Connected TV Applications for TiVo

Weather

Design Outline

16 Dec 2015

Overview

Header: shows the location for current and forecasted weather

Body: shows current temperature, forecasted high and low for the day, chance of precipitation, umbrella suggestion and what-to-wear suggestion.

Footer: here the user can switch between daily forecast, bi-hourly forecasts, and location list.

footer controls   current conditions   forecasted conditions (1 week daily)

This app presents simple and relevant weather information with minimal interruption to TV viewing. It not only displays current and forecasted weather data but it also anticipates the 2 top questions user's have when they are going outside ('Do I need to bring an umbrella?' and 'What should I wear?') and answers them with straighforward messages and icons.

By default the app shows the weather for the location of the TiVo set top box and displays the daily forecast for the week across the footer. The user may switch locations manually. The UI

has been designed so this can be done quickly without any typing of place names or post codes.

The long-term goal is for the app to appear over live TV, but until the tuner is available the background will show a still photo (possibly a looping video).

As with all current TiVo apps this app uses the standard loading screen, version messages, and standard TiVo sounds. See master ticket on Jira called "TiVo HTML5 shared components" at http://jcb-wb-p1:3080/jira/browse/TVAPPS-1254.

Footer showing 14 hour bi-hourly forcast. Starts from the next time period nearest to 2 hours in the future.
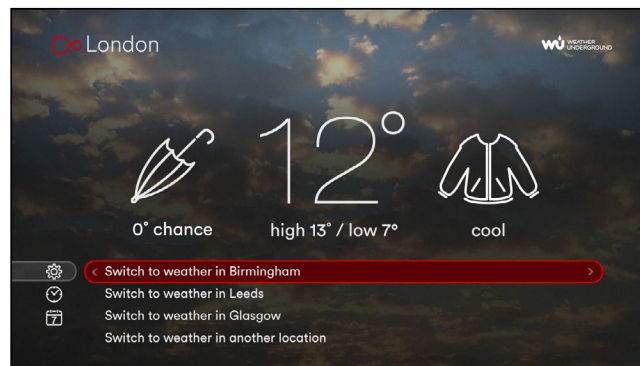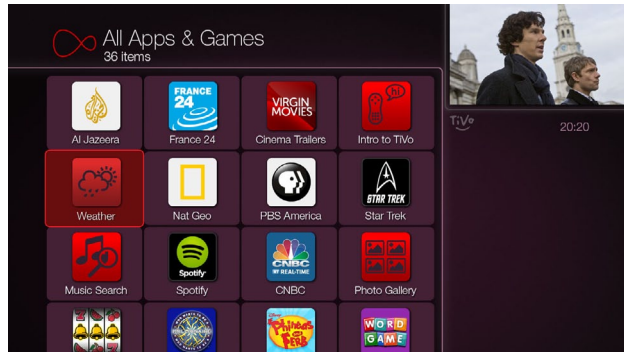

Footer showing location list. The first 3 slots are the the 3 most recent locations and the last selection allows the user to set a new one.
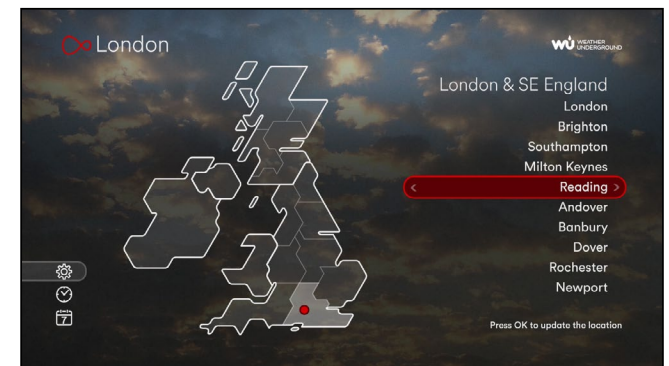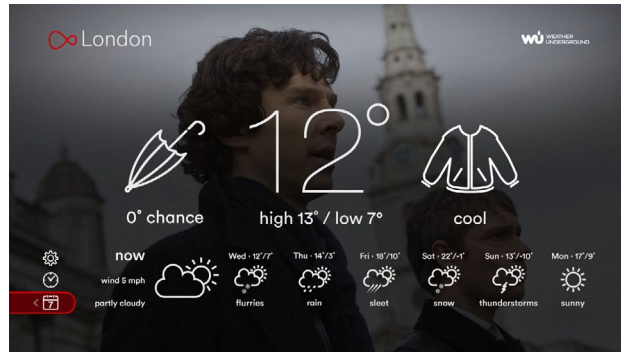

