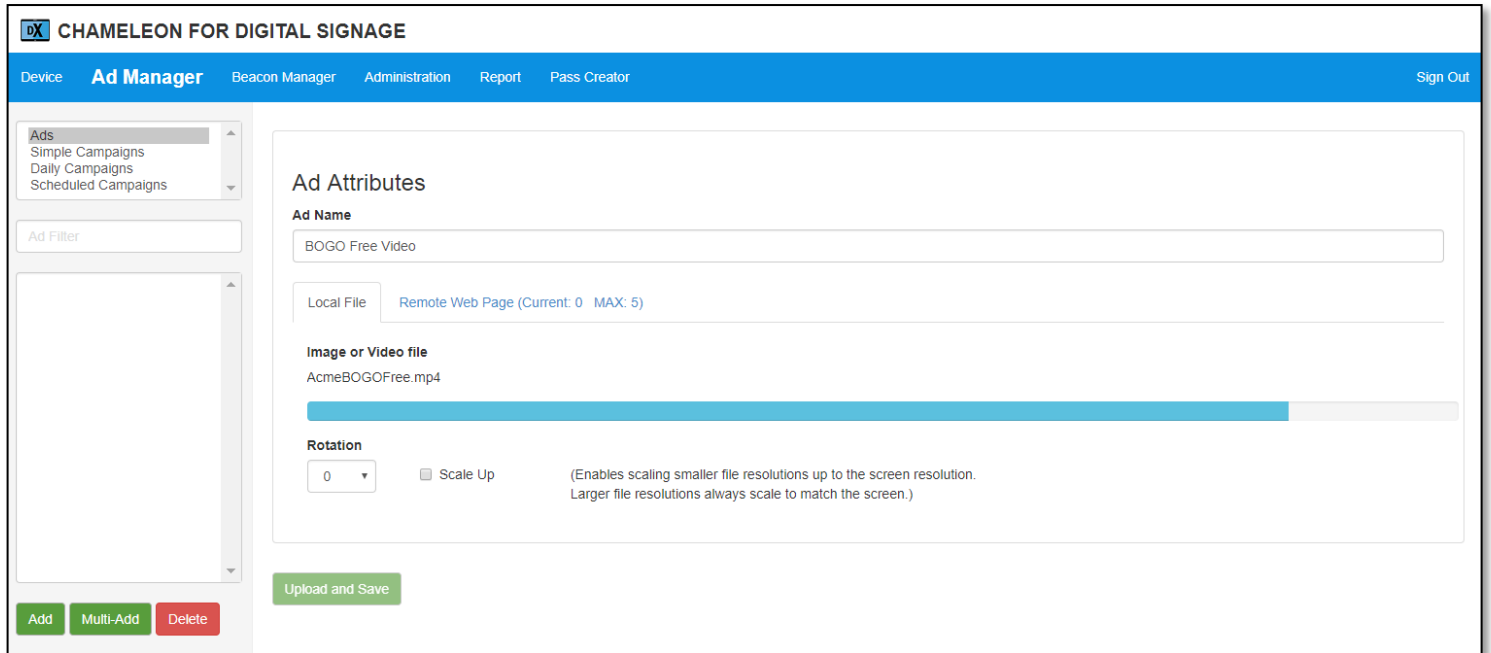


Figure 29 - Ad File Upload Progress



To upload multiple files at one time, select "Multi-Add". A form with a single button ("Select Files") will be shown. Selecting this button will open a dialog supporting multiple file selection as shown below.

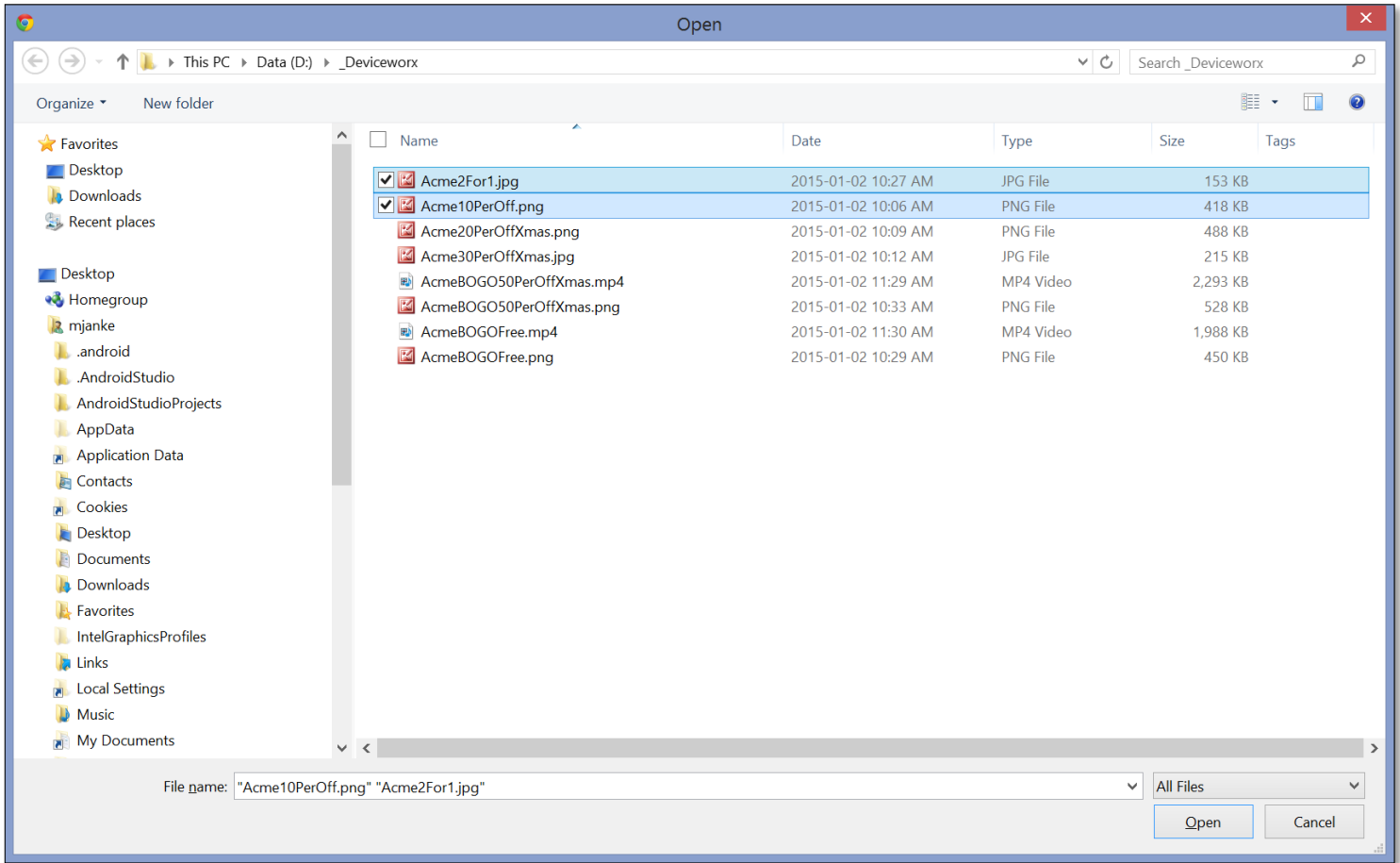


Figure 30 - Multi-File Selection Dialog Box

To select multiple files that are in sequence within the dialog, select the first file and then hold the "shift" button and select the last file.

To select multiple files that are out of sequence, hold the "ctrl" button while selecting each file.

There is no limit on the number of files that can be selected.





After selecting files, the form will show a preview of each as below.

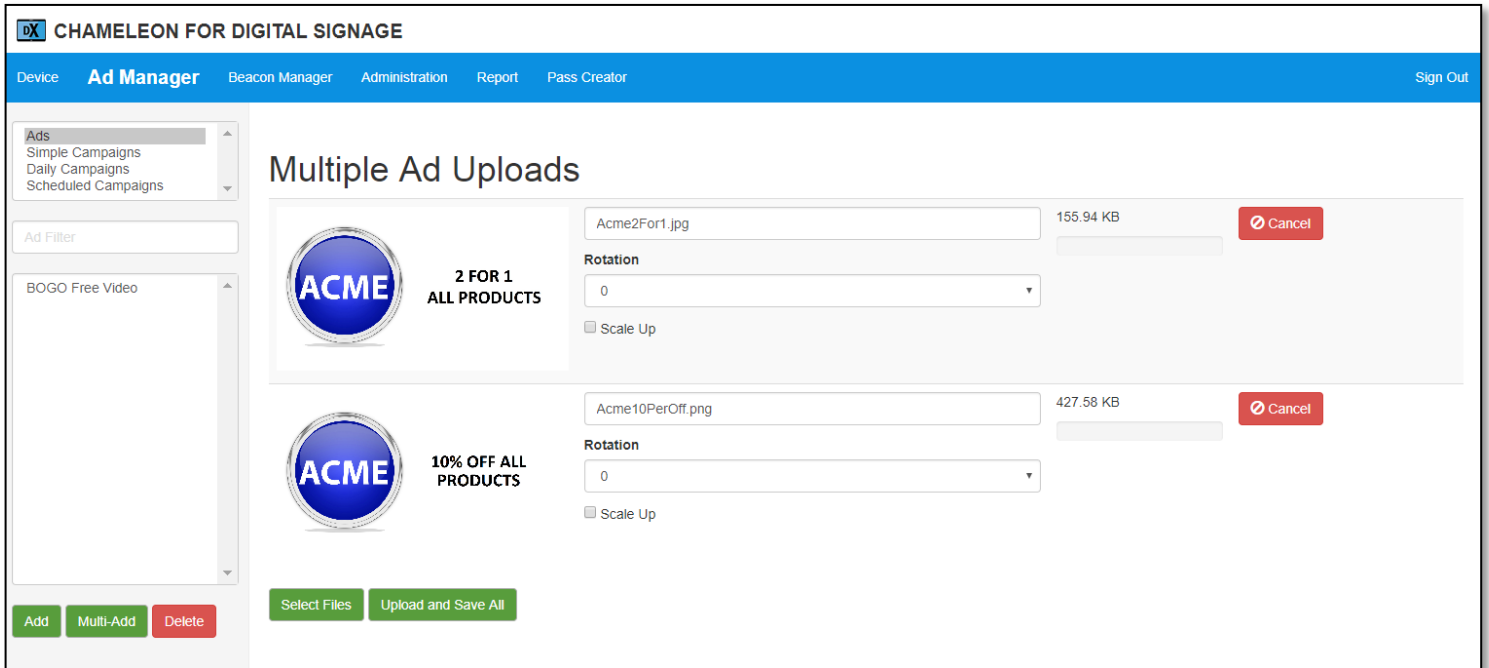


Figure 31 - Multi-File Preview

Select "Upload and Save All" to upload files in parallel. Note that only 3 files will be uploaded at a time. If more than 3 files were selected, some files will be queued up and their upload will start immediately when one of the 3 slots becomes free.

If another dashboard page is selected during an upload, a message box will be shown to confirm that the upload is to be aborted. If another web page outside of the dashboard is selected, file uploads will be aborted.

The name of the uploaded ads will be set to match their file name. Change these ad names (if required) by selecting and editing them individually within the ad list.

### 6.3 Graphic Scaling

By default, graphics with a resolution that is different from the resolution of the screen used, will be stretched or shrunk to fit that resolution. For example, if an image has resolution 1280 (w) x 720 (h), and is being displayed on a 1920 (w) x 1080 (h) screen, by default this image will be stretched to 1920 x 1080 when displayed.



Figure 32 - Properly Displayed Image

Because the aspect ratio (width to height) for both of these resolutions is 16:9 and because 1280 x 720 is not that different from 1920 x 1080, this stretch may look ok. If, however, that same image with resolution 640 x 360 (also 16:9) is displayed on a 1920 x 1080 screen... it will look quite pixilated because it is stretched dramatically.



Figure 33 - Pixilated Image

Image distortion can also occur if an image is displayed on a screen with a different aspect ratio. For example, if a 1280 x 720 image at aspect ratio 16:9 is displayed on a narrower screen with resolution 1920 (w) x 1200 (h) with aspect ratio 16:10, it will be stretched more vertically than horizontally and look askew.



Figure 34 - Image that is Askew

To simplify image display and avoid any potential stretch or shrinkage issue, always create images with a resolution that matches the resolution of displays used. If images are displayed on multiple screens with different resolutions but, a common aspect ratio (e.g. most screens are 16:9), create images that match the largest screen resolution as images shrink more effectively than they stretch.

When image stretching or shrinking is expected, create images as PNG files as this image format stretches and shrinks better than JPG files.

## 6.4 Remote Web Page Capture

In addition to ad files, xPlayers can display captures of web pages. This supports display of information that is dynamic in nature.

While any web page can be captured, it is strongly recommended that web pages that have been developed specifically for capture are referenced. This ensures that the page layout looks good and displays well within a sign. xPlayer users can develop their own pages for capture, or they can engage Deviceworx Sales ([sales@deviceworx.com](mailto:sales@deviceworx.com)) for custom pages.

Captured pages commonly expose information that is displayed on screens for viewer interest. This is a common technique employed by signage operators and retailers to gain viewer attention and increase screen views.

### 6.4.1 Deviceworx News and Weather Captures

Currently Deviceworx hosts pages that support local weather and news and a weather forecast. The web address of these pages stipulate for which city data is shown.

Below is a capture of the local weather and news page for Comox, BC, Canada.



Figure 35 - Comox Weather and News

This page can be accessed at the following URL:

<http://caps.deviceworx.com/newsweather/index.html?woeid=5926432>

Below is a capture of the 3 Day Weather Forecast page for Comox, BC, Canada.

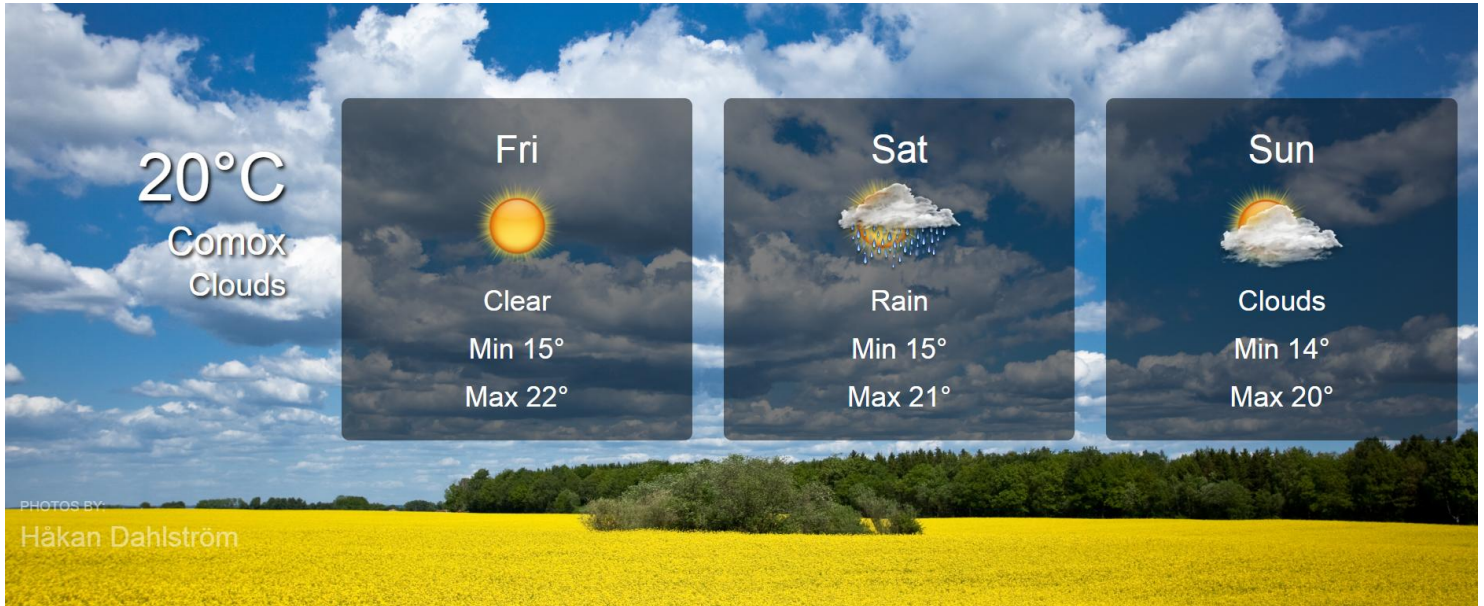


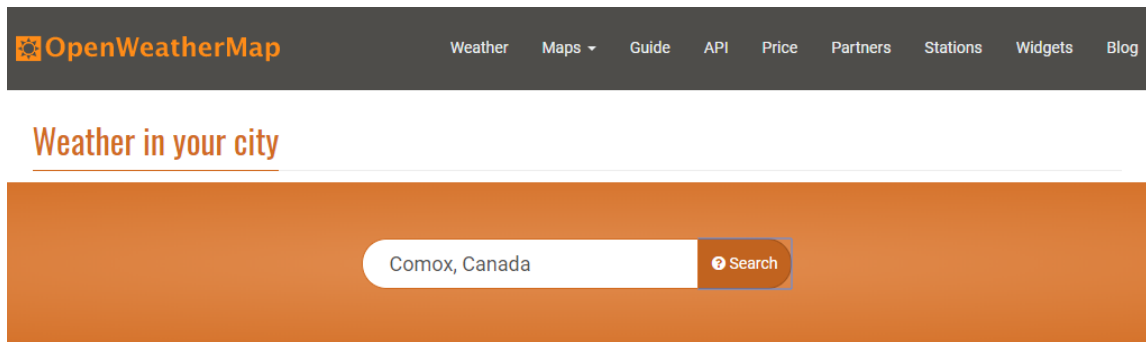
Figure 36 - Vancouver Weather Forecast

This page can be accessed at the following URL:

<http://caps.deviceworx.com/3dayforecast/index.html?woeid=5926432>

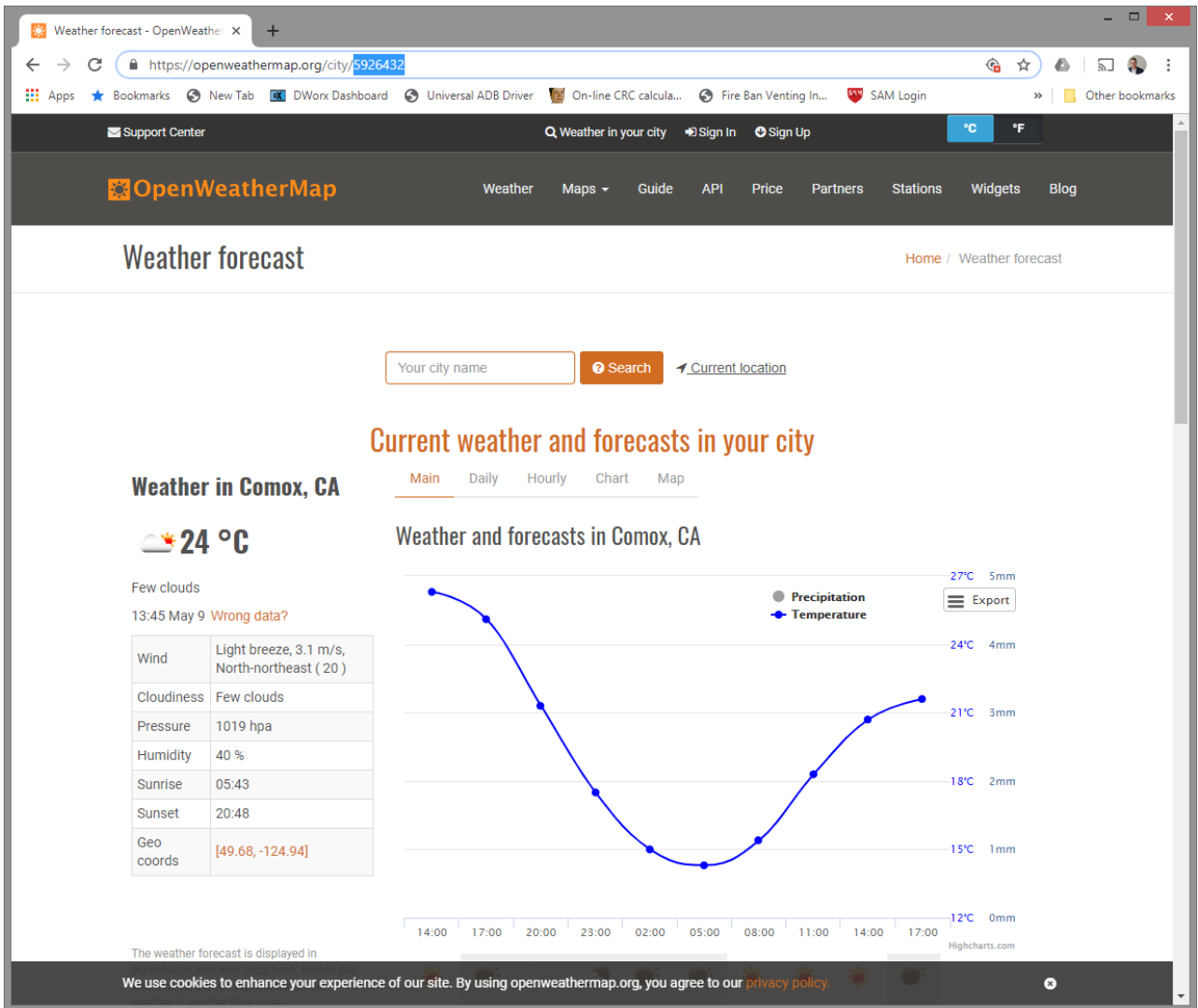
Deviceworx customers can use these pages to show their own news and weather forecast by simply substituting the id for the city within the URL. Deviceworx uses the OpenWeatherMap service to get weather details for display. To easily acquire the id for a supported OpenWeatherMap station near your screen follow the simple steps below.

1. Visit OpenWeatherMap main page at <https://openweathermap.org/find>
2. Within the box provided, type the name of your location, press "Search" and the result will show your location or indicate that it could not be found (typically because the location is too small). If required, search for another larger nearby location. Otherwise, select the location name link as indicate in the capture below for Comox, CA :

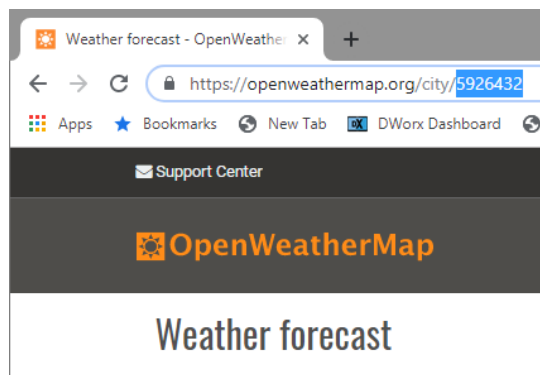


**Comox, CA** **few clouds**  
23.9°C temperature from 21 to 27.8 °C, wind 3.1 m/s, clouds 20 %, 1019 hpa  
Geo coords [49.6829, -124.9362]

3. Details for the location will be displayed as shown below.



4. The location ID will be shown at the end of the URL displayed. See text with the blue background in the capture above and below showing the ID 5926432 as the ID for Comox, BC, Canada.





Note that this same ID is used in both the 3 day forecast and news and weather capture url examples in this document section. Simply plug in other IDs into the same URL format to get weather and news data for the location of you're choosing.

If you have any difficulty finding a URL for your capture, email Deviceworx Customer Support ([support@deviceworx.com](mailto:support@deviceworx.com)) with a location name and we will provide you with URLs that support display of weather and news for your location (e.g. town, city, province, state).



### 6.4.2 Custom Captures

In addition to news and weather, pages can be developed to support a variety of information. Some examples are:

- Local sports scores.
- Current stock quotes.
- Local flight arrival or departure times.
- Customer-specific Information for in-store notifications or hospitality applications.
  - Local stock levels.
  - Employee notifications.
  - Meeting room schedules
  - e.t.c.

Contact Deviceworx Sales ([sales@deviceworx.com](mailto:sales@deviceworx.com)) if you need us to develop and host capture pages for you.

### 6.4.3 Capture Technical Details

A Standard xPlayer license supports capture of a single web page for each customer. This limit can be extended by Deviceworx Sales ([sales@deviceworx.com](mailto:sales@deviceworx.com)) on a per-customer basis. Contact Deviceworx Sales as required to increase supported page captures to an unlimited maximum. Note that a per page capture fee applies if increasing beyond the single page capture supported by a standard license.

Page captures occur every 5 minutes. They are acquired by the Deviceworx server. xPlayers fetch captured pages from the Deviceworx server immediately before their display (when the preceding ad within a campaign is shown). Because captures are queued up within the Deviceworx server, expect a maximum delay of approximately 5 minutes before they are shown on any player screen.

If customers wish to display web page captures from their own internal network and access to these captures requires network credentials, contact Deviceworx Customer Support ([support@deviceworx.com](mailto:support@deviceworx.com)) with credentials for access. Note that a one-time engineering fee may apply for setup of credentialed access.



### 6.4.4 Adding a Page Capture

To add a remote web page capture, ensure that the ad list is visible within the Ad Manager. Select "Add". Instead of selecting a local file, select the "Remote Web Page ..." tab within the form. Enter a valid web page "URL" and "Ad Name". The web page can be previewed by selecting "Preview". Allow up to 10 seconds for rendering a page. Previewing is a good idea as a means of confirming that the provided "URL" is accurate. An example page capture form is shown below.

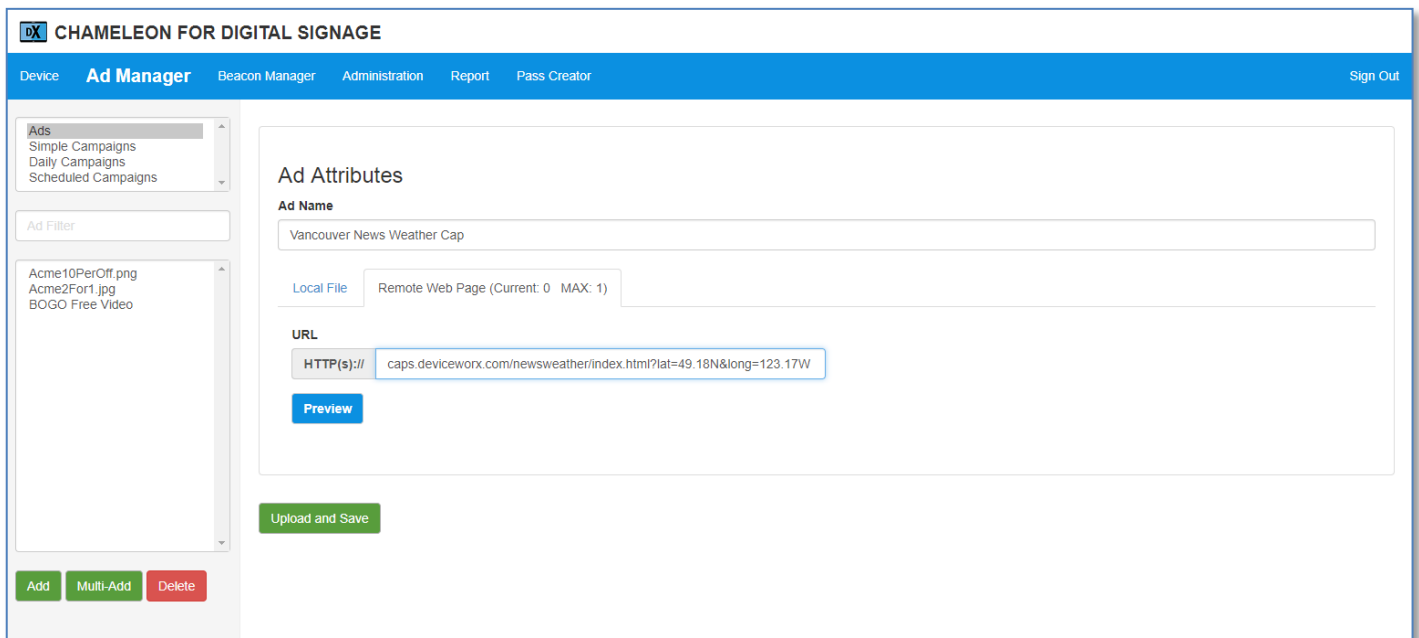


Figure 37 - Setup Remote Page Capture

When all capture details are set, select "Upload and Save" to store the capture configuration. The ad list will then include the web page capture as a selectable item as shown below.

