Connected TV Applications for TiVo

# Virgin Media Cloud

Design Outline

2 Mar 2015

Changelog

Here are a list of changes that were made from the previous document titled "Cloud_8Dec2014.pdf"

1) How the app continues the user session after quiting has been altered. Whereas before the the user had to give consent to continue the session now the user has to give consent to end the session. The user stays logged in by default, even if they hit the bail keys. (page 6)

2) Welcome message changed (to reflect the above better). (pages 6 & 7)

3) The Grid Screen now is scrollable. All media can now be viewed in Grid or List view. (page 21).

4) Added FAST FORWARD and REWIND functionality for Grid Screen pagination. (page 22)

5) Added STOP button functionality to reset Grid Screen. (page 22)

6) Added a pop-up explaining the functionality of previous 2 changes (explained above). This only appears over the Grid Screen after the user first signs in. (page 18)

7) The labels for the button called "Show all" / "Most Recent" have been changed to "As List" / "As Grid". (pages 16 & 25)

8) The loading screen now displays for 3 seconds so that the user sees the logo first before the welcome pop-up (page 5).

9) The tooltips have been updated so that they no longer refer to the content on the Grid Screen as 'recently updated', since the Grid Screen now shows everything. (pages 23 & 32)

10) On List Screen: "Cloud Sync" changed to "All." (page 24)

11) The order of media has been changed to Pictures, Videos, Music. This applies to the order of the buttons on the task bar and the order of the rows on the intial Grid Screen. Illustrations have all been updated to reflect this.

12) Placeholders were updated with simple CSS grey borders instead of full colour images. (page 18)

13) Not included in the previous document was the following behaviour: pressing SKIP FWD on the last asset in a playlist should restart the playlist. If the user is idle the playlist ends and the user is returned to the launch point. (page 42).

14) Not specified in detail in the previous document was exactly how the shuffle feature should randomise. The expected behaviour is that each asset only plays once, and then the same set repeats again, looping the set forever until the user stops it. (page 41).

15) It was decided that the 'space' character was to be removed from the Login Screen, since the email and password will never contain spaces. The zero button on the remote will now only type a zero immediately and not go into a multitap cycle (ie. no colour change from white to yellow, no time delay before committing to the letter). Illustrations have been updated to reflect this.

16) Related to the previous point: SPACE button was replaced on the onscreen keyboard with a button that types ".COM". (page 9)

17) URL on Login Screen was replaced with a shorter vanity URL: virginmedia.com/cloud (page 8).

18) Not specified in detail in the previous document was NOT clearing the credentials when the user fails to sign in (maybe due to a typo). The text fields should remain populated so the user doesn't have to start over. BUT the credentials should be cleared when the 'sign in as a different user' is selected. (pages 6 & 7)

19) It was found in testing that the app might not be in sync with the current file directory and the user might try to access a file that doesn't exist (see Jira ticket TVAPPS-1332). There needs to be a message and a suggested course of action for the user to take in this case. A pop-up shown at left that prompts the user to refresh the app should be included in the app. (page 7).
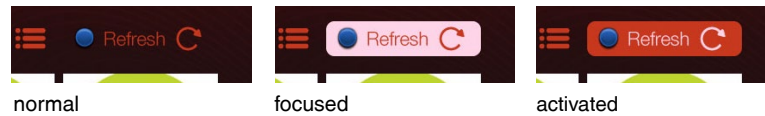
Glossary and Global Parameters

activated — Button state while interactive text or imagery is being pressed, providing a 1 second 'flash' giving feedback that the remote control signal was received.

active — Button state when interactive text or imagery has been pressed and is still 'on' but no longer in focus. Sometimes used to indicate active 'tabs' or other parent items that are 'on.'

back button — Button that returns the user to a screen that the user was last on.

button — A button can be text or an image, and has potentially 5 states: normal, focused, activated, active, and inactive.

focus — A graphic indicator showing what area of the screen is actionable, analogous to mouse cursor on a PC. It is usually a bright outline or box.

focused — Button state when interactive text or imagery is in focus.

image button — Interactive image on the screen. An action is executed when in focus and the OK button on the remote is pressed.

inactive — Button state when interactive text or imagery is temporarily not interactive ('greyed out').

menu — A row or column of interactive text.

normal — Button state when interactive text or imagery not in focus.

text button — Interactive text on the screen. An action is executed when in focus and the OK button on the remote is pressed.
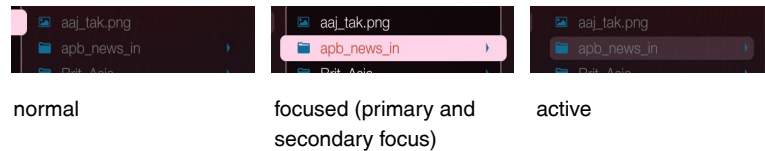
Examples of the button states of image buttons

normal   focused   activated

normal   focused   activated   active
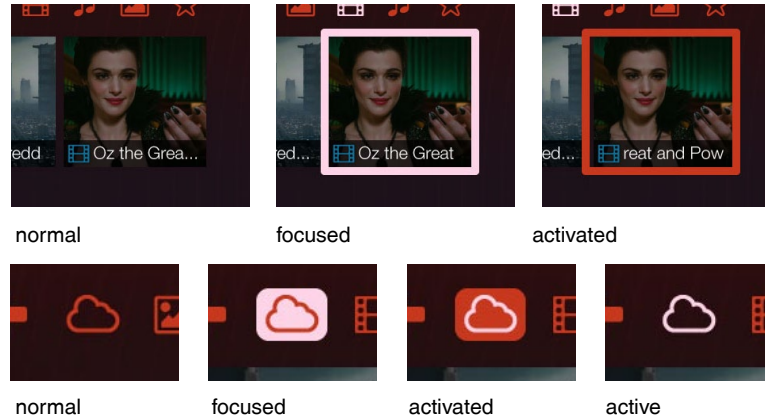
Examples of the button states of a text button

normal   focused   activated

Examples of the button states of the list menus

normal   focused (primary and   active
                    secondary focus)

Tivo App Dingbats

Helvetica Neue LT Std Thin

Helvetica Neue LT Std Light

Fonts used in the app

	normal colour	focused colour	activated colour	active / emphasis
text block	#EBEBEB			
button mark	#C7381E	#C7381E	#FED4E7	#FED4E7
list text	#777777	PRIMARY #C7381E SECOND #EBEBEB	#FED4E7	#777777
button focus	#FED4E7		#C7381E	

App Map

The app launches from the TiVo
Apps & Games menu

LAUNCH POINT

Loading
Screen

Message
Pop-up

Entry / Exit

Login
Screen

Exit
Pop-up

Error
Pop-up

Exit

Content Browse

Grid
Screen

List
Screen

Content Play
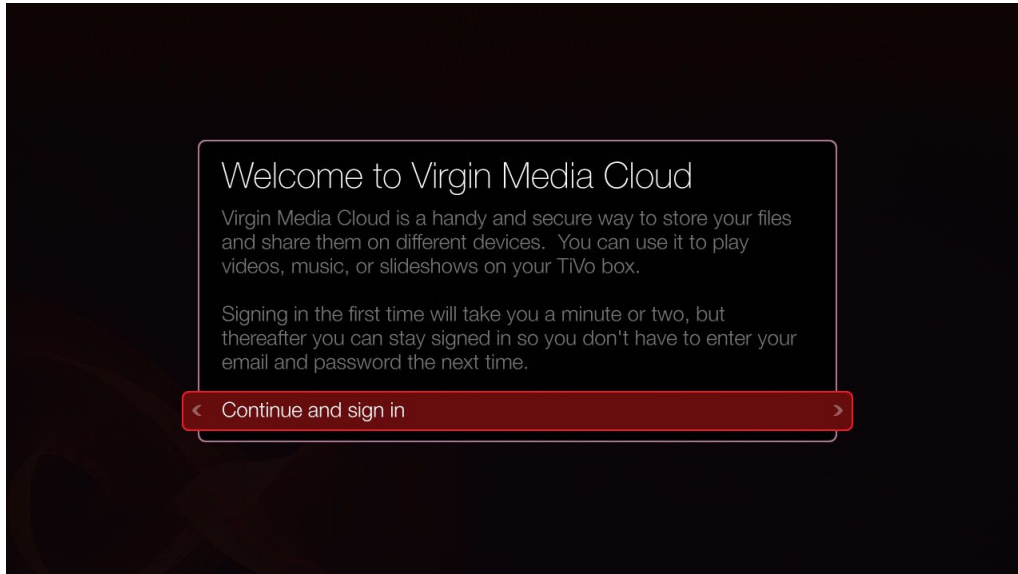
Media Player
Screen
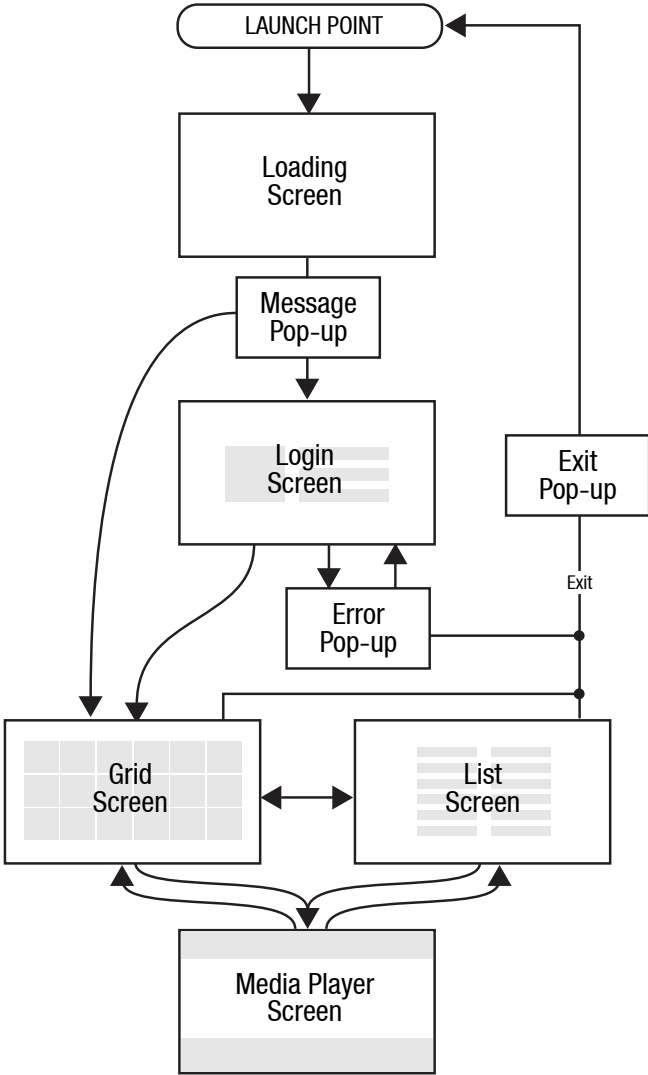
Loading Screen

The loading screen should show for a minimum of 3 seconds so that the logo is seen first (previously the loading was so fast this step was skipped over. It is a better experience to see the brand before the message box).
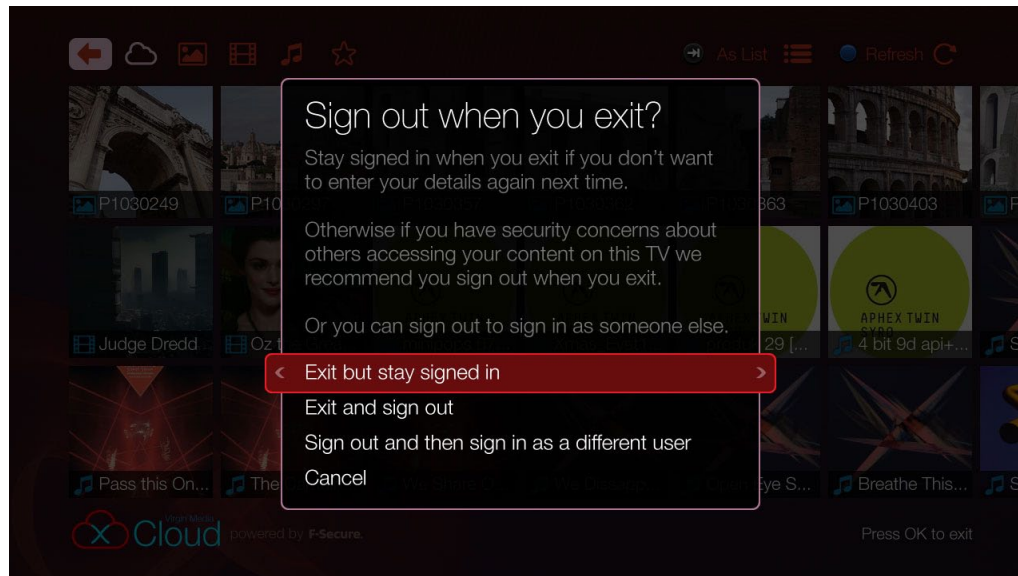
Pop-ups

Message pop-up. Appears to a signed out user after the loading screen and before the login screen. Signed in users who have not ended their session will skip this and the Login Screen. * (800 pixels wide)
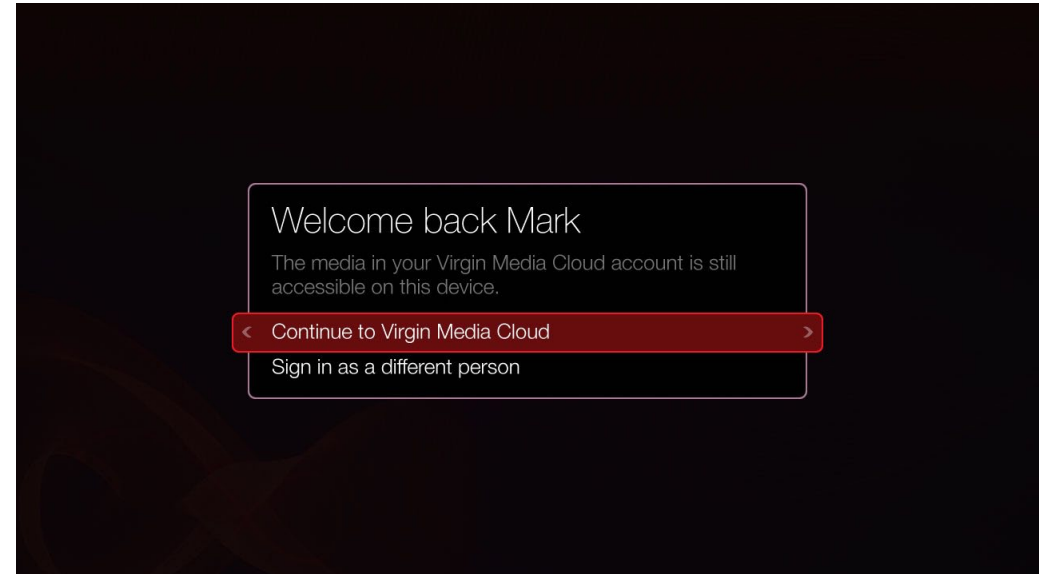
Message pop-up. Appears to a signed in user after the loading screen. First option goes to the Grid Screen, second option goes to the Login Screen. * (700 pixels wide)

Exit pop-up giving user sign out options, which appears of the Grid or List Screens. The first option keeps the session running so the user can skip sign in the next time they launch the app. The third option returns the user to the Login Screen. * (600 pixels wide)
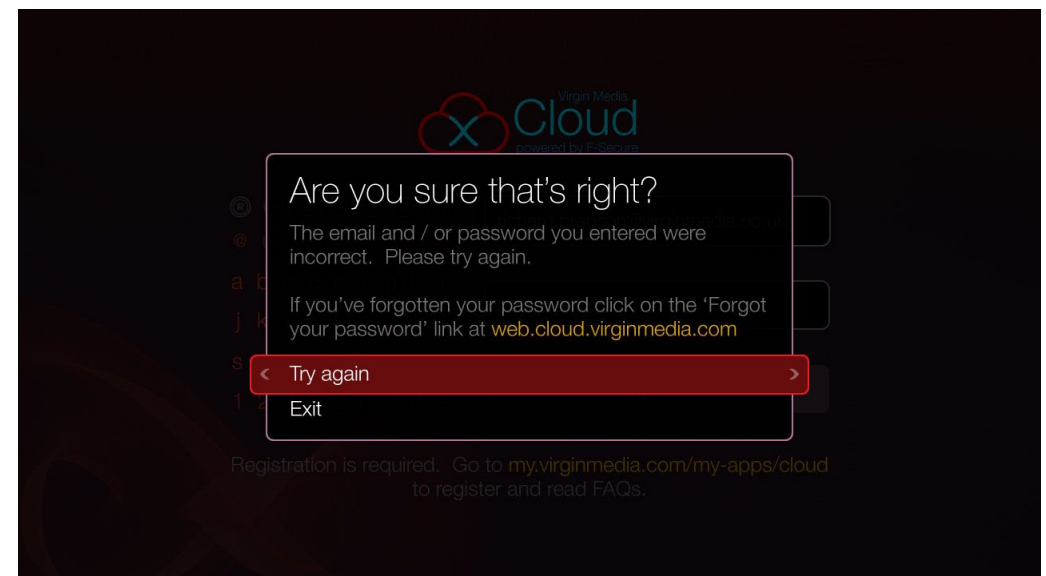
Error pop-up appears over the Login Screen if the credentials the user entered are not on record. The second option quits the app. * (660 pixels wide) (nb. the text fields should not be cleared when 'try again' is pressed).

Pop-ups
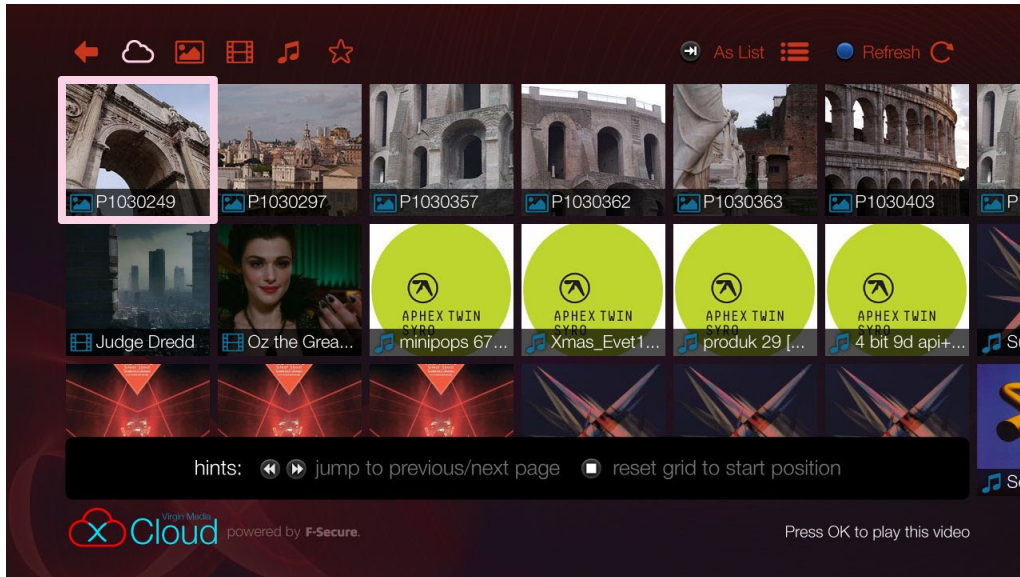
Button hint pop-up (the black bar near the bottom). This appears only once after the user has signed in and is dismissed when the user presses any button. (nb. this is not using the standard pop-up module).
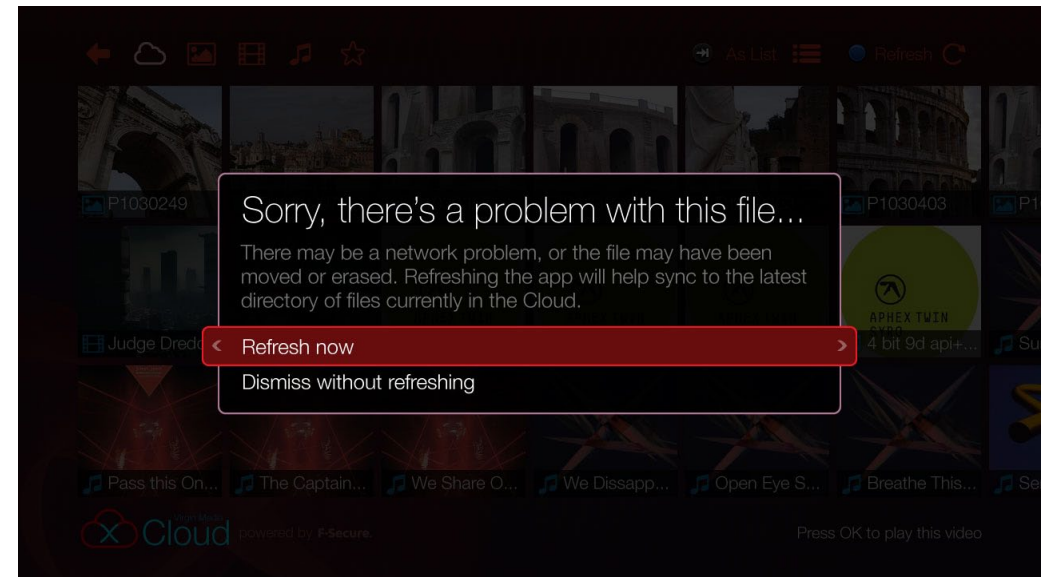
Sometimes the content listed in app and what's on the server will go out of sync (eg. when something is erased or moved) as the app does not make periodic requests to the server. Therefore the user may try to play something that doesn't exist. This pop-up (at right) prompts the user to refresh the app to put it back in sync and load the current directory.
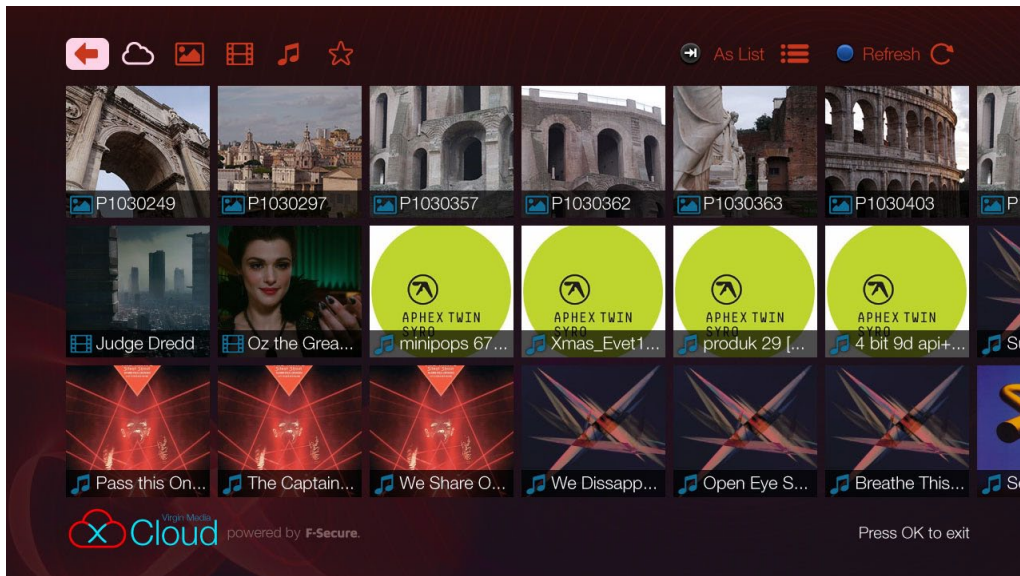
The Exit pop-up at right is triggered by the exit button (highlighted above). A prompt asks the user if they want to keep the session going after quiting (so they don't have to type in their credentials when they run the app again). The user stays logged in by default, so if the user exits the app using one of the bail keys (like HOME or TV) then the user stays logged in. (nb. the text fields should be cleared when "...sign in as a different user" is selected).
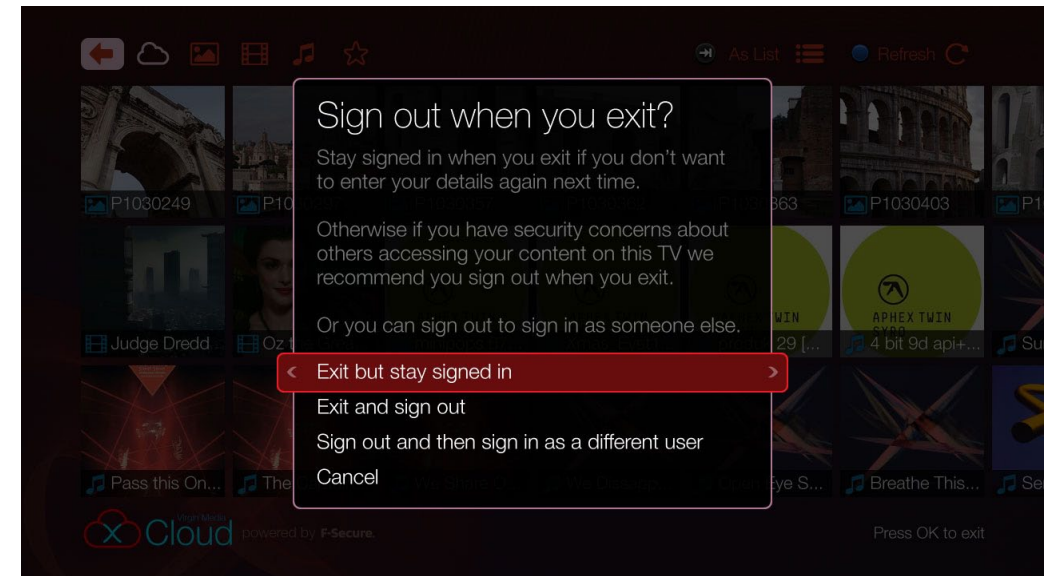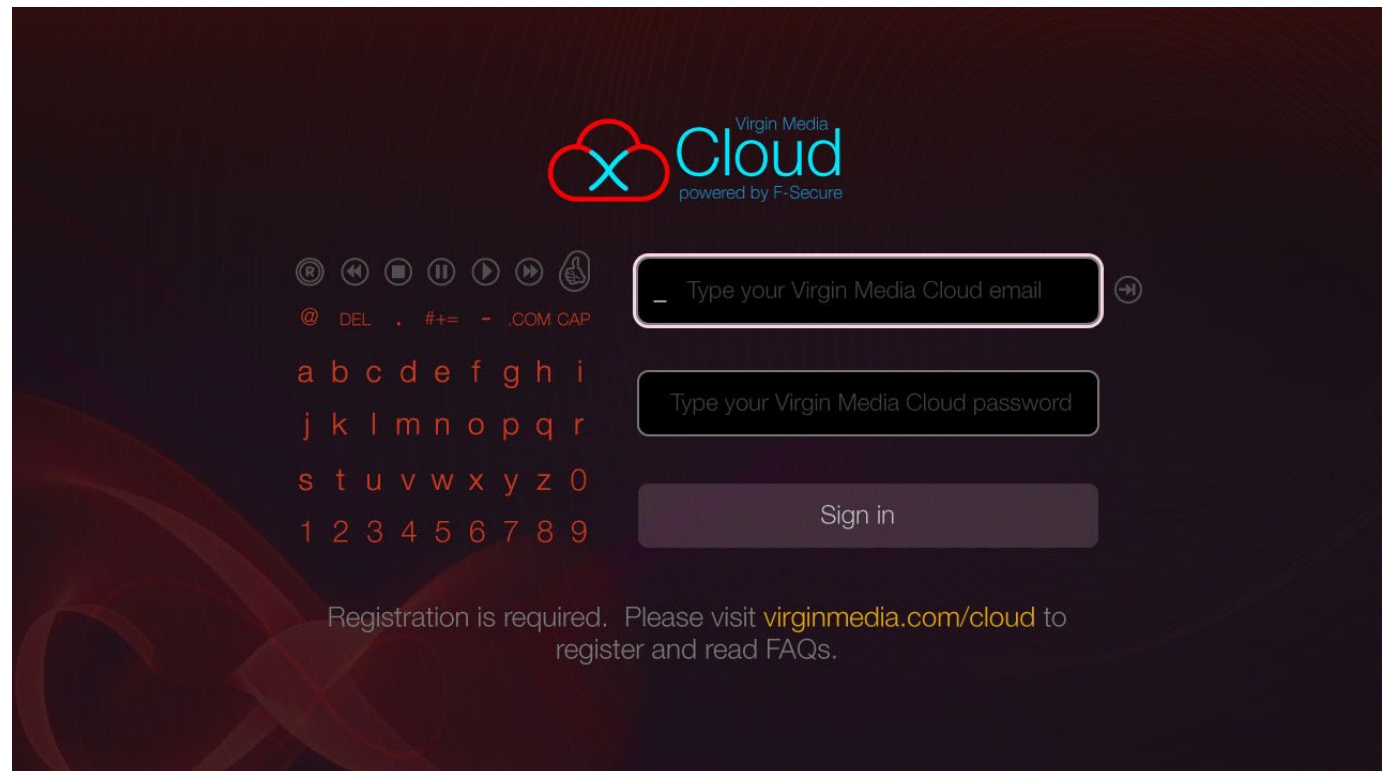
Login Screen