Footer showing location map. Users set a new location by selecting a region on the map and then a city on the right-hand list.

Example User Journey 1

Launching and quiting (when live TV tuner is available)

1. Apps & Games folder.

2. OK pressed. UI is overlaid on live TV.

3. LEFT pressed. App quits. User returned to full screen live TV.

Example User Journey 2

Checking the weather and changing location (before live TV tuner is available)

1. Apps & Games folder.

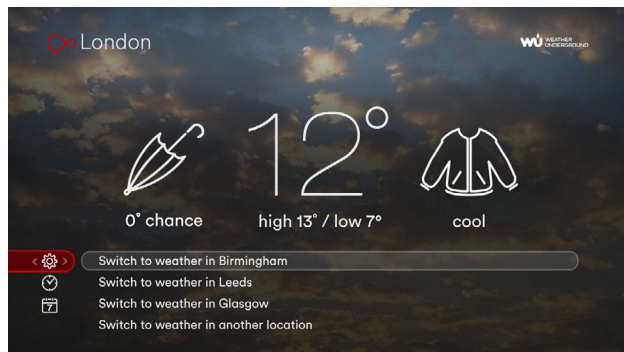2. OK pressed. Background is a static picture (or perhaps a looping video?). On first launch weather is shown for STB's location. Weekly forecast shown across footer.

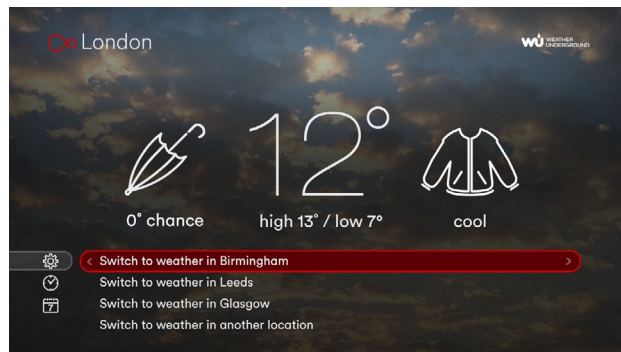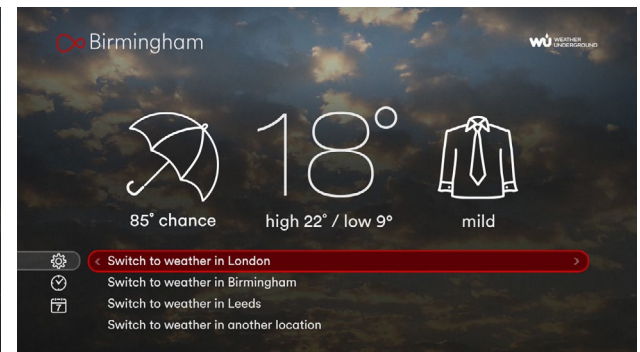3. UP pressed. Footer shows bi-hourly forecast.