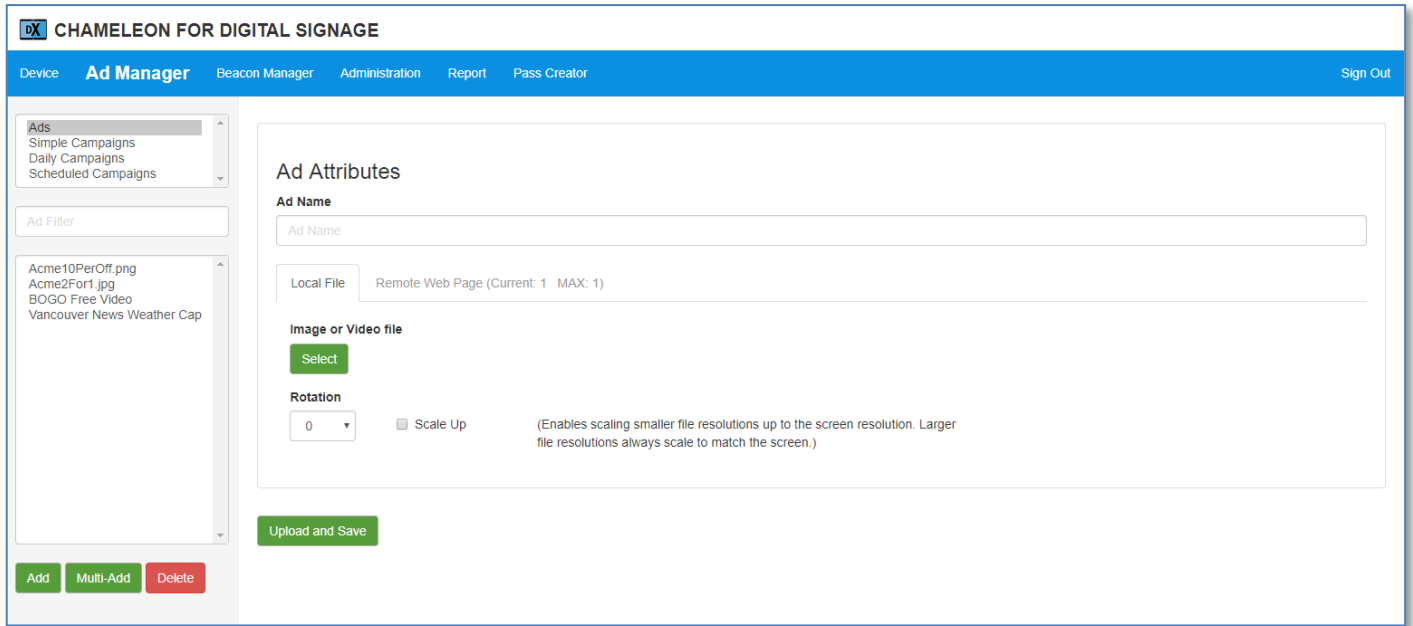


Figure 38 - Ad List with Captures Used Up

Note that in the figure above the "Remote Web Page ..." tab now includes the text "Count: 1 Max: 1)". This signifies that the customer account no longer has any available remote web page captures. See [6.4.3 - Capture Technical Details](#) for information on support for more captures. To re-enable access to the Remote Web Page selection tab, delete the current web page capture item by selecting it within the ad list and then selecting "Delete".



## 6.5 Campaign Overview

Campaigns are simply lists of ads or other content to be played along with other details including how long static ads play, transition animations to run between ads, playback order, etc. In addition, any beacons to activate are specified within Campaigns. This facilitates simple selection of beacons for use within Campaigns and the scheduling of all beacons along with screen and audio content. The definition of beacons and how they are handled within Apple and Android devices is specified within the Beacon Manager and discussed within [7 - Dashboard Beacon Manager Tab](#).

After ads and beacons have been added to the dashboard, these ads and beacons can be included within campaigns. These campaigns are then selected for playback within player devices. Note that ads are not directly selectable for playback and beacons are not directly selectable for transmission; both must be included within at least one campaign.

There are 3 types of campaigns supporting different levels of scheduling capability and complexity. Simple Campaigns are just a collection of ads along with data describing how those ads are played. Daily Campaigns are a collection of Simple Campaigns along with when (during each day) these campaigns are to play. Scheduled Campaigns may be a collection of Simple Campaigns along with when (date and time on a calendar) each of these campaigns plays. Scheduled Campaigns may also be a collection of Daily Campaigns along with when (date on a calendar) each of these Daily Campaigns play. Each campaign type is described in detail within sections that follow. For simple playback of a collection of ads or other content, users should reference [6.6 - Simple Campaigns](#).

Note that dashboard does not limit either the number of ads or the number of campaigns configured by users. The only limit imposed by the dashboard is the number of remote web page capture ads.

## 6.6 Simple Campaigns

Simple Campaigns are a collection or list of ads, metadata describing how those ads are played and a selection of beacon types for broadcast. Before Simple Campaigns can be setup, you must first add the content files to the dashboard as described within sections [6.2](#) (graphic and video file ads) and [6.4.4](#) (web page capture ads). If optional beacon broadcast is also required, these beacons must be defined within the Beacon Manager before they can be selected within a campaign (see [7 - Dashboard Beacon Manager Tab](#)). Select "Simple Campaigns" within the "Ad Manager" tab. The figure below shows the resulting form when no Simple Campaigns exist within the dashboard.



The screenshot shows the 'Ad Manager' interface for 'CHAMELEON FOR DIGITAL SIGNAGE'. The top navigation bar includes 'Device', 'Ad Manager', 'Beacon Manager', 'Administration', 'Reports', 'Pass Creator', and 'Sign Out'. On the left, there is a sidebar with 'Ads' (Simple Campaigns, Daily Campaigns, Scheduled Campaigns) and a 'Campaign Filter' field. The main content area is titled 'Campaign Attributes' and contains the following fields: 'Campaign Name' (text input), 'Campaign Description' (text input), 'Select Transition Animation' (dropdown menu with 'Fade in/out' selected), 'Transition Duration (milliseconds)' (text input with '1000'), 'Independent Audio URI' (text input), and a checkbox for 'Select Shoutcast Station from Listing'. Below this is the 'Campaign Beacons' section, which includes a note: 'Note that beacons are only supported on Chameleon xPlayer platforms and wTag Devices. Consult user documentation for detail on how beacons are used.' This section has three sub-sections: 'iBeacon' with a dropdown 'Select from predefined iBeacon' and a 'Trigger Manual Push' button; 'Eddystone UID' with a dropdown 'Select from predefined Eddystone UID'; and 'AltBeacon' with a dropdown 'Select from predefined Alt Beacon'. At the bottom left of the form is a 'Save' button.

Figure 39 - Empty Simple Campaign

Provide a short "Campaign Name" and a "Campaign Description". All dashboard references to the Simple Campaign will use the "Campaign Name". The "Campaign Description" field is provided to enter more detail on the campaign for later reference (visible within this form only).

Users must specify a campaign name and description before selecting ads or other content. Selecting "Save" after entering a name and description will extend the form to show available ads that can be added to the campaign as shown below.

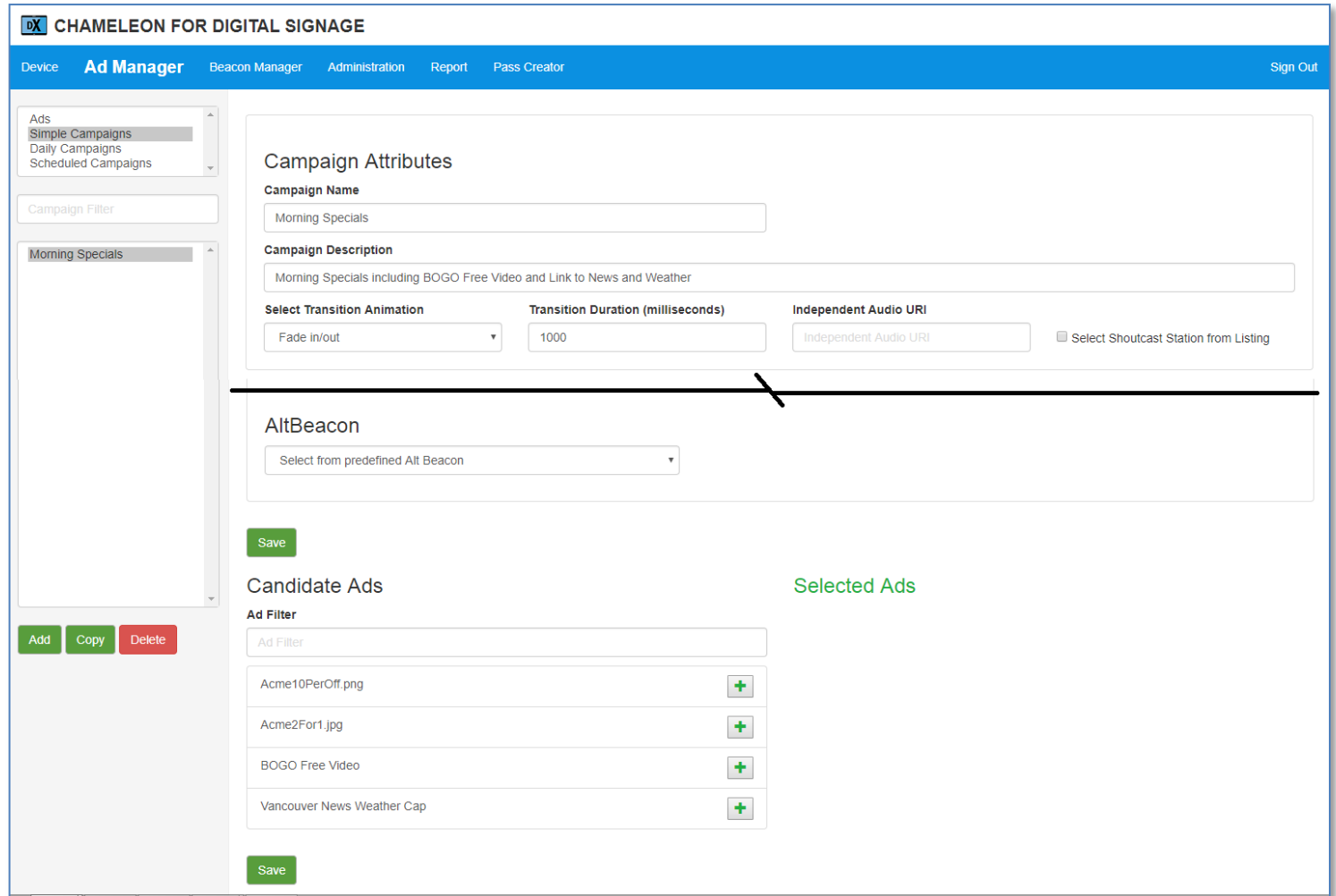



Figure 40 - Simple Campaign Ad Selection

Drag ads from the "Candidate Ads" list to the "Selected Ads" list as required adding them to the campaign. Alternately, select  next to the selected ad to add into the campaign.

Once ads have been added to "Selected Ads", alter their order by dragging them up and down within the list.

To play any ad multiple times within the campaign, simply add it multiple times to the "Selected Ads" list and arrange it to the desired sequence order.



The play time for each ad is shown within each ad entry in the "Selected Ads" list (default 10 seconds). Alter this play time by selecting , changing the value displayed and then selecting . These elements are shown within the figure below.



Figure 41 - Edit Graphic and Capture Play Times

Note that video play time specified within the list is ignored during playback as the video itself has an inherent play time.

The figure below shows a Simple Campaign including only 2 ads selected from the list of 4 candidate ads.

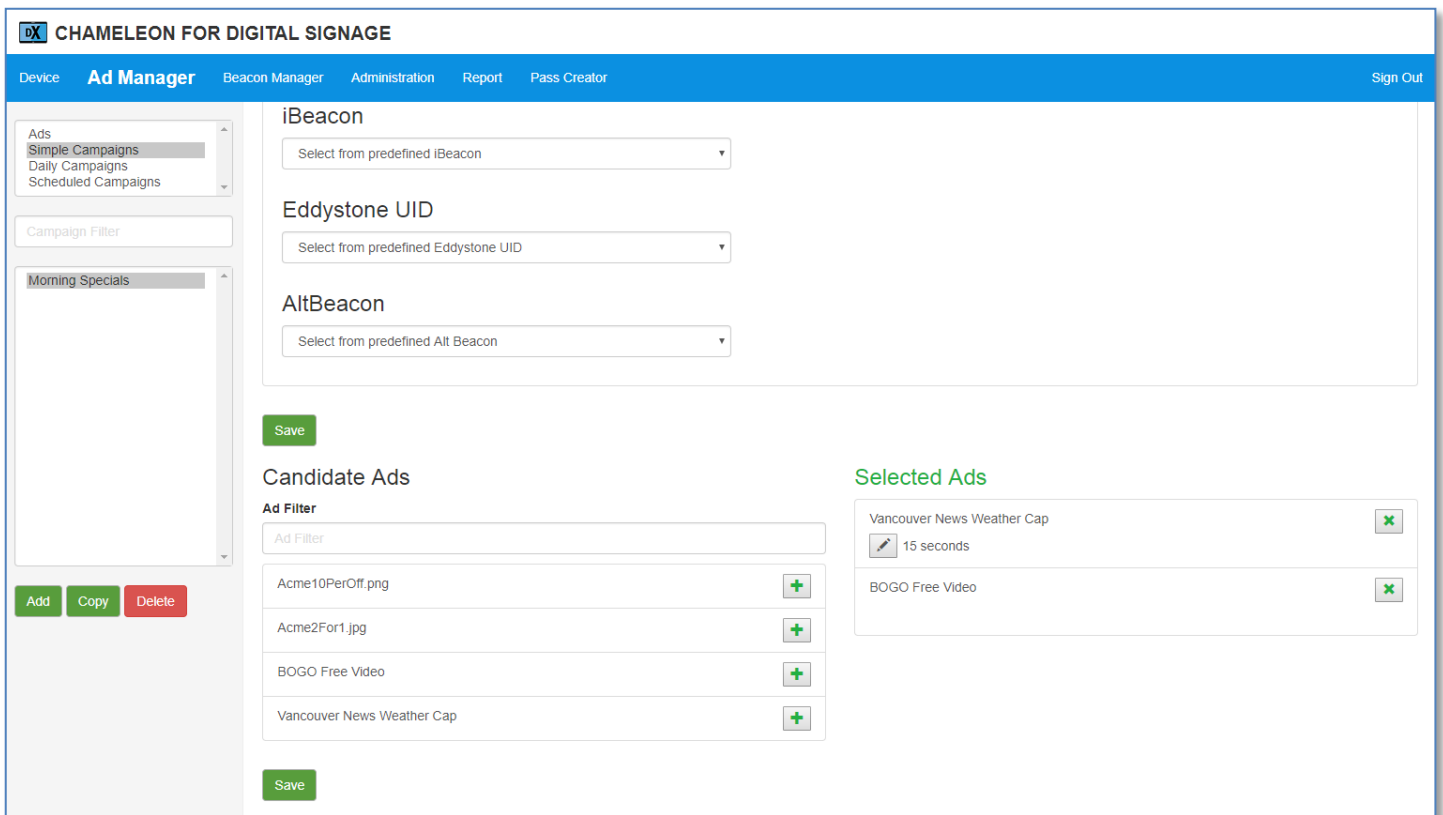


Figure 42 - Simple Campaign with Ads

To delete any ad from the "Selected Ads" list, select .

Note that Deviceworx recommends an ad playback time that is at least 10 seconds for optimal viewer retention.

### 6.6.1 Animations

By default, campaigns will support a fade in and out between static graphic ads or web page capture ads with a fade in and out duration of 1 second (1000 milliseconds). Users may change the animation time or the animation type. The following types are supported.



- Fade In/Out. The currently shown graphic fades or dissolves out of view (to black) and then a new graphic fades or dissolves in.
- Zoom In/Out. The currently shown graphic shrinks until out of view (on black background) and then a new graphic grows into its full size from out of view.
- Slide In/Out. The visible graphic slides out from view (left to right) on a black background and then a new graphic slides into view (left to right).

Experimenting with the different animations and animation times is the best way to appreciate their differences.

### 6.6.2 Independent Audio

Many operators and retailers can benefit from audio playback during the display of silent ads (graphic files, web page captures or even videos without audio content). The xPlayer supports high fidelity audio playback that is independent of what is on screen for additional advertising or for ambient background music.

To stream independent audio, enter a URI within the campaign. Only URIs to MP3 streams is supported.

For simple entry of URIs supporting ambient background music, the dashboard includes categorized selection from over 20,000 internet radio stations that are hosted by Shoutcast. To choose a Shoutcast station, enable the "Select Shoutcast Station from Listing" checkbox as shown below.

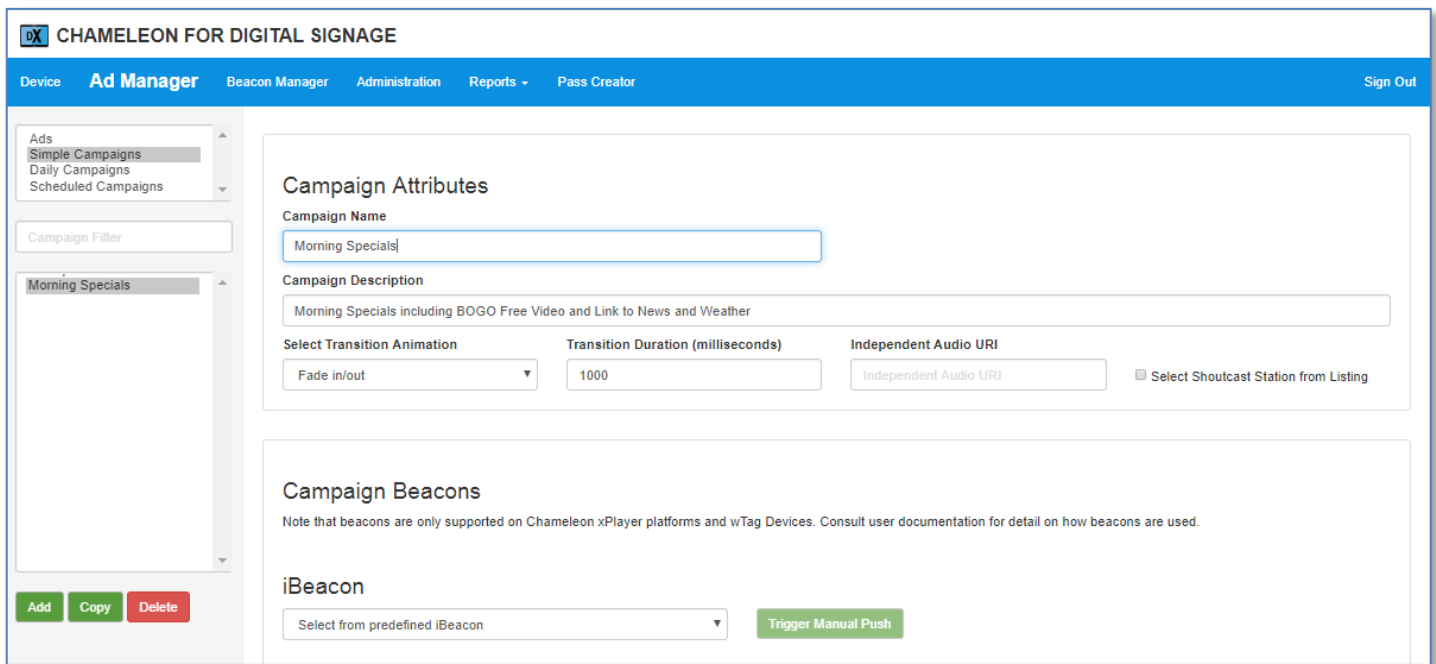


Figure 43 - Shoutcast Station Selection Enable

Select one of the available primary genres and a corresponding list of secondary genres will be shown. Select a secondary genre and a list of stations within that secondary genre will be shown. Select a station and then the "Independent Audio URI" will be populated with the URI to the selected station as shown below.

To enter a URI explicitly, ensure that the "Select Shoutcast Station from Listing" checkbox is unchecked.





The screenshot shows the 'Ad Manager' interface for 'CHAMELEON FOR DIGITAL SIGNAGE'. The main content area is titled 'Campaign Attributes' and contains the following fields and controls:

- Campaign Name:** Text input field containing 'Morning Specials'.
- Campaign Description:** Text input field containing 'Morning Specials including BOGO Free Video and Link to News and Weather'.
- Select Transition Animation:** Dropdown menu with 'Fade in/out' selected.
- Transition Duration (milliseconds):** Text input field containing '1000'.
- Independent Audio URI:** Text input field containing 'http://124.195.199.79:9060'.
- Primary Genre:** Dropdown menu with 'Blues' selected.
- Secondary Genre:** Dropdown menu with 'Acoustic Blues' selected.
- Select Shoutcast Station from Listing Station:** A checked checkbox followed by a dropdown menu with 'VFM' selected.

Below the 'Campaign Attributes' section is the 'Campaign Beacons' section, which includes a note: 'Note that beacons are only supported on Chameleon xPlayer platforms and wTag Devices. Consult user documentation for detail on how beacons are used.' Underneath, there is an 'iBeacon' section with a dropdown menu set to 'Select from predefined iBeacon' and a green 'Trigger Manual Push' button.

On the left side of the interface, there is a sidebar with a list of ads: 'Simple Campaigns', 'Daily Campaigns', and 'Scheduled Campaigns'. Below this is a 'Campaign Filter' field and a list of 'Morning Specials'. At the bottom of the sidebar are 'Add', 'Copy', and 'Delete' buttons.

Figure 44 - Shoutcast Station URI Set

Whenever the campaign plays, the selected radio station ("VFM" in the example above) will be played.

xPlayer customers wishing to play audio advertisements during campaigns can contact Deviceworx Sales ([sales@deviceworx.com](mailto:sales@deviceworx.com)). Deviceworx can be commissioned to setup a Shoutcast station for customers to handle playback of customer-specific audio ads. Customer devices can then reference their own station URI. Note that engineering fees will apply.

Important notes for independent audio:

- Independent audio and audio that is part of a playing video will be mixed. Viewers will hear both audio tracks at the same time. For this reason, do not enable independent audio within any campaign that includes a video with sound.
- Streaming of independent audio through xPlayers will require 5+ seconds of buffering. Audio playback will not be immediate after a campaign starts.
- Graphic support within the xPlayer is optional. If users decide, they can use the xPlayer simply as an internet radio streaming platform. Advantages to using the xPlayer exclusively for audio playback (compared to pure internet radio players) are:
  - Remote control. Central administrators (not local staff) can control which stations are played to better control audio within their business environments.
  - Scheduling support. Operators and retailers can schedule campaigns (discussed in sections that follow) and can therefore schedule which streams will play in the future and at which times.
- When no graphic, web page captures or video ads are selected within a playing campaign, the xPlayer will display a status screen indicating "Audio Playback Only" as shown below.



Figure 45 - Screen Displayed During Audio Playback Only



### 6.6.3 Beacons

Beacons can be selected within Simple Campaigns. Then, whenever the Simple Campaign runs within xPlayers, the selected beacons will be broadcast from those xPlayers. Note that broadcast beacons from wTag (battery operated Deviceworx beacons) are static and cannot change on a schedule as supported on the xPlayer.

Beacons can be used by Smartphone operating systems to launch apps or web pages within browsers or they can be used by apps themselves (once launched) to change app behaviours. Actions taken are typically based on a location associated with the beacon. Apps can also use beacons to triangulate a Smartphone (and user) position for wayfinding or mapping functions. This triangulation can effectively provide GPS-like positioning accuracy for users when GPS itself doesn't work (e.g. indoors or outdoors within urban canyons).

A section that follows ([7 - Dashboard Beacon Manager Tab](#)) details how beacons are setup and configured. Once configured, they are selectable within the Simple Campaigns form within a drop down list box for each beacon type. Select as many beacon types as required for broadcast. Broadcasting is (effectively) simultaneous, given that the delay between each type is a few milliseconds apart.

The figure below shows the selection of both an iBeacon and an Eddystone UID beacon within the "Afternoon Specials" Simple Campaign. When this campaign is run within xPlayers, these beacons will be broadcast from those xPlayers and Smartphones receiving the beacons can take actions as configured for the "xPlayer Coupon" and "xPlayer Web Page" beacons within the Beacon Manager.

#### 6.6.3.1 Virtual Beacons

The Beacon Manager (described within [7 - Dashboard Beacon Manager Tab](#)) supports configuration of Smartphone reactions to beacon receptions. Some Deviceworx supported apps also support scheduled messaging wherein the apps act like they have received a beacon when a message is triggered from the Deviceworx dashboard. To configure this message reception, virtual beacons are configured within the Beacon Manager and then selected within Simple Campaigns. Whenever the Virtual Beacon is triggered, (manually using the button provided or via a schedule as described within [6.8 - Scheduled Simple Campaigns](#)) all apps will behave as if they have received a physical beacon signal.

To use virtual beacons in Simple Campaigns, simply create beacon within the Beacon Manager and specify Smartphone actions to take upon reception (i.e. launch a web page) within the Beacon Manager. Then, select them within the Simple Campaign and ensure that the Simple Campaign is saved using the "Save" button. Both an iBeacon and Eddystone UID beacon must be created within the Beacon Manager and selected within the Simple Campaign to ensure that both iPhones and Android phones can be triggered to react. Trigger app beacon reactions using the "Trigger Manual Push" button provided. Critically you must understand that all apps will receive notifications when the virtual beacon is triggered, so do not push the button frequently to "spam" all app users. To schedule message delivery, create a Scheduled Simple Campaign (as described within [6.8](#)) and configure 1 or more Simple Campaign starts. When each Simple Campaign starts (GMT time), the app reactions to beacons selected for each campaign are triggered.

**IMPORTANT** - Only Scheduled Simple Campaigns support triggering beacon reactions in apps. Dailey Campaigns and Scheduled Dailey Campaigns will not trigger beacon reactions within apps.

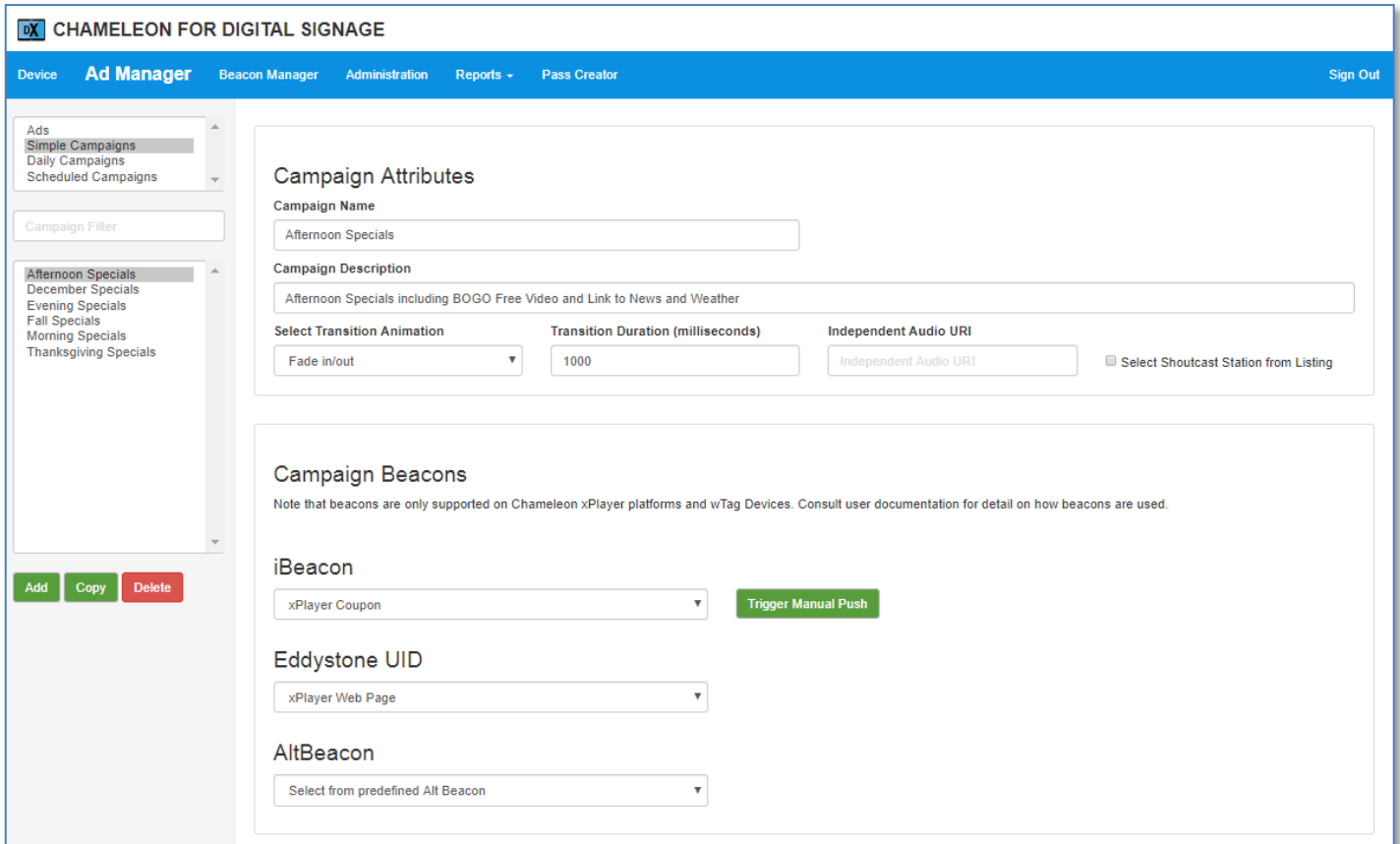


Figure 46 - Beacon Selection within Campaign

#### 6.6.4 Adding, Deleting or Copying Campaigns

Select the "Add" button at the bottom of the campaign list to add a new campaign. If many of the attributes of a new campaign will match an existing campaign, select the "Copy" button to create a new campaign that matches the currently selected campaign. This new campaign will be given a distinct name to avoid confusion. Select the "Delete" button to delete campaigns when they are no longer used. Ensure that the campaign is not selected for use within any xPlayer before deletion, otherwise the campaign cannot be deleted and an error message will result.