Overview

The Login Screen prompts the user for their Virgin Media Cloud email and password and has 2 text and entry fields and an on-screen keyboard that enables the user to enter them. If the credentials are correct the user proceeds to the Grid Screen, if not they are presented with an Error Pop-up.

Strings can be typed using the multitap method (using the number buttons on the remote control) or by using the on-screen keyboard (which accepts input from the ARROW and OK buttons on the remote control). There are also a select number of characters that can be typed using shortcut keys which are marked along the top row of the on-screen keyboard. This screen accepts a full set of 95 characters, including small letters, capitals, and a full set of symbols.
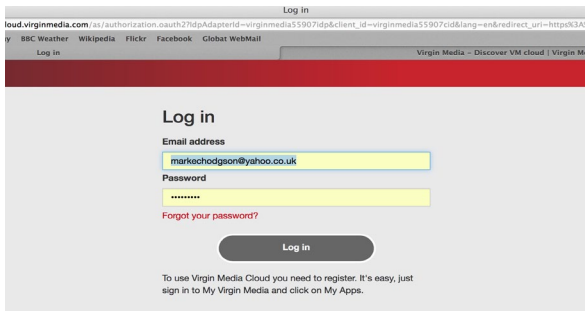
This screen replicates the Log in page on web.cloud.virginmedia.com

The screens's initial state, with the focus on the email field. There are clear prompts written in the fields for the Virgin Media Cloud credentials.

Login Screen

On-screen keyboard

Users can enter their email and password in the text fields using the on-screen keyboard, which requires only the ARROW and OK buttons on their remote control for typing. 95 characters are accessible by switching between 3 pages. The THUMBS UP, THUMBS DOWN, and PAUSE buttons act as shortcuts, approximating the shift and alt keys on a computer keyboard.

Upon an OK press characters will be added to the end of the string in the text field that has text focus. This is indicated by a flashing underscore, which is the active text cursor. The text cursor always leads and is at the end of the string after any new characters typed.

Page 1
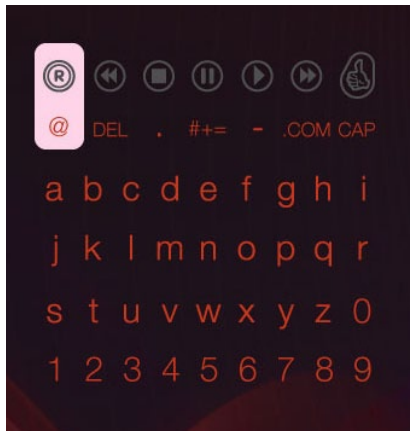
The initial page, showing small letters and numbers. Note row 1 shows button hints for typing shortcuts.

Page 2
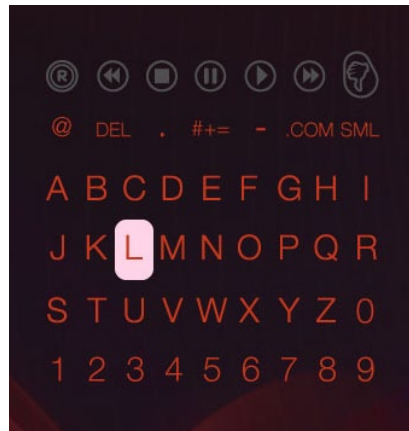
Capital letters and numbers. Shortcut button to trigger the page is THUMBS UP.

Page 3
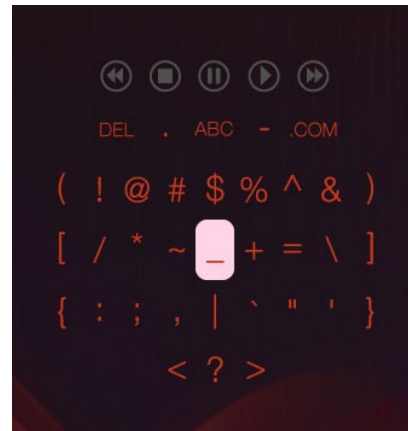
Symbols. Shortcut button to trigger the page is PAUSE.
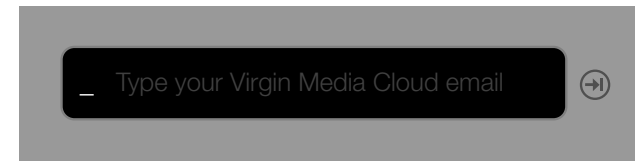
A text field with text focus. A flashing underscore denotes where the next character will be typed.

Login Screen

Text fields

Type your Virgin Media Cloud email

Inactive state of the text field. Instruction line is shown (colour #404040, centred)

Type your Virgin Media Cloud email

Text field that's in focus (has a pink border) but doesn't have text focus.

_ Type your Virgin Media Cloud email

Text field with text focus. The leading underscore flashes at 1 pfs, indicating where characters are about to be typed. SKIP FWD button hint also appears, prompting 'tab to next input' action.

_ Type your Virgin Media Cloud email

The above after the OK button is pressed. The text focus appears, as well as SKIP FWD button hint.

richard.charles.nicholas.branson_

String has been typed using the on-screen keyboard. Text cursor continues to flash. Instuction line hides when first character is typed.

richard.charles.nicholas.branson

String has been typed using the multitap method. Letter is yellow (#dea405) while user is cycling through letters using a number button; continues if user keeps pressing same key every 800 ms.

rles.nicholas.branson@virginmedia.com_

If the string is wider than the field then the text cursor stays at the right hand side and the string is pushed left with each new character that appears.

rles.nicholas.branson@virginmedia.com_

Same as left, but using multitap. Characters turn back to white and the flashing underscore reappears when the user is idle for 800 ms.

rles.nicholas.branson@virginmedia.com

Active state of the text field. Focus is elsewhere after string has been typed and text cursor is hidden (it no longer has text focus).

rles.nicholas.branson@virginmedia.com

Active state of the text field. Focus is on the text field but characters will not be added to the string until user presses OK and text cursor re-appears.

Users can type in text fields using the on-screen keyboard or the multitap method by focusing on the field and pressing the number buttons on the remote control. Characters can only be added to the end of the string, so if the user has made a mistake they must delete characters to make a correction.

Multitap typing cycles and remote control button shortcuts

1	. - _ @ 1 ! ? # $ % & * ~ ^ ( ) [ ] { } < > /	\ + = : ; , ` ' "
2	a b c 2 A B C
3	d e f 3 D E F
4	g h i 4 G H I
5	j k l 5 J K L
6	m n o 6 M N O
7	p q r s 7 P Q R S
8	t u v 8 T U V
9	w x y z 9 W X Y Z
0	SPC 0

	Shift to capitals
	Shift to small letters
	Shift to symbols
	Backspace delete
	Space
	Tab to next input
®	@
	.
	-

All 95 characters in the typeset above can be typed using the numberpad (0-9 buttons) on the remote control using multitap. Although typing this way takes some practice it's a much faster way to type with a remote control compared to using the on-screen keyboard.

*Multi-tap Functionality Using the Number Buttons*

If a number button is pressed the leading underscore hides and a new yellow (#dea405) character is added to the end of the string in the text field in focus. The character that appears is the first letter in the array of characters assigned to that button (listed above, left column).   If the same button is tapped quickly (in less than 800 ms) the character at the end of the string changes to the next character in the array, looping if the end of the array is reached. Else if another number button is pressed the current letter turns white (#ebebeb) and a new yellow character is added to the end of the string. Else if a number button is held (no depress for 1000 ms) then a corresponding number character is added to the end of the string in white (marked in red in the chart above), and the flashing leading underscore reappears. Else If the user is idle (no presses at all for 800 ms) any yellow character at the end of a string turns white and the flashing underscore returns to the end of the string, prompting for the next letter.

Other Shortcut Buttons on the Remote Control

Other buttons on the remote control give the user quick access to space, delete, full stop, figure dash, at symbol, and the equivalents of the tab, shift, and alt keys on a computer keyboard (listed above, right column).
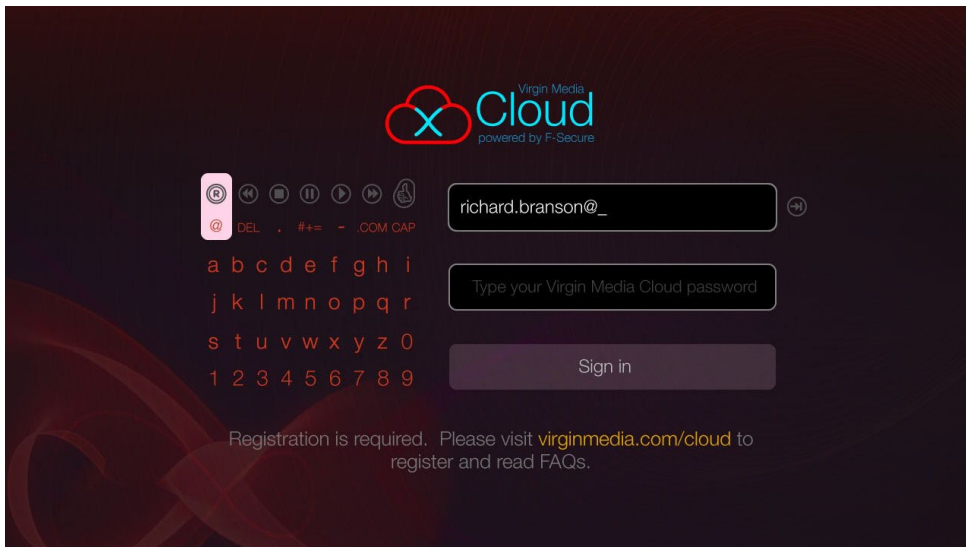
Login Screen

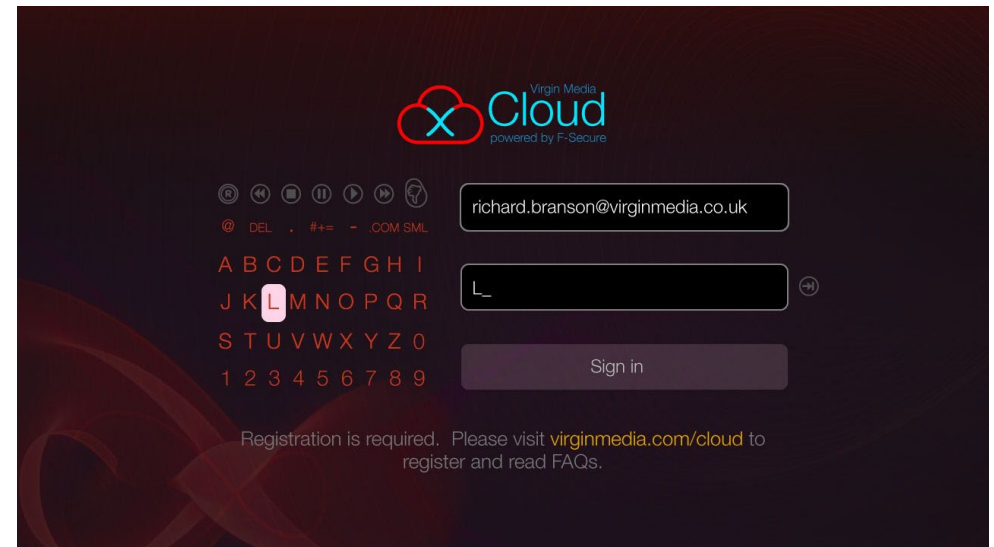**Example User Journey: signing in**
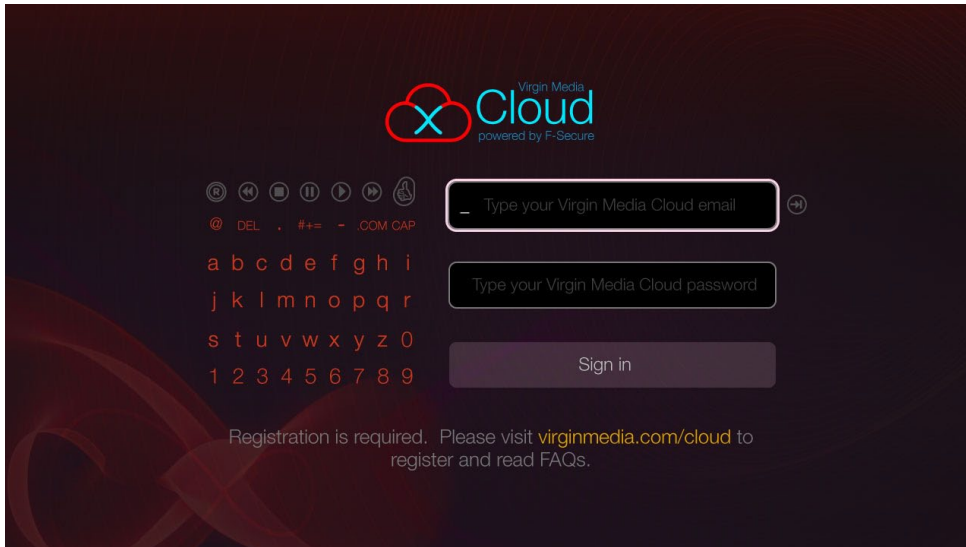
1. There are 2 foci: the pink box is the object focus and the flashing underscore is the text focus. When typing through multitap both foci are on the same object.
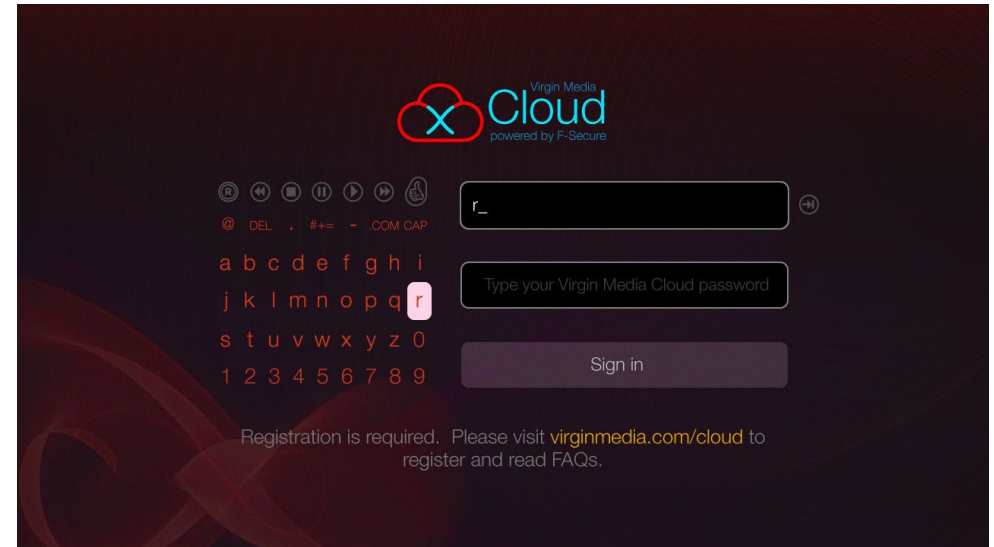
2. LEFT pressed, DOWN pressed 2 times, and OK pressed. When typing through the on-screen keyboard the 2 foci on are different objects. An 'r' has been typed in the field.
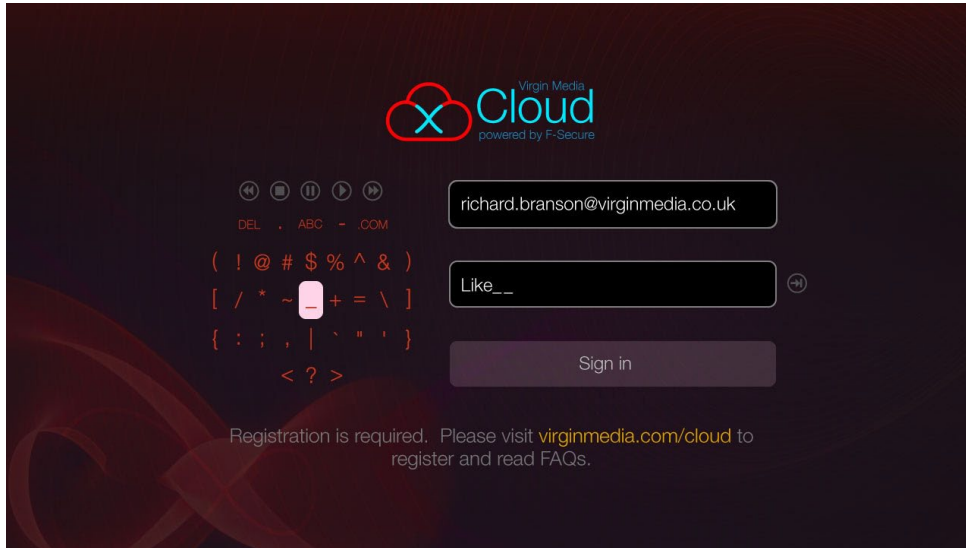

3. User keeps typing using ARROW and OK buttons. An OK press on the '@' symbol button has been added to the string that has text focus.

4. After finishing typing the email the user presses SKIP FWD to move the text focus to the next text field. Then THUMBS UP is pressed to shift the keyboard to all caps, and the user types a capital 'L'.

Login Screen

Example User Journey: signing in

5. PAUSED pressed to swich to symbols on the keyboard. User navigates to and presses OK on the underscore button.
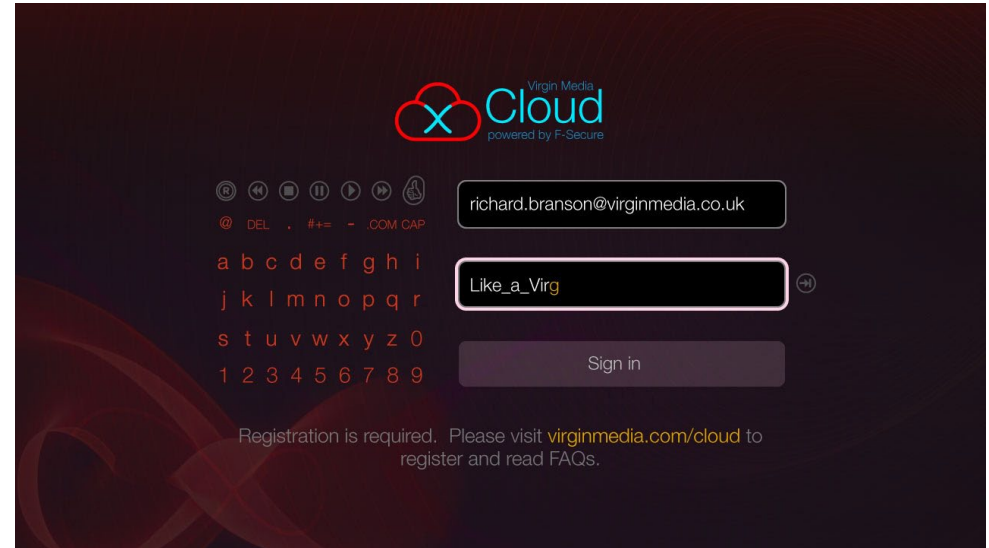
6. User navigates to the second text field. They continue typing using the number buttons (the multitap method). (nb. the password will not likely be typed in a public space so the characters aren't obscured)
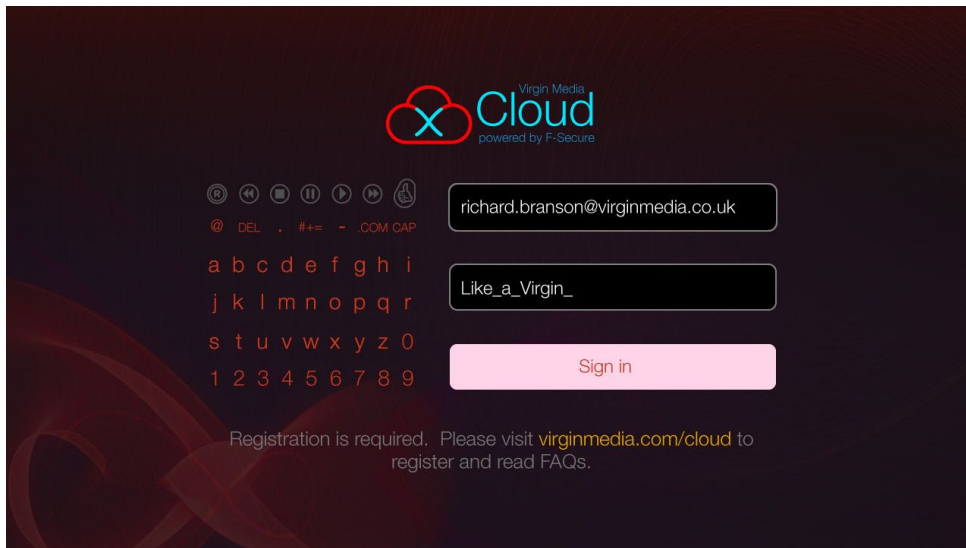
7. User finishes typing the password and presses OK. This moves the focus to the the Sing in button.
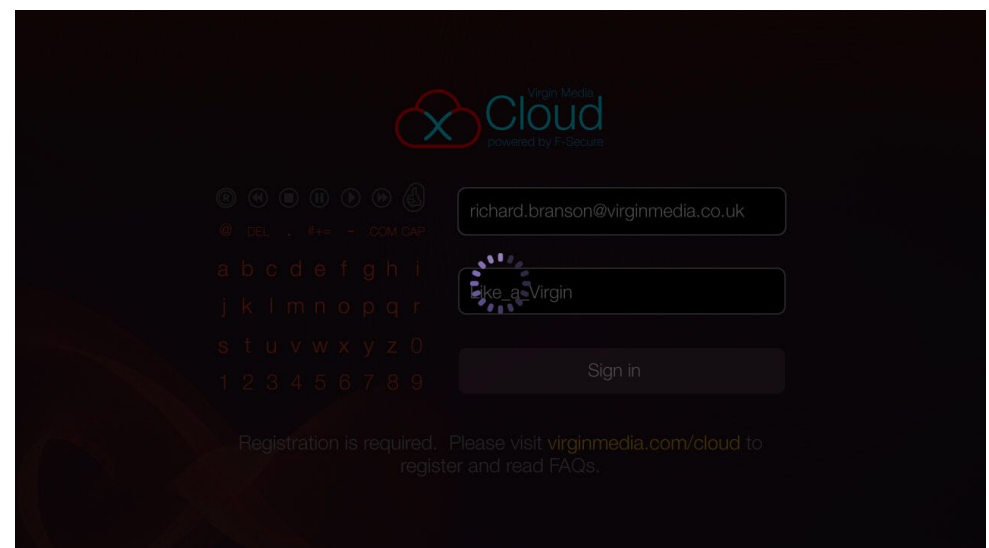
8. OK pressed. Loading Screen (see LoadingScreen_14Nov2014.pdf for details) appears over the Login Screen while VM Cloud credentials are checked.