## 6.7 Daily Campaigns

Daily Campaigns support a simple way of scheduling Simple Campaigns to run at specific times of the day. To setup a Daily Campaign, users must first create at least 2 Simple Campaigns. See [6.6 - Simple Campaigns](#) for details on Simple Campaigns, including how to create them. Next, users simply create a Daily Campaign and stipulate at what time of day (in hours and minutes past midnight local time) each of the Simple Campaigns should play.

To create a Daily Campaign, select "Daily Campaigns" within the "Ad Manager" tab. The figure below shows the resulting form when no Daily Campaigns exist within the dashboard.



Figure 47 - Empty Daily Campaign

Enter a "Daily Campaign Name" and select "Save". Available Simple Campaigns are listed within the resulting form below.

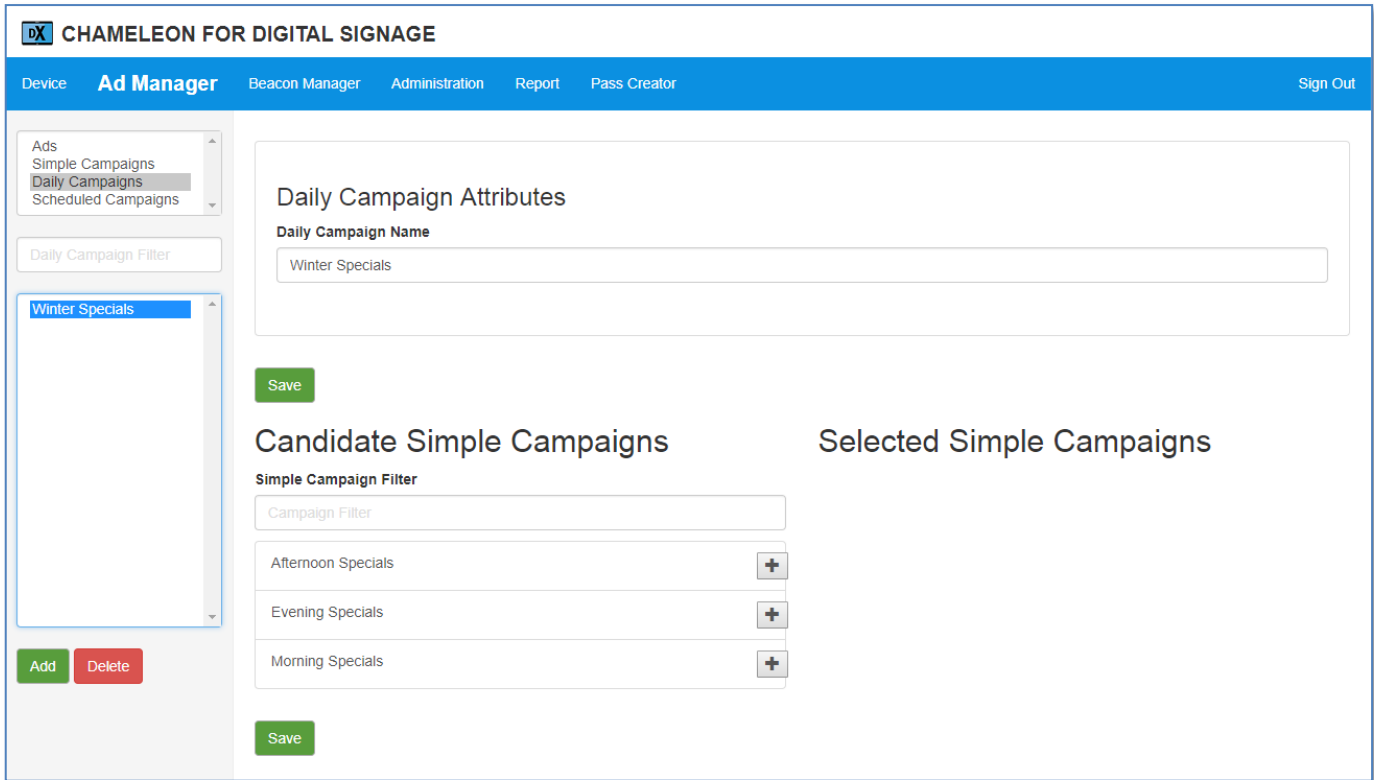




Figure 48 - Daily Campaign with Selectable Campaigns

Add any Simple Campaigns that are to be scheduled using . By default, the selected play time for newly added campaigns will be 00:00 or midnight local device time. Select the calendar icon (  ) to open a time picker control as shown below.

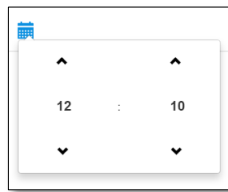


Figure 49 - Daily Campaign Time Picker

Select the local device start time for selected Simple Campaigns. The figure below shows a Daily Campaign that includes 3 Simple Campaigns.



**CHAMELEON FOR DIGITAL SIGNAGE**

Device **Ad Manager** Beacon Manager Administration Report Pass Creator Sign Out

Ads  
Simple Campaigns  
Daily Campaigns  
Scheduled Campaigns

Daily Campaign Filter

Winter Specials

Save

**Daily Campaign Attributes**

Daily Campaign Name  
Winter Specials

Save

**Candidate Simple Campaigns**

Simple Campaign Filter  
Campaign Filter

Afternoon Specials +

Evening Specials +

Morning Specials +

Add Delete

Save

**Selected Simple Campaigns**

Morning Specials 00:00		
Afternoon Specials 12:10		
Evening Specials 17:00		

Figure 50 - Daily Campaign Example

In the "Winter Specials" campaign shown above, the "Morning Specials" campaign will run every day from midnight until 12:10 PM. Then, the "Afternoon Specials" campaign will run until 5:00 PM (17:00). After 5PM and until midnight, the "Evening Specials" campaign will run. This is shown on the timeline that follows.

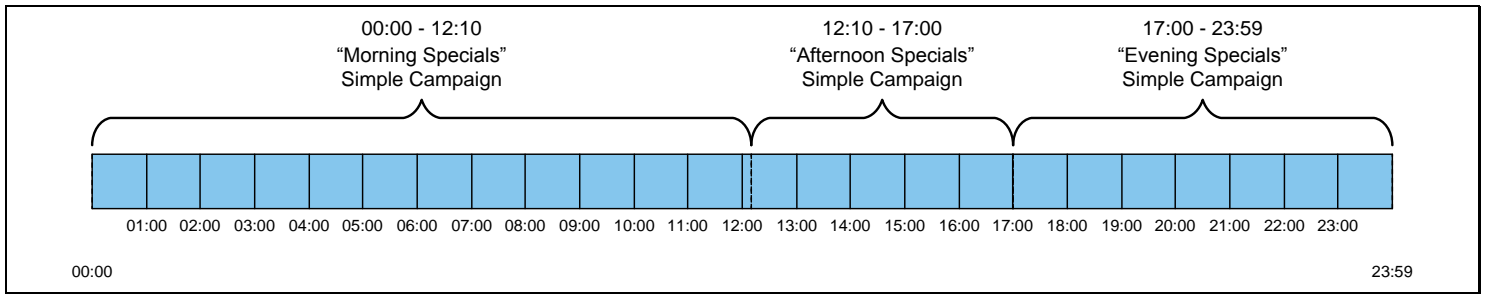


Figure 51 - Example Daily Campaign Timeline

Notes for Daily Campaigns:

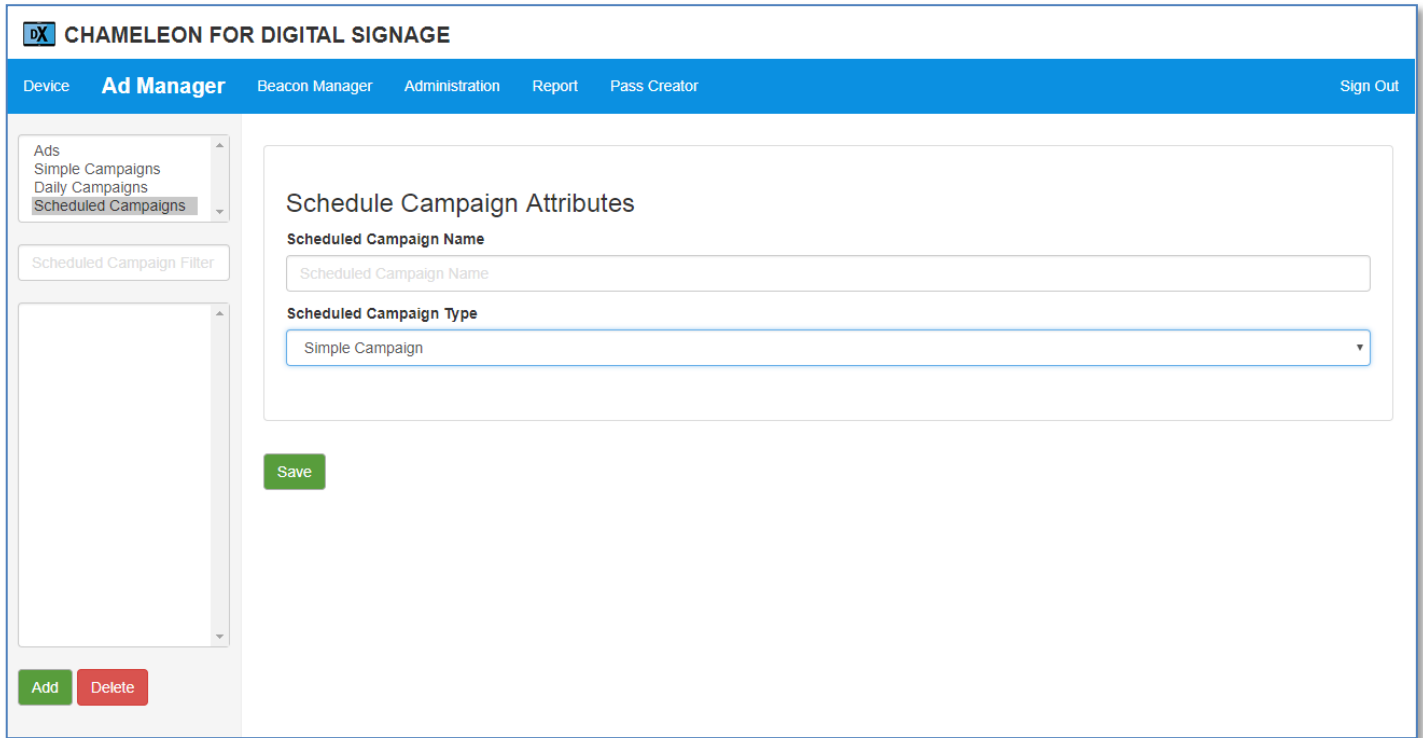
- Local device time is always used to select Simple Campaigns that are defined within a Daily Campaign.
- The first Simple Campaign is selected if the current local device time does not stipulate that any other Simple Campaign should be played.
- Any Simple Campaign can be selected multiple times within a Daily Campaign.
- Unlimited Daily Campaigns may be created and each can contain an unlimited number of Simple Campaigns.



## 6.8 Scheduled Simple Campaigns

Scheduled Simple Campaigns are a collection of Simple Campaigns, each with a start date and time. To setup a Scheduled Simple Campaign, users must first create at least 2 Simple Campaigns. See [6.6 - Simple Campaigns](#) for details on Simple Campaigns, including how to create them.

To create a Scheduled Simple Campaign, select "Scheduled Campaigns" within "Ad Manager" tab and then select a "Scheduled Campaign Type" of "Simple Campaign". The figure below shows the resulting form when no Scheduled Simple Campaigns exist within the dashboard.



The screenshot shows the 'CHAMELEON FOR DIGITAL SIGNAGE' interface. The top navigation bar includes 'Device', 'Ad Manager', 'Beacon Manager', 'Administration', 'Report', 'Pass Creator', and 'Sign Out'. The 'Ad Manager' tab is active. On the left, a sidebar menu lists 'Ads', 'Simple Campaigns', 'Daily Campaigns', and 'Scheduled Campaigns' (which is selected). Below the menu is a 'Scheduled Campaign Filter' and a list area with 'Add' and 'Delete' buttons. The main content area is titled 'Schedule Campaign Attributes' and contains a form with two fields: 'Scheduled Campaign Name' (a text input field) and 'Scheduled Campaign Type' (a dropdown menu with 'Simple Campaign' selected). A green 'Save' button is located below the form.

Figure 52 - Empty Scheduled Campaign

Enter a "Scheduled Campaign Name" and then select "Save". Available Simple Campaigns will be shown and selectable for inclusion within the Scheduled Simple Campaign as shown below.



Figure 53 - Scheduled Simple Campaign Collection with Selectable Campaigns

Add any Simple Campaigns that are to be scheduled using . By default, the selected start time for newly added campaigns will be the current time. Select the calendar icon ( ) to open a date and time picker control as shown below.

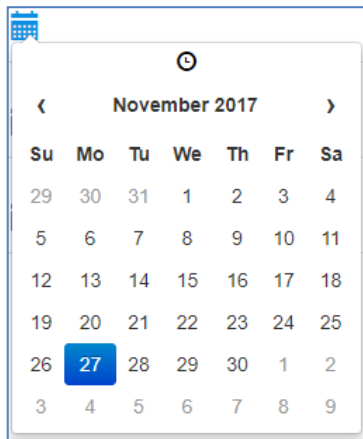



Figure 54 - Scheduled Campaign Date and Time Picker (Date Showing)



Select a date and then the  icon at the top of this picker to access time selection as shown below.

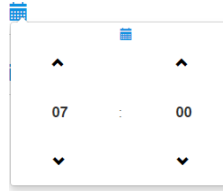




Figure 55 - Scheduled Campaign Date and Time Picker (Time Showing)

Switch between date and time selection by selecting the small  or  icon at the top (middle) of the picker.

The example Scheduled Simple Campaigns collection below includes the scheduling of 3 Simple Campaigns.

The screenshot shows the 'CHAMELEON FOR DIGITAL SIGNAGE' Ad Manager interface. The top navigation bar includes 'Device', 'Ad Manager', 'Beacon Manager', 'Administration', 'Report', 'Pass Creator', and 'Sign Out'. On the left, a sidebar shows a menu with 'Ads', 'Simple Campaigns', 'Daily Campaigns', and 'Scheduled Campaigns'. Below the menu is a 'Scheduled Campaign Filter' dropdown set to '4th Quarter Campaigns'. The main content area is titled 'Schedule Campaign Attributes' and contains a 'Scheduled Campaign Name' field with '4th Quarter Campaigns' and a 'Scheduled Campaign Type' dropdown set to 'Simple Campaign'. A green 'Save' button is located below these fields. Below the main area are two sections: 'Candidate Simple Campaigns' and 'Selected Simple Campaigns'. The 'Candidate Simple Campaigns' section has a 'Simple Campaign Filter' and a list of campaign types: 'Afternoon Specials', 'December Specials', 'Evening Specials', 'Fall Specials', 'Morning Specials', and 'Thanksgiving Specials', each with a '+' button. The 'Selected Simple Campaigns' section shows three scheduled campaigns: 'Fall Specials' (2017-10-01 00:00), 'Thanksgiving Specials' (2017-11-27 12:00), and 'December Specials' (2017-12-01 00:00). Each entry includes a calendar icon and a close button (X).

Figure 56 - Scheduled Simple Campaign Example

In this example, the "Fall Specials" campaign will start immediately and play until November 27 at 12:00 PM (noon local device time). At this time, the "Thanksgiving Specials" campaign will play and continue playing until midnight on December 1 when the "December Specials" will start playing.



Notes for Scheduled Campaigns:

- Local device time is always used to select Simple Campaign start times for display of ads.
- GMT time is always used to trigger beacons selected within Simple Campaigns.
- The first Simple Campaign is selected if the current local device date and time does not stipulate that any other Simple Campaign should be played. For clarity, select a start date and time that is in the past for the first campaign.
- Any Simple Campaign can be selected multiple times.
- Unlimited Scheduled Campaigns may be created and each can contain an unlimited number of Simple Campaigns.

## 6.9 Scheduled Daily Campaigns

Scheduled Daily Campaigns are simply a collection of Daily Campaigns, each with a start date. To setup a Scheduled Daily Campaign, users must first create at least 2 Daily Campaigns. See 6.7 for details on Daily Campaigns, including how to create them.

To create a Scheduled Daily Campaign, select "Scheduled Campaigns" within "Ad Manager" tab and then select a "Scheduled Campaign Type" of "Daily Campaign". Figure 52 above shows the resulting form when no Scheduled Daily Campaigns exist within the dashboard.

Enter a "Scheduled Campaign Name" and then select "Save". "Candidate Daily Campaigns" will be shown and selectable for inclusion within the Scheduled Daily Campaign as below.

**CHAMELEON FOR DIGITAL SIGNAGE**

Device **Ad Manager** Beacon Manager Administration Report Pass Creator Sign Out

Ads  
Simple Campaigns  
Daily Campaigns  
Scheduled Campaigns

Scheduled Campaign Filter

4th Quarter Campaigns  
December Campaigns

Save

**Schedule Campaign Attributes**

**Scheduled Campaign Name**  
December Campaigns

**Scheduled Campaign Type**  
Daily Campaign

**Candidate Daily Campaigns** Selected Daily Campaigns

**Daily Campaign Filter**  
Daily Campaign Filter

Holiday Specials +

Winter Specials +

Save

Add Delete

Figure 57 - Empty Scheduled Daily Campaign

Add any Daily Campaigns that are to be scheduled using . By default, the selected start date for newly added campaigns will be the current date. Select the calendar icon ( ) to open a date picker control as shown below.

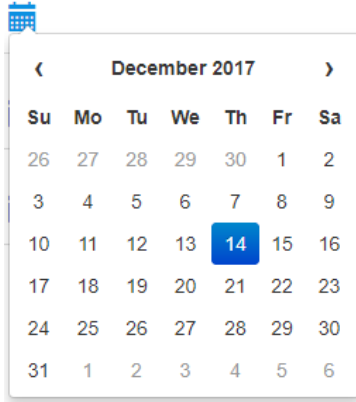


Figure 58 - Scheduled Campaign Date Picker

Alter "Selected Daily Campaign" start dates using the date picker with each.

The example Scheduled Daily Campaign below includes the scheduling of 3 Daily Campaigns.

**CHAMELEON FOR DIGITAL SIGNAGE**

Device **Ad Manager** Beacon Manager Administration Report Pass Creator Sign Out

Ads  
Simple Campaigns  
Daily Campaigns  
Scheduled Campaigns

Scheduled Campaign Filter

4th Quarter Campaigns  
December Campaigns

Add Delete

### Schedule Campaign Attributes

**Scheduled Campaign Name**  
December Campaigns

**Scheduled Campaign Type**  
Daily Campaign

Save

### Candidate Daily Campaigns

**Daily Campaign Filter**  
Daily Campaign Filter

Holiday Specials +

Winter Specials +

Save

### Selected Daily Campaigns

Winter Specials	2017-11-01 00:00		
Holiday Specials	2017-12-14 00:00		
Winter Specials	2018-01-01 00:00		

Figure 59 - Scheduled Daily Campaign Example



In the example above, a "Winter Specials" Daily Campaign will start playing first. On December 14, 2017 (at midnight local device time), the "Holiday Specials" Daily Campaign will begin playing and will continue to play until January 1, 2018. At that time the "Winter Specials" campaign will resume play again.

The timelines below detail the scheduling outlined within the example above.

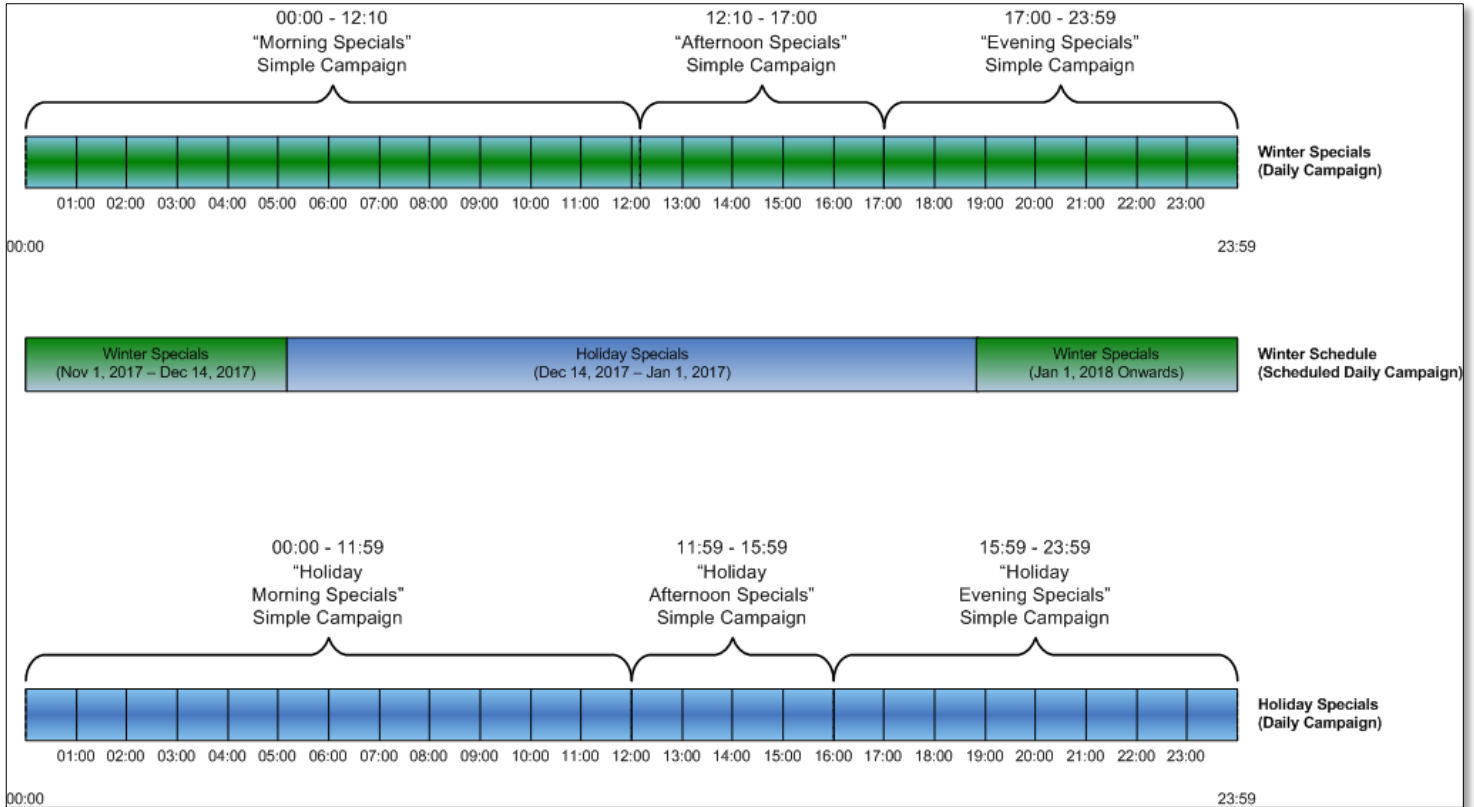


Figure 60 - Scheduled Daily Campaign Timelines

Notes for Scheduled Campaigns:

- Local device time is always used to select Daily Campaign and included Simple Campaign start times.
- The first Daily Campaign is selected if the current local device date does not stipulate that any other Daily Campaign should be played. For clarity, select a start date that is in the past for the first Daily Campaign to play.
- Any Daily Campaign can be selected multiple times.
- Unlimited Scheduled Daily Campaigns may be created and each can contain an unlimited number of Daily Campaigns.

## 6.10 Deleting Ads or Campaigns

Ads cannot be deleted if they are being used within campaigns. Delete campaigns that reference ads before deleting the ads themselves. A pop-up error will be shown if users try to delete an ad that is used within a campaign and the ad will not be deleted.

The figure below shows an example where the pop-up error results.

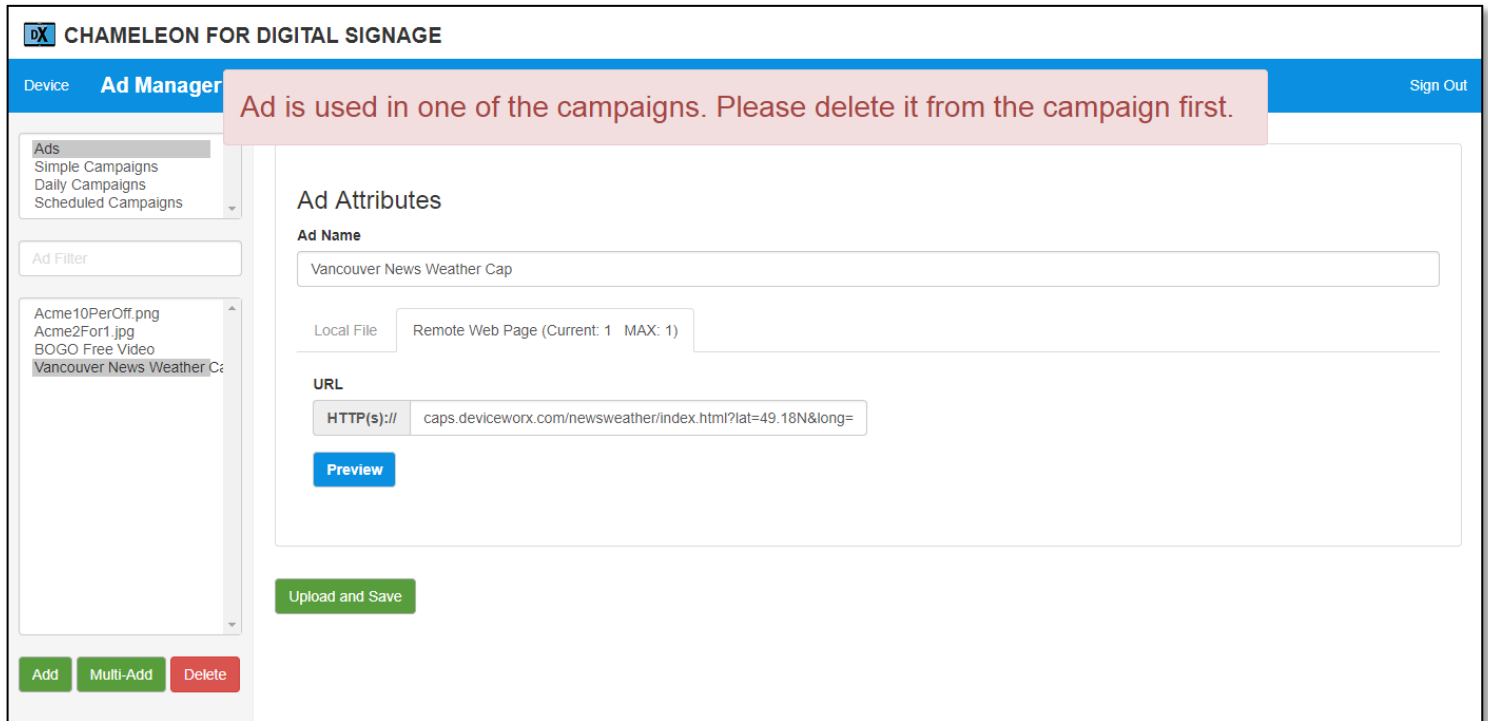


Figure 61 - Error When Deleting Ad with Dependency

In the figure above, the "Vancouver Weather and News ..." ad is referenced within at least one campaign and therefore cannot be deleted.

Like ads, campaigns cannot be deleted if they are being used within another campaign or if the campaign has been selected for device playback. If a campaign is to be deleted, remove references to it from other campaigns and devices. For example, if a Simple Campaign is included within a Daily Campaign, that Simple Campaign must be removed from the Daily Campaign before it can be deleted. Alternately, if possible, simply deleting the Daily Campaign will also remove the Simple Campaign reference and support subsequent Simple Campaign deletion. A pop-up error will be shown if users try to delete a campaign that is used within another Daily Campaign or Scheduled Campaign and the campaign will not be deleted.