Login Screen

Button Behaviour

Element	Button	Action
All	OK	Flash the activated state for 1 second.
	RECORD	Adds a '@' symbol to the end of the string with text focus.
	REWIND	Deletes 1 character from the end of the string with text focus. If the string is erased then the instruction line re-appears.
	STOP	Adds a '.' symbol to the end of the string with text focus.
	PAUSE	Toggles between small letters (page 3) and symbols (page 1) of the on-screen keyboard. Button label on e1 toggles between '#+=' and 'ABC' respectively.
	PLAY	Adds a '-' symbol to the end of the string with text focus.
	FAST FORWARD	Adds a space to the end of the string with text focus.
	THUMBS UP	If all caps (page 2) is showing on the keyboard then BONK. Else shifts keyboard to all caps and toggles the button in slot i1 to THUMBS DOWN button hint and button label to 'SML'.
	THUMBS DOWN	If small letters (page 1) are showing on the keyboard then BONK. Else shifts keyboard to small letters and toggles the button in slot i1 to THUMBS UP button hint and button lable to 'CAP'.
	SKIP FORWARD	If focus is on j5 then moves the focus to the topmost input object in column j. Else move the focus to the next input object below.
Input Objects	LEFT	Moves focus to same row in column i.
	RIGHT	Wraps focus to same row in column a.
	UP	If focus is on j1 it wraps to j5. Else moves focus to next object above.
	DOWN	If focus is on j5 it wraps to j1. Else moves focus to next object below.
	OK	If object is a text field that does not have text focus then the text focus is moved to the current object. Else if on j1 and it already has text focus then move the both foci to j3. Else if on j3 and it already has text focus then move the focus to j5, leaving the text focus on j3. If object is a text field and the first character of the string is typed then hide the instruction line.
	CLEAR	If on a text field then it moves the text focus to the current object and then removes the entire string from the field and restores the instruction line.
	NUMBERS (0-9)	If a text field without text focus then it moves the text focus to the current object and adds a character to the end of the string using multitap (see page 8)
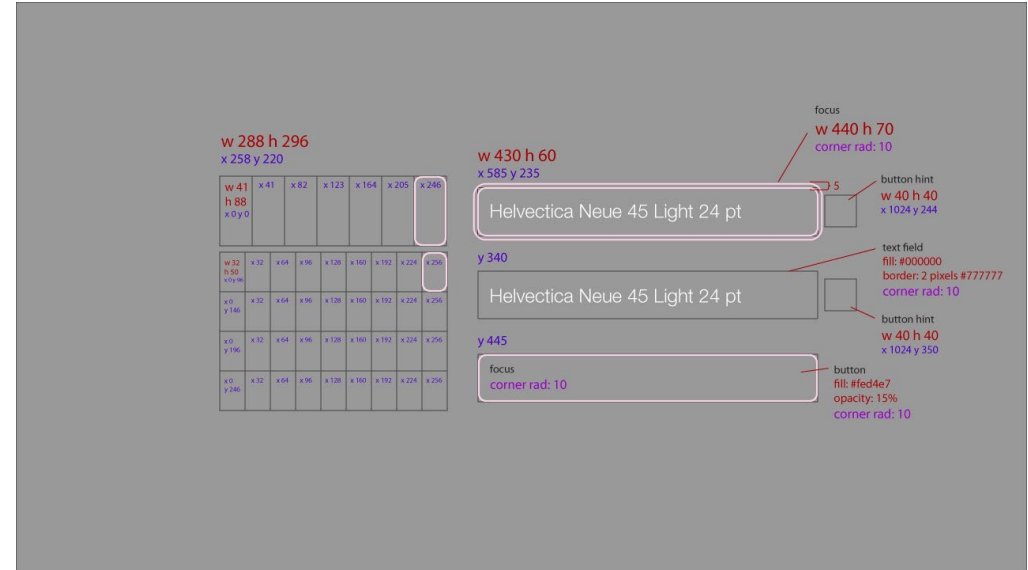
Measurements and positions of interactive elements.
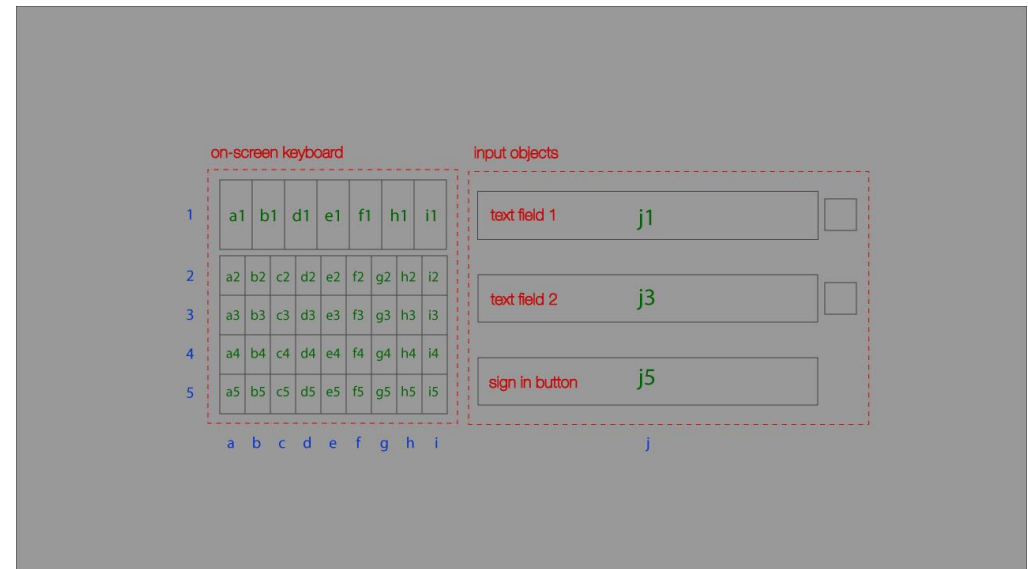
Button references. Columns are labelled a to j, rows are 1 to 5.

Login Screen
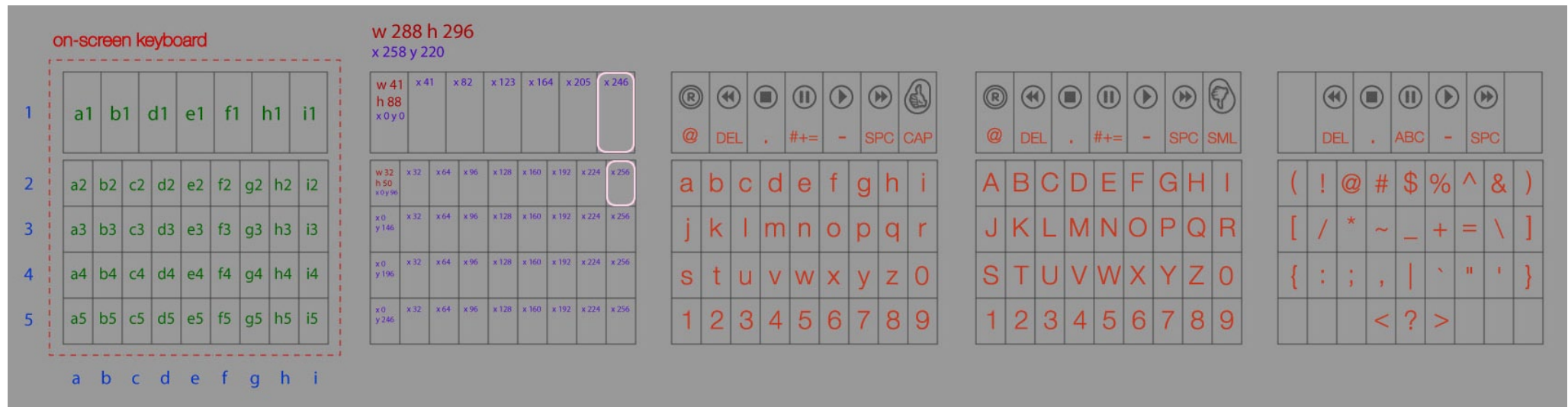
| Button References | Measurements and positions of interactive elements | Page 1: small letters and numbers | Page 2: capital letters and numbers | Page 3: symbols |

Button Behaviour

Element	Button	Action
On-screen Keyboard	LEFT	If focus is on leftmost selectable button then it wraps the focus to same or greater row in column j. Else it moves the focus to the next selectable button on the left.
	RIGHT	If focus is on rightmost selectable button then it moves the focus to same or greater row in column j. Else it moves the focus to the next selectable button on the right.
	UP	If on row 1 then it wraps the focus to the same or greater column in row 5. Else it moves the focus to the next same column or greater on the row above.
	DOWN	If on row 5 then it wraps the focus to the same or greater column in row 1. Else it moves the focus to the next same column or greater on the row below.
	OK	Adds the associated character of the button in focus to the end of the string with text focus.
	NUMBERS (0-9)	Adds the associated number to the end of the string with text focus.

Grid Screen

Overview

The Grid Screen has 2 interactive areas: a Task Bar and a Tile Grid. There is also a tooltip message in the lower right corner that updates with every focus change. This message explains what will happen when the user presses OK on the item in focus.

The Tile Grid is made of 6 x 3 pages of media tiles displaying thumbnail image previews. They are sorted with the most recent first starting at the upper left.

The categories are All Media (pictures, videos, and music, together), Pictures, Videos, Music, and Favourites (which are tagged pictures, videos, or songs).
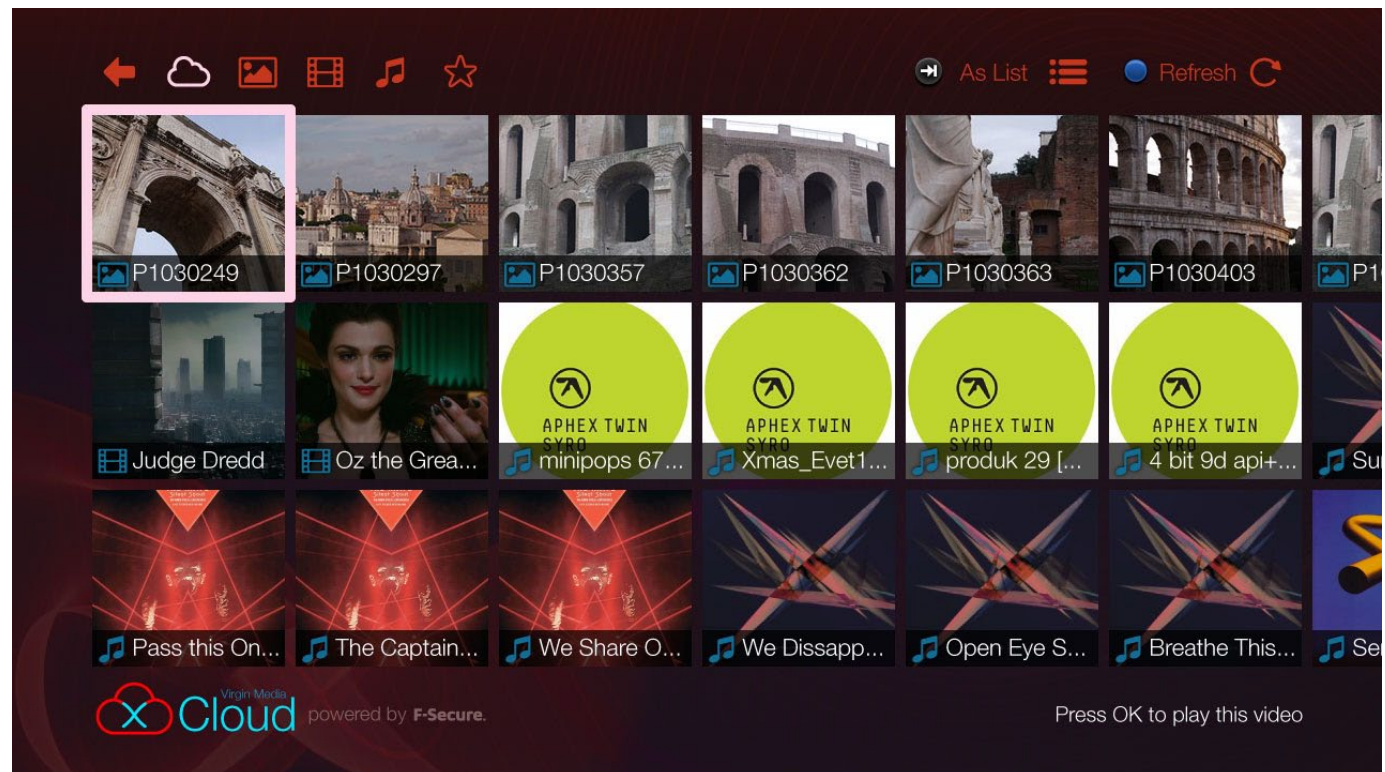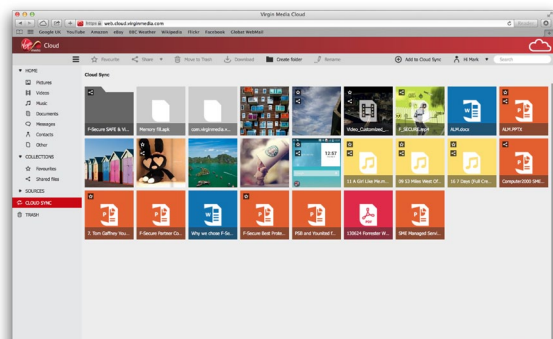
This screen replicates the grid view on web.cloud.virginmedia.com

The app's initial state, the Recent Media grid. Recent pictures, videos, and songs are shown.

Grid Screen

The Task Bar

The first button on the task bar is the exit button, which triggers the quit pop-up.

The next 5 Task Bar buttons mirror "Home," "Pictures," "Videos," "Music," and "Favourites" in left nav bar on the VM Cloud website sorted by "Date Modified." They act as filter buttons

The next button in slot e1 labelled "As List" is equvalient to showing all media files using the list view (sorted by "Name.")

Slot f1 has a refresh button that allows the user to get the most up-to-date version of the file directory. As the app only checks for the latest file directory when the it first loads (there is risk of too many server calls if keeping the directory up-to-date was automated) this button is useful if files have been changed on another device while the TV app is running.

Note the button states illustrated at the bottom of this page. The 5 media filter buttons display an 'active' state to indicate which grid is 'on' and being viewed below.
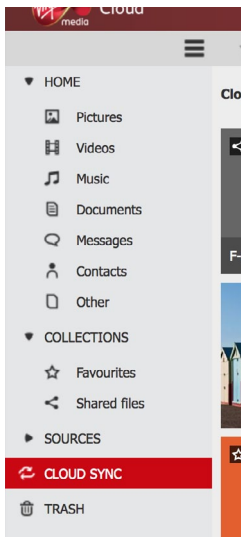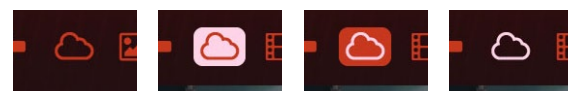
left nav bar on the website   Button states (normal, focused, activated, active)   Button states (normal, focused, activated)
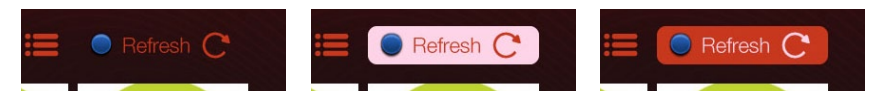
Grid Screen
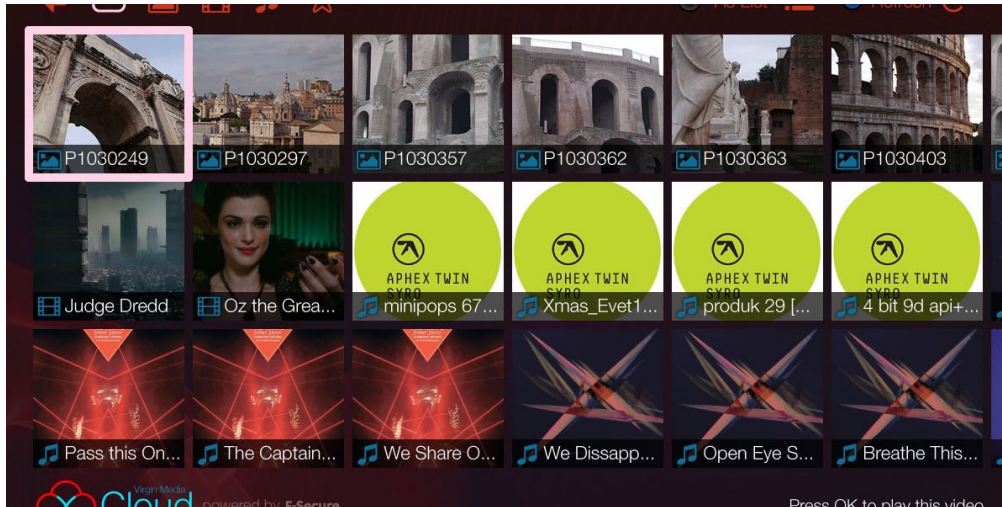
Media grid showing 'all media.'

The Tile Grid

The Tile Grid displays pages made of 18 media items. The most recent is first, going left to right. By navigating to the right the user can scroll over to additional pages of 18 items.

Display Order

In the Pictures, Video, and Music grids the most recent file is shown in slot a2 and the 18th most recent file in the category is shown on slot f4.

The All Media and All Favourites grids show all 3 media types (if present in The Cloud). If there are 6 or greater of each type then row 2 shows pictures, row 3 shows videos and row 4 shows music. If there are less than 6 of any media type then the other media types fill in the gaps so that the user still sees all types of media present but no empty slots — in other words, if there are 18 or greater items in the cloud all the slots in the grid will be filled. The app takes items from either the previous or preceding media types to fill all the gaps.

Media Tile

Each media tile is composed of a thumbnail image and an information bar along the bottom, showing a media type icon and a file name. Long file names are truncated, indicated by an ellipsis. When the media tile is in focus the ellipsis is removed that the full name crawls to the left so that the user can read the full file name.
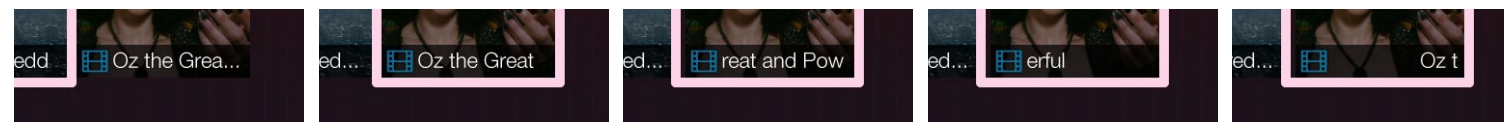
Crawling file name: when in focus the filename crawls across the bottom of the thumbnail so long names can be read in full.
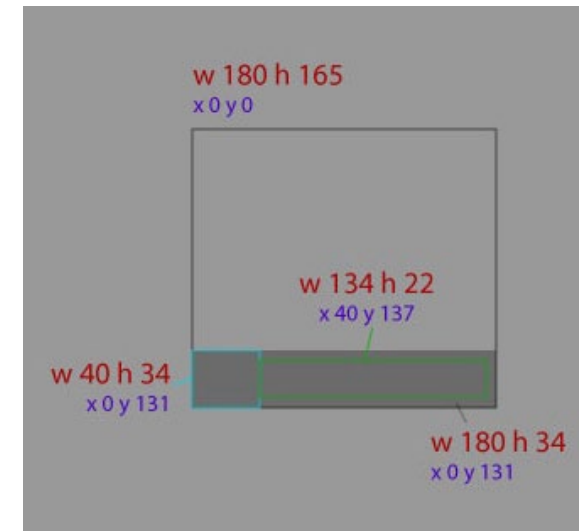
Measurements of the Media Tile information bar.

Grid Screen

Screen Loading Sequence
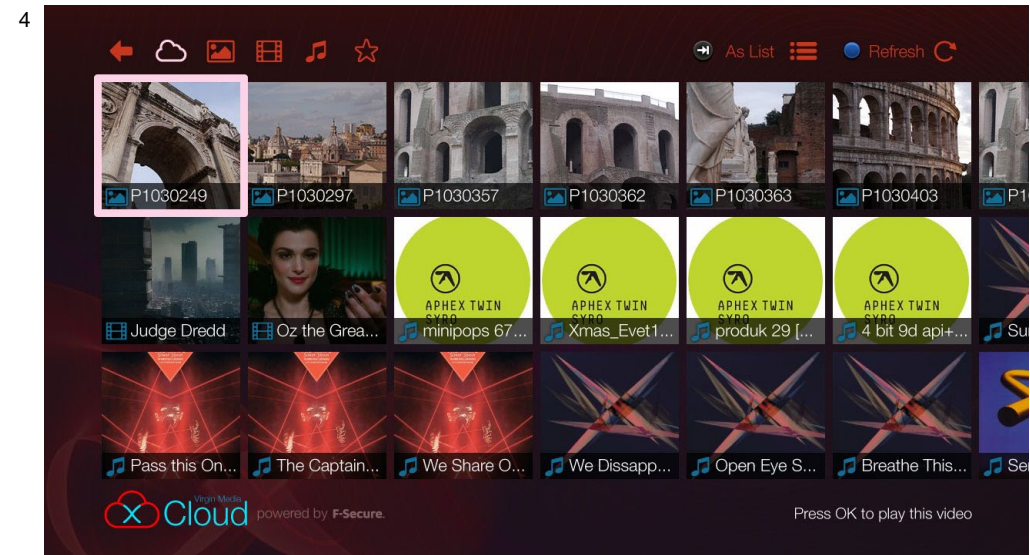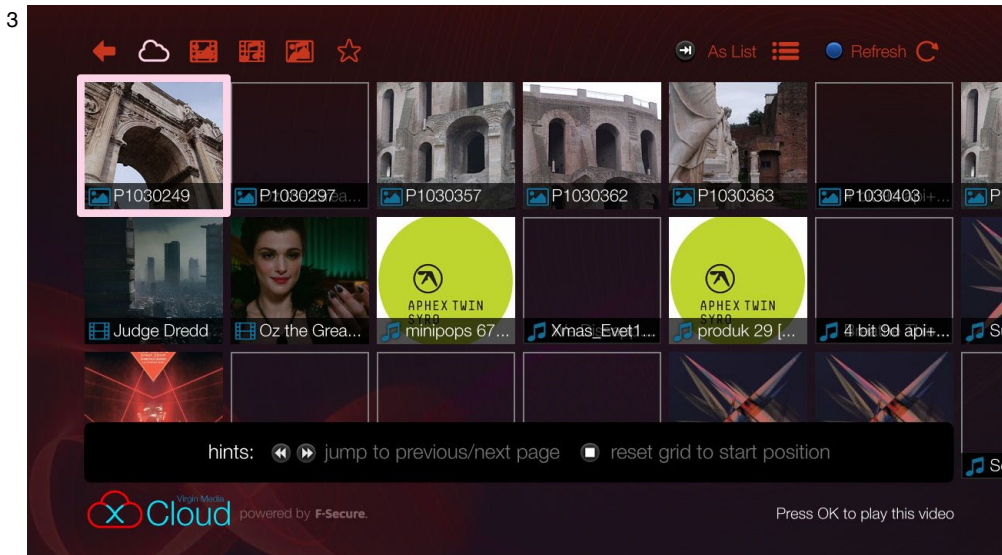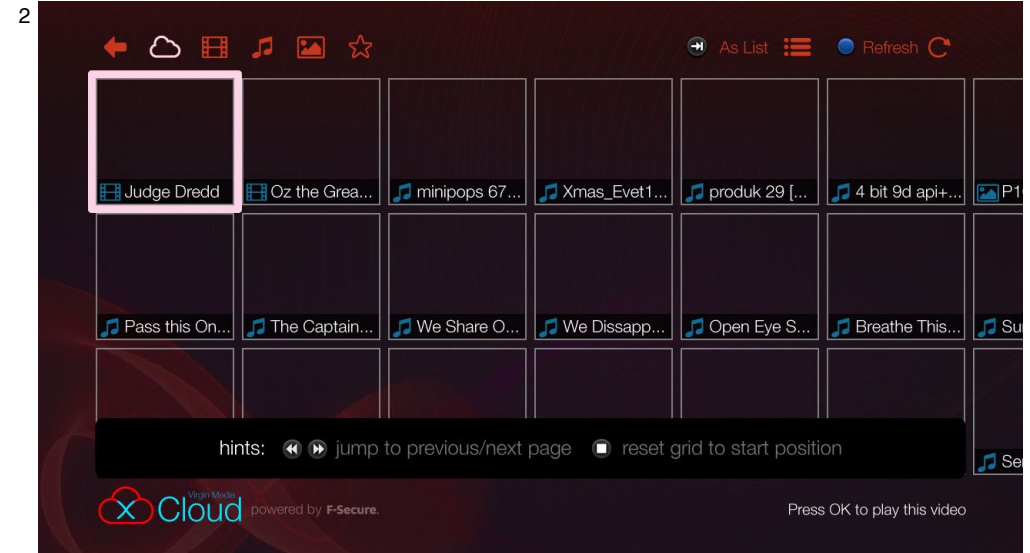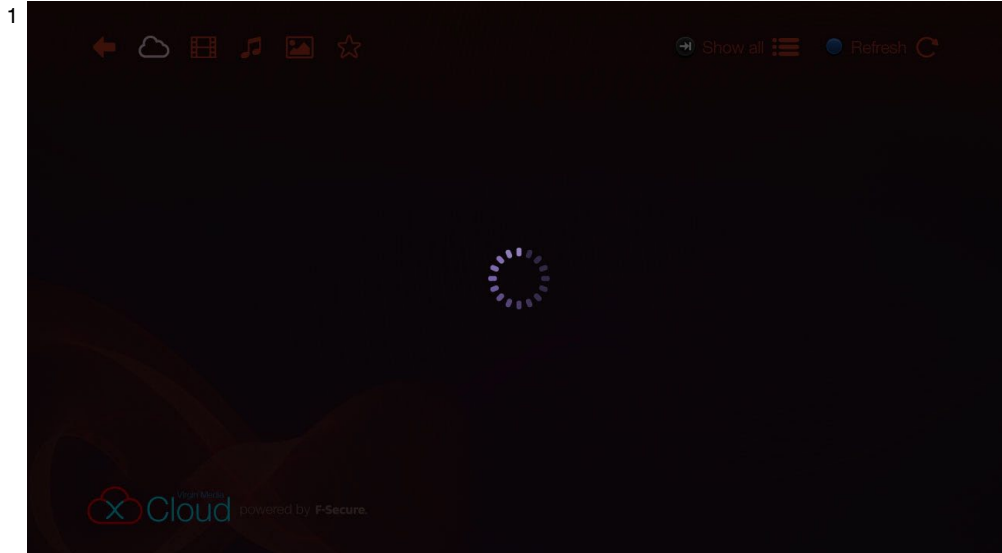
File names and image placeholders appear before thumbnails so that less time is spent looking at a blank screen during refresh. Thumbnail images appear as soon as they're downloaded. A button hint pop-up appears when the screen is first loaded, and is dismissed 3 seconds after the last visbile thumbnail has downloaded or when the user presses a button (whichever is first).