## 7 Dashboard Beacon Manager Tab

### 7.1 What is a Beacon

Beacons are simply one-way wireless Bluetooth Low Energy (BLE) transmissions from devices. The xPlayer and wTag are such a devices. Mobile Smartphones and Tablets that support BLE can receive these transmissions. Upon reception, Smartphones understand their general location and can take meaningful actions like notify a user of a nearby promotion. Additionally, when 3 or more beacons are received by a Smartphone or Tablet, that device can triangulate its exact position. An exact device position supports wayfinding or any other function requiring exact user location. The following figure shows transmitting xPlayers.



Figure 62 - Deployed xPlayers

### 7.2 Beacon Standards and Platform Support

Three different beacon standards can be setup to transmit from xPlayers.

#### 7.2.1 iBeacons - Developed by Apple



Apple iBeacons are probably the most commonly deployed beacons. This is due, in large part, Apples early adoption of beaconing. The iBeacon format is publically known and therefore any hardware supporting BLE transmission can support iBeacon transmission. iBeacon packets simply contain a unique ID that can be used to signal devices to perform a location-specific task.

### 7.2.2 Eddystone UID Beacons - Developed by Google



Google Eddystone beacons come in different forms. The simplest is the Eddystone UID beacon. This beacon packet includes just a Unique ID that can be used on devices to perform a location-specific task - just like an iBeacon.

### 7.2.3 AltBeacon - Open Standard



AltBeacons were design to be more of an "open standard" than both iBeacons and Eddystone beacons. AltBeacons also simply transmit a unique ID that can be used to support a location-specific task.

Note that there is support for reception and processing of all 3 beacon types on virtually all mobile platforms including Apple iOS Tablets and Smartphones, Android Tablets and Smartphones, and even Windows Tablets and Smartphones.

### 7.3 Battery Operated wTags

Deviceworx has rebranded a Tag device that was built for one of our partners. This device is pictured below (next to a business card for scale).



Figure 63 - wTag

wTags have the following features:

- Simultaneous static iBeacon and Eddystone UID transmissions.
- Telemetry support (battery voltage and wTag temperature transmitted every 10 sec).
- IP65 rated enclosure for outdoor use.
- Mount plate. wTag clicks into the plate after it is easily screwed into place.
- Pushbutton to turn the unit on/off.
- LED for on/off status and indication of current battery voltage (1 to 4 clicks indicating 10, 25, 50, 75 % remaining).
- Specs:
  - Operating temp: -40 - 85 deg C (-40 to 185 deg F)
  - Battery Duration: 4 - 5 years.
  - Size: 65 mm wide x 65 mm deep x 29.2 mm height (2.55" x 2.55" x 1.15")
  - Weight: Approx 4 ounces (with battery)

## 7.4 wTag Setup and Use

### 7.4.1 Un-boxing

Remove the wTag from packaging. Remove the included mount plate by lifting the tab shown in the figure below and then pulling the plate sideways along the base of the wTag (directly up or North in the picture below).



Figure 64 - wTag with Mount Plate Installed

With the mount plate removed, the button (shown in Figure 65) will be accessible. Press and hold this button for 5 seconds to start the wTag. When it starts, the wTag LED will flash 4 times indicating full battery charge. The wTag is now transmitting. See Figure 63 for the location of the LED.

### 7.4.2 Battery Check via Button

To get an indication of the wTag battery voltage, simply push the wTag button momentarily. The LED will flash 0 to 4 times.

- 0 - The wTag has no battery life remaining.
- 1 - The wTag has 0% - 25% battery life remaining.
- 2 - The wTag has 25% - 50% battery life remaining.
- 3 - The wTag had 50% - 75% battery life remaining.
- 4 - The wTag has 75% - 100% battery life remaining.

### 7.4.3 Power On/Off

To disable the wTag transmissions, simply hold the wTag button for 5 sec. When transmissions stop (saving battery power and supporting wTag shipments) the LED will light up for 2 sec and then go off. Note that the battery check does not function when the wTag transmissions are off. To check wTag transmission status, simply press the button momentarily. If the LEDs do not flash, the wTag is not transmitting (assumes that the wTag has a battery that is not dead). To re-enable transmissions, simply press and hold the button for 5 sec. The LED will flash when the transmissions are re-enabled (number of LED flashes will indicate battery capacity remaining). Momentarily press the button again as required to execute a battery check and confirm that the wTag is transmitting.

### 7.4.4 Mounting

The wTag includes a mount plate. Mount this plate and then simply slide the wTag into it. The plate is shown in the pic below.



Figure 65 - wTag Showing Button

### 7.4.5 Batteries

The wTag ships with a battery that should last for 4 - 5 years (depending on operating temperature). If required (for some reason) replace the battery by purchasing a CR123A battery. CRITICALLY, purchase the following (tested and accredited) Energizer Lithium battery: EL123AP. This battery will function in the extended temp range of the wTag (-40 - 85 deg C) and it includes protective circuitry that ensures that the battery can never catch fire (even when shorted).

### 7.4.6 Telemetry Support

If transmitting, each wTag will broadcast an Eddystone TLM (telemetry) packet every 10 sec. Android devices near wTags can run any Eddystone TLM packet scanning app to view the wTag telemetry data. Conveniently, no wTag physical interaction is required to get data (i.e. button push). An e.g. app is "nRF Connect" at the Play Store. A screen cap from this app is below for a wTag with ID 0900:0020 (Device name may be wTag xxxx:xxxx or Pod xxxx:xxxx).

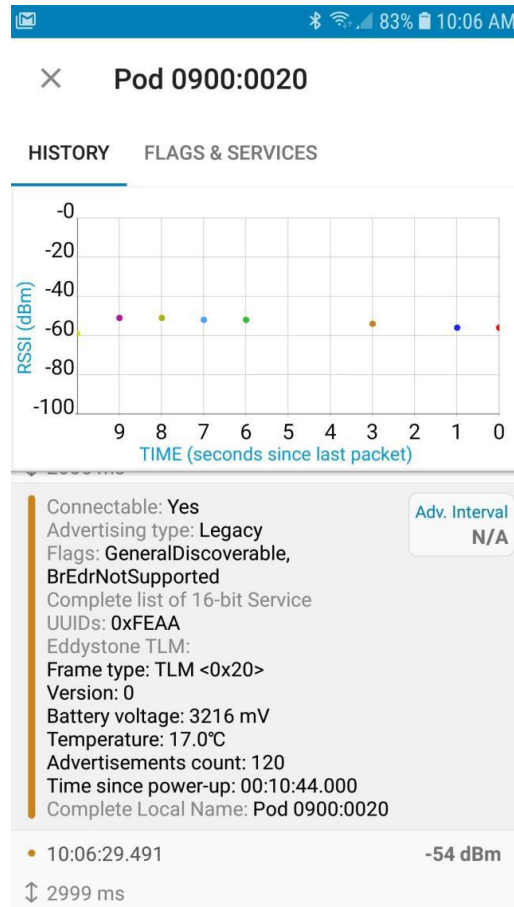


Figure 66 - TLM Packet View in nRF Connect

Note that the following wTag attributes are available within TLM - capable apps:

- wTag Name (includes its unique ID).
- wTag signal strength in dBm (indicates how far away a wTag is).
- How long the wTag has been powered from the same battery (i.e. at manufacturer setup).
- The number of beacon broadcasts sent (Adv count for all beacon types).
- The temperature inside the wTag enclosure.
- The mV level of the wTag battery. Note that a wTag is effectively dead when this drops below 2100 mV (2.1 Vdc).

### 7.4.7 xPlayer and wTag Differences

Operationally, the only difference between xPlayer beaconing and wTag beaconing is that the xPlayer beacon IDs are set within the dashboard and then xPlayers transmit whatever has been set. wTag beacon IDs are fixed. They never change and are printed on wTags. When a wTag is setup within the dashboard Beacon Manager, its exact ID must be entered before its attachments can be setup for Deviceworx Notifier app use. Because xPlayer IDs are controlled within the dashboard and



simply downloaded to xPlayers (as part of their configuration), IDs broadcast from xPlayers can be changed and scheduled. To do this, simply schedule Simple Campaigns, each with a selectable iBeacon, Eddystone UID beacon and Altbeacon.

## 7.5 xPlayer and wTag Beacons Features

### 7.5.1 Signal Custom Apps

Custom applications written for Apple iOS, Google Android or Windows can read the beacon IDs sent from xPlayers or wTags and take action according to the ID value. This is the case for all 3 beacon types transmitted from xPlayers wTags. Common actions include:

1. Show a screen that is related to the location associated with the received ID. The screen can show a retailer coupon or offer, product information or any other info that is location-specific.
2. Triangulate or use a mathematical model of beacon signal strengths (e.g. "fingerprinting"), or a combination of both, to determine user location indoors or outdoors with 2-3 meter accuracy. This supports user wayfinding (i.e. walking a user down a specific path or to a specific location), indoor mapping, location-specific gaming (e.g. Pokémon Go) or many other functions. Using beacons to determine user indoor location effectively gives apps GPS like accuracy in locations where GPS does not work. Such locations include any indoors environment, downtown corridors (urban canyons), e.t.c.

### 7.5.2 Google Nearby Notification Support

Google Eddystone UID beacons (not iBeacons or AltBeacons) support attachments that are defined within a Google Beacon Dashboard. When an Android phone with Nearby enabled (no iOS or other Operating Systems are supported) receives a UID beacon, it calls into the Google Beacon Dashboard and determines what attachment (if any) has been configured for the UID beacon. Attachments support launch of a web page within the Chrome browser or launch of any other Android app. If an attachment exists, a notification is created within the Phone's Notification Drawer. If the user selects the notification - the web page is shown within Chrome or the app is launched.

Operators wishing to use Google Nearby Notifications must configure and use the Google Beacon Dashboard themselves. Deviceworx had embraced use of Nearby Notifications with Google Beacon Dashboard integration, but has decided to abandon this approach because:

1. Experience proved that user enable of Google Nearby Notifications on Android devices proved very difficult (i.e. too many unfamiliar steps within Google Settings).
2. Google dramatically muted Nearby Notifications.
  - a. Notifications are not apparent to users unless they actively look for them within the Notification Drawer. No Notification Drawer icon is shown and no audio or vibration queues are provided when they are added to the Notification Drawer.
  - b. Notifications are not shown within lock screens
  - c. Notifications are not shown within Always-On displays.
3. Data records for Notification creation and selection are unavailable.
4. Apple support is unavailable - unless a custom iOS app supporting Nearby is used.

To address the limitations of Google Nearby Notifications, Deviceworx developed the Deviceworx Notifier apps for Android and Apple (described in a section that follows).

### 7.5.3 Deviceworx Notifier Integration

Deviceworx has developed Android and iOS apps to support notifying Android and Apple users when they come near an xPlayer or wTag. User selection of the notifications results in a web page display (within Chrome or Safari) or in an iOS or Android app launch. Notifier app benefits include:

1. Simple install and use. Users commonly install apps and therefore installation of the Notifier is easy. To find it, a Call-To-Action or CTA of "Search Dworx at Your App Store" can be displayed on traditional or digital signage near xPlayers. A one-time install to "opt-in" is all that is required. **Users do not have to run the Notifier as it is run in the background and is signaled when Android receives an Eddystone UID beacon or when Apple receives an iBeacon.**
2. Deviceworx Notifier notifications are very visible and apparent to users. They are displayed within the Always-On display, within the Lock Screen and within the Notification Drawer for user view at all times. When created, a wava file is played and vibration occurs. Notifications include xPlayer operator defined icons, labels and textual prompt and are hard to miss. See screen caps below.
3. Because the Deviceworx Notifiers are apps, they can store user actions along with the valuable Android for Advertising ID (AAID) and Apple ID for Advertising (IDFA) IDs within user data records. These records can track which Notifications have been shown to users (impressions) and which notifications users have "clicked through".

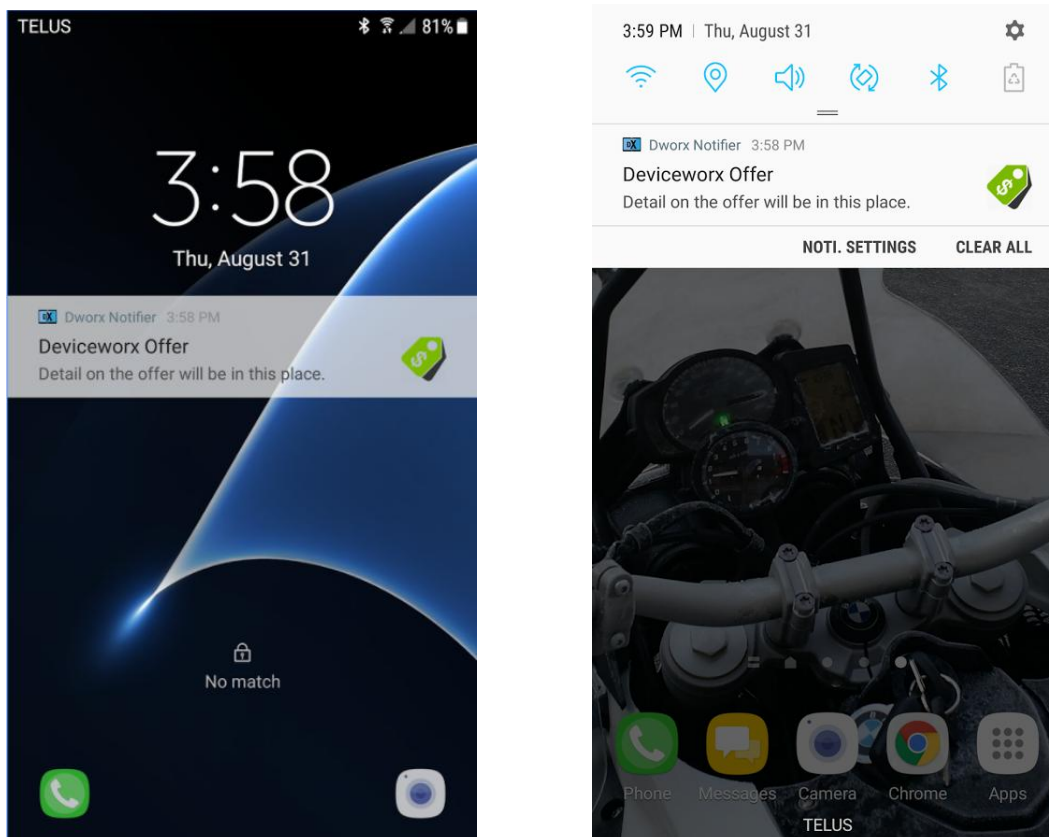


Figure 67 - Notification on Lock Screen (Left) and within Notification Bar (Right)





### *7.5.3.1 Notifier Apps - White Labeled*

Operators are not restricted to using the Deviceworx Notifier apps. Deviceworx can work with operators to either:

1. Rebrand the Deviceworx Notifier to align with the operators corporate branding. Operators can then distribute their own iOS and Android apps to handle notification of users when they come near xPlayers (e.g. The Deviceworx Notifier apps could be rebranded to an Acme Notifier iOS app and Acme Notifier Android app).
2. Update existing operator apps to include all of the functionality, supporting beacon interactions, that exists within the Deviceworx Notifier apps. This can even include background operation.

### 7.5.4 Wallet Pass Notifications and Wallet Launch

The xPlayer and Deviceworx Notifier apps have both been designed to work with the Apple Wallet app (preinstalled on all iOS devices) and 3rd Party Android Wallet app called Pass2U. The supported apps display Wallet coupon passes. xPlayer beacons can be configured to automatically launch the Apple Wallet or Pass2U wallet and automatically display a specific coupon pass whenever a user Smartphone receives the beacon. **Importantly - the Wallet does not even need to have the coupon pass pre-loaded.** The coupon pass can be downloaded automatically if it does not exist within the Wallet.

See this Apple description of Wallet passes including coupon passes, boarding passes, e.t.c. and how passes are distributed to user wallets and controlled within those wallets:

[Apple Wallet Pass Overview](#)

Coupons include a configurable icon (typically a logo), promotional graphic, background color, barcode and a variety of labels that can describe coupon value, validity period and other offer details. By selecting the info icon (i) the back of a coupon pass can be viewed by the user. Selecting a "DONE" button on the back shows the coupon pass front again. The back typically contains coupon pass details including terms and conditions and can even include a web link to additional promotion or product details. See the example xPlayer coupon pass within the figure below.

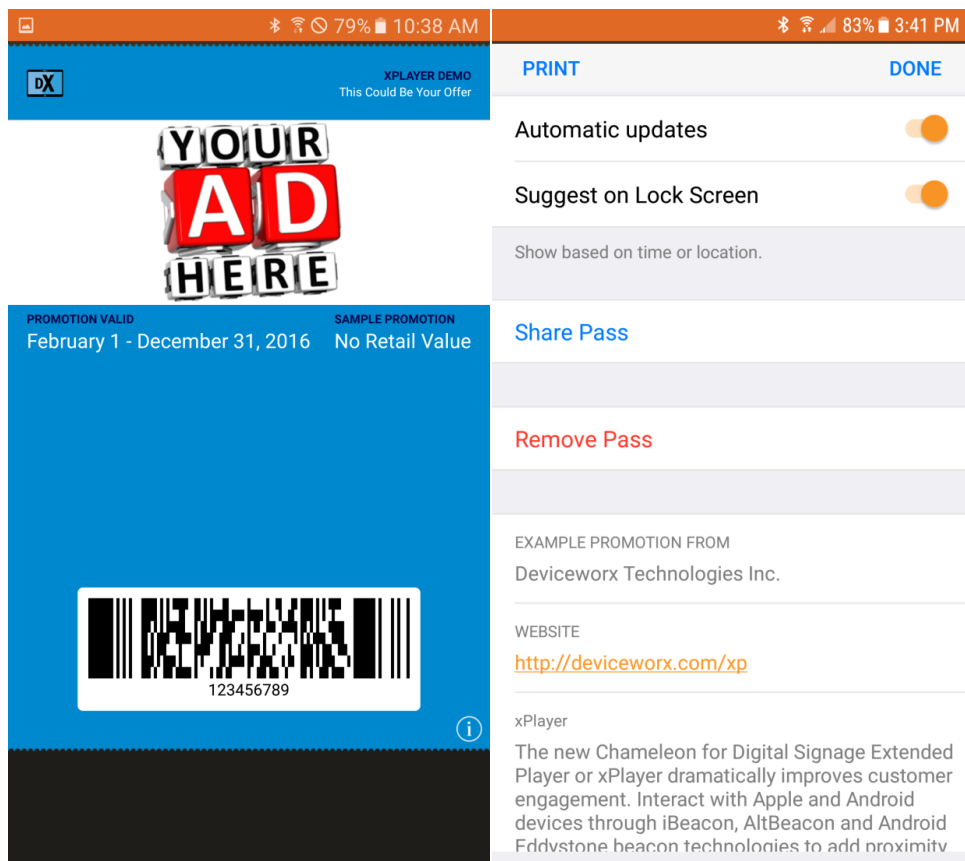


Figure 68 - Example Coupon-Style Wallet Pass (front on left and back on right)



To facilitate xPlayer operator creation of coupon wallet passes, Deviceworx has developed an online tool. See [Appendix D - Online Wallet Coupon Pass Creator](#) for details on how to access and use this valuable tool. Note that a nominal license fee applies to creating coupons, but there is no limit to the number of times that each coupon can be downloaded used by xPlayer operator customers. Further note that the xPlayer can be used with other passes including loyalty passes.

### 7.5.5 Beacon Attachments

To support launch of web content within browsers or launch of apps, beacon attachments are used. Whenever a beacon is received by the Deviceworx Notifier apps, they poll a server to "lookup" the action to take on the iOS or Android device corresponding to the beacon ID received. With this knowledge, the apps can create a notification to prompt the device user that an action is possible. If the user selects this notification the action (web or app launch) occurs.

Attachments are configured along with all other beacon attributes within the Beacon Manager.

Note that Google Nearby support also leverages attachments, but only for secure web content (over https) and only for Android browsers and apps. No such limitations exist when using the Deviceworx Notifier apps (i.e. other custom apps and any web content can be supported on both Android and iOS devices).

## 7.6 Beacon Manager Use

Beacons are created and configured within the Beacon Manager. Select the "Beacon Manager" menu item to open the Beacon Manager form as shown below.

**CHAMELEON FOR DIGITAL SIGNAGE**

Device   Ad Manager   **Beacon Manager**   Administration   Report   Pass Creator   Sign Out

**Beacon Type**

iBeacon

Beacon Filter

xPlayer Coupon

Add   Delete

### Campaign Beacon Parameters

Enter values for beacon functionality below. Note that beacons are only supported on Chameleon xPlayer platforms. Consult user documentation for detail on how beacons are used.

**Name**

Beacon Name

Add

iBeacon ID	iBeacon Major	iBeacon Minor
<i>Must be 32 alphanumeric characters from 0 to F representing 16 bytes.</i>	<i>Must be number from 0 to 65535.</i>	<i>Must be number from 0 to 65535.</i>
094c9267f1f946efa5226c0afa5e7908	0	7778

Figure 69 - Beacon Manager Open

Each of the beacon types can be selected from the Beacon Type list box. After selection, all beacons of the selected type will be listed below.

Initially, and whenever the "Add" button is pressed, new beacon parameters can be entered on the right side of the Beacon Manager form. If any beacon is selected, its parameters are shown on the right.

Deviceworx will assign default iBeacon ID, iBeacon Major, iBeacon Minor, Eddystone UID Namespace, Eddystone UID Instance and AltBeacon ID values to new beacons. To create new beacons, simply add to these values. For iBeacons, simply increment the iBeacon Major or Minor values for each newly created iBeacon. For Eddystone UID beacons, simply increment the Eddystone UID Instance value for each new UID beacon. For AltBeacons, simply increment the AltBeacon ID.

Critically - each new beacon added will need beacon values to be unique. Not each beacon value, but at least 1 beacon value. For example, when adding an iBeacon, ensure that either the Major or Minor value is different than other beacons.

## 7.7 Adding Beacons

Select the required "Beacon Type" and then the "Add" button below the beacon list to add a new beacon of the selected type. Enter a beacon "Name" value and change at least of the beacon ID values. It is simplest to increment only 1 ID value from the previous value used when creating the last beacon of the same type. Select "Add" (below the "Name") to store initial beacon values. An example Eddystone UID beacon with value is shown below.

The screenshot shows the 'Beacon Manager' interface for 'CHAMELEON FOR DIGITAL SIGNAGE'. The navigation bar includes 'Device', 'Ad Manager', 'Beacon Manager', 'Administration', 'Report', 'Pass Creator', and 'Sign Out'. On the left, there is a 'Beacon Type' dropdown set to 'Eddystone UID', a 'Beacon Filter' input, and a list of beacon types including 'xPlayer Wallet Coupon' and 'xPlayer Web Page'. Below the list are 'Add' and 'Delete' buttons. The main content area is titled 'Campaign Beacon Parameters' and contains instructions: 'Enter values for beacon functionality below. Note that beacons are only supported on Chameleon xPlayer platforms. Consult user documentation for detail on how beacons are used.' The 'Name' field contains 'xPlayer Wallet Coupon' and has a 'Save' button below it. Below this is the 'Eddystone UID Beacon Ids' section, which has two input fields: 'Eddystone UID Namespace' (containing '0011223344556677889a') and 'Eddystone UID Instance' (containing '001122334462'). A 'Register' button is located below these fields, with the text 'Register This Beacon To Support Attachments' underneath.

Figure 70 - Newly Added Eddystone UID Beacon

In the example above, the new beacon Instance was incremented from 001122334461 (previously created UID beacon Instance) to 001122334462. Note that after a beacon has been added, the form changes to show a "Save" button instead of an "Add" button. Use this button to store edits. Also note that a "Register" button is shown after a beacon is added. This button can be used to register a beacon to support attachments. Registration and attachments are discussed in sections following.

The Added beacon is now selectable within Simple Campaigns. The Name provided will be listed within the Simple Campaign form. When the Simple Campaign is run, the beacon will be broadcast.

No further beacon setup is required for AltBeacons. No further setup is required for iBeacons or Eddystone UID beacons if those beacons will simply be used within custom apps. To use beacons with the Deviceworx Notifier apps, attachments will be required as discussed within sections following.

## 7.8 Deleting Beacons

To delete a beacon, simply select it within the list and hit the "Delete" button below the list.

## 7.9 Registering iBeacons and Working with Attachments

Registering iBeacons with the Google server and then adding attachment details facilitates iOS launch of apps or the Safari browser to show a specific web page. iOS devices receiving the beacons will launch the Deviceworx Notifier app and the Notifier will look up attachment data within the Google server and create a notification on the iOS device using returned data. When the iOS user selects the notification, an app is launched or Safari is launched to show a specified web URL.

Registration of an iBeacon within the Google server is easy. Simply select the "Register" button (above "Register This Beacon to Support Attachments"). A pop up message ("Beacon Registered to Google Successfully") will be shown. When the iBeacon is registered its ID values will no longer be editable (ID values edit boxes will change to gray) and the label "This beacon has been registered and supports an attachment" will be visible as shown in the figure below.

The screenshot shows the 'Beacon Manager' interface for 'CHAMELEON FOR DIGITAL SIGNAGE'. The navigation bar includes 'Device', 'Ad Manager', 'Beacon Manager', 'Administration', 'Report', 'Pass Creator', and 'Sign Out'. On the left, there is a sidebar with 'Beacon Type' set to 'iBeacon', a 'Beacon Filter' box, and a list of beacon types: 'xPlayer Coupon' and 'xPlayer Web Page'. Below the list are 'Add' and 'Delete' buttons. The main content area is titled 'Campaign Beacon Parameters' and contains a text input field with 'xPlayer Web Page' and a 'Save' button. Below this, the 'iBeacon' section shows three fields: 'iBeacon ID' (094c9267f1f946efa5226c0afa5e7908), 'iBeacon Major' (0), and 'iBeacon Minor' (7788). A green message at the bottom states: 'This beacon has been registered and supports an attachment.'

Figure 71 - Newly Registered iBeacon

Scrolling down within the Beacon Manager form will show additional iBeacon "Attachment Details" controls that are used to specify what information will be provided within the notification that results when the beacon is received on an iOS device and what action will be taken when this notification is selected by the user. These controls are shown within the figure below.

The screenshot shows the 'Beacon Manager' interface for 'CHAMELEON FOR DIGITAL SIGNAGE'. The navigation bar includes 'Device', 'Ad Manager', 'Beacon Manager', 'Administration', 'Report', 'Pass Creator', and 'Sign Out'. On the left, under 'Beacon Type', 'iBeacon' is selected. Below it is a 'Beacon Filter' field and a list of beacon types: 'xPlayer Coupon' and 'xPlayer Web Page'. At the bottom left are 'Add' and 'Delete' buttons. The main area is titled 'Attachment Details' and contains several fields:
 

- Title:** 'xPlayer Web Content' (Max 64 Characters)
- Text:** 'View details within the xPlayer web page.' (Max 64 characters)
- Package Name:** 'N/A' (For now, it's not used)
- Package Extra:** 'https://www.deviceworx.com/xp/' (For example, the uri to a pass when we launch chrome or Pass2U)
- Stats Campaign Name:** 'Afternoon Specials' (Name of the campaign)
- Large Icon:** 'ic\_coupon1' (ID to a large icon within the app resource base)
- Reminder:** '10' (Number of minutes between Notification Drawer ads)

 An 'Update Attachment Details' button is at the bottom center.

Figure 72 - iBeacon Attachment Data

Attachment Details follow:

**Title:** A 2-5 word descriptor for the offer. In the [Figure 73](#) below, this is "Deviceworx Offer".

**Text:** A short phrase detailing the offer. In the [Figure 73](#) below, this is "Detail on the offer will be in this place".

**Package Extra:** This is additional information that is provided to a launched app. Specifying a simple URL beginning with http:// or https:// will stipulate that Safari will be launched and show the web page at the URL ("https://www.deviceworx.com/xp/" in the example [Figure 72](#) above). Detail describing options within this field to launch different apps is below ([7.9.1 - iOS Application Launching](#)).

**Stats Campaign Name:** This text label will be stored with impression and click-through data records. It provides a means of grouping records and associating them (optionally) with the campaign that is running on the xPlayer screen.

**Large Icon:** The icon shown within the notification (e.g. in [Figure 73](#) below) can be selected from a list of icons. See [13 - Appendix C - Selectable Notification Icons](#) for icon graphics along with their corresponding id for selection.

**Reminder:** How many minutes to wait before generating additional notifications when users persist within xPlayer broadcast range. iOS devices vibrate and play a sound when notifications are generated. To avoid annoying users - set a reminder delay of 5 minutes or more.