Grid Screen

Media Categories: Videos and Music
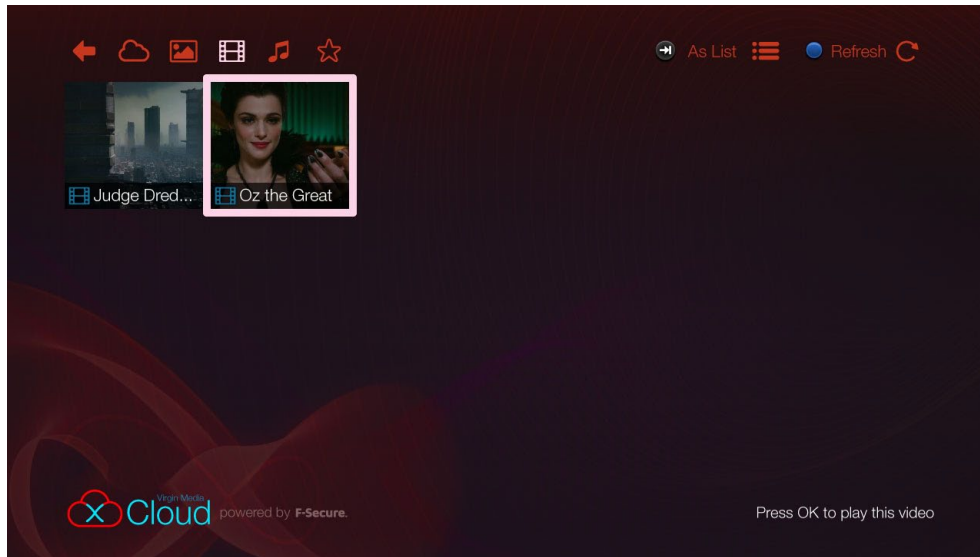
Videos Grid. There are not enough video assets to fill the screen in this example.
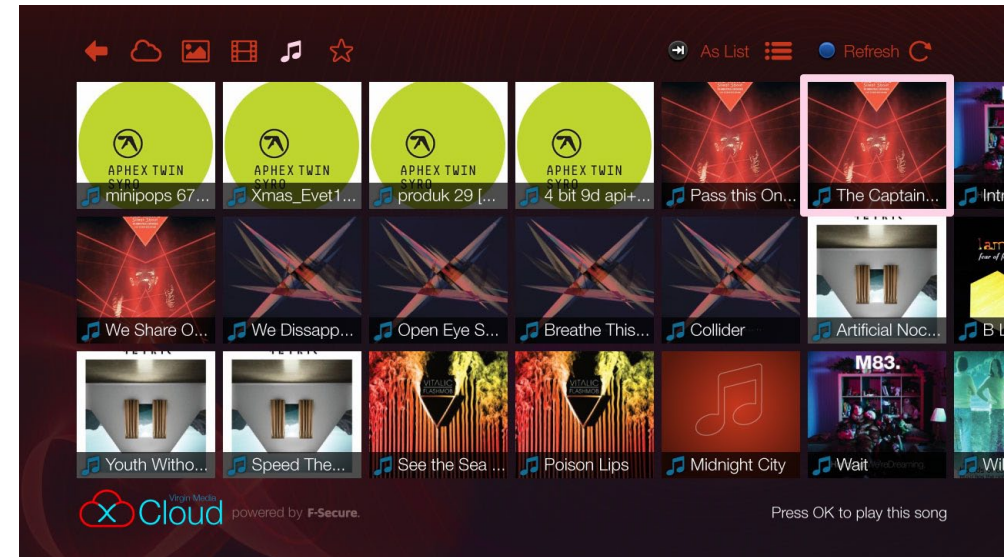
Music Grid. Note one song does not have artwork so a music placeholder is used.
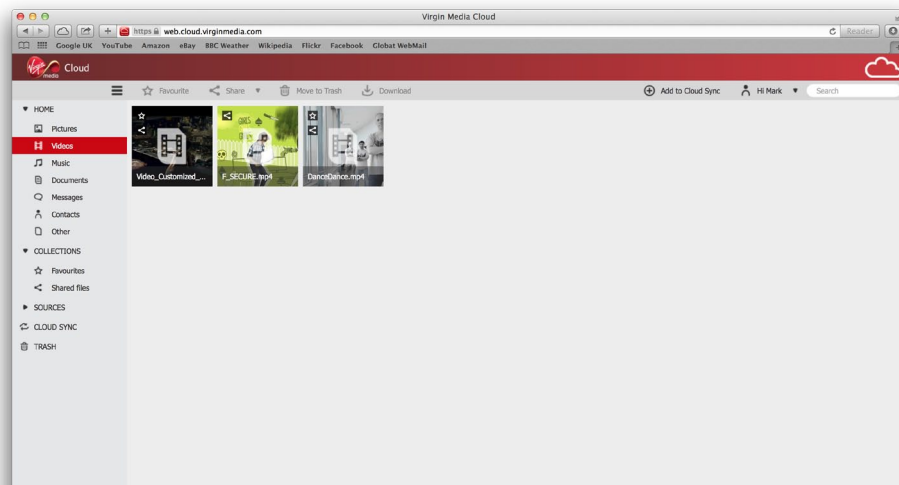
Replicates Home > Videos set to grid view and sorted by "Date Modified"
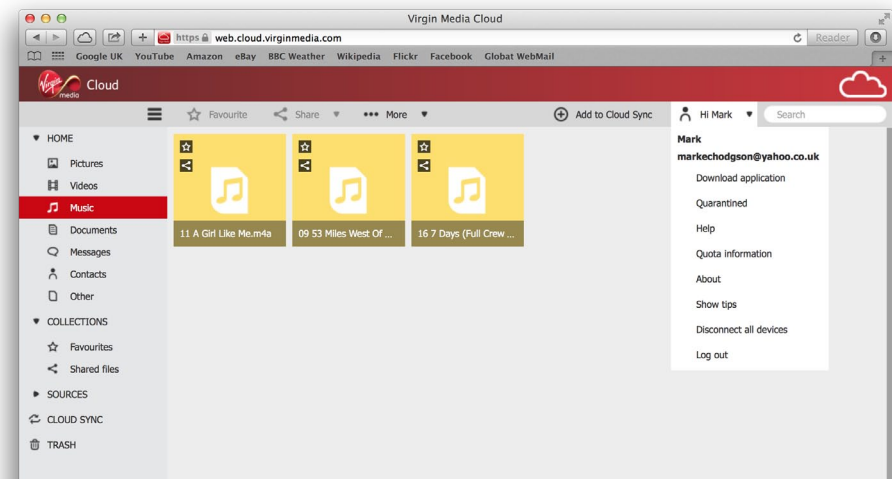
Replicates Home > Music set to grid view and sorted by "Date Modified"

Grid Screen

Media Categories: Pictures and Favourites
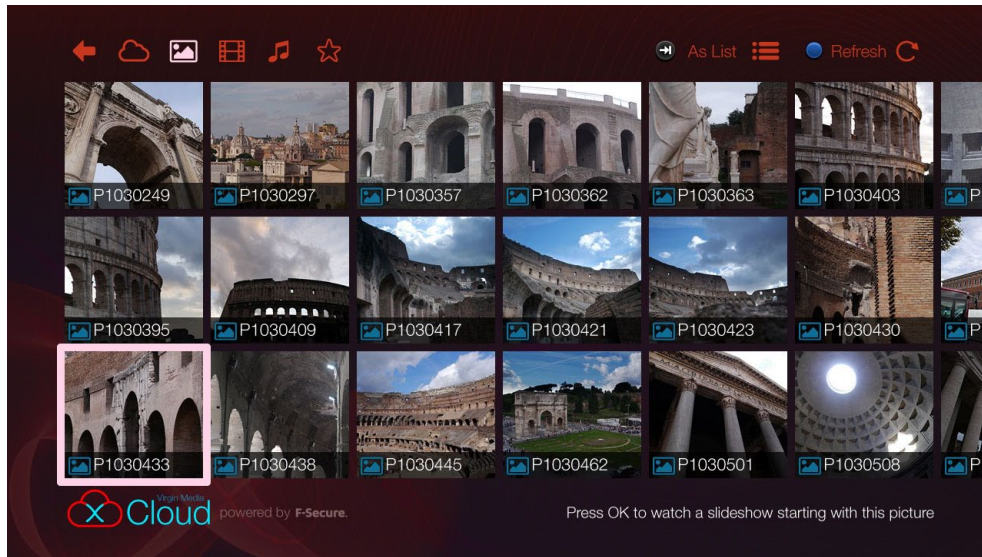
Recent Pictures Grid
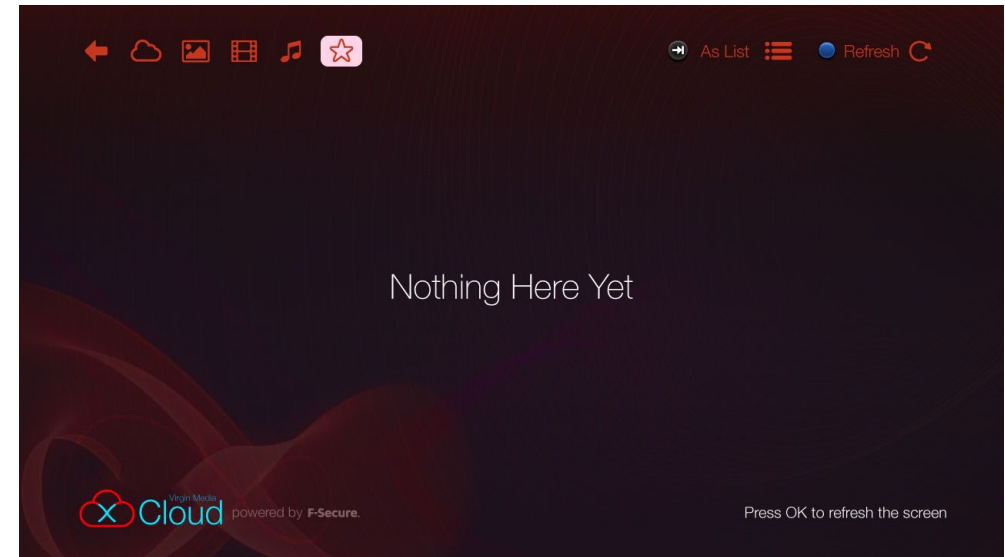
Recent Favourites Grid (note: the user hasn't choosen any favourites yet).
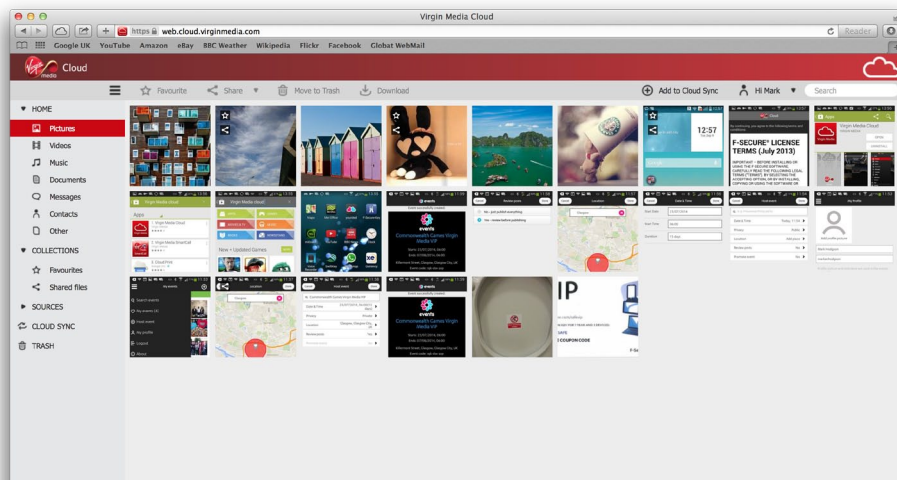
Replicates Home > Pictures set to grid view and sorted by "Date Modified"
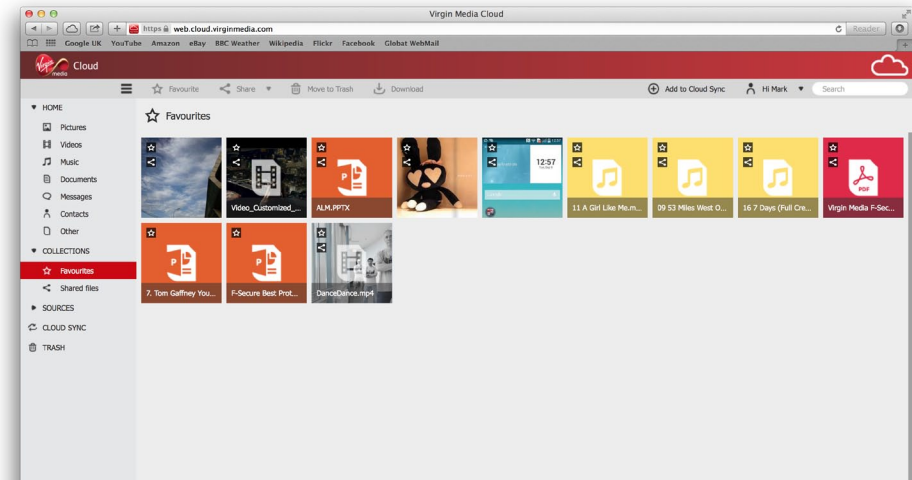
Replicates Collections > Favourites set to grid view and sorted by "Date Modified"

Grid Screen

Navigating pages
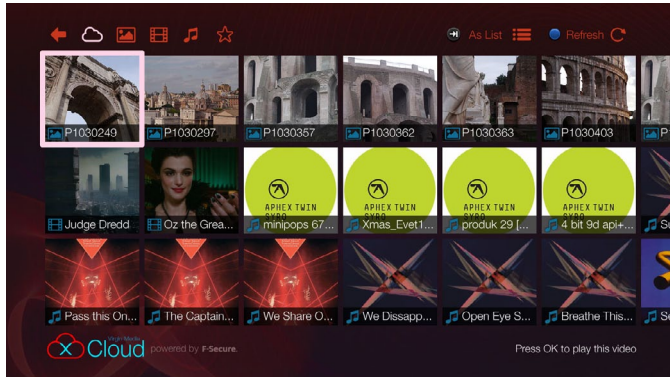
Page 1
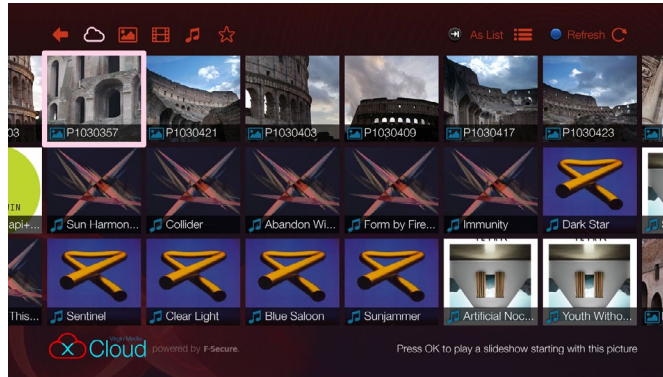
Page 2
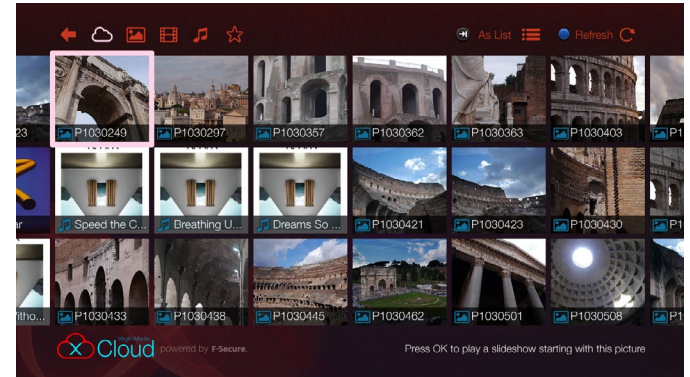
Page 3
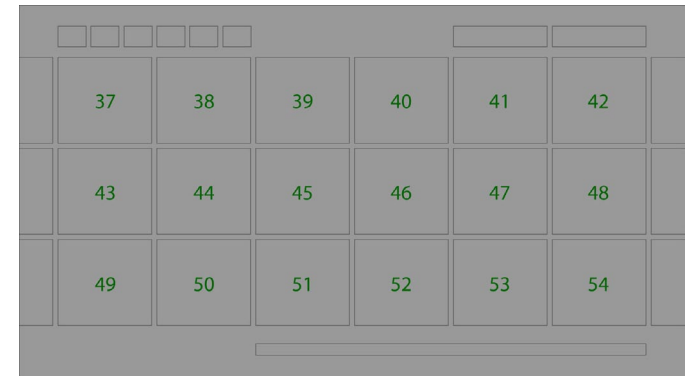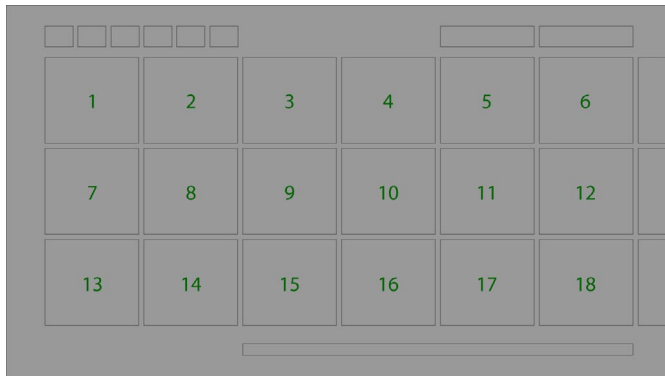
The Grid Screen displays a page at a time of 18 media items, with the edges of adjacent pages visible on the screen edges. When a Grid Screen loads the overflow will be seen on the right hand screen edge only (if there are more than 18 items in total). The user can navigate from page 1 to page 2 by pressing right with the focus on column f or by pressing FAST FORWARD with the focus on any slot (it acts as a quick key). The grid always move left and right in pages, not as a column by column scroll, therefore if the focus is on slot f2 and RIGHT is pressed then the focus will jump to a2 and all the thumbnails will shift to the left 6 slots.
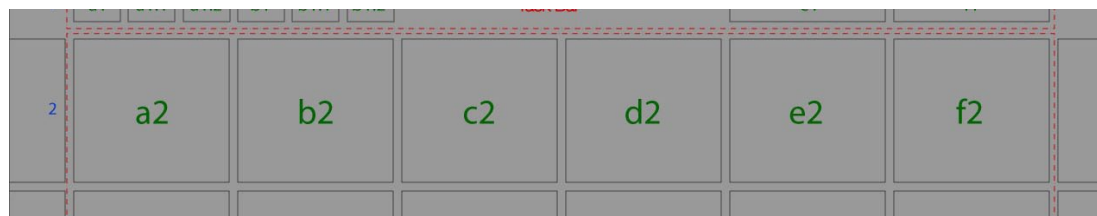
Row 2 slot references.

Grid Screen

Button Behaviour

| Element	Button	Action
All	LEFT, UP, RIGHT, DOWN	Tooltip message updates in the lower right corner of the screen.
	OK	Flash the activated state for 1 second.
	SKIP BACK	BONK.
	SKIP FWD	Switches to List Screen view.
	BLUE	Refreshes the screen (darken the screen, display a loading graphic, retrieve the most up-to-date directory, and then update the display with any new thumbnails).
	FFWD	If there is any overflow of tiles on the right ege then it shifts all tiles 6 slots to the left (jumps to the next page). Else BONK.
	REWIND	If there is any overlow of tiles on the left edge then it shifts all tiles 6 slots to the right (jumps to he previous page). Else BONK.
	STOP	If the focus is on a2 and on the first page then reloads the screen. Else the focus moves to slot a2 and the tiles shift to the first page of tiles (screen reset)
Task Bar	LEFT	If on slot a1 then the focus wraps to slot f1. Else focus moves to the next slot along row 1 to the left.
	RIGHT	If on slot f1 then the focus wraps to slot a1. Else focus moves to the next slot along row 1 to the right.
	UP	Wraps the focus to row 4 in the same column.
	DOWN	Moves the focus to row 2 in the same column.
	OK	If on slot a1 then it triggers the quit prompt. If on e1 then it switches to the List Screen view. If on f1 OR an active category button (slots a1.1 - b1.2) then the screen is refreshed. Else load the associated category thumbnails (eg. load video thumbnails if on slot a1.2).
Tile Grid	LEFT	If on column a and on the first page then BONK. Else if on column a then shift all tiles 6 slots to the right to bring the next page into focus. Else moves focus to the next slot on the left.
	RIGHT	If on the last populated slot in a row on the last page then BONK. Else if on column f then it moves the focus to column a and shifts all tiles 6 slots to the left (the focus may also have to shift up if a row on the new page is empty, as the focus should only be on populated tiles). Else moves focus to the next slot on the right.
	UP	If on a2 - d2 and there is an active Task Bar button then the focus moves to that button. Else if on a2 - d2 and the last focus position was on a1 - b1.2 then focus moves to that last position. Else if c2 or d2 then moves the focus to b1.2. Else if on e2-f2 then focus moves to row 1 in the same column. Else it moves the focus to the next slot above.
	DOWN	If on row 4 then focus wraps to row 2. Else moves focus to next slot below.
	OK	Switches to the Media Player screen, auto-launching a playlist beginning with the file associated with the thumbnail.