Figure 73 - Reference iOS Notification

### 7.9.1 iOS Application Launching

The "Package Extra" field specifies which application is to be launched when a notification is selected. This field also provides extra data that the app can use to perform a specific task after launch. The "Package Extra" field simply includes an Apple URL Scheme and nothing else. An Apple Developer overview of available schemes is available [here](#). Built in apps that can be launched include the Apple Wallet, Apple Safari browser, Apple Maps and others.

### 7.9.2 Wallet Launch

To launch Apple Wallet and specify a coupon to open after Wallet launch, utilize the following URL Scheme:  
shoebox://<Pass Serial Number>/<encoded path to the pass file online>

Note that the Pass Serial Number is available within .pkpass files. When the pkpass file is created using the Deviceworx Online Wallet Coupon Pass Creator, the Pass Serial Number is displayed within this tool. See [14 - Appendix D - Online Wallet Coupon Pass Creator](#) for details.

Here is an example URL Scheme:

shoebox://2016-dworx-28-47/https%3A%2F%2Fdworx.co%2Fpasses%2FDWorxC1.pkpass

Note that the Apple Wallet expects a .pkpass URL to include "percent encoded" characters (e.g. %3A denotes ':' and %2F denotes '/').

### 7.9.3 Safari Launch

To launch Safari and display a web page, simply provide a URL to the web page (e.g. <http://www.offers.ca/Offer1.html>).

### 7.9.4 Custom App Launch

To launch your own custom Apple app, the app must register a Custom URL Scheme within iOS. Then, the Deviceworx Notifier app can launch your custom app, just like it launches Apple Wallet and Safari. This Custom URL Scheme can include extra data that is specified within the Beacon Manager "Package Extra" field to trigger specific app behaviour when it is launched. For example, a string identifying the currently active promotion (e.g. "Holiday Specials") can be supported with Custom URL Scheme registered by your custom app and described by the "Package Extra" field and can be used to tell the app which promotion to show automatically after launch.

Contact Deviceworx technical support for example iOS app code that supports launch from iBeacons broadcast from xPlayers ([support@deviceworx.com](mailto:support@deviceworx.com))



## 7.10 Registering Eddystone UID Beacons and Working with Attachments

Registering Eddystone UID beacons with the Google server and then adding attachment details facilitates Android launch of apps or the Chrome browser to show a specific web page. Android devices receiving the beacons will run the Deviceworx Notifier app within the background and signal this app with received beacon data. Then, the Notifier will look up attachment data within the Google server and create a notification on the Android device using returned data. When the Android user selects the notification, an app is launched or Chrome is launched to show a specified web URL.

Registration of an Eddystone UID beacon within the Google server is easy. Simply select the "Register" button (above "Register This Beacon to Support Attachments"). A pop up message ("Beacon Registered to Google Successfully") will be shown. When the Eddystone UID beacon is registered its ID values will no longer be editable (ID values edit boxes will change to gray) and the label "This beacon has been registered and supports an attachment" will be visible as shown in the figure below.

The screenshot shows the 'Beacon Manager' interface for 'CHAMELEON FOR DIGITAL SIGNAGE'. The navigation bar includes 'Device', 'Ad Manager', 'Beacon Manager', 'Administration', 'Report', 'Pass Creator', and 'Sign Out'. On the left, the 'Beacon Type' is set to 'Eddystone UID' and the 'Beacon Filter' shows 'xPlayer Coupon' and 'xPlayer Web Page'. The main area is titled 'Campaign Beacon Parameters' and contains a text input field for 'Name' with the value 'xPlayer Coupon' and a green 'Save' button. Below this, the 'Eddystone UID Beacon Ids' section shows two fields: 'Eddystone UID Namespace' with the value '0011223344556677889a' and 'Eddystone UID Instance' with the value '001122334462'. A green message at the bottom states: 'This beacon has been registered and supports an attachment.'

Figure 74 - Newly Registered Eddystone UID Beacon

Scrolling down within the Beacon Manager form will show additional Eddystone UID beacon "Attachment Details" controls that are used to specify what information will be provided within the notification that results when the beacon is received on an Android device and what action will be taken when this notification is selected by the user. These controls are shown within the figure below.

The screenshot shows the 'Beacon Manager' interface for 'CHAMELEON FOR DIGITAL SIGNAGE'. The 'Beacon Type' is set to 'Eddystone UID'. The 'Attachment Details' form includes the following fields:

- Title:** Deviceworx Coupon (Max 64 Characters)
- Text:** View the Eg Deviceworx Coupon in the Pass2U Wallet (Max 64 characters)
- Package Name:** com.passesalliance.wallet (For now, it's hardcoded to Chrome)
- Package Extra:** pass2u://pass.com.dworx.coupon/20C9D0648696-20C9D0648697-dworx/htt (For example, the url to a pass when we launch chrome or Pass2U)
- Stats Campaign Name:** Evening Specials (Name of the campaign)
- Small Icon:** ic\_launcher (ID to a small icon within the app resource base)
- Large Icon:** ic\_offer (ID to a large icon within the app resource base)
- Reminder:** 5 (Number of minutes between Notification Drawer adds)

Buttons for 'Add', 'Delete', and 'Update Attachment Details' are visible at the bottom of the form.

Figure 75 - Eddystone UID Beacon Attachment Data

Attachment Details follow:

**Title:** A 2-5 word descriptor for the offer. In the Figure 76 below, this is "Deviceworx Offer".

**Text:** A short phrase detailing the offer. In the Figure 76 below, this is "Detail on the offer will be in this place".

**Package Name:** This is Android application package name. In the example above (Figure 75), the Pass2U Android Wallet app will be launched by its public package name ("com.passesalliance.wallet"). This Android wallet app displays coupon style passes that are created for the Apple Wallet - in the same way as the Apple Wallet.

**Package Extra:** This is additional information that is provided to a launched app. The Pass2U app has been designed to use extra data in the following format:

<scheme><passTypeIdentifier>/<serialNumber>/<pathToFile>

The following example (from the example above in Figure 75) shows:

pass2u://pass.com.dworx.coupon/20C9D0648696-20C9D0648697-dworx/https%3A%2F%2Fdworx.co%2Fpasses%2FDWorxC1.pkpass

Detail describing options within this field to launch Pass2U and other apps is below (7.10.1 - Android Application Launching).

**Stats Campaign Name:** This text label will be stored with impression and click-through data records. It provides a means of grouping records and associating them (optionally) with the campaign that is running on the xPlayer screen.

**Small Icon:** The small icon shown within the notification (e.g. in [Figure 76](#) below) can be selected from a list of icons. See [13 - Appendix C - Selectable Notification Icons](#) for icon graphics along with their corresponding id for selection.

**Large Icon:** The large icon shown within the notification (e.g. in [Figure 76](#) below) can be selected from a list of icons. See [13 - Appendix C - Selectable Notification Icons](#) for icon graphics along with their corresponding id for selection.

**Reminder:** How many minutes to wait before generating additional notifications when users persist within xPlayer broadcast range. Android devices vibrate and play a sound when notifications are generated. To avoid annoying users - set a reminder delay of 5 minutes or more.

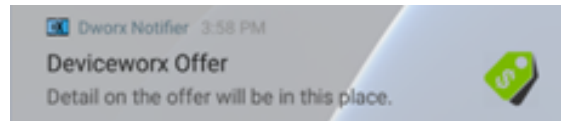


Figure 76 - Reference Android Notification

### 7.10.1 Android Application Launching

The "Package Name" field specifies which application is to be launched when a notification is selected. Enter the application package name into this field (e.g. "com.mycompany.myapp"). The "Package Extra" field provides extra data to the application that it can use to perform a specific task after launch.

#### 7.10.1.1 Pass2U Launch

To launch the Pass2U Wallet and specify a coupon to open after Wallet launch, utilize a "Package Name" of "com.passesalliance.wallet" and a Package Extra field with the following format:

```
<scheme><passTypeIdentifier>/<serialNumber>/<pathToFile>
```

The <scheme> for the Pass2U app is always "pass2u://".

The <passTypeIdentifier> is always "pass.com.dworx.coupon". This is how the app identifies that it is processing a Deviceworx pass which includes a serial number and pass file download link (in case the pass does not exist within the Wallet).

The <serialNumber> is a unique number generated when the pass file (pkpass) is created (E.g. "20C9D0648696-20C9D0648697-dworx"). Pass2U checks to see if a pass with this serial number exists within the Wallet to display it (no pass file download required). Note that the pass Serial Numbers are available within .pkpass files. When the pkpass file is created using the Deviceworx Online Wallet Coupon Pass Creator, the pass Serial Number is displayed within this tool. See [14 - Appendix D - Online Wallet Coupon Pass Creator](#) for details.

The <pathToFile> is a web URL identifying where the pass file can be downloaded from if it has not already been loaded within the wallet (E.g. "https%3A%2F%2Fdworx.co%2Fpasses%2FDWorxC1.pkpass").

Note that the Pass2U Wallet expects a .pkpass URL to include "percent encoded" characters (e.g. %3A denotes ':' and %2F denotes '/'). Pass2U will try to download the pass file from this path or URL if the pass is not loaded.

#### 7.10.1.2 Chrome Launch

To launch Chrome, always specify a "Package Name" of "com.android.chrome/com.android.chrome.Main" and specify the web page URL that Chrome should display within the "Package Extra" field (E.g. "https://www.deviceworx.com/xp/").



### 7.10.2 Custom App Launch

Contact Deviceworx technical support for example Android app code that supports launch from Eddystone UID beacon broadcast from xPlayers ([support@deviceworx.com](mailto:support@deviceworx.com))

### 7.11 Updating Beacons

Update or save beacon "Name" and ID values using the "Save" button provided. Note that "Save" does not update attachment data as this data is stored within the Google server.

Update beacon attachment data by selecting the "Update Attachment Details" button. This will save updates within the Google server. Note that this button does not save beacon "Name" and ID values.

## 8 Dashboard Signage Play Reports Tab

C4DS supports the display and export of reports that show when ads have played. Reports can be generated for single devices, or a collection of devices within a department, a site, a division or system wide. Importantly, play records within reports are only generated in devices after an ad has actually played and not simply based on ad playback scheduling. For this reason, reports can be used to bill for advertising as "proof of play" reports.

Note that it takes approximately 1 hour to see report data update after plays occur on xPlayers. This is due to required data aggregation steps within the dashboard. These steps reduce report generation time considerably.

To generate a report, select the "Report" tab within the blue dashboard header. Next, select filtering to stipulate which records to include within the report. Filtering supports selection of the report timezone, the timeframe within the selected timezone, which devices to report on and (optionally) how to breakdown report results. After selecting filter values, select "View Report" to see results. The top of an example report showing a year of data for selected device "Cashier Station" is provided below (breakdown cutoff).

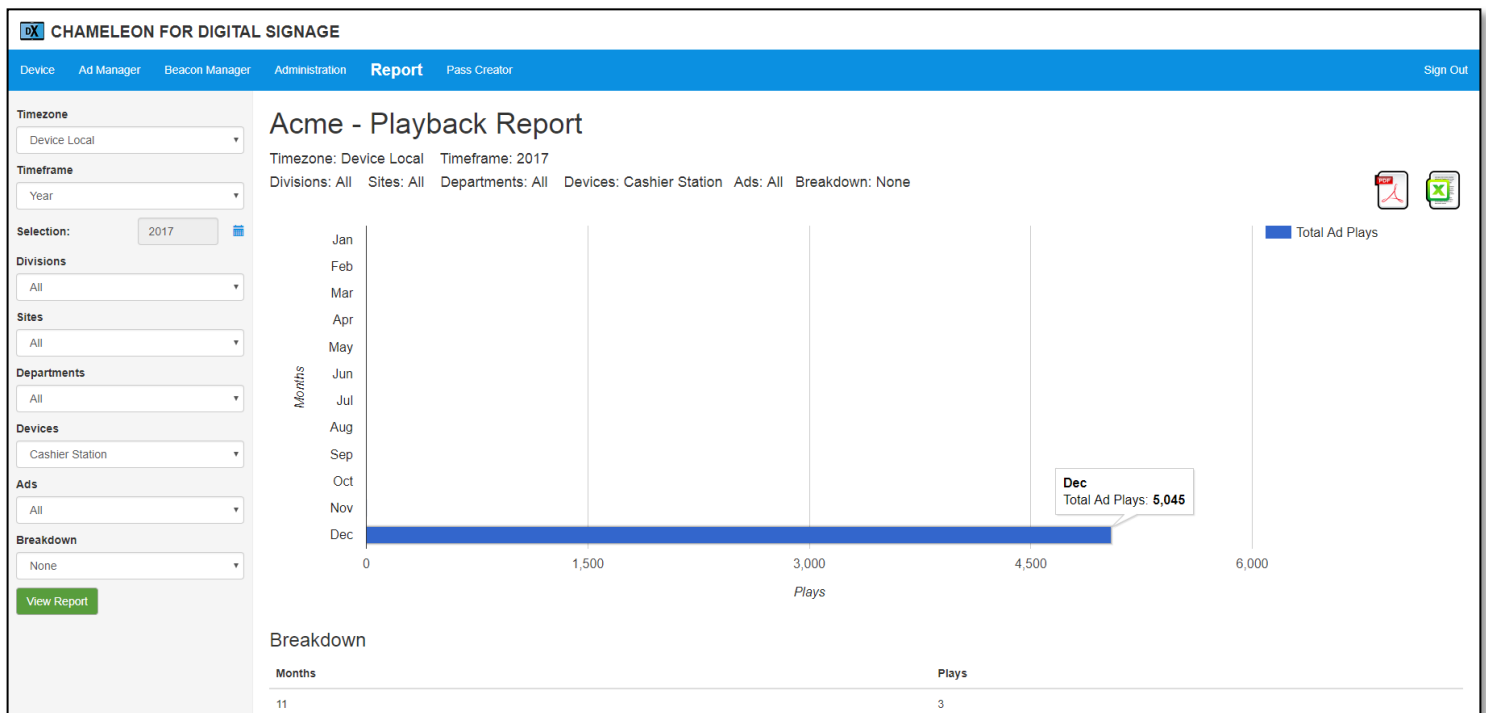


Figure 77 - Example Playback Report for all Devices in a Year

Note that the example above shows a callout window with Dec 2017 results. This callout appears whenever the mouse pointer is over on the "Dec" bar. Callout details include the "Total Ad Plays:" for the month. A total for each month is shown at the bottom of the report as a default "Breakdown". The default "Breakdown", when no user "Breakdown" selection is made, will be a smaller unit of time than the selected "Timeframe" (i.e. "Breakdown" of months for a "Timeframe" of "Year", "Breakdown" of days for a "Timeframe" of "Month" and "Breakdown" of hours for a "Timeframe" of "Day").

After report generation, results may be exported into a PDF file or Microsoft Excel file.

## 8.1 Report Filtering

Each report filter is detailed below. It is simplest to select filters from the top down.

### 8.1.1 Timezone

Report results may be generated using 1 of 3 timezones filter values.

- "Device Local" - Play data records are selected within a timeframe described by each device's local time.
- "Greenwich Mean Time" - Records are selected within a timeframe described by Greenwich Mean Time or GMT.
- "Customer" - Records are selected within a timeframe described by the timezone specified for the customer (i.e. head office timezone).

The figure below shows different timeframe boundaries used to select data records for a report when the timezone filter assumes each of the filter values above for the same timeframe (Day of Jan 11).

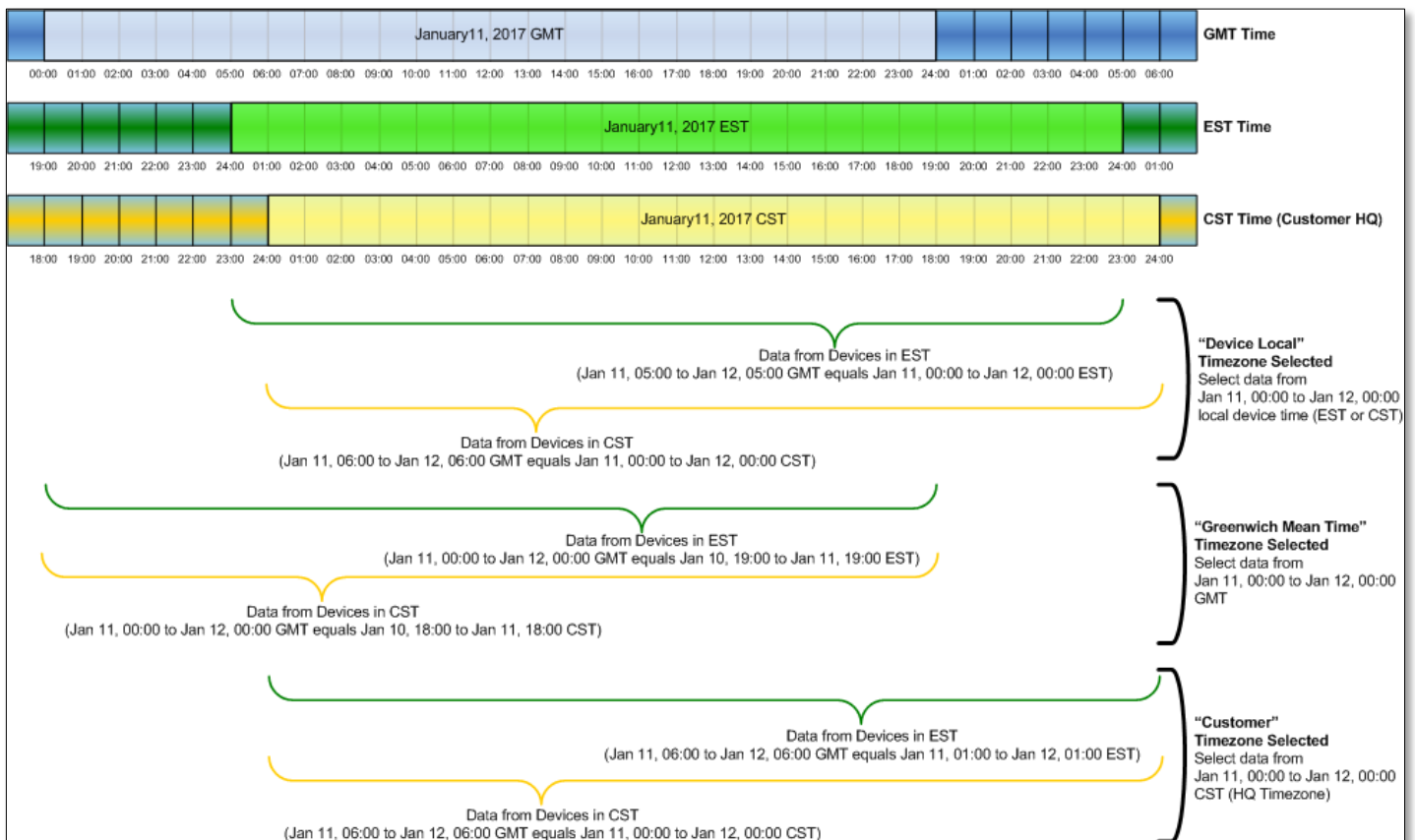



Figure 78 - Timezone Selection Example

In the example above, the midnight (00:00 on Jan 11) to midnight (00:00 on Jan 12) bounds of Jan 11 vary depending on which timezone filter value is selected. If "Device Local" is selected, data records within each devices local time (midnight to midnight) are used. If "Greenwich Mean Time" is selected, midnight to midnight GMT is used (5 hours earlier local time for Eastern Standard Time or EST player devices and 6 hours earlier local time for Central Standard Time or CST player devices). In this example, the customer timezone has been defined as CST during customer setup. When the "Customer" filter value is selected, midnight to midnight CST is used.

### 8.1.2 Timeframe

A timeframe of "Year", "Month", "Day" or "Custom" can be selected. Each of these choices are detailed below.

1. "Year"- Play data records for a chosen year will be included within the report. Select  to open a year picker and choose a year. An example year picker is below (defaults to the current year).

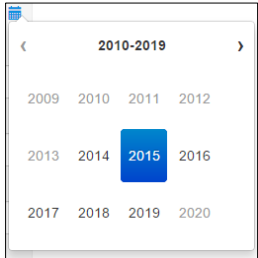



Figure 79 - Timeframe Year Picker

2. "Month" - Play data records for a chosen year will be included within the report. Select  to open a month picker and choose a month. An example month picker is below (defaults to the current month).

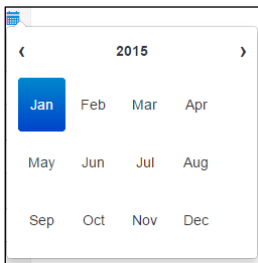



Figure 80 - Timeframe Month Picker

3. "Day" - Play data records for a chosen day will be included within the report. Select  to open a date picker and choose a date. An example date picker is below (defaults to the current date).

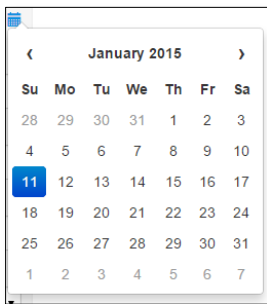




Figure 81 - Timeframe Date Picker

4. "Custom" - Supports generation of a report with timeframe bounds that are set explicitly. After selecting "Custom", 2 date and time pickers will be available for selection (see [Figure 54](#) and [Figure 55](#) for example views of a date and time picker). Select the top  to open a picker that supports choosing the timeframe start. Select the bottom  to open a picker to choose timeframe end. Selected timeframe boundaries (selected to the minute) will be displayed as shown in the example below (reports play data records from 14:10 to 15:20 on Jan 11, 2015).

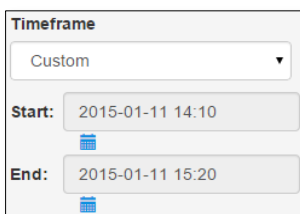


Figure 82 - Timeframe Custom Boundaries



### 8.1.3 Scope of xPlayer Devices

Filters support which xPlayer devices contribute data to reports. By default, data is included from all customer xPlayers regardless of division, site, or department assignment (if assigned at all). Filter controls support selection of xPlayers within a single division, single site, single department or even selection of a single xPlayer device.

To include xPlayer data from all devices within a single division, select the division within the "Divisions" list.

To include data from all xPlayers within a single site, select the division in which the site resides (within the "Divisions" list). Next, select the site within the "Sites" list.

To include data from all xPlayers within a single department, select the division and site in which the department resides (within the "Divisions" and "Sites" lists respectively). Then, select the department within the "Departments" list.

To include data from a single xPlayer that is not assigned to any division, site or department, simply select the device from the "Devices" list. To include data from a xPlayer that is assigned to a division, site or department, select the appropriate division, site and department and then select the xPlayer from "Devices".

### 8.1.4 Scope of Ads

By default, playback records for all ads are displayed within reports. Users can limit reports to single ads by selecting an ad within the "Ads" list.

Available ads for a selection within the Ads list will be all customer ads that have played at any time in the past. The list contents are not updated based on other filter values.



### 8.1.5 Report Breakdown Options

By default, reports show play totals for each hour of a selected day or each day of a selected month, or each month of a selected year.

If a custom report timeframe is selected that is less than a day, totals for each hour are shown and if a custom report timeframe that is less than a month is selected, totals for each day are shown. Otherwise, totals for each month are shown.

In all cases, by default, the total of all plays are shown. As an option, users can view a breakdown the total shown for each hour, day or month. This breakdown will show sub-totals for contributing divisions, sites, departments, devices or ads that make up the total. For example, if a "Breakdown" list selection of "Devices" is made and a report is generated for a day, the sub-total for each xPlayer device within each hour will be shown along with the hourly totals as below.

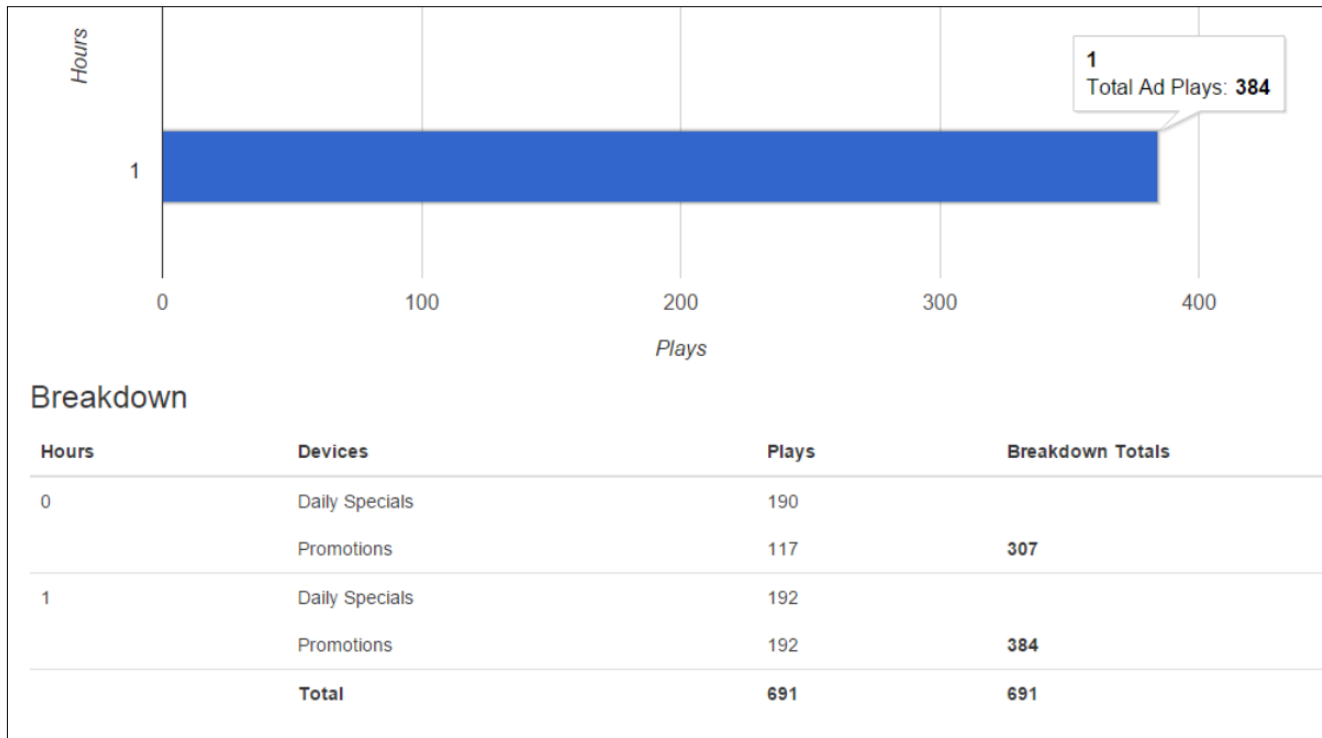


Figure 83 - Report Breakdown Example

In the example report element above, hour "1" within the reported date (1 AM to 2 AM) has 384 total plays. A "Breakdown" on "Devices" has been selected. The contribution from each xPlayer device to the totals is then shown. For hour "1", the "Daily Specials" xPlayer registered 192 plays and the "Promotions" xPlayer also registered 192 plays. The total plays for the hour was 384. This total is also shown by the callout on the hour "1" bar in the chart above.

Breakdown sub-totals within reports are an effective tool for comparing different divisions, sites, departments, xPlayer devices or ads.



## 8.2 Report View

The figure below shows a report view created on December 12, 2017 for that date and selected xPlayer "Cashier Station".