Measurements and positions of interactive elements (positions are the coordinates of the top left of each bounding box).
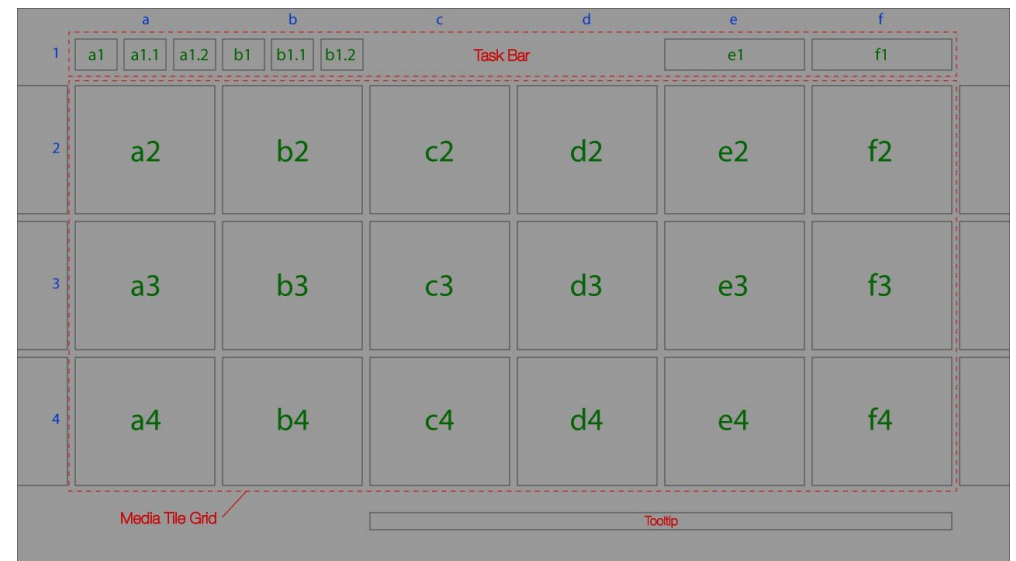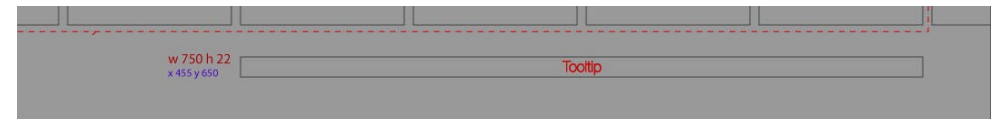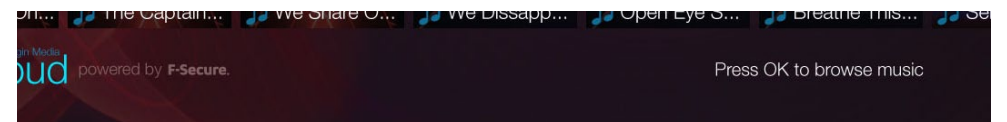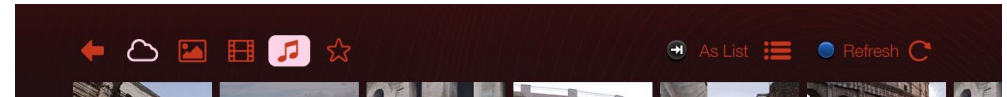

Button references. Columns are labelled a to f, rows are 1 to 4.

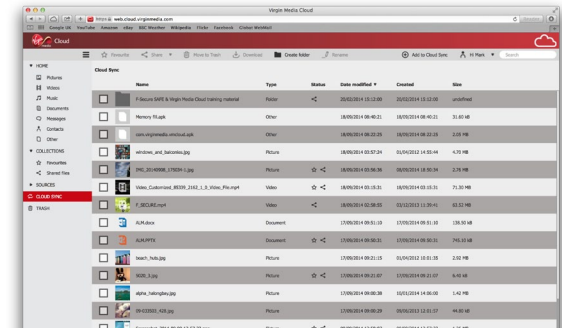## Grid Screen

Tooltip Messages
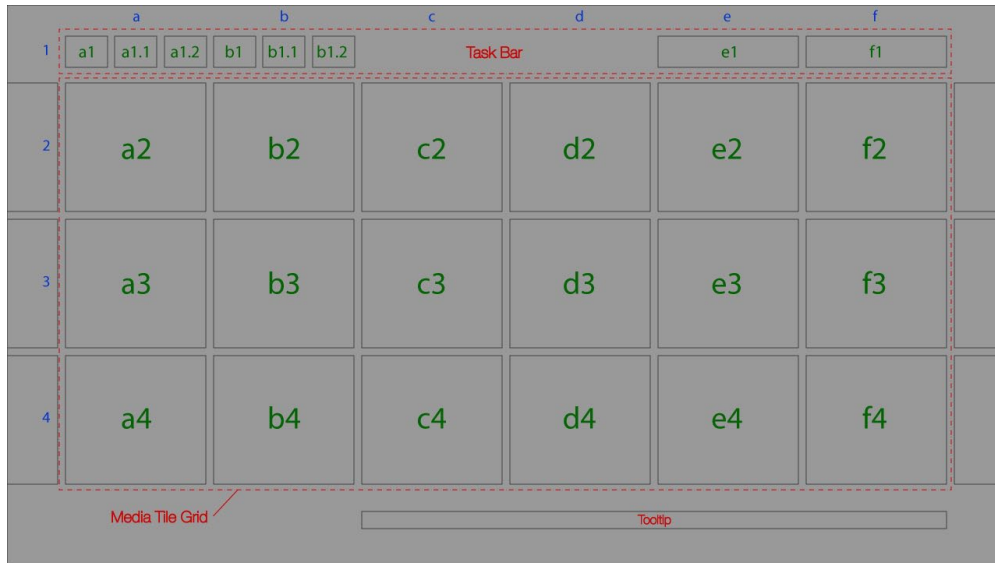
Button references. Columns are labelled a to f, rows are 1 to 4.

Tooltip message is right justified. The message updates every time the focus moves to a new button slot.

Element	Slot	Tooltip Message
Task Bar	a1	Press OK to exit
	a1.1	If All Media grid is loaded 'Press OK to refresh the screen' else 'Press OK to browse all media'
	a1.2	If Pictures grid is loaded 'Press OK to refresh the screen' else 'Press OK to browse pictures'
	b1	If Video grid is loaded 'Press OK to refresh the screen' else 'Press OK to browse videos'
	b1.1	If Music grid is loaded 'Press OK to refresh the screen' else 'Press OK to browse music'
	b1.2	If Favourites grid is loaded 'Press OK to refresh the screen' else 'Press OK to browse your favourited media'
	e1	Press OK to view all media as lists
	f1	Press OK to refresh the screen
Tile Grid	a2 - f4	If a video tile then 'Press OK to play this video' else if a music tile then 'Press OK to play this song' else if a picture tile then 'Press OK to watch a slideshow starting with this picture'

List Screen

This screen replicates the list view on web.cloud.virginmedia.com. The website only shows one level of the directory at a time, the TV app shows each level as a separate column.

Overview

While the Grid Screen shows only the recently modified media the List Columns Area allows the user to browse through the entire directory through scrolling lists and columns. Like the Grid Screen it has a Task Bar at the top and a tooltip message in the lower right that updates with every focus change.

The items are all listed A-Z (sorted by 'Name'). Each level of the directory is represented by a vertical list. Child directories are always to the right of their parents, so that the user can navigate to any sublevel by highlighting folders and then scrolling to the right to new columnsv.

The List Screen has 4 visible columns, with the middle 2 selectable. Each column has 13 visible lines with the top 12 selectable.

The first column in this app replicates the main items on left nav bar on the website, but in this app the 'All' folder is added to the top. This folder contains all media types. The 'Home' folder organises the files in the cloud into the subfolders named Pictures', 'Videos', and 'Music'. The 'Collections' folder contains a 'Favourites' subfolder.

The app will hide files in the list that are not compatible videos, music, or pictures.
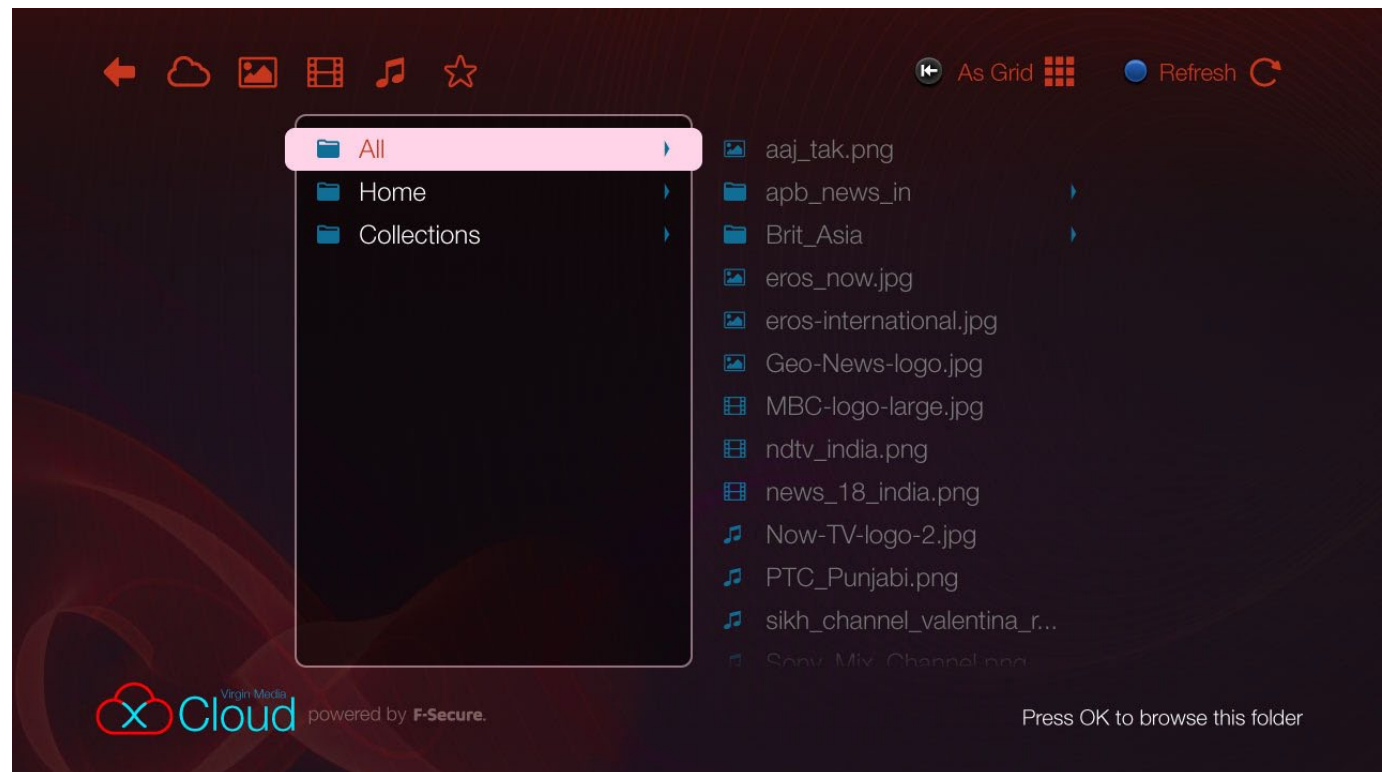
The screen's initial state with a focus on the top level of the directory which replicates the top level selections on web.cloud.virginmedia.com

List Screen

Exit   All Media   All Pictures   All Video   All Music   All Favourites   Grid view   Refresh all

The Task Bar

The Task Bar is the same as on the Grid Screen but with a 'As Grid' button instead of 'As List' as the seventh button (c1). The media buttons on the left will also not show an 'active' state, as this only applied to the grid view.
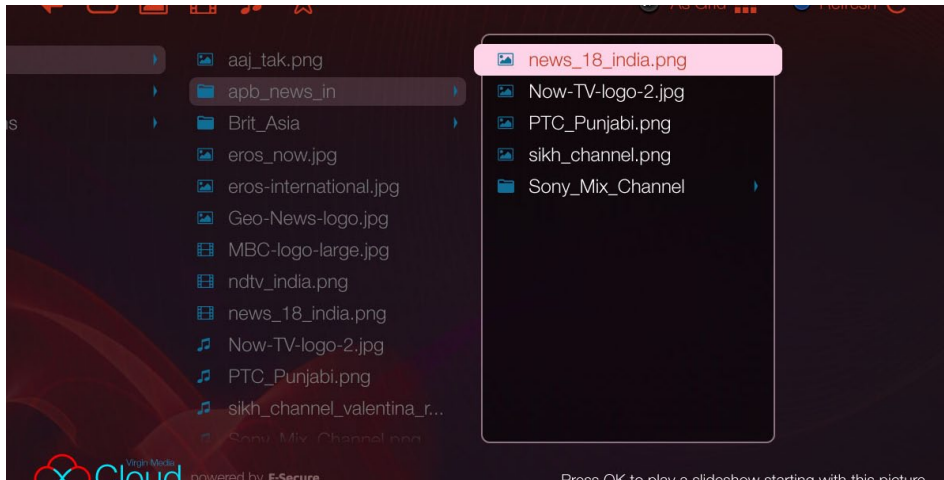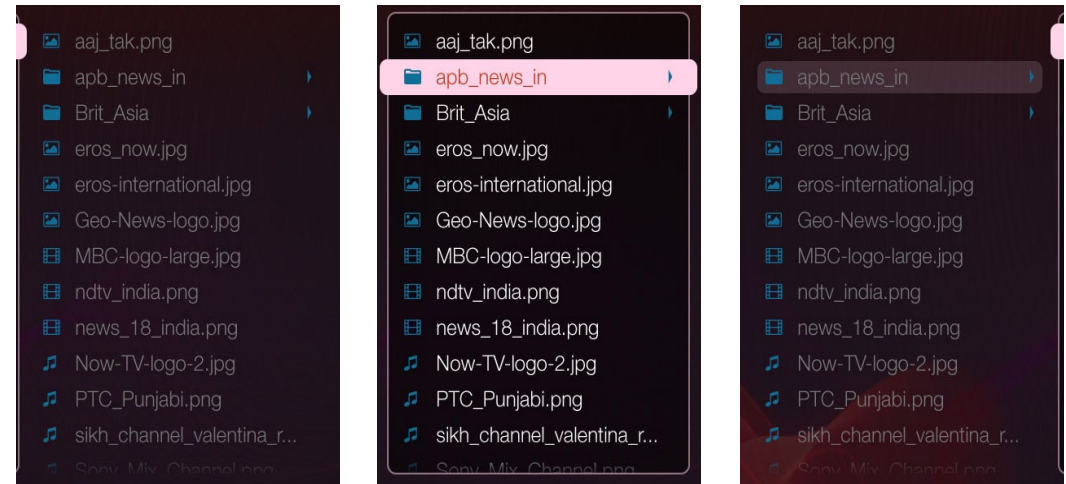
As Grid   Refresh

a					b	c	d
1	b1	b1.1	b1.2	b1.3	b1.4	b1.5	Task Bar	c1	c1.1
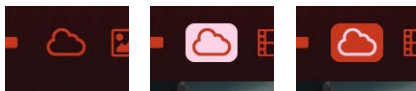
Button states (normal, focused, activated)
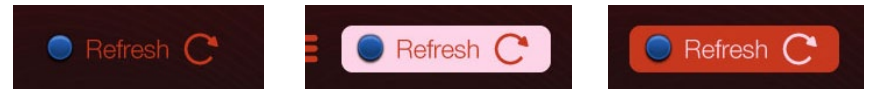
Button states (normal, focused, activated)

List Screen

List Columns

Button states of the list items

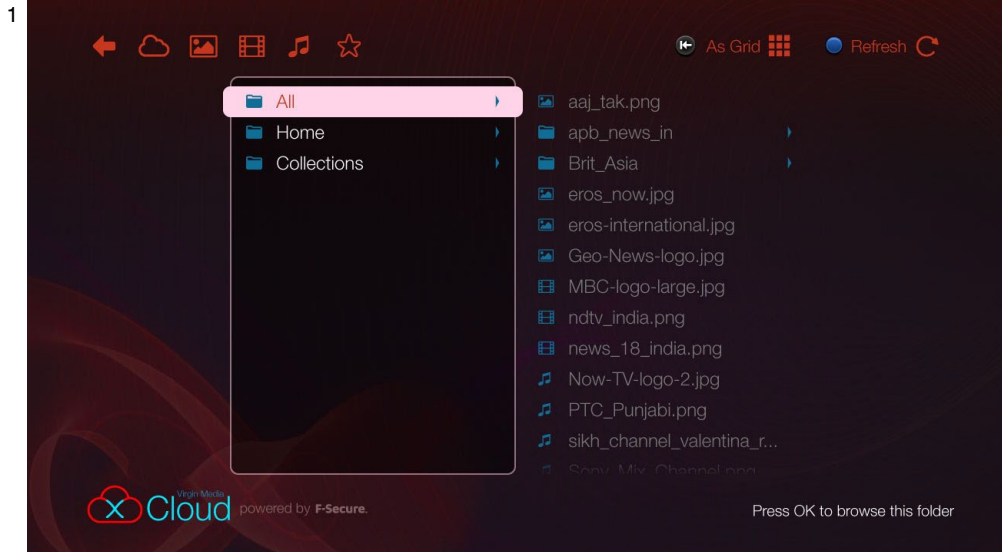There are 4 visible list columns that scroll, with the middle 2 being selectable.

Normal. Note the filenames are prefixed with a blue icon indicating if the menu item is a folder, a video, a song, or a video. Folder items also have a blue arrow on the right hand side.

Focused. When the column is in focus the text in that column changes to a secondary focus colour, and the menu item in focus changes to a primary focus colour.

Active. A ghosted highlight indicates a parent directory that is 'on'. A sublevel of the active item will always be a column to the right.

The app only displays files that are playable. If a folder has no playable media files it will list '[no media]' prefixed with a lock symbol.
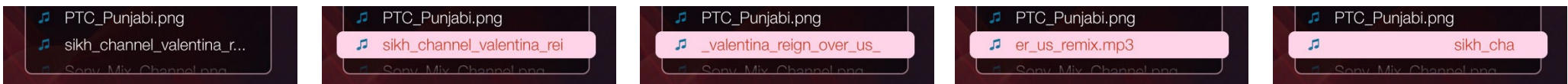
Crawling file name: when in focus filenames that are wider than 280 pixels crawl across so that long names can be read in full.
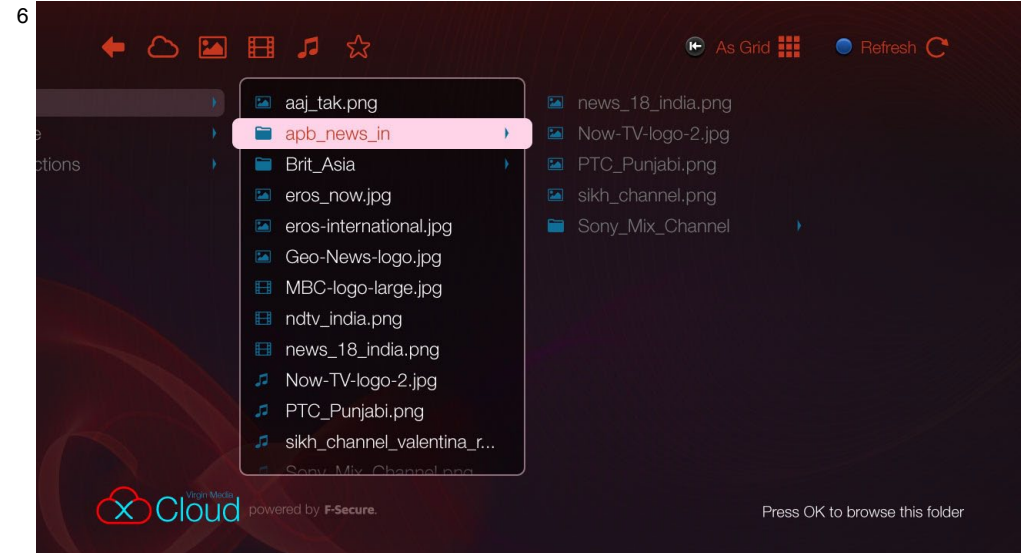
List Screen

Example User Journey

1

Initial state.

2

RIGHT pressed.

3

DOWN pressed.

4

RIGHT pressed. Note all lists have shifted over to the left.
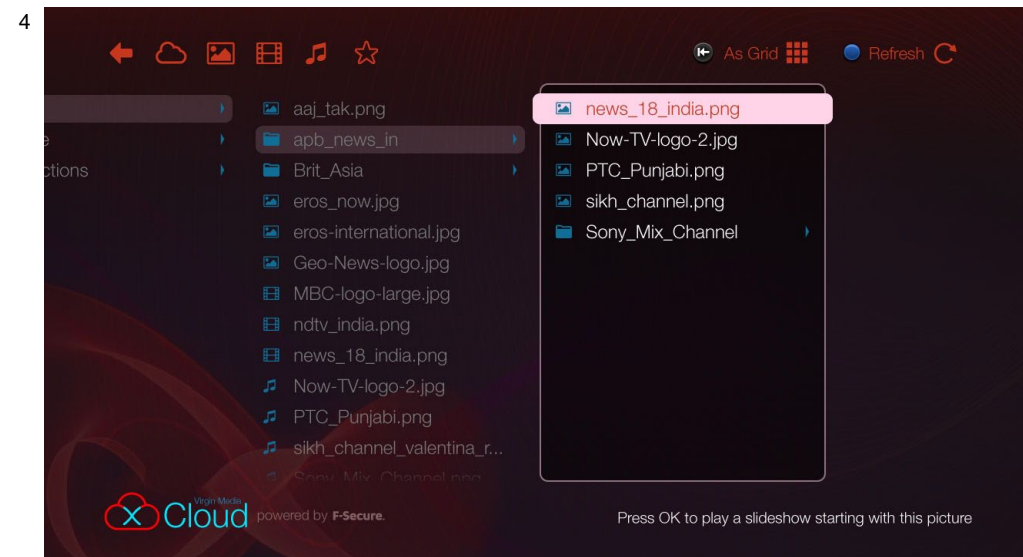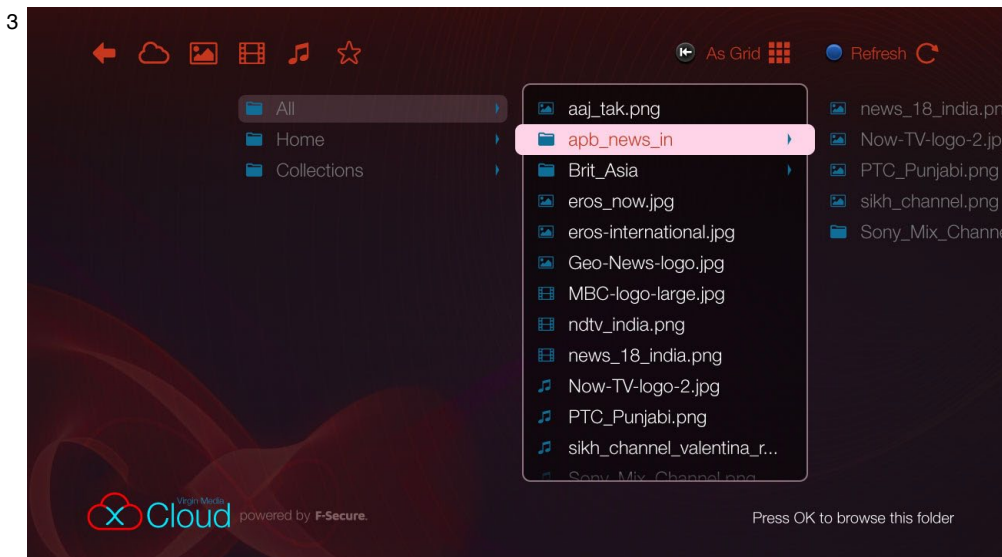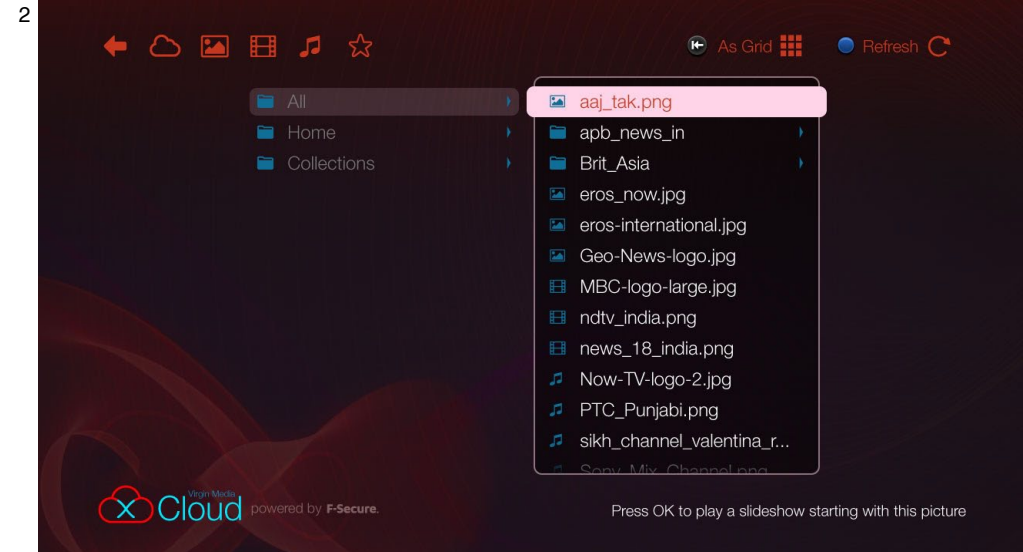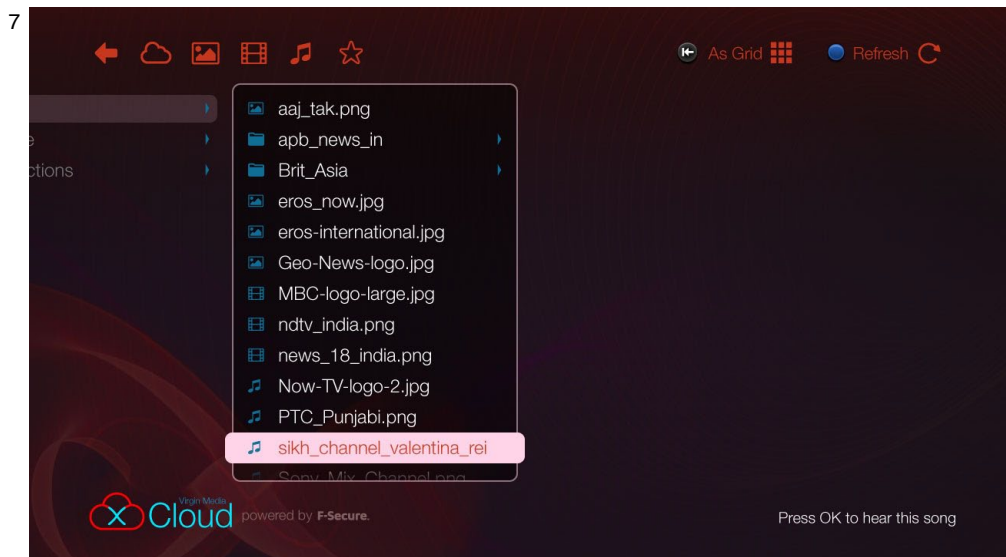
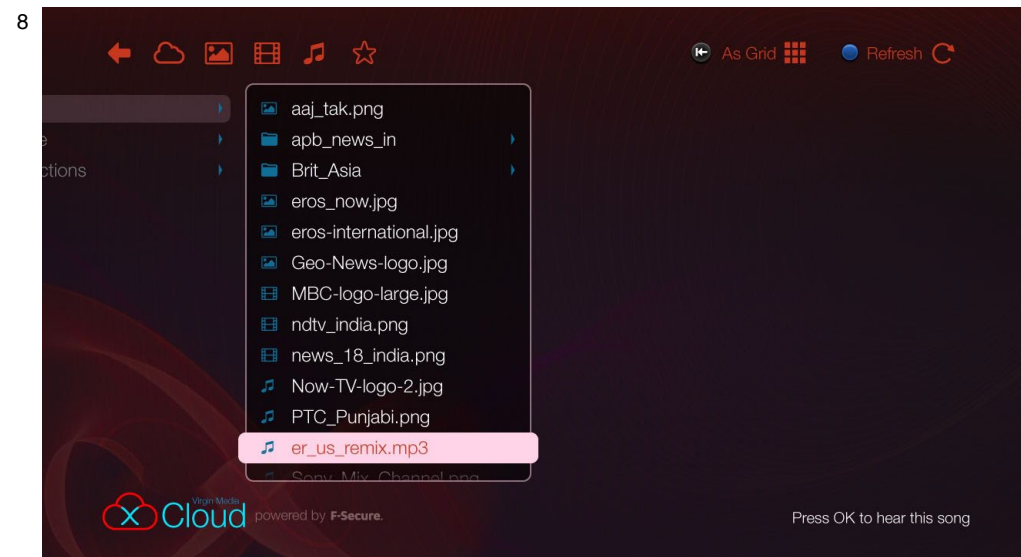# List Screen