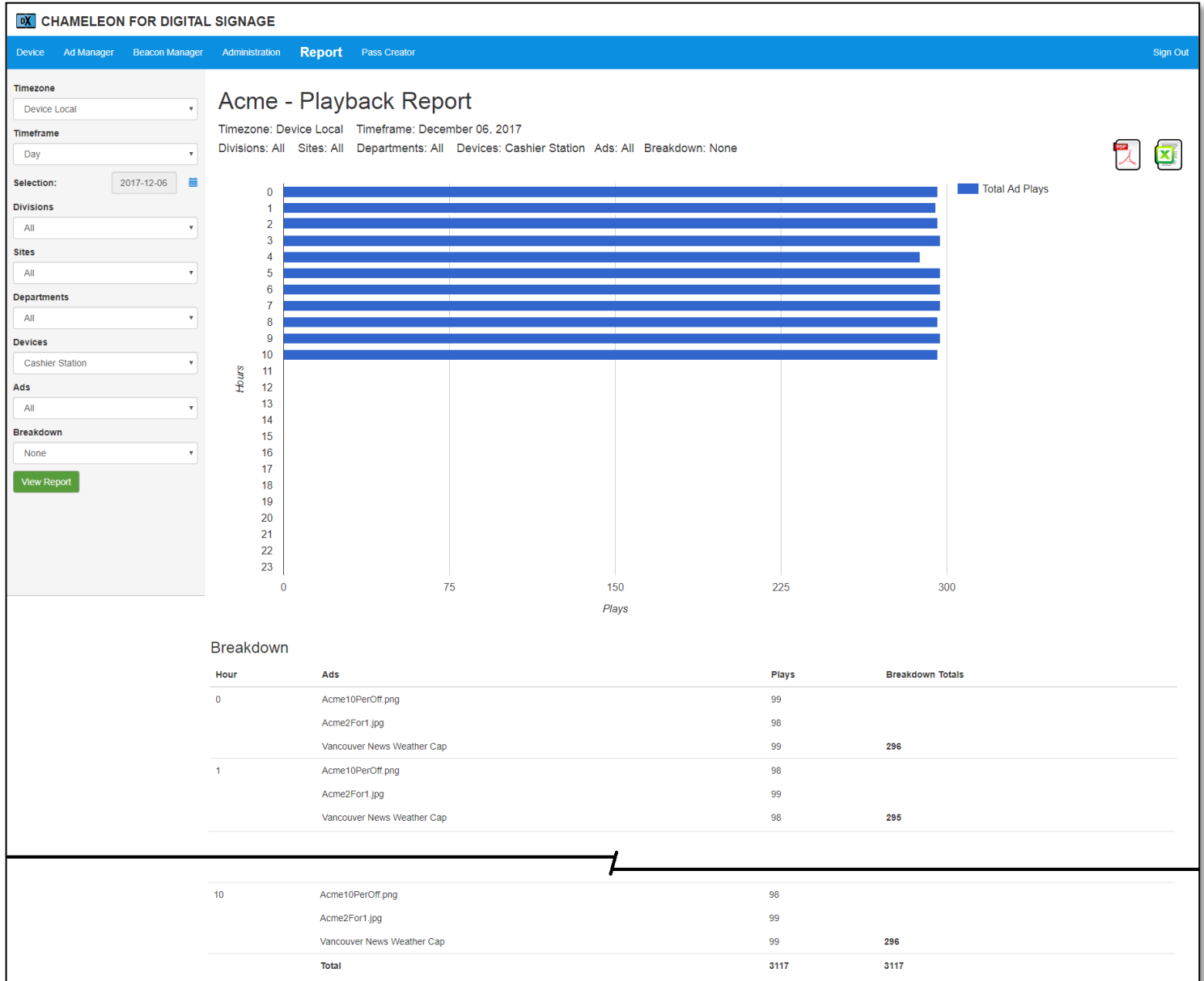


Figure 84 - Report View

At the top of the report, within its header, all filter values used to generate the report are shown.


To the right of the header are icons supporting export to PDF or Microsoft Excel files (discussed in sections that follow).

Below the header, a bar graph shows data. Moving the mouse pointer over any bar will show a callout with a bar total.

Below the bar graph, raw data is shown along with any selected (optional) breakdown for hours ("Timeframe"="Day"), days ("Timeframe"="Month") or months ("Timeframe"="Year"). A grand total ("**Total**") is shown at the bottom of raw data.



### 8.3 Exporting Reports to PDF Files

Select the  icon that is to the right of the report view header to export the report view to a pdf file. Pdf file support is ubiquitous. These files can be opened by almost every PC. Export to a pdf whenever a report view needs to be shared with others. [Appendix A - PDF Export Example Pages](#) within this document shows an example pdf export that corresponds to [Figure 84 - Report View](#).

The name of the pdf file includes the customer name with GMT date and time. The example file name:

acme\_inc.\_150114194908538.pdf

... may be broken down as:

acme\_inc.\_yymmddhhmmsslll where yy=year, mm=month, dd=day, hh=hour, mm=minute, ss=second, lll=millisecond.

This naming convention ensures that names of exported pdf files are unique.

### 8.4 Exporting Reports to Microsoft Excel Files

Select the  icon that is to the right of the report view header to export the report view to a Microsoft Excel .xlsx file. .xlsx files can be opened by Microsoft Excel version 2007 and later. Export to a .xlsx to generate custom reports using reported data. All raw data, breakdown data and totals are exported into individual cells for use within custom reports. As a starting point, 2 tabs are created within each .xlsx file. A "C4DS Plays Report" tab includes report header data, a bar graph and cells that include bar graph values. A "C4DS Breakdown Report" tab includes raw data, breakdown totals and grand total values. [Appendix B - Microsoft Excel Export Example Pages](#) within this document shows an example Microsoft Excel export that corresponds to [Figure 84 - Report View](#).

The name of each exported .xlsx file includes the customer name with GMT date and time. The breakdown of this filename matches that of .pdf file names as described within section [8.3](#) above.

## 9 Dashboard Beacon Reports

The C4DS dashboard reports on user interactions with beacons. It is a very useful tool in ensuring that advertising campaigns supported by beaconing is effective.

Note that the C4DS dashboard relies on Google Analytics (GA) to report data generated by mobile devices when devices react to reception of a beacon that is transmitted from an xPlayer or wTag. Report structure and terminology closely aligns with GA. This is intentional as marketing professionals are comfortable with the GA interface and data structures and terminology. If the format of data reporting from GA does not meet customer needs, access to the raw data within GA is available via web services. Please contact Deviceworx sales (sales@deviceworx.com) for details on this raw data access.

All GA data records include an Android for Advertising ID (AAID) or Apple ID For Advertising (IDFA) field. They do not include any user personal info such as user name, phone number, e.t.c. This is critical as it ensures user control and privacy (users can change their IDs, but typically never do). Note that the inclusion of AAID and IDFA fields within data also increases its value as there are 3rd parties that pay for such data to help profile users and provide targeted in-app advertising.

For details on the Deviceworx Privacy Policy as it relates to beacon interactions, visit <http://www.deviceworx.com/privacy.html>

To view a report, simply select the "Reports"->"Beacon Report" menu item as shown in the figure below.

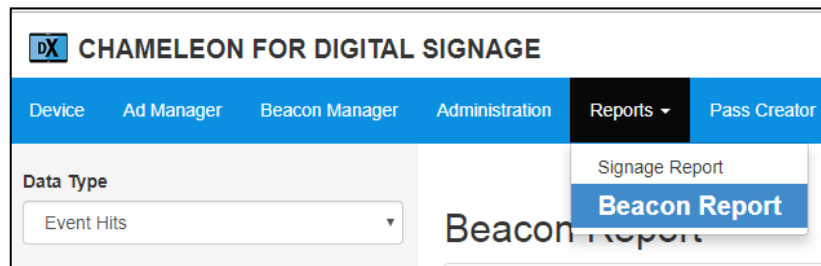


Figure 85 - Beacon Report Access

Sections that follow detail the reporting that supports xPlayer and wTag beaconing. Note that the data shown on these reports is for test devices and therefore not representative of a field install. This is, of course, required to ensure that Deviceworx customer data is private.

## 9.1 Report Sections

The following screen capture shows different sections of dashboard Beacon Report pages.

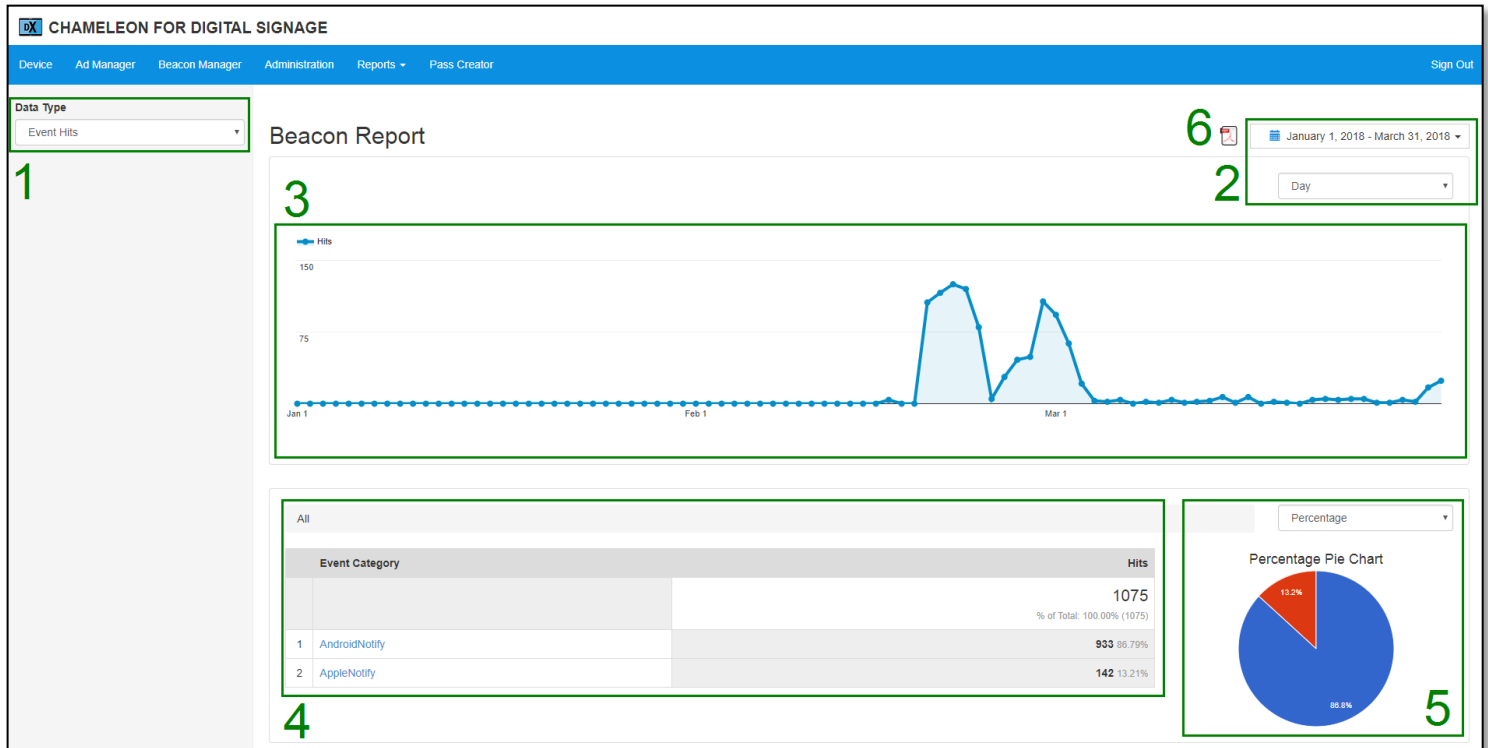


Figure 86 - Beacon Reports Layout

### 9.1.1 Data Type ("1" in Figure 86 Above)

The following types of data records are collected and can be selected for view within the report elements on the right.

1. **Event Hits** denote each raw data record. Different categories of event hits are recorded that include:
  1. Android Notifications (labeled "AndroidNotifyBeacon" for notifications created as a result of apps scanning a physical beacon or "AndroidNotifySched" for notifications created as a result of apps receiving a scheduled message from the dashboard). These events are recorded whenever a notification is added to the Notification Bar within an Android phone.
  2. Apple Notifications (labeled "AppleNotifyBeacon" for notifications created as a result of apps scanning a physical beacon or "AppleNotifySched" for notifications created as a result of apps receiving a scheduled message from the dashboard). These events are recorded whenever a notification is added to the Notification Center within an Apple phone.

Note that both of the above categories always have defined sub-categories (the same sub-categories for both "AndroidNotify" and "AppleNotify") that clarify user action after the notifications are shown to them. They include:

1. "View" - A notification is added to the Notification Center or Notification Bar.
2. "Click" - A user has clicked on the notification and has launched a web page or app.

A "View" event record is created when a notification is created and **an additional** "Click" event is created **only if the user then reacts** and selects the notification to launch a web page or app. The specific web page or app launched is recorded via a label and available within sub-categories to "View" and "Click". Examples below show labelled event records that are sub-categories to "View" and "Click".

2. **Users** group the raw Events described above by each user. This is useful to see how many users' received "AppleNotify" and "AndroidNotify" events, "View" and "Click" sub-categories for each, e.t.c.
3. **Sessions** group the raw Events by each user session to see per session events, sub-categories, e.t.c.
4. **Geography** groups the raw Event Hits, Users or Sessions by user location (selectable using a list box in the upper right corner of the geography view).

For all data types, except Geography, a line graph is shown (see [Figure 86](#) above). When data type of Geography is selected a map is shown that is similar to the figure below.

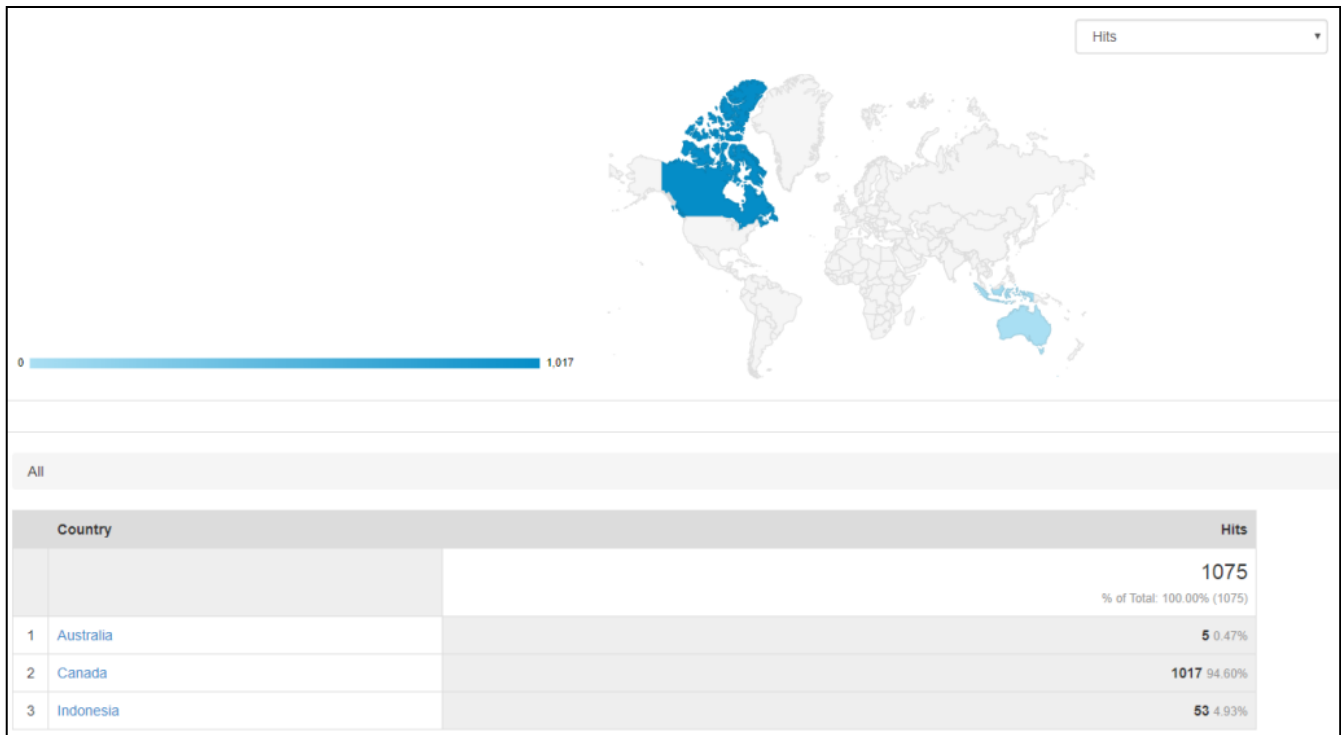


Figure 87 - Beacon Report World View

Countries are colored according to their event total relative to the world event total (darker countries have a higher percentage). A bar at map bottom shows event totals and the range of color. Selecting any country within the map will update the data details (see [Figure 88](#) below) to show cities within the country.

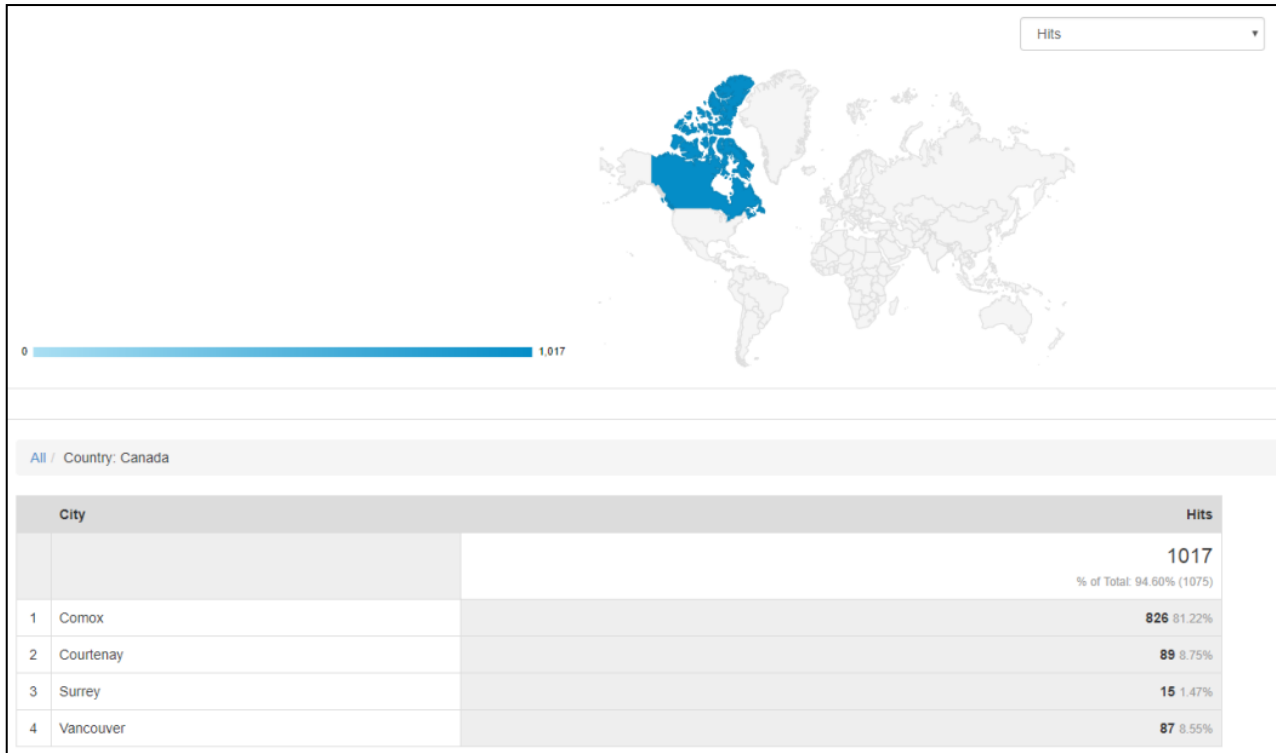


Figure 88 - Beacon Report Country View

**9.1.2 Date Range and Resolution ("2" in Figure 86 Above)**

After selecting a data type for report view, users will typically select a time frame. Quick links are provided for common selections for a range (e.g. "Today", "Last 7 Days", "This Month", e.t.c.). Additionally, users can explicitly select a range of dates using controls provided by selecting the start date and then the end date on calendars. The figure below shows controls for date range selection.

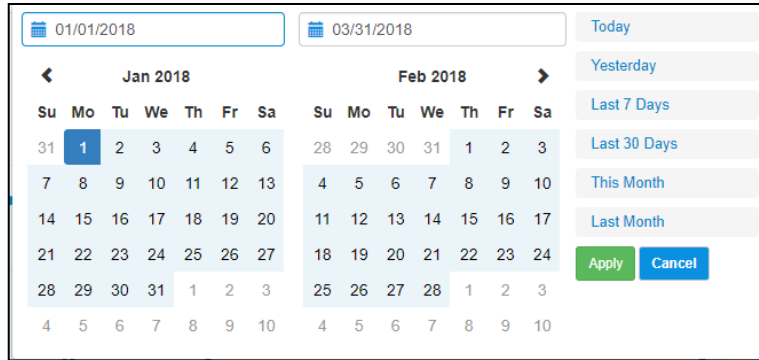


Figure 89 - Beacon Report Date Range Controls

A list box below the date selection control supports selection of resolution ("Day", "Month" or "Week"). The resolution simply controls the number of data points on the line graph (#3 in Figure 86 above). For example, for a date range of "Last 7 Days" and resolution of "Day" a line graph will include 7 entries and for a date range of "Last Month" and resolution of "Week", a line graph will include 4 entries (weeks in a month).

**9.1.3 Data Line Chart ("3" in Figure 86 Above)**

The data line chart is a simple view of totals for each Day, Week or Month within the selected date range. Placing the cursor over any point in the chart will display a "flyover" control with point details. An example is below.

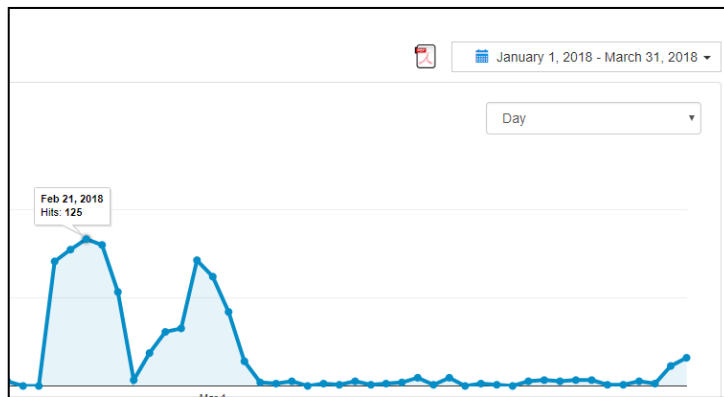


Figure 90 - Beacon Report Flyover

Note that when data type "Geography" is selected, the line graph is replaced with a map as shown in Figure 87 above.





**9.1.4 Data Details ("4" in Figure 86 Above)**

Data details are shown below the line graph or map. This includes all info related to events. When a report is created, the details are shown for "All" event categories, sub-categories and labels. In the figure below, "All" event data for the selected type and range is shown.

All		Hits
Event Category		
		1075 <small>% of Total: 100.00% (1075)</small>
1	AndroidNotify	933 86.79%
2	AppleNotify	142 13.21%

Figure 91 - Beacon Report Data Details for All

Hits totals (along with relative percentages) are shown for each category as well as a total for all categories. Selecting the "AppleNotify" category, provides additional detail on the "AppleNotify" events as shown below.

All / Event Category: AppleNotify		Hits
Event Action		
		142 <small>% of Total: 13.21% (1075)</small>
1	Click	16 11.27%
2	View	126 88.73%

Figure 92 - Beacon Report Data Details for Sub-Categories

"Click" and "View" sub-categories are shown along with their contribution to the "AppleNotify" 142 hit total. "View" indicates the number of notifications generated and "Click" indicates the number of times that these notifications were selected by users or "clicked-through" to open an app or view a web page. Both are considered marketing impressions, so the total "AppleNotify" hit count of 142 denotes 142 impressions. Of course, the "Click" impressions are more valuable. Selecting "Click" provides additional detail on the 16 "Click" events as shown below.

All / Event Category: AppleNotify / Event Action: Click		Hits
Event Label		
		16 <small>% of Total: 1.49% (1075)</small>
1	Jeatech	3 18.75%
2	Tatts	12 75.00%
3	This is a test beacon	1 6.25%

Figure 93 - Beacon Report Data Details for Labels

Labels for launched apps and displayed web pages are shown along with counts and relative percentage of total for each. These labels are configured within the Beacon Manager (Attachment "Title" field) as described within 7.9 and 7.10.

### 9.1.5 Data Representation ("5" in Figure 86 Above)

Data shown within the data detail controls can be represented in 1 of 3 ways using the drop down list box provided. Note that captures below utilize the same data details described within [Figure 93 - Beacon Report Data Details for Labels](#) above.

#### 9.1.5.1 Percentage

A pie chart shows Event category, sub-category or label percentages as a total of a circle. Use a flyover to see details on each slice of the pie, including the smallest slices. Note that percentage text won't be displayed on very small pie slices.

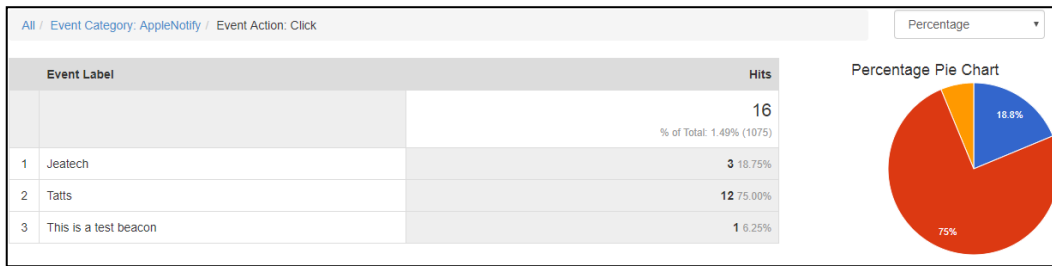


Figure 94 - Beacon Report Percentage Representation

#### 9.1.5.2 Performance

Just like the percentage pie chart, the performance chart shows percentages of total. The only difference is that bars with relative lengths are shown instead of pie slices.

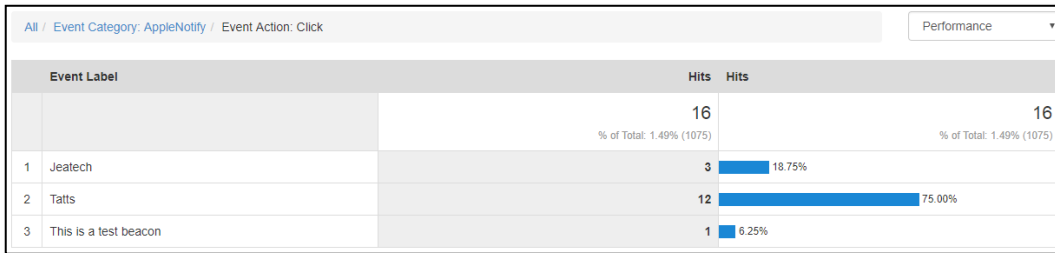


Figure 95 - Beacon Report Performance Representation

#### 9.1.5.3 Comparison


Data comparison shows each event total relative to an average for all. In the example below, the average hits is  $(3+12+1)/3$  or 5.3333. 3 Hits is below this average. How far as a percentage of average?  $(5.3333-3)/5.3333 = 0.4375$  or 43.75% below average. 12 Hits is above this average.  $(12-5.3333)/5.3333 = 1.25$  or 125% above average.



Figure 96 - Beacon Report Comparison Representation



### 9.1.6 Report Export ("6" in Figure 86 Above)

To save report content for presentations or later review, users can select the Adobe Acrobat icon (  ). A pdf file with report details will be loaded and available for user download within their browser.

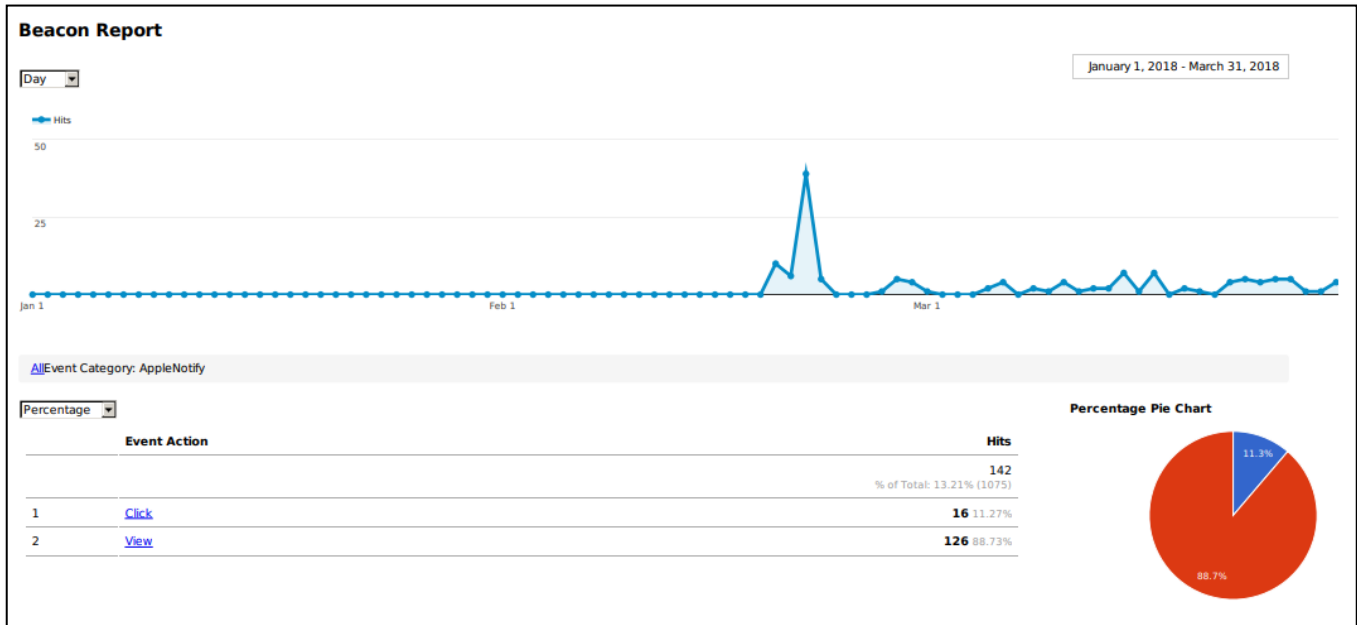


Figure 97 - Beacon Report Export

## 9.2 Direct GA Access

Larger Deviceworx customers with extensive GA experience can directly interact with GA to view more detailed dashboards and reports. Consult Deviceworx Sales to obtain this exclusive access. Note that GA use is not described within this doc as it is described by Google within online resources. Direct GA access is intended only for experienced GA users. Note that the data fields described below are the only field populated by Deviceworx apps, but additional fields are populated by Google (i.e. device type, device service provider, e.t.c.). Consult GA docs for a description of these fields.