Example User Journey
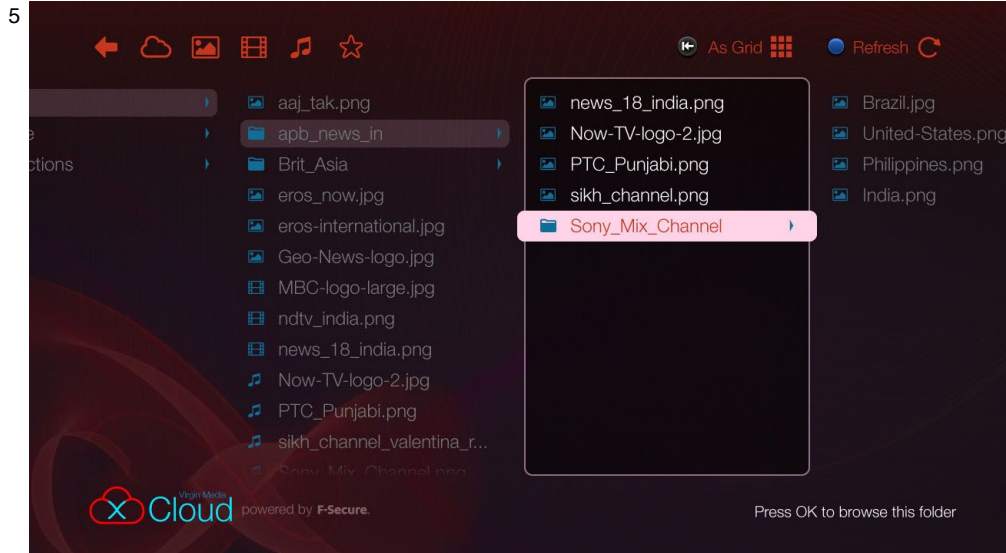
DOWN pressed 4 times.
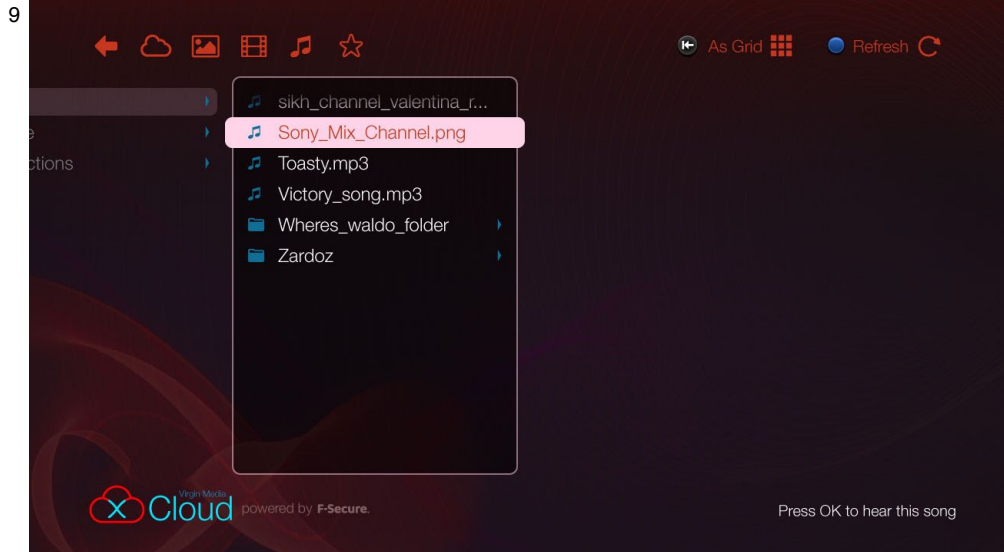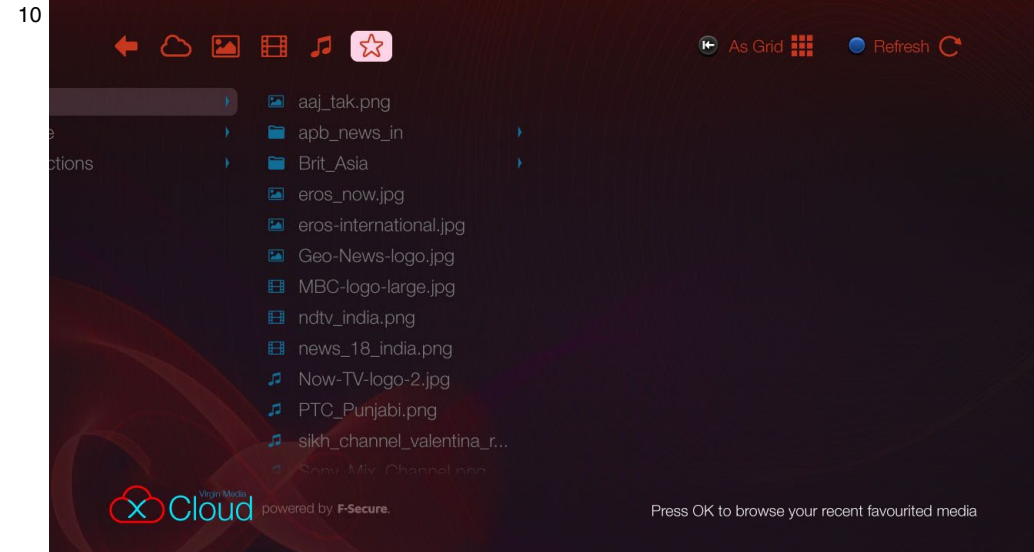

LEFT pressed.

DOWN pressed 10 times.

Since the file name is wider than the column it crawls when in focus.

List Screen

Example User Journey


DOWN pressed. List has scrolled vertically.

SKIP FWD pressed, then UP pressed.

List Screen

Button Behaviour

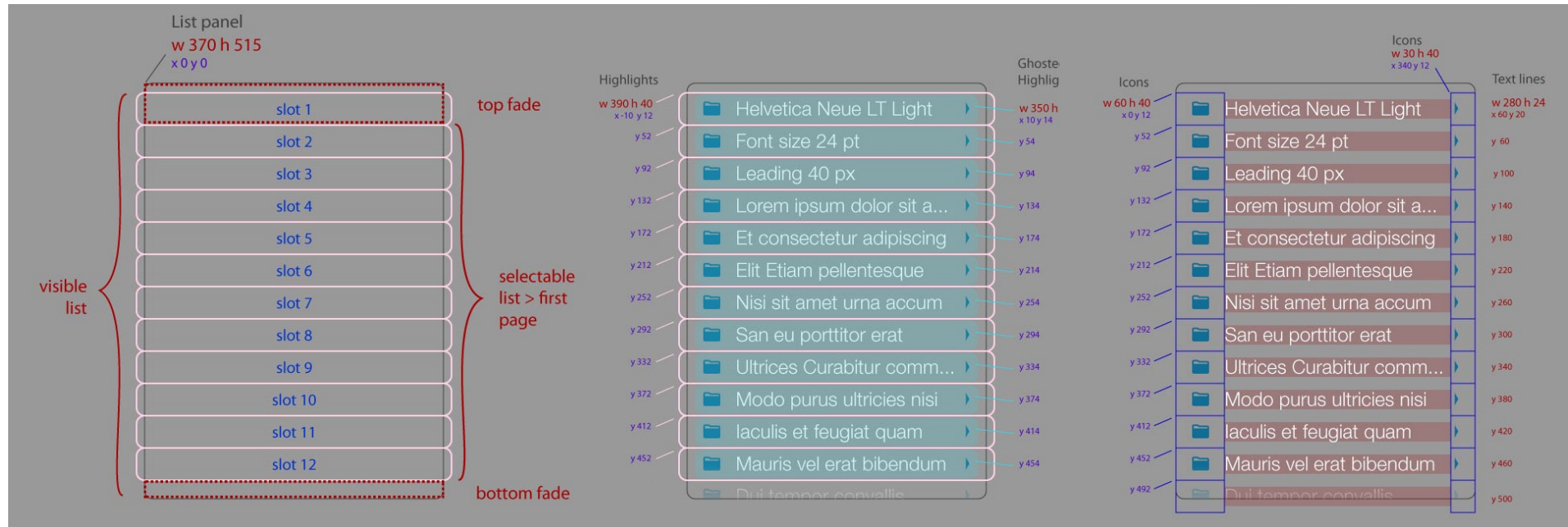| Element	Button	Action
All	LEFT, UP, RIGHT, DOWN	Tooltip message updates in the lower right corner of the screen.
	OK	Flash the activated state for 1 second.
	SKIP BACK	Switches to the Grid Screen view.
	BLUE	Refreshes the screen (darken the screen, display a loading graphic, retrieve the most up-to-date directory, and then update the display with any new thumbnails).
Task Bar	LEFT	If on slot b1 then the focus wraps to slot c1.1. Else focus moves to the next slot along row 1 to the left.
	RIGHT	If on slot c1.1 then the focus wraps to slot b1. Else focus moves to the next slot along row 1 to the right.
	UP	If on the c column and c2 is populated then it moves the focus to the bottom-most item in c2. Else it wraps the focus to the bottommost item in column b2.
	DOWN	If on the c column and c2 is populated then it moves the focus to the topmost item in c2. Else moves the focus to the topmost item in b2.
	OK	If on slot b1 then it triggers the quit prompt. If on c1 then it switches to the Grid Screen view. If on c1.1 then the screen is refreshed. Else load the associated category thumbnails in grid view (eg. load video thumbnails if on slot b1.2).
List Columns	LEFT	If on b2 and a2 is populated it moves all the content one column to the right, and the focus moves to the ghosted highlight that was in a2. Else if on c2 it moves the focus to the ghosted highlight on b2 and the column focus to b2. Else if the a2 is not populated then BONK.
	RIGHT	If on c2 and d2 is populated (i.e. the focus is currently on a folder item) it moves all the content one column to the left, and the focus moves to the topmost item on the list that was in d2. Else if on b2 and c2 is populated it moves the focus to the topmost item on c2 and the column focus to c2. Else if the column to the right is not populated (ie. the focus is currently on a media item) then it switches to the Media Player screen, auto-launching a playlist beginning with the file associated with the listing.
	UP	If on the topmost item of b2 then it moves the focus to b1.5. Else if on the topmost item of c2 then it moves the focus to c1. Else if not on the topmost item navigate the items in the column (see next page for further details).
	DOWN	If on the bottommost item of the list then wrap to the topmost item. Else if not on the bottommost item navigate to the next selectable item below in the column (see next page for further details).
	OK	If the focus is on a folder then it behaves the same as pressing RIGHT. Else if on a media item then it switches to the Media Player screen, auto-launching a playlist beginning with the file associated with the listing.
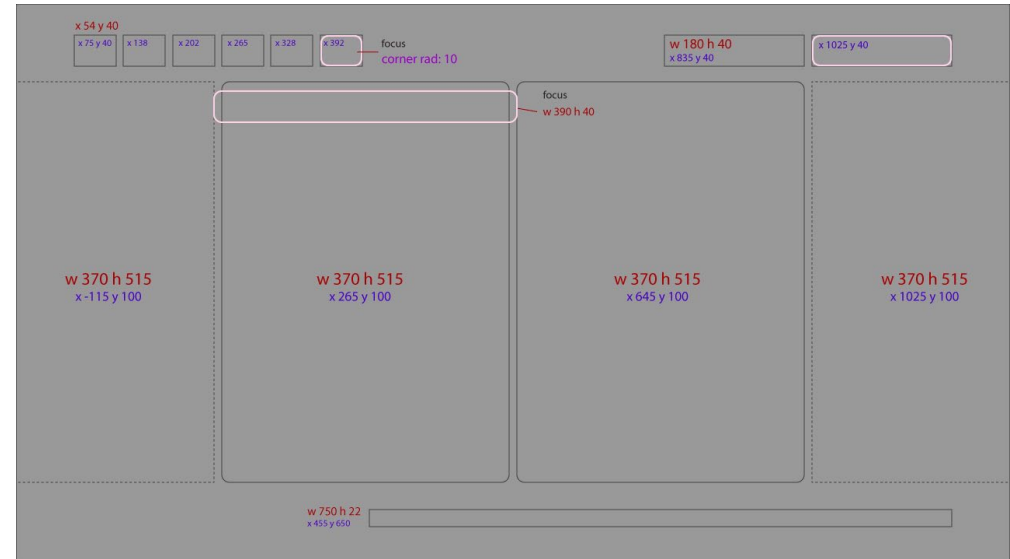
Measurements and positions of interactive elements (positions are the coordinates of the top left of each bounding box).
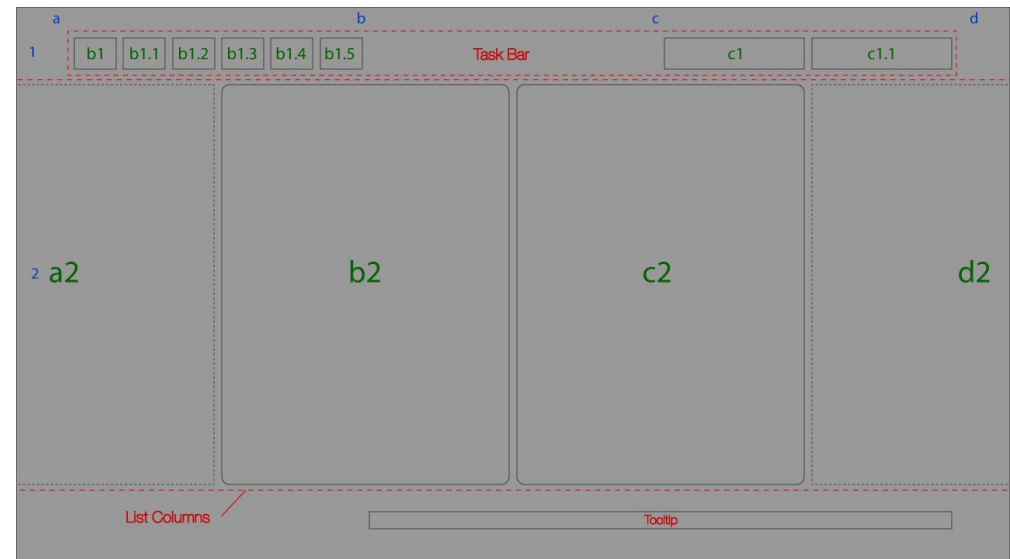
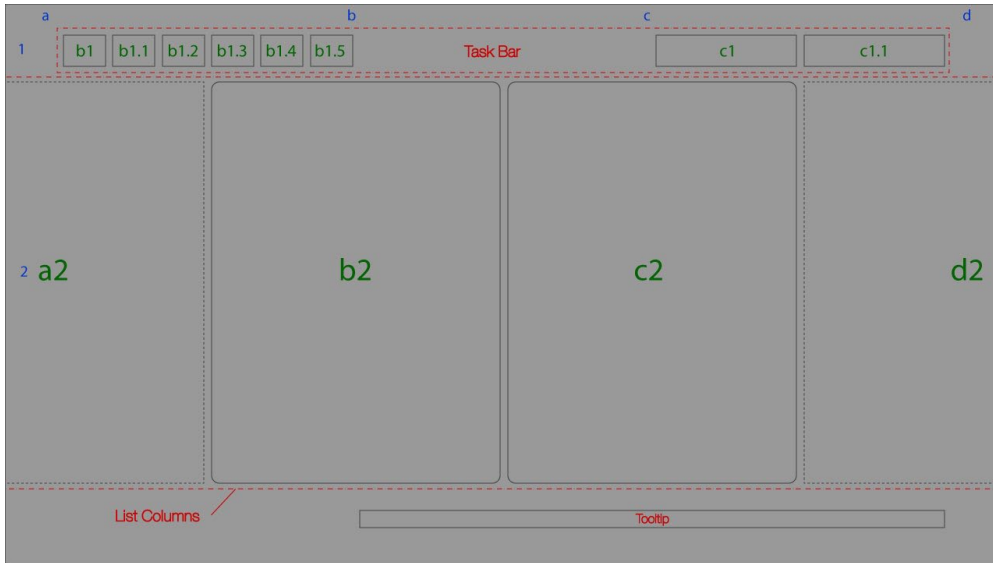Button references. Columns are labelled a to d, rows are 1 to 2.
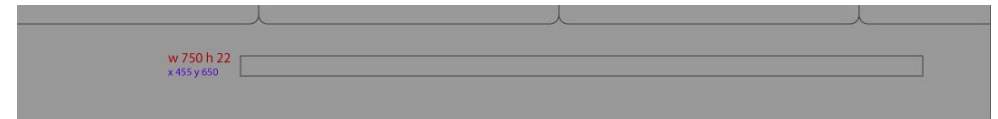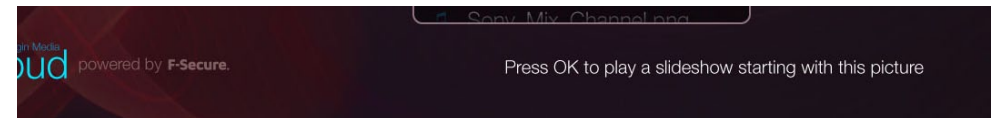
List Screen

Button Behaviour

| Element	Button	Action
List Column	LEFT	If the column is the topmost level of the directory then BONK. Else it moves the focus to the ghosted highlight on the parent level (see previous page for further details).
	RIGHT, OK	If the focus is on a folder it moves the focus to the column on the right (to navigate the subfolder). Else if the focus is on a media item then show the item associated with the listing in the Media Player (see previous page for further details).
	DOWN	If the menu has 1 item then BONK. Else if the focus is on the bottommost item of the list then it wraps to the topmost item at slot 1, moving the list down if the list has more than 12 items. Else if on slot 12 it then moves the focus to slot 2 and on the next selectable item below (i.e. 'paging' down. The whole list scrolls up so that the item that was on slot 12 moves to slot 1, and slot 1 displays a gradual fade). Else moves the focus to the next selectable item below one slot down.
	UP	If the menu has 1 item then BONK. Else if the focus is on the topmost item then it moves the focus to the Task Bar (see previous page). Else if on slot 2 and the item in slot 1 is not on the topmost item it then moves the focus to slot 12 and on the next selectable item above (i.e. 'paging' up. The whole list scrolls down so that the item that was on slot 1 moves to slot 13. The top fade hides if the topmost item is in slot 1). Else moves the focus to the next selectable item above one slot up.
	SKIP FWD	If the menu has 1 item then BONK. Else if the focus is on the bottommost menu item and there are more than 12 items then it shifts the list down so that the topmost menu item and the focus is on slot 1. Else if the focus is on the bottommost menu item and there are less than 13 items then it moves the focus to slot 1. Else if the focus is not on the bottommost menu item and there are more than 12 items then it shifts the list up so that the bottommost menu item and the focus is on slot 12. Else if the focus is not on the bottommost menu item and there are less than 13 items then it moves the focus to the bottommost menu item.
	CHAN UP	If the menu has 1 item or the focus is on the topmost item then BONK. Else if there are less than 11 menu items above the current focus then it moves the focus to slot 1. Else it moves the list down 11 slots and the focus to slot 12 (i.e. 'pages up').
	CHAN DOWN	If the menu has 1 item then BONK. Else if the focus is on the bottommost item of the list then it wraps to the topmost item at slot 1, moving the list down if the list has more than 12 items. Else if there are less than 11 menu items below the current item in focus then it shifts the menu up so that the bottommost item and the focus are on slot 12. Else it moves the list up 11 slots and the focus to slot 2, showing the fade on slot 1 (i.e. 'pages down').

List Screen

Tooltip Messages

Button references. Columns are labelled a to d, rows are 1 to 2.

Tooltip message is right justified. The message updates every time the focus moves to a new button slot.

Element	Slot	Tooltip Message
Task Bar	b1	Press OK to exit
	b1.1	Press OK to browse all media
	b1.2	Press OK to browse pictures
	b1.3	Press OK to browse videos
	b1.4	Press OK to browse music
	b1.5	Press OK to browse your favourited media
	c1	Press OK to browse all media in a grid
	c1.1	Press OK to refresh the screen
List Columns	a2 - f4	If a folder item without playable media then 'This folder contains files, but not media that can be played here' else 'Press OK to browse this folder'. Else if a video item then 'Press OK to play this video' else if a music item then 'Press OK to hear this song' else if a picture item then 'Press OK to play a slideshow starting with this picture'

Media Player Screen
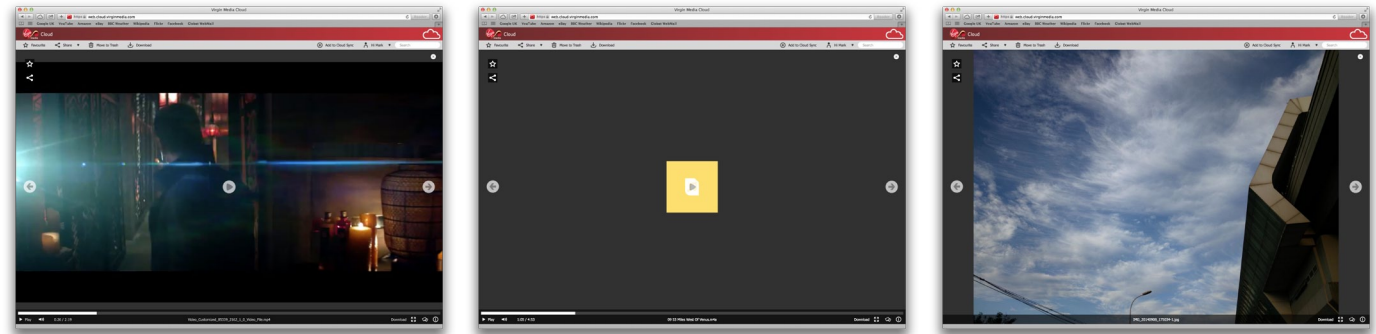
This screen replicates the External Content Container on web.cloud.virginmedia.com which plays videos, music, and slideshows.

The screen's initial state with a focus on the play / pause button.
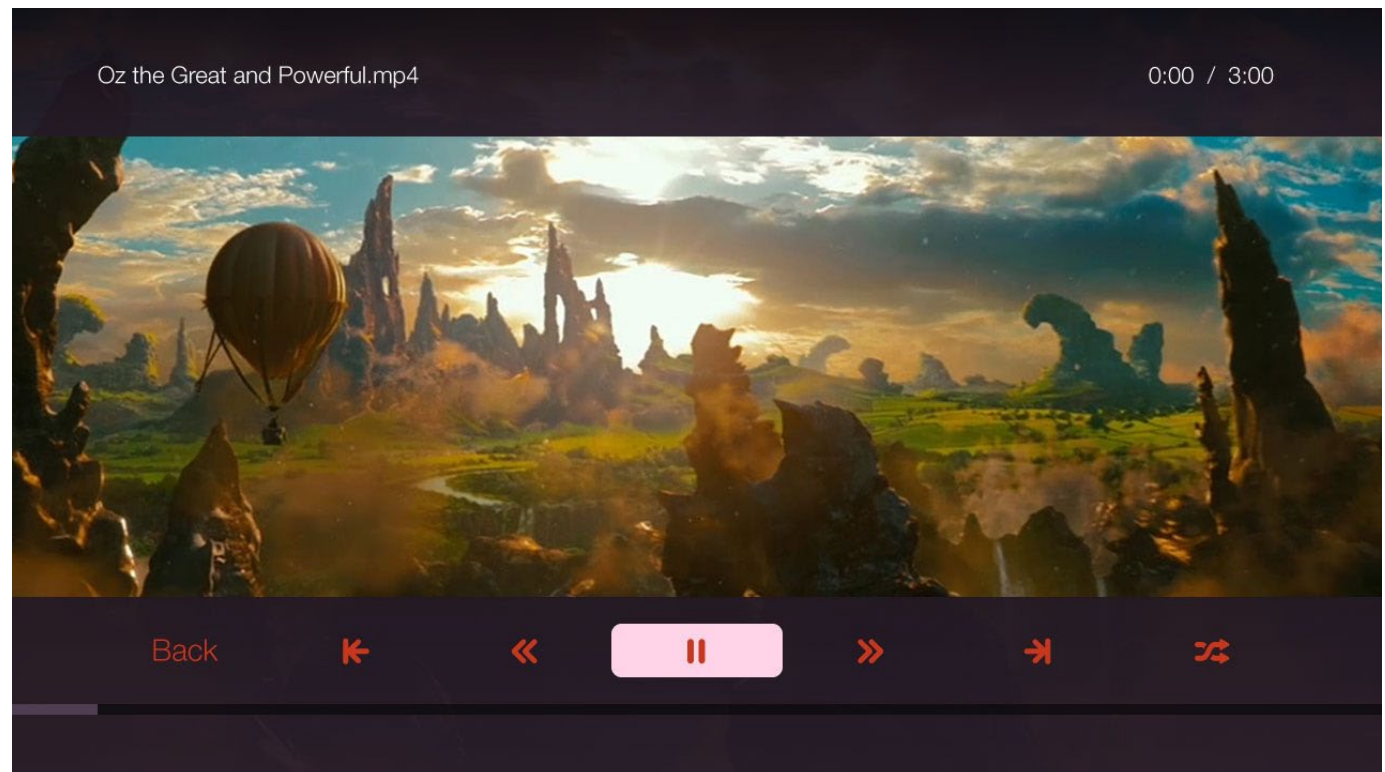
Overview

This screen replicates the full screen viewer on web.cloud. virginmedia.com, but is simplified for TV and is designed for a leanback experience. When the user launches an asset for full screen viewing this automatically starts a playlist of files of the same type.

Media Player Screen

Example User Journey: playing a video
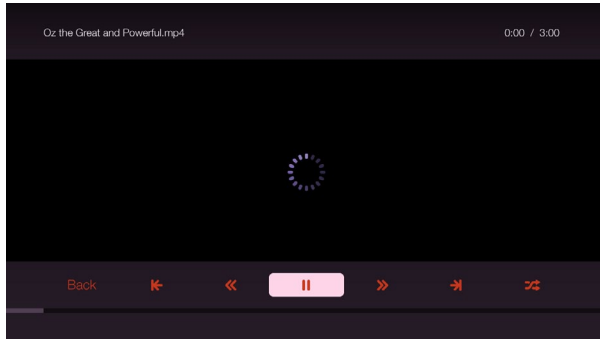
1. Initial state when video is launched. Focus in on pause/play button. Overlay remains visible while video is loading.
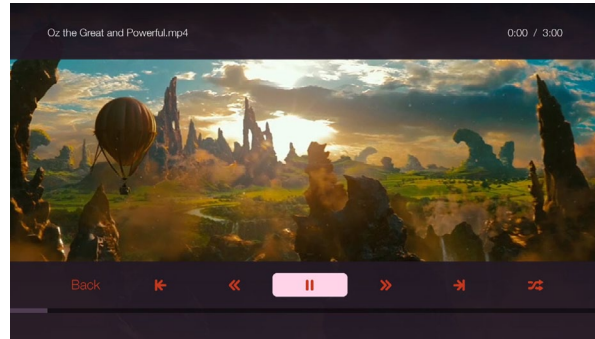
2. Video begins playing. Videos in the same folder will autoplay as a playlist. Overlay remains for 3 more seconds.

3. Overlay hides after 3 seconds. Button hint display (representing the UP button) appears.

4. After 2 seconds the video plays unobstructed. This will keep being the case while the user is idle or the next asset starts.
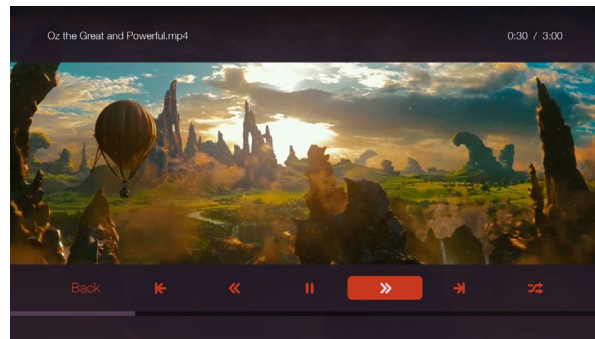
5. FAST FORWARD button is pressed on the remote. The overlay appears, giving the user feedback that the button press was received.
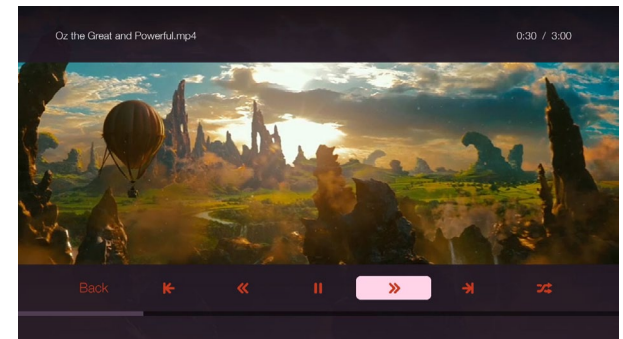
6. After 1 second the button returns to it's focused state.
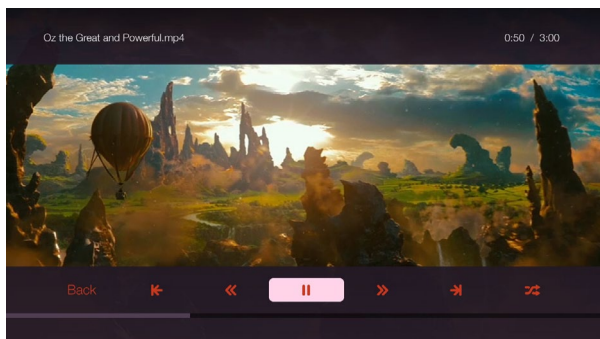
7. LEFT pressed.
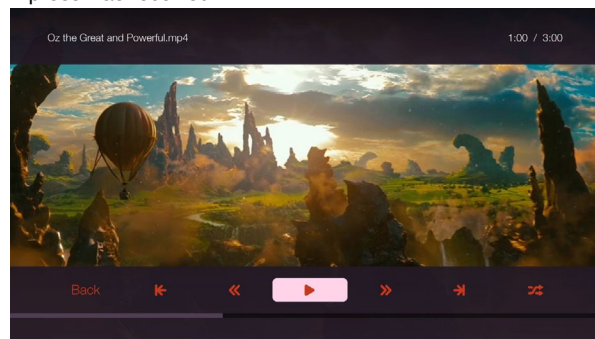
8. OK pressed. Video is paused, and button mark changes to a play symbol.
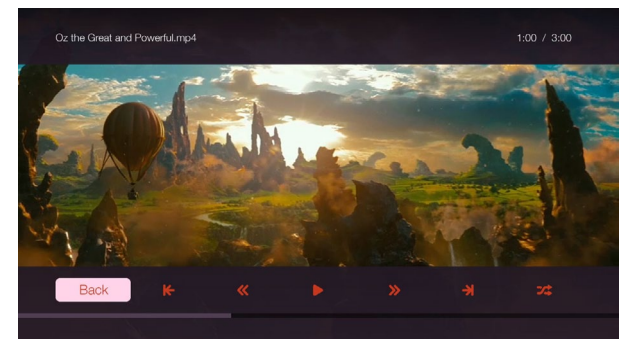
9. LEFT pressed 3 times. Pressing OK will return the user to the last point before the Media Player was launched.

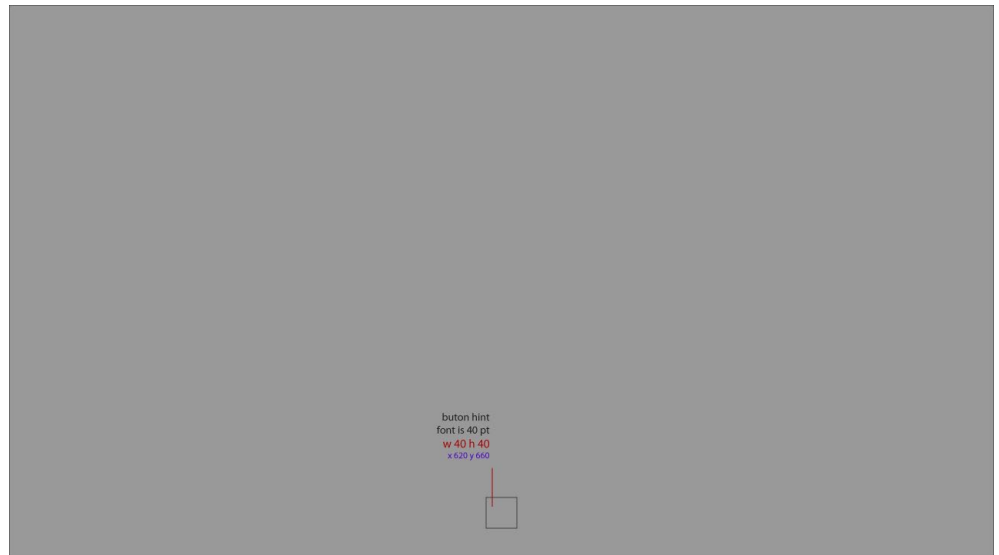# Media Player Screen

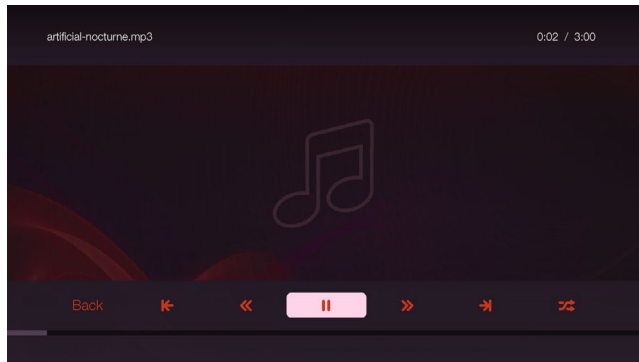## Videos: sizes and positions
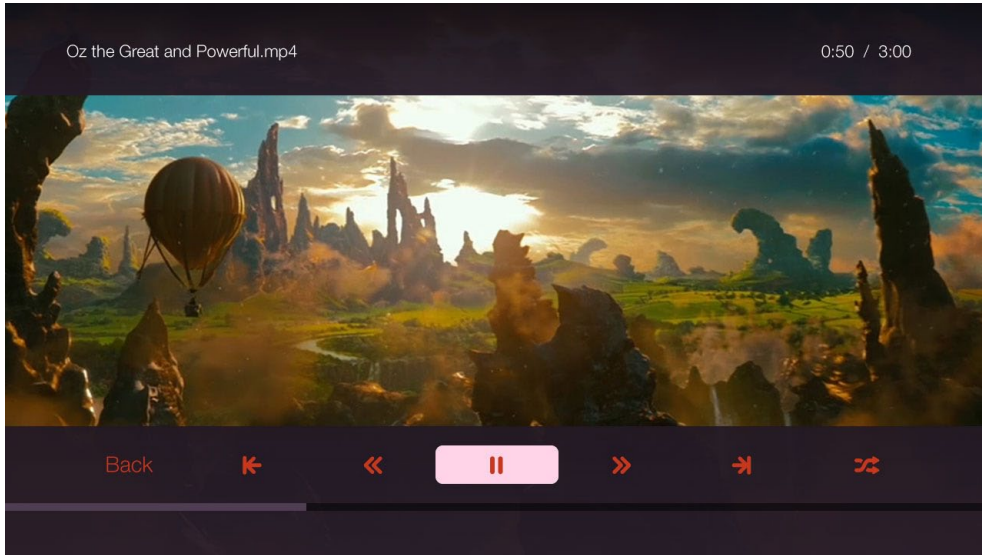
Video with overlay interface
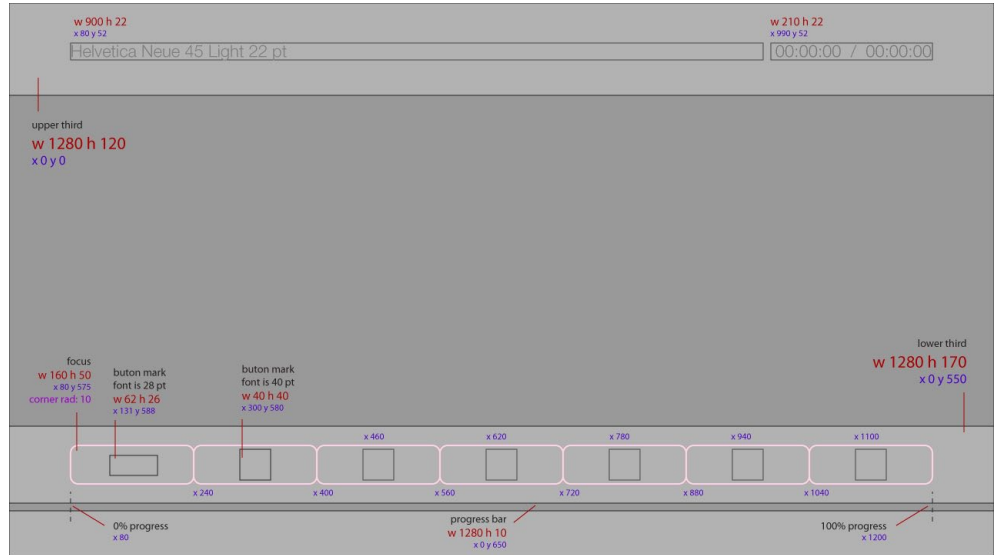
Overlay elements size and positions

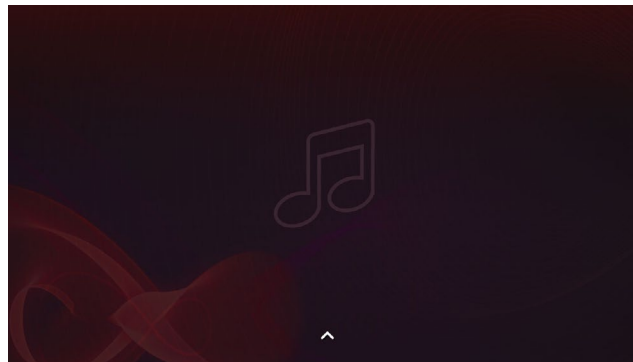

Button hint over video

Button hint size and position.

Media Player Screen

**Example User Journey: playing music**

1. Initial state when song is launched. This mp3 has no meta-data, so it has a placeholder for artwork and only displays the filename. The media player will autoplay all the mp3s in a folder as a playlist.


2. Overlay dismisses after 3 seconds. Button hint implies that the user press the UP button to bring back the overlay interface.
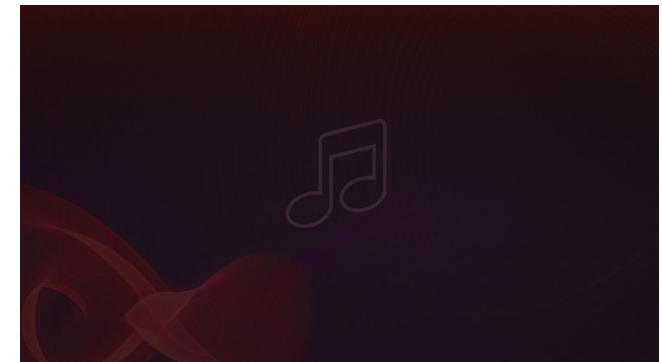

3. Button hint hides after 2 seconds. Song continues to play.
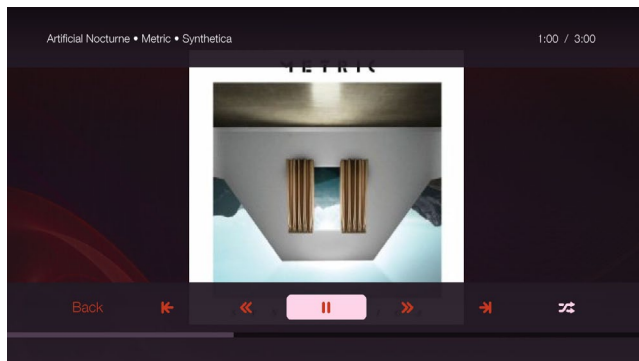
4. User has gone to his web browser on another device and re-uploaded the same song with ID3 metadata, and relaunched the song. Now the screen shows artwork, song title, artist, and album. Note the user has also pressed the shuffle button, as it's showing its active state colour.
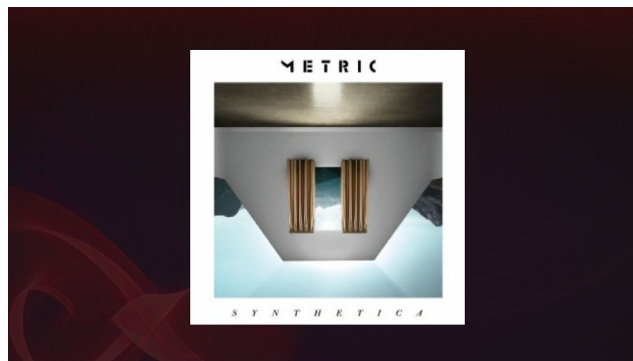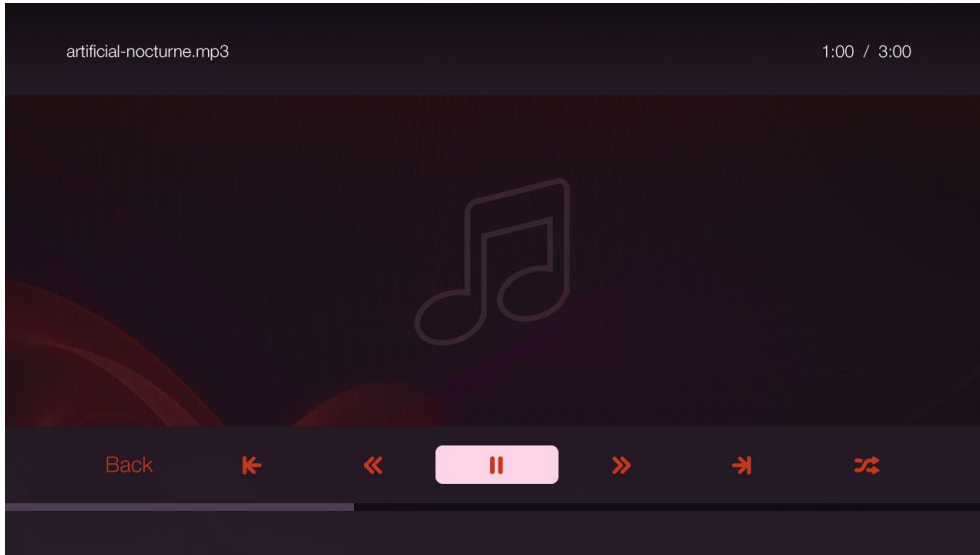

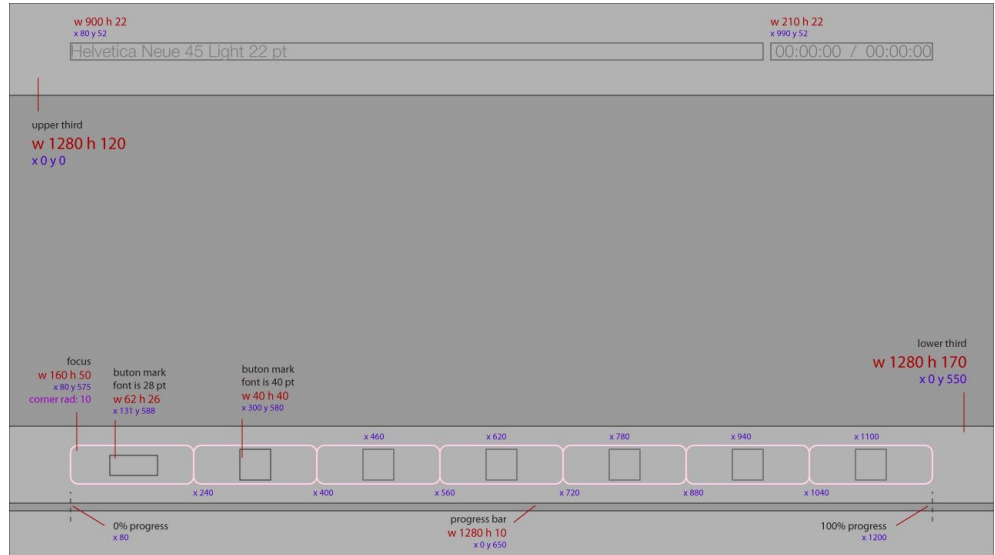5. Overlay interface times out. Only artwork is seen while song plays.
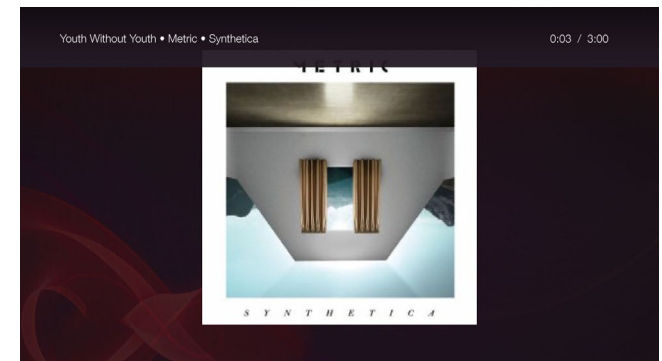
6. The next song begins in the playlist. Note the upper third appears for 3 seconds to show the metadata. The user would also see the upper third if the INFO button was pressed.

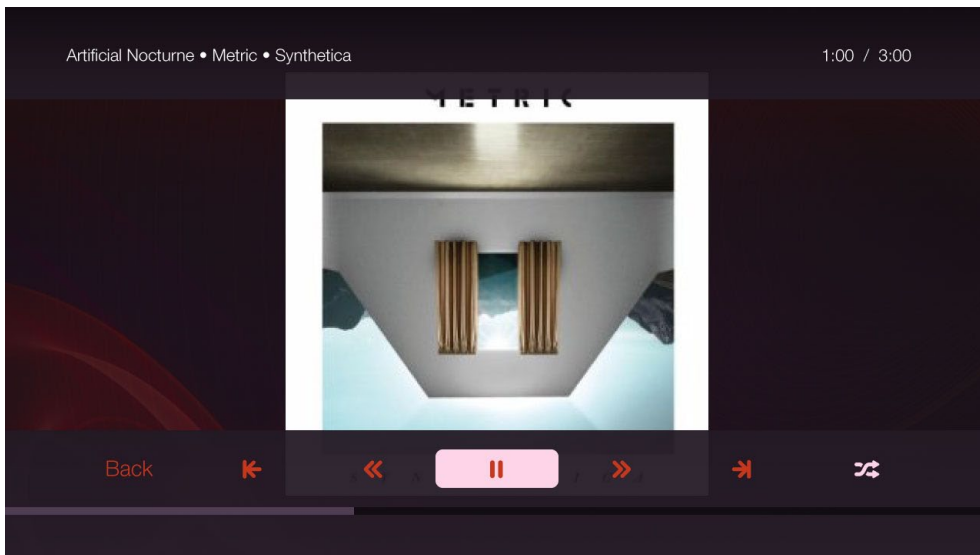# Media Player Screen
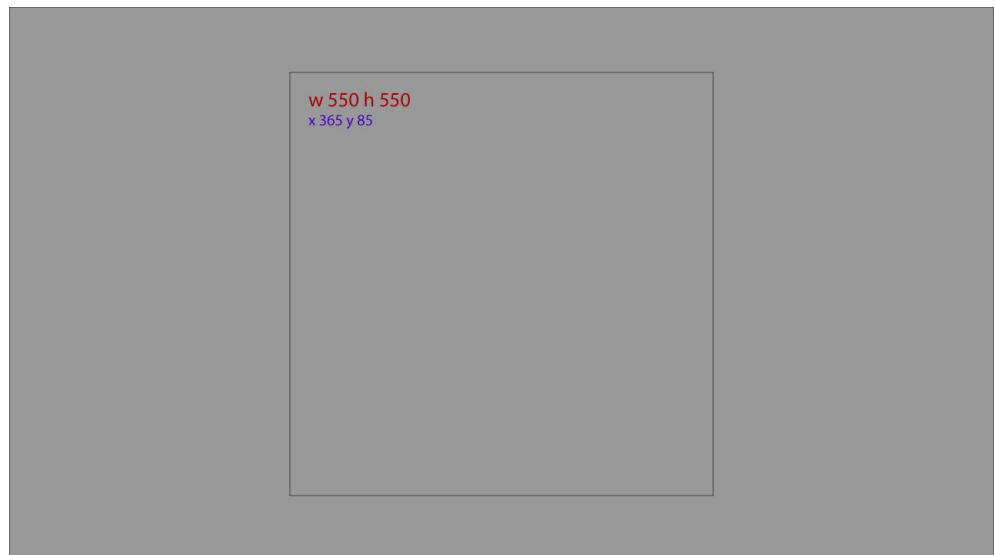
Music: sizes and positions

Music track with overlay interface. This file has no metadata.