### 9.2.1 Web Data

A list of GA web data fields is provided below to support the use of GA including the creation of custom reports and dashboards.

- Protocol Version ("v") - always 1.
- Tracking ID ("tid") - set to each GA account.
- Client ID ("cid") - User ID as AAID (Android) or IDFA (Apple)
- Hit Type ("t") - Always "event".
- Event Category ("ec") - Always "AndroidNotifyBeacon"/"AndroidNotifySched"/"AppleNotifyBeacon"/"AppleNotifySched"
- Event Action ("ea") - Always "View" for notification creation records or "Click" for notification selection records.
- Event Label ("el") - Always the title label specified for each beacon within the Beacon Manager.
- Custom Dimension 1 ("cd1") - Timestamp indicating when each record hits GA.
- Custom Dimension 1 ("cd2") - GeoID. Unused.
- Custom Dimension 1 ("cd3") - Campaign name value specified for each beacon within the Beacon Manager.
- Custom Dimension 1 ("cd4") - Customer ID. For info only as it is the same for all data.

### 9.2.2 Google Analytics for Firebase Data

GA will move from Web Data to GA for Firebase (GA4F) Data in months or years to come and standardize on GA4F data. This data is richer in that it may provide for more user metrics including age, sex, preferences, etc. Deviceworx beaconing apps support recording of GA Web Data and GA4F Data simultaneously to ensure that they can be run with GA into the future. GA4F Data fields are detailed below for all notification-related events as impressions (i.e. whenever a notification is created or selected).

- Event - Always "present\_offer" (Present Offer parameters follow)
- QUANTITY - always 1.
- ITEM\_ID - Always "View" for records tracking notification creation or "Click" for notification selection.
- ITEM\_CATEGORY - Always "AndroidNotifyBeacon"/"AndroidNotifySched"/"AppleNotifyBeacon"/"AppleNotifySched"
- ITEM\_NAME - Always the title value specified for each beacon within the Beacon Manager.

Note that AAID and IDFA recording is automatic under GA4F as is geography support, and time stamping.

In Android the only impressions recorded (as events) are when notifications are created or selected (i.e. present\_offer events described above). In iOS - additional impressions are possible within the app. A list of promotions or offers received when an iPhone has come near a Pod are listed on an iOS screen and selecting any item within the list - shows promo or offer details within the app on a separate screen. These iOS screen views are listed within GA4F as "screen\_view" events. Specifically, whenever the promo or offer list is viewed by a user, a screen\_view event with class



"MediaTableViewController" is created within GA4F and whenever a promo or offer is selected and its details are shown on a separate screen a screen\_view event with class "WebkitViewController" is created within GA4F.

### 9.2.2.1 Viewing Google Analytics for Firebase Events to Count Impressions

1. To access GA4F you must have a Google account that has been provided by Deviceworx. Contact support@deviceworx.com as required to get account credentials.
2. Access GA4F by going to the following URL using a Chrome web browser: <https://console.firebase.google.com> or by typing console.firebase.google.com in the search entry. Next, enter Google account credentials to login.
3. After login, selectable projects will be listed. Your project should be the only project listed and selectable - select it.
4. After your project has been opened within GA4F, a menu will be shown on the left side of the screen that includes an "Analytics" section. Only this section of the menu will be used. Note that you can select a date range for all data sets viewed using a control in the upper right of all GA4F project screens. Options include "Today", "Yesterday", "Last 7 Days", etc. A "Custom" range may also be selected.
5. Under the "Analytics" section header, select "Dashboard" to view current attributes of the data including active users for the date range specified.
6. Under the "Analytics" section header, select "Events" to view all impression data for the date range specified.
  - a. The "present\_offer" will be listed as an event type along with a count of these events (impressions) for the date range specified. Click on "present\_offer" to view more detail including which offers have been presented as notifications and a breakdown of how many notifications were simply "View"able or "Click"ed.
  - b. The "screen\_view" will be listed as an event type along with a count of these events (impressions) for the date range specified. Click on "screen\_view" to view more detail including how often the screen listing offers/promotions was viewed within iOS ("MediaTableViewController" class) and how often the screen showing individual offers/promotions was viewed in iOS ("WebkitViewController" class).

### 9.2.2.2 Example Impression Counts

The following example shows how to retrieve impression counts within GA4F. Follow steps 1-4 in the section above and then select "Events" under the "Analytics" section header on the left side of the screen to view all GA4F events. See each section below for retrieval of specific impressions as event types.

#### **Viewable Notifications with Click-Throughs for Android and iOS**

Select "present\_offer". A section labeled "item\_id" within the resulting page will break down how many notifications were created and viewable as well as how many were clicked by users. Note that another section labeled "item\_name" will show specific offers/promotion counts.

#### **iOS Offer/Promo List Screen and Offer/Promo Detail Screen Views**

Select "screen\_view". A section labeled "User Engagement" within the resulting page will break down screen views by iOS users. A "MediaTableViewController" class count will indicate views of the offer/promo list. A "WebkitViewController" class count will indicate views of individual offers/promos.

## 10 Dashboard Administration Tab

The Administration tab supports alteration of the default dashboard user account that is provided by Deviceworx to customers, the addition of new user accounts, and the stipulation of optional locale for a customer network.

To make administration changes, select the "Administration" tab within the blue dashboard header. Additional sub-tabs will be shown below supporting user account changes and changes to locale including divisions, sites and departments.

### 10.1 User Administration

Selecting the "Users" sub-tab will show a form that lists currently set user accounts as shown in the figure below.

The screenshot shows the 'CHAMELEON FOR DIGITAL SIGNAGE' interface. The top navigation bar includes 'Device', 'Ad Manager', 'Beacon Manager', 'Administration', 'Report', 'Pass Creator', and 'Sign Out'. The 'Administration' tab is active, and the 'Users' sub-tab is selected. A 'User Filter' input field is present. Below it, a list of users is shown with 'acme\_admin' selected. To the right, a form for editing the selected user is displayed, with fields for 'Username' (acme\_admin), 'Password' (Enter or Reset Password), and 'Role' (Administrator). A 'Save' button is below the form. At the bottom left, there are 'New' and 'Delete' buttons.

Figure 98 - Administration of Users

Select a user and update any of the attributes shown.

5. "Username" - A label for each user that is entered during account dashboard login.
6. "Password" - The password supporting user account access to the dashboard.
7. "Role" - User account type.
  1. "Administrator" Type - Full access to all dashboard functions.
  2. "Installer" Type - Dashboard access is limited to the "Devices" tab. Persons responsible for the installation of xPlayer devices typically do not need to view dashboard forms other than those under the "Devices" tab. They may use the device list within the "Devices" tab to view xPlayer device connection status and they may update xPlayer device attributes including "Device Contact Details". When installers are on site, they will be in a good position to retrieve and record local contact details for each install location (i.e. who to contact at the install location whenever a device issue, such as disconnected power, needs resolution).

Add a new user by selecting "New" under the user list.

Delete existing users by choosing them within the list and then selecting "Delete".



## 10.2 Locale Administration

Locales support definition of geographic xPlayer device locations and support grouping of xPlayers by these locations. Within the C4DS dashboard, locale definition is limited to:

- Divisions - Commonly denote a region including a collection of installation locations or sites (e.g. a state or province).
- Sites - Typically denote a single location (e.g. a store).
- Departments - An area within a site.

xPlayer customers can use these 3 levels of locale as they see fit to organize their xPlayers and are not limited to the common usage described above. For example, a multi-national network operator may use divisions to denote countries and not states or provinces.

To create a locale, any locales with wider scope must first be created (e.g. to create a site, a division must first be created).

Locales provide a variety of benefits:

- Organizing xPlayer devices geographically. The tree control within the "Devices" tab is useful at giving C4DS users the ability to filter which geographic region they view and xPlayers installed within that region.
- Organizing statistics. Filtering on locales provide a means of extracting xPlayer statistics for specific geographic regions.
- Comparing statistics. Breakdown of reporting results by locale to comparing statistics from various regions.

### 10.2.1 Division Changes

Select the "Divisions" tab to view current divisions, edit divisions, add new divisions or delete divisions. See the figure below.

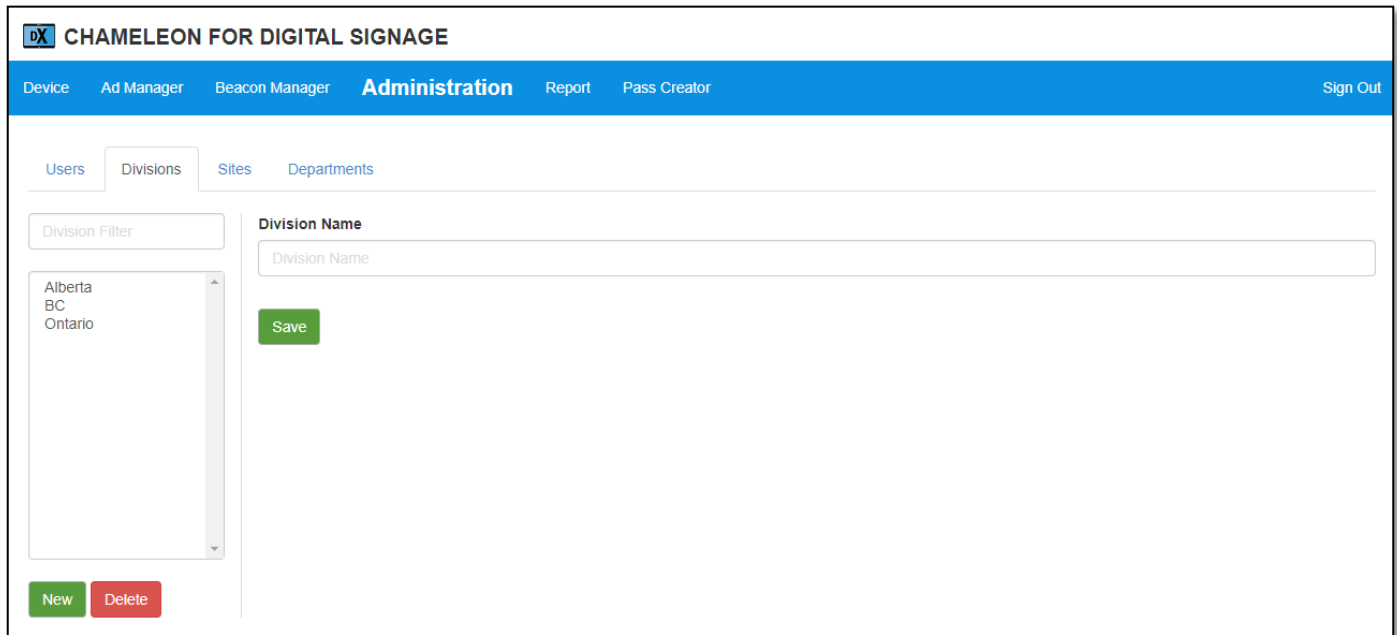


Figure 99 - Division Changes

To edit a division, choose it in the list, alter its "Division Name" and then select "Save".

Select "New" to create a new division. Enter the "Division Name" and select "Save".

To delete a division, choose it in the list and select "Delete". Note that divisions cannot be deleted if there are any xPlayer devices or sites assigned to the division. xPlayers must first be moved or deleted and sites must be deleted before the division can be deleted.





### 10.2.2 Site Changes

Select the "Sites" tab to view current sites, edit sites, add new sites or delete sites. See the figure below.

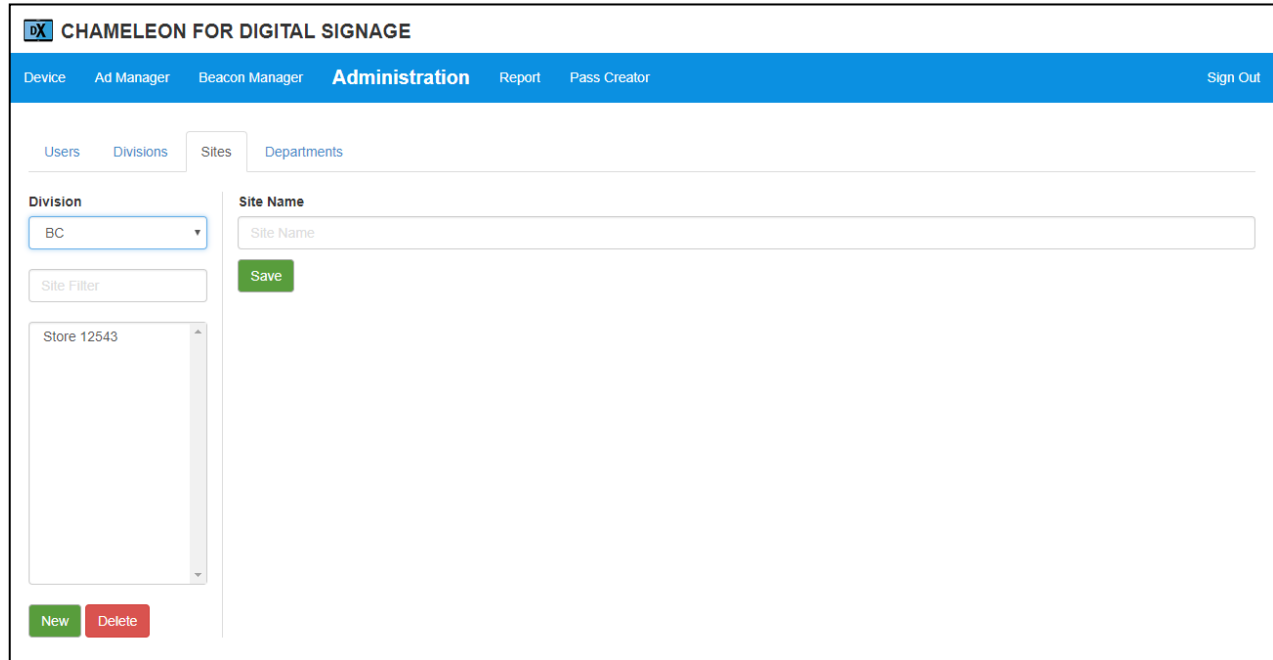


Figure 100 - Site Changes

To edit a site, choose it in the list, alter its "Site Name" and then select "Save".

Select "New" to create a new site. Enter the "Site Name" and select "Save".

To delete a site, choose it in the list and select "Delete". Note that sites cannot be deleted if there are any xPlayer devices or departments assigned to the site. xPlayers must first be moved or deleted and departments must be deleted before the site can be deleted.



### 10.2.3 Department Changes

Select the "Departments" tab to view current sites, edit sites, add new sites or delete sites. See the figure below.

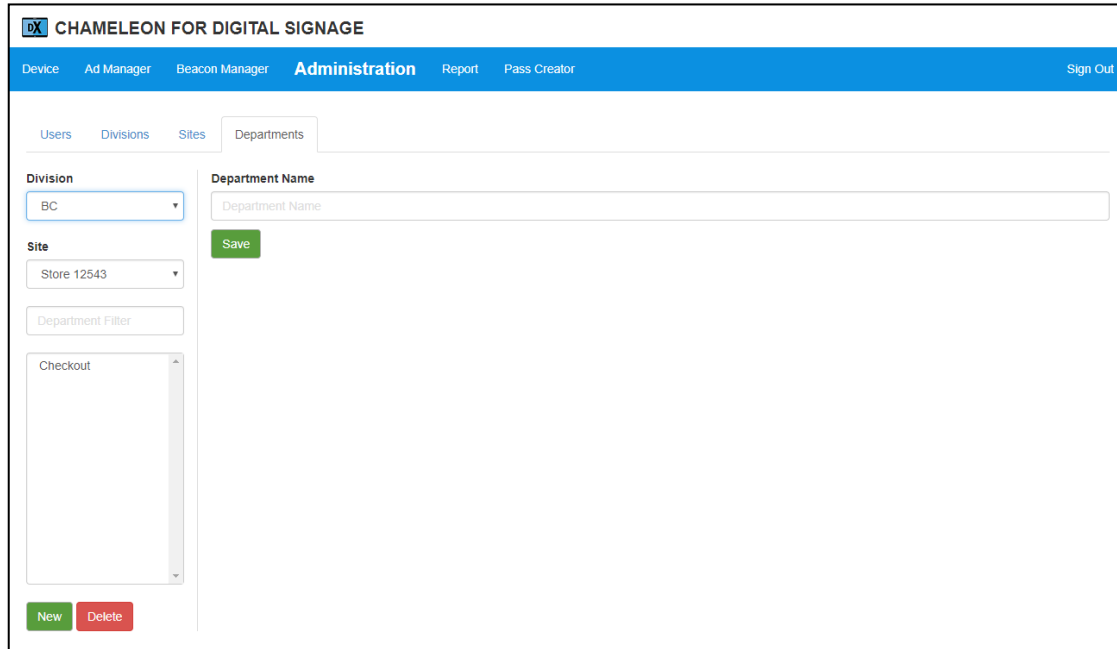


Figure 101 - Department Changes

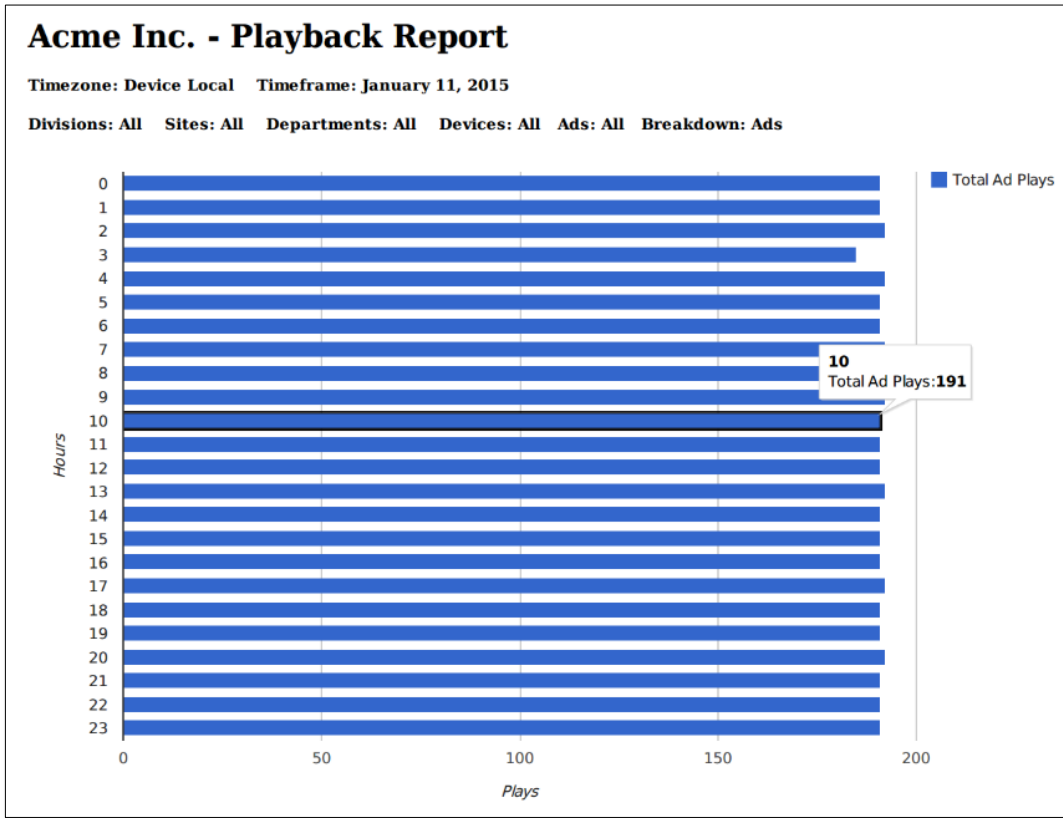
To edit a department, choose it in the list, alter its "Department Name" and then select "Save".

Select "New" to create a new department. Enter the "Department Name" and select "Save".

To delete a department, choose it in the list and select "Delete". Note that departments cannot be deleted if there are any xPlayer devices assigned to the department. xPlayers must first be moved or deleted before the department can be deleted.



## 11 Appendix A - PDF Export Example Pages



### Breakdown

Hour	Ads	Plays	Breakdown Totals
0	10 Percent Off Image	64	
	Two for One Image	63	
	Vancouver Weather and News Cap	64	<b>191</b>
1	10 Percent Off Image	64	
	Two for One Image	64	
	Vancouver Weather and News Cap	63	<b>191</b>
2	10 Percent Off Image	64	
	Two for One Image	64	
	Vancouver Weather and News Cap	64	<b>192</b>
3	10 Percent Off Image	61	
	Two for One Image	62	
	Vancouver Weather and News Cap	62	<b>185</b>
4	10 Percent Off Image	64	
	Two for One Image	64	
	Vancouver Weather and News Cap	64	<b>192</b>
5	10 Percent Off Image	64	
	Two for One Image	63	
	Vancouver Weather and News Cap	64	<b>191</b>
6	10 Percent Off Image	64	
	Two for One Image	64	
	Vancouver Weather and News Cap	63	<b>191</b>
7	10 Percent Off Image	64	
	Two for One Image	64	



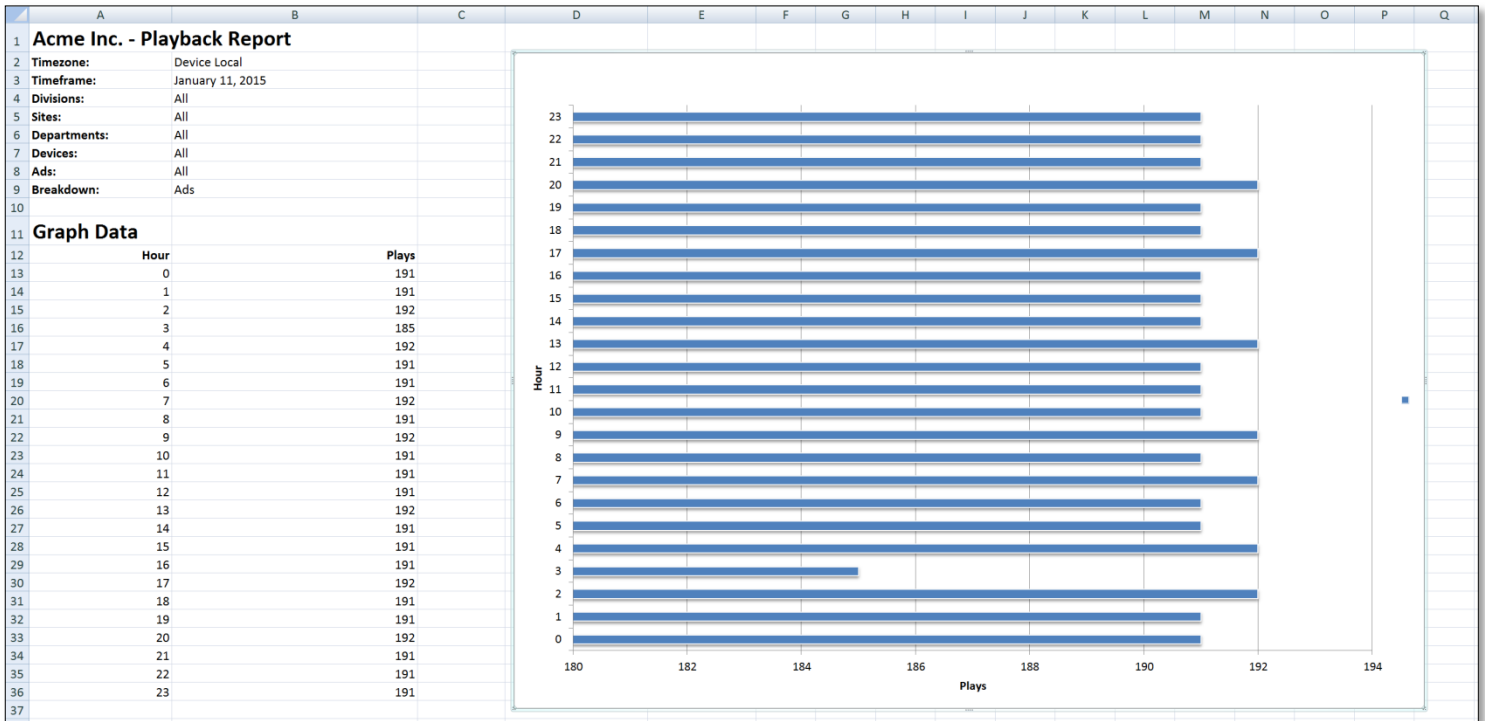
Hour	Ads	Plays	Breakdown Totals
	Vancouver Weather and News Cap	64	<b>192</b>
8	10 Percent Off Image	63	
	Two for One Image	64	
	Vancouver Weather and News Cap	64	<b>191</b>
9	10 Percent Off Image	64	
	Two for One Image	64	
	Vancouver Weather and News Cap	64	<b>192</b>
10	10 Percent Off Image	64	
	Two for One Image	63	
	Vancouver Weather and News Cap	64	<b>191</b>
11	10 Percent Off Image	64	
	Two for One Image	64	
	Vancouver Weather and News Cap	63	<b>191</b>
12	10 Percent Off Image	63	
	Two for One Image	64	
	Vancouver Weather and News Cap	64	<b>191</b>
13	10 Percent Off Image	64	
	Two for One Image	64	
	Vancouver Weather and News Cap	64	<b>192</b>
14	10 Percent Off Image	64	
	Two for One Image	63	
	Vancouver Weather and News Cap	64	<b>191</b>
15	10 Percent Off Image	64	
	Two for One Image	64	

Hour	Ads	Plays	Breakdown Totals
	Vancouver Weather and News Cap	63	<b>191</b>
16	10 Percent Off Image	63	
	Two for One Image	64	
	Vancouver Weather and News Cap	64	<b>191</b>
17	10 Percent Off Image	64	
	Two for One Image	64	
	Vancouver Weather and News Cap	64	<b>192</b>
18	10 Percent Off Image	64	
	Two for One Image	63	
	Vancouver Weather and News Cap	64	<b>191</b>
19	10 Percent Off Image	64	
	Two for One Image	64	
	Vancouver Weather and News Cap	63	<b>191</b>
20	10 Percent Off Image	64	
	Two for One Image	64	
	Vancouver Weather and News Cap	64	<b>192</b>
21	10 Percent Off Image	63	
	Two for One Image	64	
	Vancouver Weather and News Cap	64	<b>191</b>
22	10 Percent Off Image	64	
	Two for One Image	63	
	Vancouver Weather and News Cap	64	<b>191</b>
23	10 Percent Off Image	64	
	Two for One Image	64	
	Vancouver Weather and News Cap	63	<b>191</b>
	<b>Total</b>	<b>4585</b>	<b>4585</b>



## 12 Appendix B - Microsoft Excel Export Example Pages

An Excel workbook "C4DS Plays Report" tab example is shown below.





Pages that follow show an example Excel workbook "C4DS Breakdown Report" tab.