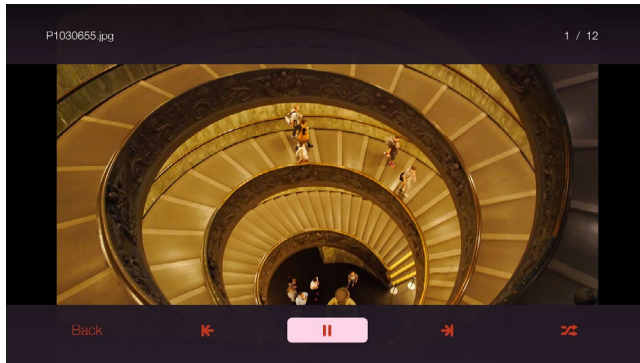Overlay elements size and positions (the very same layout and parameters as video)

Music track ID3 metadata (artwork, track name, artist, and album are shown).

Size and position of artwork.

Media Player Screen
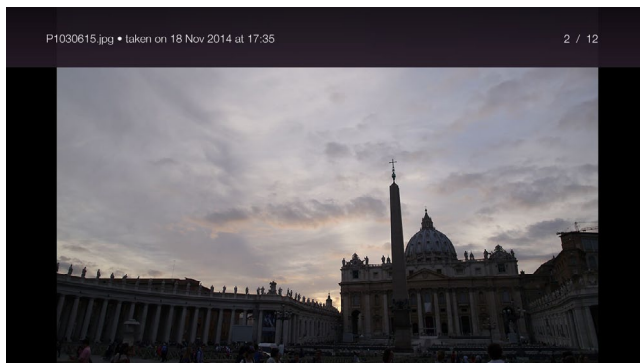
Example User Journey: playing a slideshow

1. Initial state when user presses OK on a picture thumbnail. The Media Player autoplays a slideshow of any pictures in the same folder starting with the picture chosen.

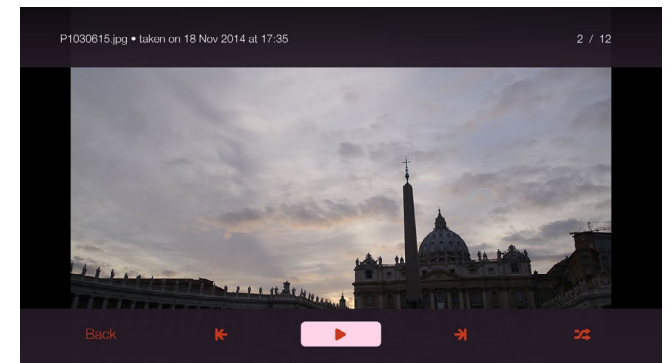2. Overlay hides after 3 more seconds, and button hint appears.

3. Button hint hides after 2 seconds.

4. After 3 seconds the next slide plays (in other words each slide is on for 8 seconds total). Note this picture has camera metadata that recorded when the picture was taken.
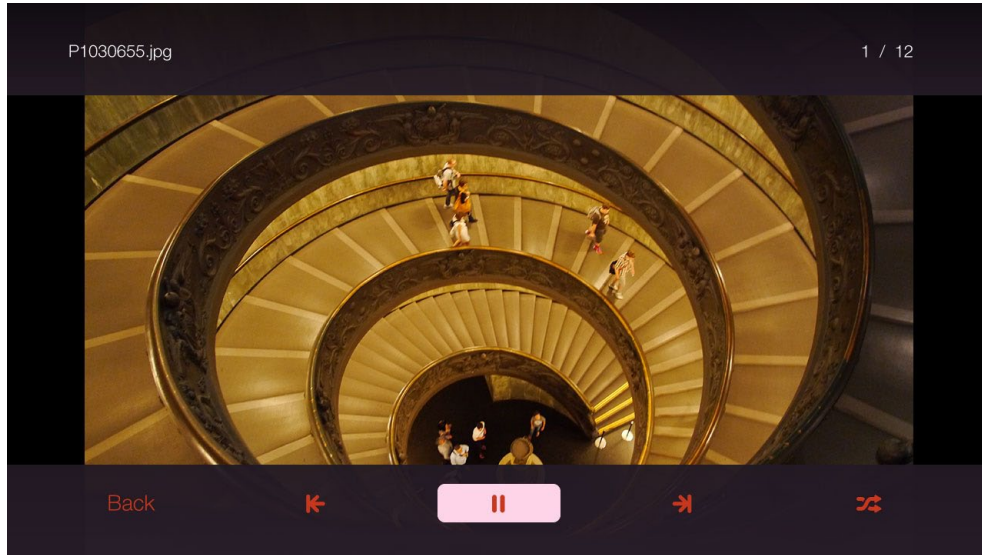

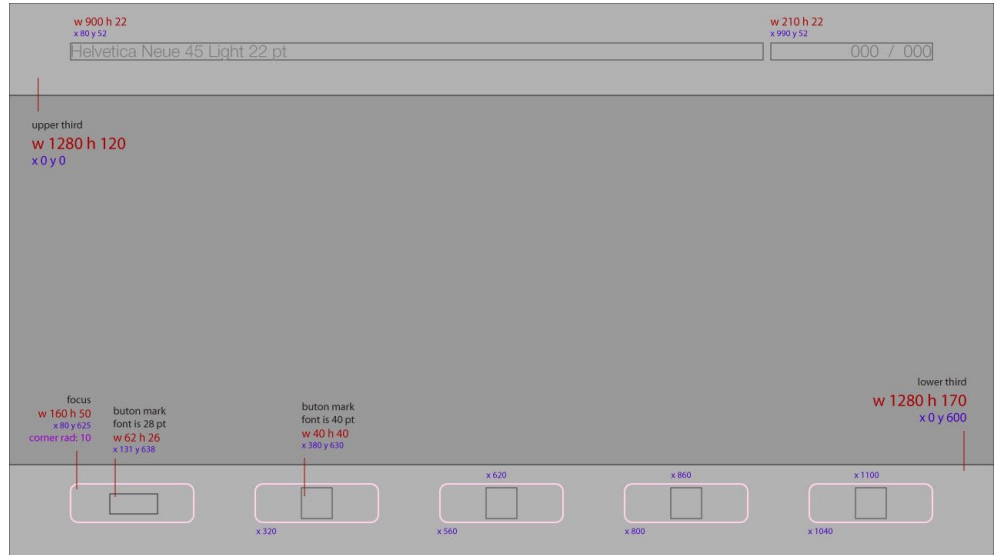5. All overlays hide after 5 seconds.

6. PAUSE pressed, and overlay displays. The user wants to look at this picture for longer, so they have stopped the slideshow. The overlay will hide after 3 seconds and the viewer can look at picture unobstructed.

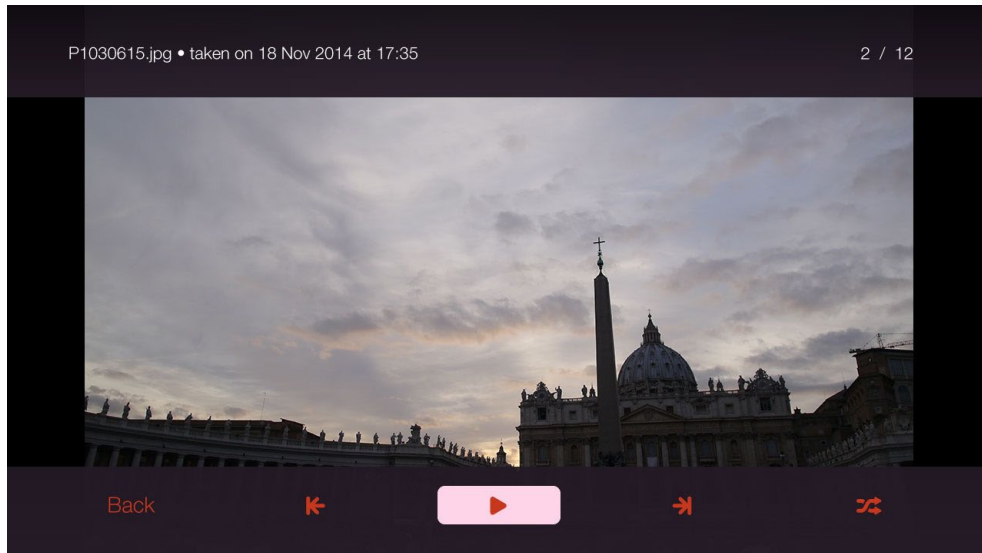# Media Player Screen

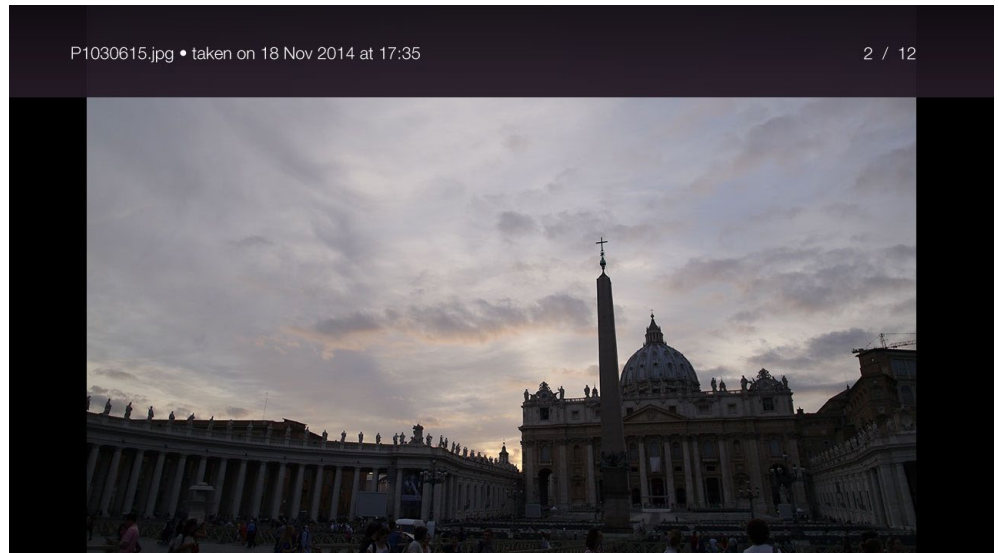### Pictures: sizes and positions

Picture with overlay interface. This file has no metadata.

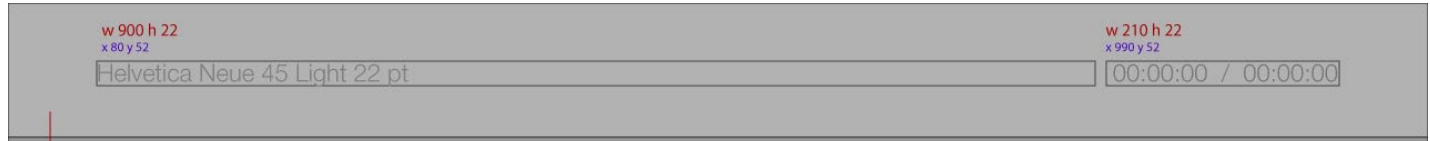Overlay elements size and positions.

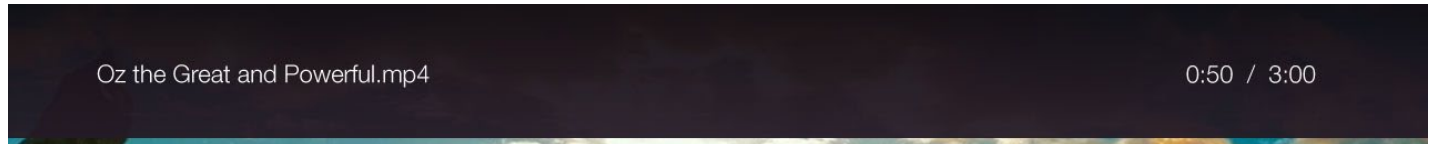Picture with overlay interface. This file has camera metadata.

If the INFO button is pressed the upper third will appear showing media information. Pictures, of whatever size, fill the screen proportionally.
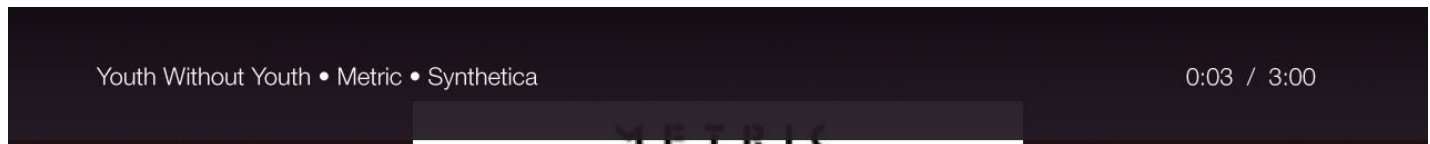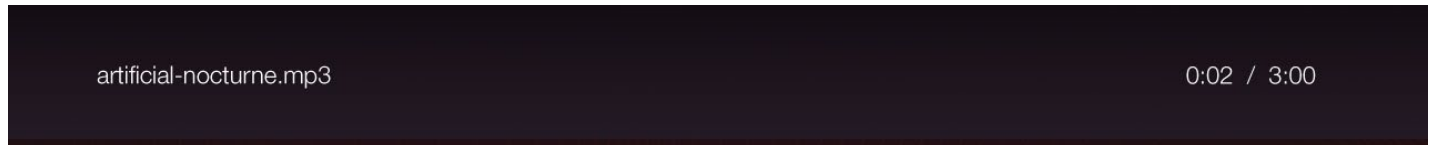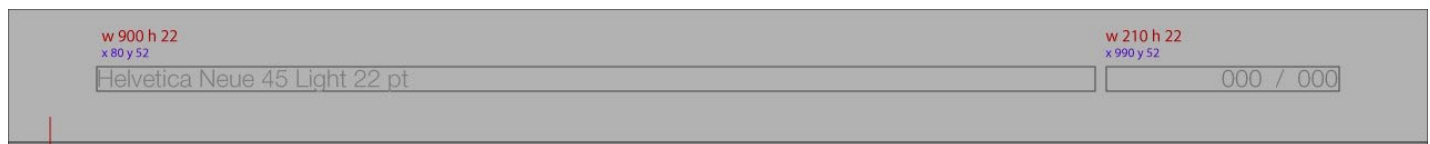
Media Player Screen

Upper third

Wireframe for upper third of Media Player if media is a video or a song

Video upper third. Shows media file name and media time display

Song upper thirds. Same as a video, except if there's ID3 metadata then it displays song title, artist, and album separated by bullet points.

Media Time Display

Both videos and music have a time display in the upper right corner.

Times are displayed with hour, minute, and seconds digits separated by colons, like so:

HH:MM:SS

If a time is less than 9:59 minutes then display M:SS. Else if a time is less than 59:59 then display MM:SS. Else if a time is less than 9:59:59 then display H:MM:SS. Else display HH:MM:SS

The media time display shows the current time and the duration separated by 2 spaces, a forward slash, and another 2 spaces. It is right justified. For example:

0:35 / 25:30

Slide Number Display

Slideshows display the current slide number and the total number of slides separated by 2 spaces, a forward slash, and another 2 spaces. Is is also right justified and shows no leading zeros. For example:

3 / 42

Wireframe for upper third of Media Player if media is a picture

Picture upper thirds. Shows file name and slide number display. If there is camera metadata it shows the time the photo was taken.

Media Player Screen

Lower third

Wireframe for lower third of Media Player if media is a video or a song

The middle button is a toggle pause / play button. While the player is paused the button shows a play icon.

When the shuffle button has been pressed (far right) the persistent active colour tells the user that the feature is 'on'

If there is only one video or song in the folder the skip buttons hide, and the time display takes the place of the shuffle button.
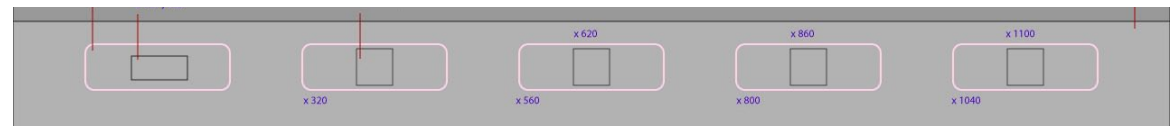
Wireframe for lower third of Media Player if media is a picture.
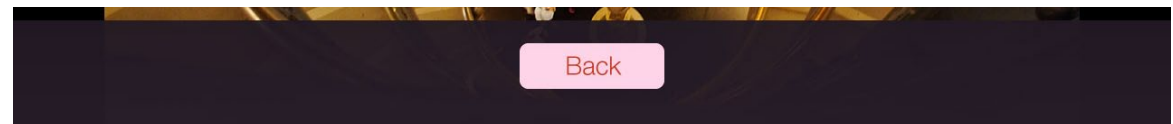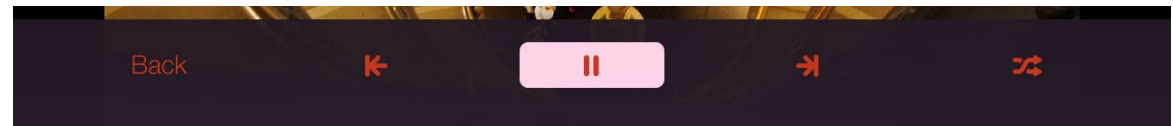
Note the difference in controls on the lower third between a slideshow and a single picture.

About Playlists

The Media Player Screen auto-launches playlists of media files within a folder of the same type. For example, if the the user presses OK on a picture the Media Player will start a slideshow of all the pictures in that folder.

If there is only a single file of a type in a folder then there is no playlist, and the lower third controls adjust accordingly. If it's a video or song the skip buttons are removed (there's nothing to skip to) and the shuffle button is hidden (there's nothing to shuffle). To keep symmetry in the lower third the time display is moved from the upper third to the lower third in place of the shuffle button. If the single file is a picture then the lower third only requires a back button.
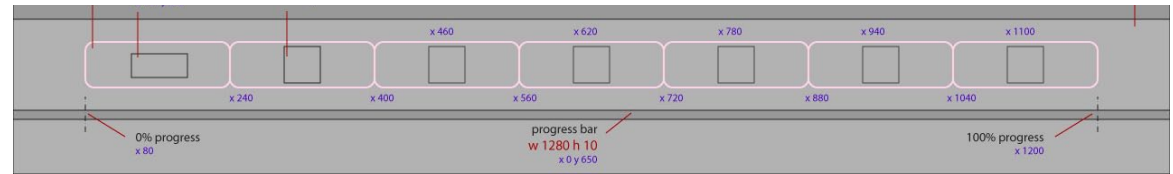
At the end of a playlist the playback stops and the user is returned to the thumbnail or list item they launched it from.
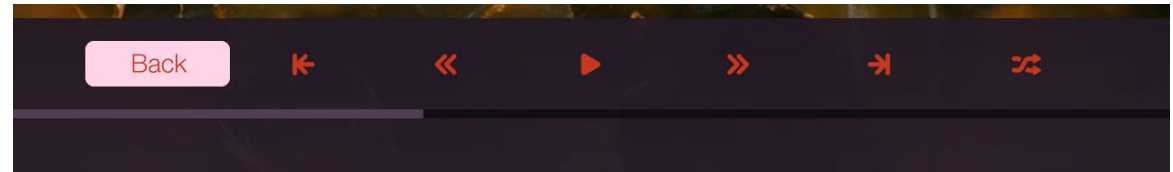
Display Order of Media Files

If the shuffle button is turned on then the files are played in a random order with each asset only playing once, and then the same set repeats again, looping the set forever until the user stops it. Else if its a music file and the file has ID3 metadata then play order is alphabetical by album name, then by track number (so that albums are played in full in the correct order). Else the files are played in alphabetical order based on their file names.
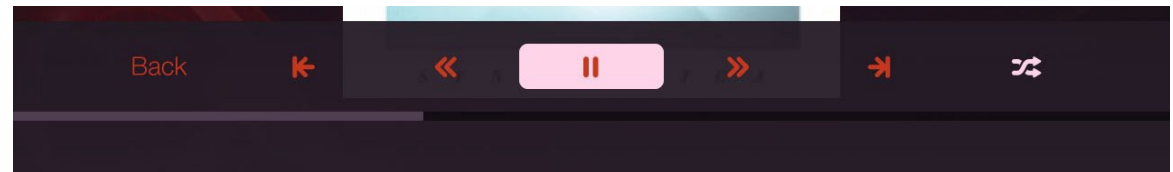
Progress Bar

If the asset is a video or song it shows a progress bar along the lower third. The animated portion of the bar is 1120 pixels wide (so that none of it is cut off by the TV safe area). The background colour is #000000 and the animated foreground is # 503e52.
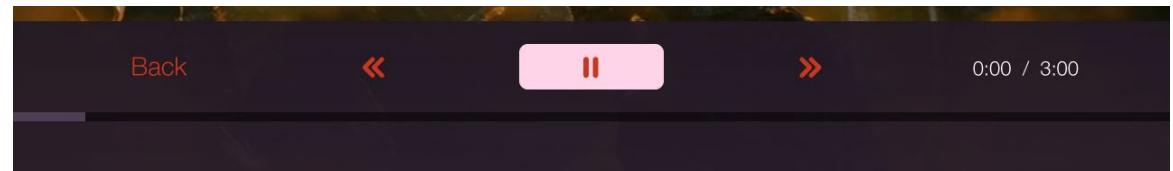
Media Player Screen

Button Behaviour

Condition	Button	Action
All	OK or TRICKPLAY *	Flash the activated state of the on-screen button for 1 second of the current focus highlight. Execute the action or link assoaciated with the button.
If screen launches	n/a	Overlay UI timeout sequence: overlay UI (upper and lower thirds) is visible. If asset takes a while to load the overlay UI should stay on. Once asset has downloaded (eg. picture visible or video stream started playing) then a 3 second timeout countdown starts. After 3 seconds the overlay UI hides. Then an UP button hint appears at the bottom of the screen for 2 seconds. If the user presses a button then start the sequence again.
Else if next asset in a playlist launches	n/a	Upper third appears for 3 seconds, then hides.
Else if lower third is hidden	D-PAD, COLOURS, THUMBS, NUMBERS †	Show overlay UI and start timeout sequence (described above). If the user presses a button then start the timeout sequence again.
	INFO	Upper third appears for 3 seconds, then hides.
	TRICKPLAY *	If an on-screen equivalent of the remote button exists on the screen then shows overlay UI and moves the focus to said button, activating it.
Else if lower third is visible	OK	If focus is on 'Back' then it stops playback and returns to the screen state that launched the Media Player Screen. If on shuffle button then activate the shuffle feature, playing assets in the playlist in a random order. If on a transport button (skip, rwd, ffwd, play/pause) then execute the associated action (same behaviour as when a remote control trickplay button is pressed. See below).
	UP, DOWN	Hides the overlay UI immediately, without timeout sequence.
	LEFT	If the focus is on the leftmost button then BONK. Else moves the focus to the next selectable button on the left.
	RIGHT	If the focus is on the rightmost button then BONK. Else moves the focus to the next selectable button on the right.
	PAUSE	If a single picture not part of a slideshow then BONK. Else if a video or song is playing or a picture slideshow is playing then pause them, and move the focus to the pause/play button changing its button mark to the play symbol. Else if a video or song is paused or a picture slideshow is paused then play them, and move the focus to the pause/play button changing its button mark to the pause symbol.
	PLAY	If a video or song is paused or a picture slideshow is paused then play them, and move the focus to the pause/play button changing its button mark to the pause symbol.
	STOP	Stops playback and returns to the screen state that launched the Media Player Screen.
	REWIND	If a picture then BONK. Else if a video or song then jumps back in the playback 6% of the total running time and continues playing, updating the current time display and progress bar accordingly, and it also moves the focus to the on-screen fast forward button.
	FAST FORWARD	If a picture then BONK. Else if a video or song then jumps forward in the playback 6% of the total running time and continues playing, updating the current time display and progress bar accordingly, and it also moves the focus to the on-screen fast forward button.
	SKIP BACK	If a single picture not part of a slideshow then BONK. Else if a picture then displays the previous picture and continue the slideshow, updating the slide number display accordingly, and it also moves the focus to the on-screen skip back button. Else if a video or a song then it starts playback of the previous asset in the playlist, updating the current time display and progress bar accordingly, and it also moves the focus to the on-screen skip back button.
	SKIP FORWARD	If a single picture not part of a slideshow then BONK. Else if a picture then displays the next picture and continue the slideshow, updating the slide number display accordingly, and it also moves the focus to the on-screen skip forward button. Else if a video or a song then it starts playback of the next asset in the playlist, updating the current time display and progress bar accordingly, and it also moves the focus to the on-screen skip forward button. If on the last asset in a playlist it should restart the playlist, else if the user is idle the playlist ends and the user is returned to the launch point.

* TRICKPLAY is PLAY, STOP, PAUSE, REWIND, FAST FORWARD, SKIP BACK, SKIP FORWARD, and SLOW.
† D-PAD is UP, DOWN, LEFT, RIGHT, OK; COLOURS are RED, GREEN, YELLOW, BLUE; THUMBS are THUMBS UP and THUMBS DOWN; NUMBERS are 0-9 buttons.