<b>Acme Inc. - Playback Report</b>			
<b>Timezone:</b>	Device Local		
<b>Timeframe:</b>	January 11, 2015		
<b>Divisions:</b>	All		
<b>Sites:</b>	All		
<b>Departments:</b>	All		
<b>Devices:</b>	All		
<b>Ads:</b>	All		
<b>Breakdown:</b>	Ads		
<b>Breakdown</b>			
	<b>Hour</b>	<b>Ads</b>	<b>Plays</b>
			<b>Breakdown Totals</b>
	0	10 Percent Off Image	64
		Two for One Image	63
		Vancouver Weather and News Cap	64
			<b>191</b>
	1	10 Percent Off Image	64
		Two for One Image	64
		Vancouver Weather and News Cap	63
			<b>191</b>
	2	10 Percent Off Image	64
		Two for One Image	64
		Vancouver Weather and News Cap	64
			<b>192</b>
	3	10 Percent Off Image	61
		Two for One Image	62
		Vancouver Weather and News Cap	62
			<b>185</b>
	4	10 Percent Off Image	64
		Two for One Image	64
		Vancouver Weather and News Cap	64
			<b>192</b>
	5	10 Percent Off Image	64
		Two for One Image	63
		Vancouver Weather and News Cap	64
			<b>191</b>
	6	10 Percent Off Image	64
		Two for One Image	64
		Vancouver Weather and News Cap	63
			<b>191</b>
	7	10 Percent Off Image	64
		Two for One Image	64
		Vancouver Weather and News Cap	64
			<b>192</b>
	8	10 Percent Off Image	63
		Two for One Image	64
		Vancouver Weather and News Cap	64
			<b>191</b>
	9	10 Percent Off Image	64
		Two for One Image	64
		Vancouver Weather and News Cap	64
			<b>192</b>
	10	10 Percent Off Image	64
		Two for One Image	63
		Vancouver Weather and News Cap	64
			<b>191</b>



11	10 Percent Off Image	64	
	Two for One Image	64	
	Vancouver Weather and News Cap	63	191
12	10 Percent Off Image	63	
	Two for One Image	64	
	Vancouver Weather and News Cap	64	191
13	10 Percent Off Image	64	
	Two for One Image	64	
	Vancouver Weather and News Cap	64	192
14	10 Percent Off Image	64	
	Two for One Image	63	
	Vancouver Weather and News Cap	64	191
15	10 Percent Off Image	64	
	Two for One Image	64	
	Vancouver Weather and News Cap	63	191
16	10 Percent Off Image	63	
	Two for One Image	64	
	Vancouver Weather and News Cap	64	191
17	10 Percent Off Image	64	
	Two for One Image	64	
	Vancouver Weather and News Cap	64	192
18	10 Percent Off Image	64	
	Two for One Image	63	
	Vancouver Weather and News Cap	64	191
19	10 Percent Off Image	64	
	Two for One Image	64	
	Vancouver Weather and News Cap	63	191
20	10 Percent Off Image	64	
	Two for One Image	64	
	Vancouver Weather and News Cap	64	192
21	10 Percent Off Image	63	
	Two for One Image	64	
	Vancouver Weather and News Cap	64	191
22	10 Percent Off Image	64	
	Two for One Image	63	
	Vancouver Weather and News Cap	64	191
23	10 Percent Off Image	64	
	Two for One Image	64	
	Vancouver Weather and News Cap	63	191
	<b>Grand Total</b>	<b>4585</b>	<b>4585</b>

### 13 Appendix C - Selectable Notification Icons

Icons can be selected within the dashboard for display within notifications generated by the Deviceworx Notifier apps. The currently selectable icons, along with their labels, are below (labels on the left). Note that Deviceworx can add icons to the Deviceworx Notifier at any time to support operator branding. Each icon must be provided to Deviceworx as .png files in each of the following resolutions: (48x48, 72x72, 96x96, 144x144, 192x192).

- ic\_app1 
- ic\_app2 
- ic\_coupon1 
- ic\_coupon2 
- ic\_launcher 
- ic\_offer 
- ic\_pass2u 
- ic\_web1 
- ic\_web2 





## 14 Appendix D - Online Wallet Coupon Pass Creator

Passes are becoming a very popular way of viewing and storing coupons, loyalty cards, boarding passes and other electronic documents within the Apple Wallet and now Android device 3rd party wallets. Apple has made the format of these electronic passes or pass files (.pkpass extension) public. As a result, a variety of companies have released pass creation tools that can be used by retailers and others to create their own custom passes that can be loaded within the Apple Wallet and Android equivalents. Typically - these tools are free to use, but pass developers must pay a license fee based on pass use (i.e. the number of times each pass is loaded into user's wallets). To facilitate this, pass tool vendors track passes created within their system - a serious limitation. Also, ongoing license costs based on use of popular passes can be appreciable. To address these limitations and for ease of integration within xPlayer beacon messaging, Deviceworx has developed a "Pass Creator". A small fee is required to create passes using this tool, but there is no ongoing usage license fee for passes created with this tool, resulting in a much lower overall pass development and deployment cost.

For more information on Wallets, passes and what they contain, visit the Apple Wallet and pass support page [here](#).

Note that, at present, the Deviceworx Pass Creator can only be used to develop Coupon-style passes. This tool can be extended for customers deciding to adopt loyalty or other pass styles. Contact Deviceworx sales [here](#) for details.

### 14.1 Using Passes

#### 14.1.1 Adding Passes to Wallets and Viewing

Once passes are created within the Pass Creator, they can be downloaded as .pkpass files. These files describe all pass contents and can be delivered to wallet users like any other file. Popular techniques for coupon-style pass distribution include MMS messaging and email, but the most common is web download.

Upon download, users will be asked to "Add" passes to their wallet. Adding will then show the pass, along with all other passes, within the wallet.

The functionality described above describes the Apple Wallet application available pre-installed on all iOS devices. It also describes how 3rd party wallet apps like the Android Pass2U app function. These 3rd party solutions have been designed to function like the Apple Wallet app.

#### 14.1.2 Pass Notifications from iBeacons with No App Install Required

Note that any iBeacon broadcaster (including the xPlayer) can trigger display of coupon-style passes within a wallet directly, without the need for Deviceworx Notifier app installation. To support this, iBeacons IDs must be added to passes. **Up to 10 iBeacon IDs can be added to a pass.** Then, whenever an iBeacon is received by a device with a wallet that includes a pass and that pass includes the ID of the broadcast beacon, the device notifies the user and can then show the pass within the wallet if the user selects the notification. The Pass Creator supports addition of xPlayer iBeacons (created within the Beacon Manager) to passes.

### 14.2 View and Edit Pass Creator Passes

Simply select the "Pass Creator" link within the dashboard to open the Pass Creator form. See the figure below.

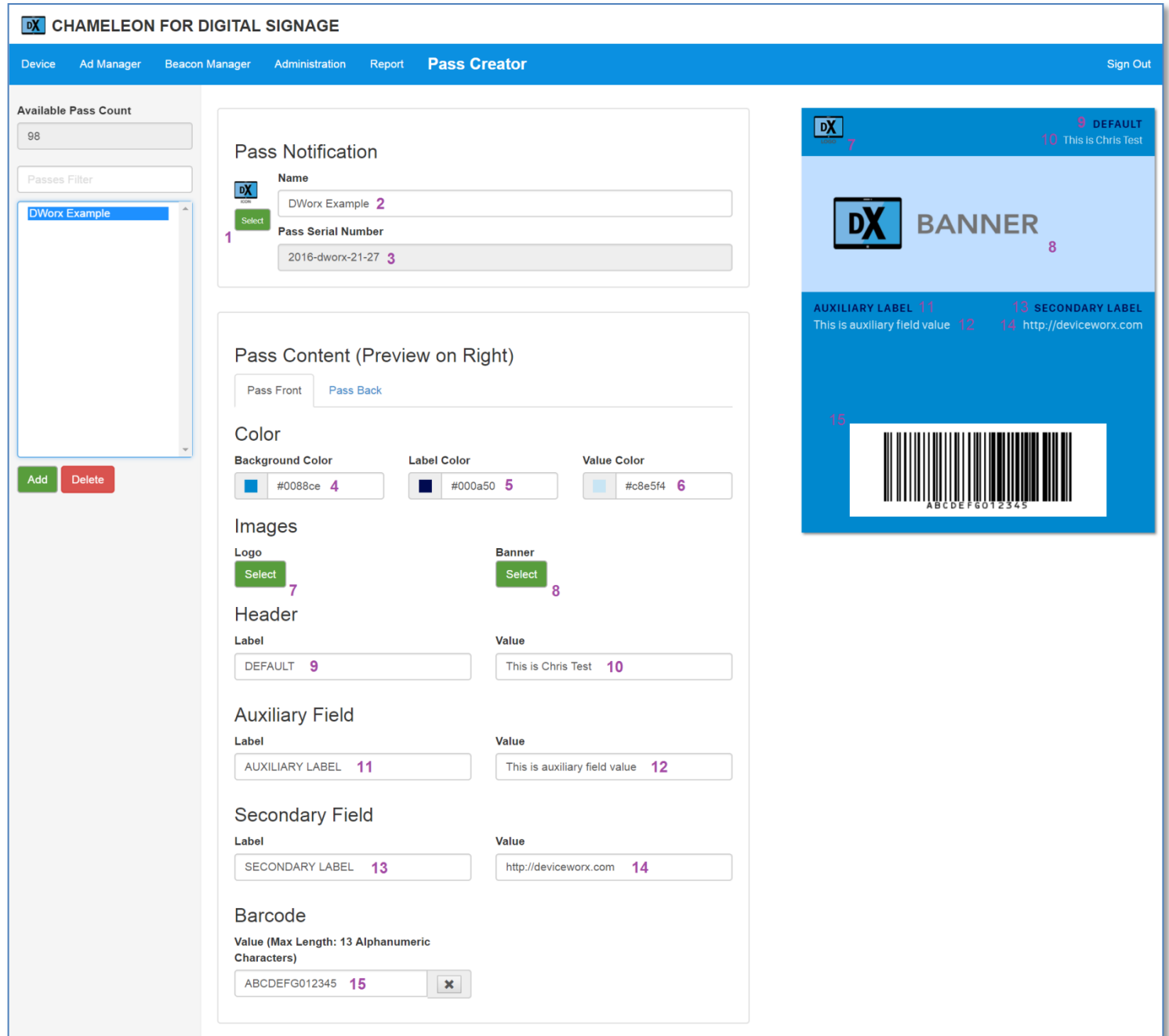


Figure 102 - Pass Form Showing Coupon Pass Front

The figure above shows the coupon-style pass front with preview on the right and pass attributes on the left. Note that the form bottom includes buttons to "Save" and "Download ..." the pass as well as set iBeacon IDs within the pass. These controls are not shown above capture given figure space constraints. They are described within the [14.2.2 - Pass Beacons](#) section following.

To view the pass back, select the "Pass Back" tab (shown in [Figure 103](#)). Note that hitting "Save" while viewing the front or back of the pass saves all attributes altered (front and back).

Hit "Add" to add a new pass and use "Delete" to delete passes.



### 14.2.1 Pass Graphic Attributes

Pass Notification and Pass Front attributes are each described below. The **numbers** match those within

Figure 102 - Pass Form Showing Coupon Pass Front

above. These numbers are shown both on the left side of the form next to controls supporting attribute changes and on the right side of the form showing a preview of the pass that is based on the attributes selected. Note that only the pass itself is previewed. No preview is shown for the Pass Notification as it is very simple with only an icon and name.

- **1** - Pass Notification Icon: The icon that will be shown within a pass notification shown by the wallet whenever the pass is listed within the wallet or whenever a pass-related notification is shown on the iOS or Android device.
- **2** - Pass Notification Name: The text that is included within a pass notification that is shown by the wallet whenever the pass is listed within the wallet or whenever a pass-related notification is shown on the iOS or Android device.
- **3** - Pass Serial Number: A unique number that is used within the dashboard to reference each coupon pass. This number is also used when the DWorx Notifier automatically launches a wallet app to show a specific coupon pass (see 7.9 - Registering iBeacons and Working with Attachments).
- **4** - Background Color: The primary color shown on the pass. All pass elements are shown in front of this color.
- **5** - Label Color: The color used by all label text entries ("DEFAULT", "AUXILIARY LABEL" and "SECONDARY LABEL" shown within
- Figure 102 - Pass Form Showing Coupon Pass Front
- above).
- **6** - Value Color: The color used by all value text entries ("This is Chris text", "This is the auxiliary text field value" and "http://deviceworx.com" shown within
- Figure 102 - Pass Form Showing Coupon Pass Front
- above).
- **7** - Logo: Graphic icon (73 x 71 pixel png file). Use the "Select" button to upload a png graphic file resized to the required dimensions. This icon is always shown within the upper left corner of the pass front.
- **8** - Banner: Graphic banner (1124 x 432 pixel png file). Use the "Select" button to upload a png graphic file resized to the required dimensions. The banner graphic is always shown within the upper half of the pass front, below the header.
- **9** - Header Label: Label text shown at the pass top.
- **10** - Header Value: Value text value shown at the pass top.
- **11** - Auxiliary Field Header Label: Label text shown below the banner on the left.
- **12** - Auxiliary Field Header Value: Value text shown below the banner on the left.
- **13** - Secondary Field Header Label: Label text shown below the banner on the right.
- **14** - Secondary Field Header Value: Value text shown below the banner on the right.
- **15** - Barcode Value: Any valid barcode value. Must contain 13 alphanumeric values (0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F). "Pad" with "0"s if fewer values are needed (e.g. "0000000000123"). After a value is entered, the graphic on the right will change. Only 1-D (GS1-128/EAN-128) barcodes are supported.

Note that whenever the pass attributes are changed on the left side of the form, the right side will automatically update to reflect the changes (may take a couple of seconds).

Select "Pass Back" to see the back of the pass as shown in the figure that follows.

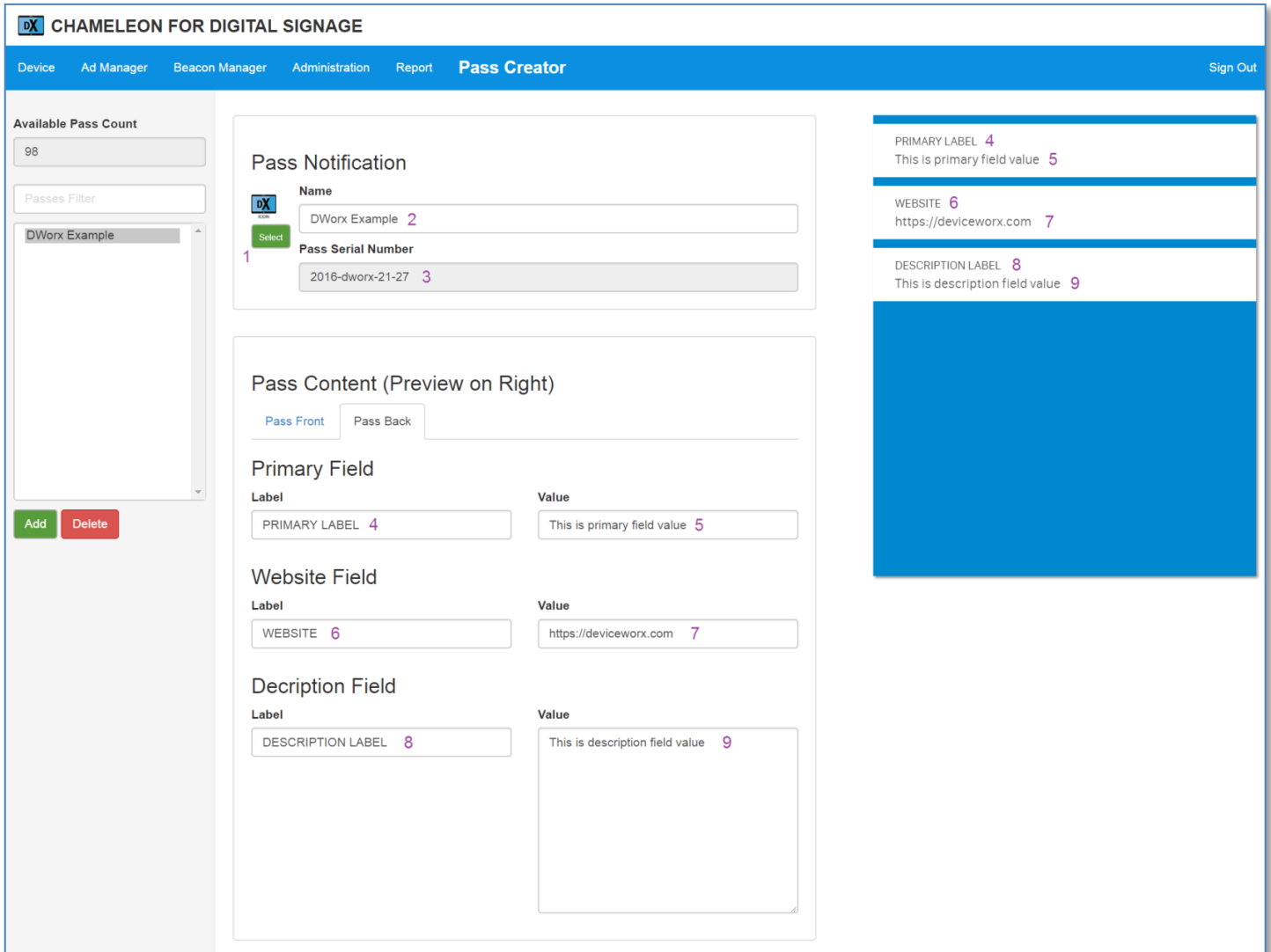


Figure 103 - Pass Form Showing Coupon Pass Back

Pass Notification and Pass Back attributes are each described below. The **numbers** match those within Figure 103 above.

- **1** - Pass Notification Icon: The icon that will be shown within a pass notification shown by the wallet whenever the pass is listed within the wallet or whenever a pass-related notification is shown on the iOS or Android device.
- **2** - Pass Notification Name: The text that is included within a pass notification that is shown by the wallet whenever the pass is listed within the wallet or whenever a pass-related notification is shown on the iOS or Android device.
- **3** - Pass Serial Number: A unique number that is used within the dashboard to reference each coupon pass.
- **4** - Primary Label: Label text shown at the pass top.
- **5** - Primary Value: Value text shown at the pass top.
- **6** - Website Label: Label text - usually just clarifies that a web URL follows.
- **7** - Website Value: Value text - usually just contains the URL to offer or promotion info found online.
- **8** - Description Label: Label text - stipulates what is described within value text that follows.



- **7** - Description Value: Value text - usually contains details for the offer or promotion. Commonly offer or promotion terms and conditions are shown or product details.

Select "Pass Front" to return to the view showing the front of the pass as shown in

The screenshot displays the 'Pass Creator' interface for 'CHAMELEON FOR DIGITAL SIGNAGE'. The interface is divided into several sections:

- Available Pass Count:** A text input field containing '98' and a 'Passes Filter' field.
- Pass Notification:** Includes a 'Name' field with 'Dworx Example' (labeled 2) and a 'Pass Serial Number' field with '2016-dworx-21-27' (labeled 3).
- Pass Content (Preview on Right):** Features a 'Pass Front' button (labeled 1) and a 'Pass Back' button.
- Color:** Three color selection boxes: 'Background Color' (#0088ce, labeled 4), 'Label Color' (#000a50, labeled 5), and 'Value Color' (#c8e5f4, labeled 6).
- Images:** Includes a 'Logo' selection button (labeled 7) and a 'Banner' selection button (labeled 8).
- Header:** A 'Label' field with 'DEFAULT' (labeled 9) and a 'Value' field with 'This is Chris Test' (labeled 10).
- Auxiliary Field:** A 'Label' field with 'AUXILIARY LABEL' (labeled 11) and a 'Value' field with 'This is auxiliary field value' (labeled 12).
- Secondary Field:** A 'Label' field with 'SECONDARY LABEL' (labeled 13) and a 'Value' field with 'http://deviceworx.com' (labeled 14).
- Barcode:** A 'Value' field with 'ABCDEFG012345' (labeled 15) and a 'Max Length: 13 Alphanumeric Characters' note.

On the right, a preview of the 'Pass Front' is shown. It features a blue background with a 'DX BANNER' (labeled 8) and a barcode (labeled 15). The top right corner shows '9 DEFAULT' and '10 This is Chris Test'. The bottom right corner shows '11 AUXILIARY LABEL' and '12 This is auxiliary field value'. The bottom left corner shows '13 SECONDARY LABEL' and '14 http://deviceworx.com'.

Figure 102 - Pass Form Showing Coupon Pass Front

### 14.2.2 Pass Beacons

Wallet applications (Apple Wallet and Android 3rd party alternatives) can notify a user whenever an iBeacon, that is included within a pass that is stored within the user wallet, is received by the user device. If the user selects the notification, the Wallet is opened and the pass displayed. Apple process steps are:

1. iOS Device receives an iBeacon.
2. iOS runs Wallet and checks to see if any Wallet-resident passes include the iBeacon ID received.
3. If a pass includes the received iBeacon ID, the Wallet is opened for the device user and that pass is displayed.

Android 3rd party app steps are identical, except that the Android app must be running in order to get the iBeacon ID from Android. In Apple, the Wallet app does not need to be running.

To include iBeacons (with their IDs) within a coupon pass to trigger user notification, controls are provided within the Pass Creator. The iBeacon must first be created within the dashboard using the Beacon Manager (see [7.6 - Beacon Manager Use](#)). The iBeacon ID is entered within Beacon Manager controls. Then, simply include created iBeacons within passes using the controls shown within the figure below.

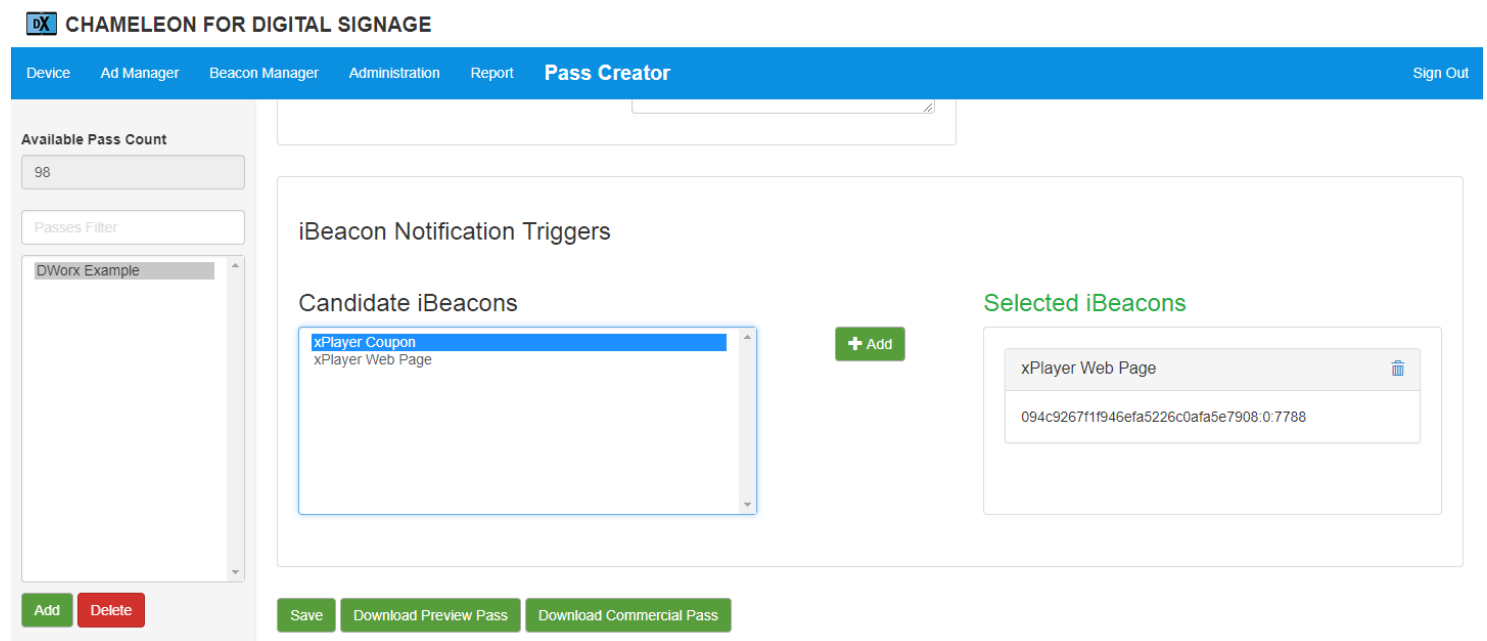



Figure 104 - Pass Form Showing iBeacon Triggers

Note that the controls shown within [Figure 104](#) above are available at the bottom of all Pass Creator forms (i.e. regardless of whether pass front or pass back is currently being shown).

To add an iBeacon ID to a pass, simply select it within the list of "Candidate iBeacons" and press the "Add" button. It will then be added to the list of "Selected iBeacons". To remove it, simply select the  icon beside it within the "Selected iBeacons" list. Remember to hit "Save" to store candidate and selected iBeacon changes within a pass.

### 14.3 Pass Download for Preview and Use

Once all pass edits have been completed and the pass coupon has been saved, it can be downloaded for preview within a wallet app. The "Download Preview Pass" button supports this. Pushing this button will download a file with .pkpass suffix

to the host computer used to access the Pass Creator. Using email or some other transfer technique, send this file to a mobile device with a wallet and then add it to the wallet app (e.g. hit the "Add" button within Apple Wallet). Note that on some devices, selecting the .pkpass file after transfer will be required to launch the wallet for pass addition.

Preview the coupon pass within a wallet app to ensure that it includes required attributes and looks good. This step is important because the preview function within the Pass Creator itself is not 100% accurate.

When you are satisfied that pass development is complete, that its preview looks good, and it has all required iBeacons included, press the "Download Commercial Pass" button. This will result in the following confirmation:

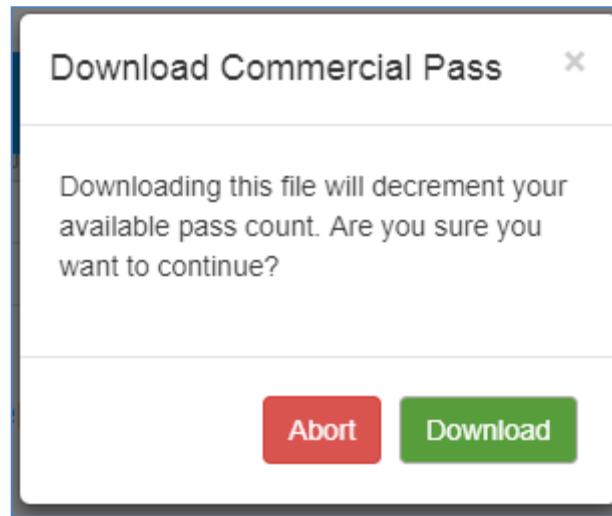


Figure 105 - Commercial Pass Confirmation

Select "Download" and a .pkpass file will be downloaded. Keep this commercial pkpass file separate from any preview versions of the pass. This pass will include iBeacon IDs and triggering of the wallet app when iBeacons are received on user devices (preview passes do not). Note that your available pass count will be decremented when the "Download" button is pushed. An "Abort" button can be used to cancel the download to avoid this. Pass counts are discussed within [14.4](#) below.

Use any variety of techniques to distribute commercial pkpass files to customers or other device users. Options include web download, email, SMS attachment ... or any other means of file transfer.

Note that the most common technique for pkpass file distribution is web download. Apple has even made a common graphic available for embedding within web content to signal that a pkpass file is available for download (i.e. by clicking on the graphic). Here is a look at this graphic.



Figure 106 - "Add to Apple Wallet" Graphic

This Apple graphic can be found [here](#).

Terms for using this graphic can be found [here](#).

#### 14.4 Pass Counts

Commercial passes are only available for download after Pass Creator users have purchased a Pass Creator license pack from Deviceworx. Each pack supports the download of 100 commercial passes. There are no limits to the number of times each commercial pass is used (i.e. additions to consumer wallets). Contact Deviceworx Sales ([sales@deviceworx.com](mailto:sales@deviceworx.com)) to





purchase a pack. Upon purchase, the "Available Pass Count" (shown in the upper left corner of the form in

The screenshot shows the 'Pass Creator' interface for 'CHAMELEON FOR DIGITAL SIGNAGE'. The top navigation bar includes 'Device', 'Ad Manager', 'Beacon Manager', 'Administration', 'Report', and 'Pass Creator' (selected), along with a 'Sign Out' link. On the left sidebar, the 'Available Pass Count' is 98, and there is a 'Passes Filter' dropdown showing 'DWorx Example'. The main configuration area is divided into several sections:
 

- Pass Notification:** Name 'DWorx Example' (2), Pass Serial Number '2016-dworx-21-27' (3).
- Pass Content (Preview on Right):** Includes 'Pass Front' and 'Pass Back' tabs, 'Color' settings (Background Color #0088ce (4), Label Color #000a50 (5), Value Color #c8e5f4 (6)), 'Images' (Logo (7), Banner (8)), 'Header' (Label 'DEFAULT' (9), Value 'This is Chris Test' (10)), 'Auxiliary Field' (Label 'AUXILIARY LABEL' (11), Value 'This is auxiliary field value' (12)), 'Secondary Field' (Label 'SECONDARY LABEL' (13), Value 'http://deviceworx.com' (14)), and 'Barcode' (Value 'ABCDEFG012345' (15)).
- Preview:** A blue banner with a 'DX BANNER' logo (8), 'AUXILIARY LABEL' (11) 'This is auxiliary field value' (12), 'SECONDARY LABEL' (13) 'http://deviceworx.com' (14), and a barcode (15) with the value 'ABCDEFG012345'.

Figure 102 - Pass Form Showing Coupon Pass Front

) will be increased by 100.

The image shows a close-up of the 'Available Pass Count' field. It is a light gray rectangular box with a blue border. The text 'Available Pass Count' is displayed in bold blue font at the top. Below it, the number '98' is displayed in a larger, gray font.

Figure 107 - Available Pass Count