4. UP pressed. Recently selected locations are listed (fallback if empty = UK's next 3 largest cities).

5. RIGHT pressed.

6. OK pressed. Location name and current conditions update to the new location.

User Journey 2   *Checking the weather and changing location (before live TV tuner is available)*
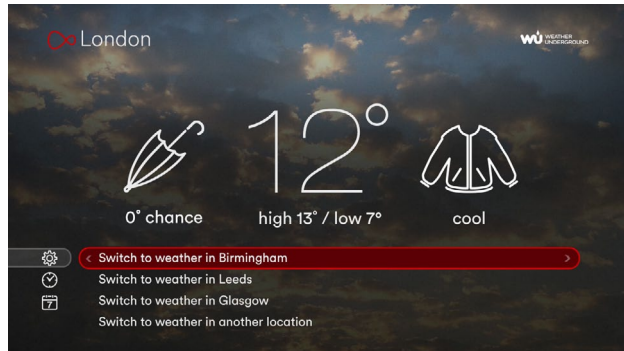
7. OK pressed again. Location switches back to first city.

8. DOWN pressed 3 times. User decides to set a new location.

9. OK pressed. Focus is on a region of the map that matches the current location, and forward ghosted highlight is on the current city (if on the list). Note the tooltip at lower right.
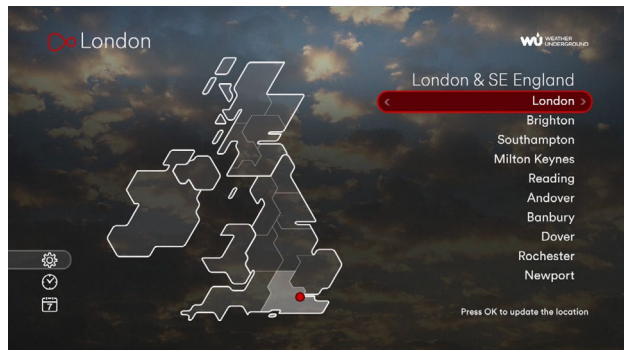
10. OK pressed. Focus moved to former ghosted highlight on the list. Note tooltip change and ghosted highlight on the map on the current region.

11. DOWN pressed 4 times. Note the location plot moving on the map while going down the list.

12. OK pressed. Screen updates to new location and focus jumps to weekly forecast.
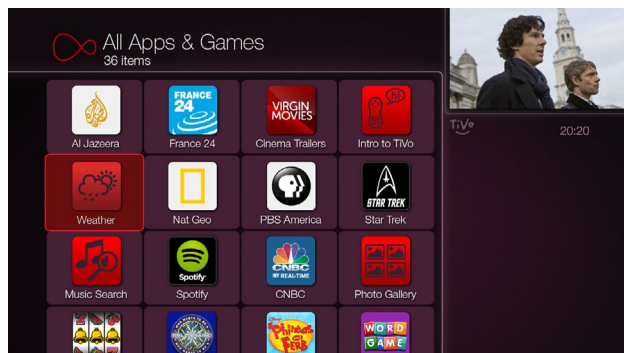
13. LEFT pressed. App quits and user is returned to launch point.

Top Weather Questions Icons

Do I need an umbrella today?
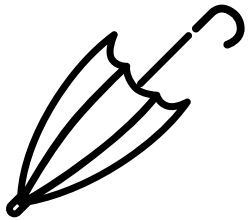
No, leave it at home
(< 5% chance of precipitation)

Yes, you'll need it
(> 5% chance of precipitation)
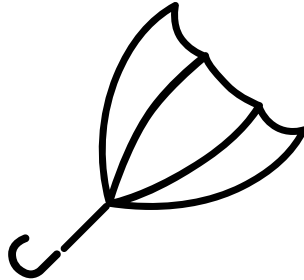
No, it's too windy!
(> 24 mph windspeed)

London   WEATHER UNDERGROUND

12°

0° chance   high 13° / low 7°   cool

now   12:00 · 1°   14:00 · 6°   16:00 · 13°   18:00 · 12°   20:00 · 24°   22:00 · 32°
wind 5 mph
partly cloudy   thunderstorm   partly sunny   rain   freezing rain   snow   clear
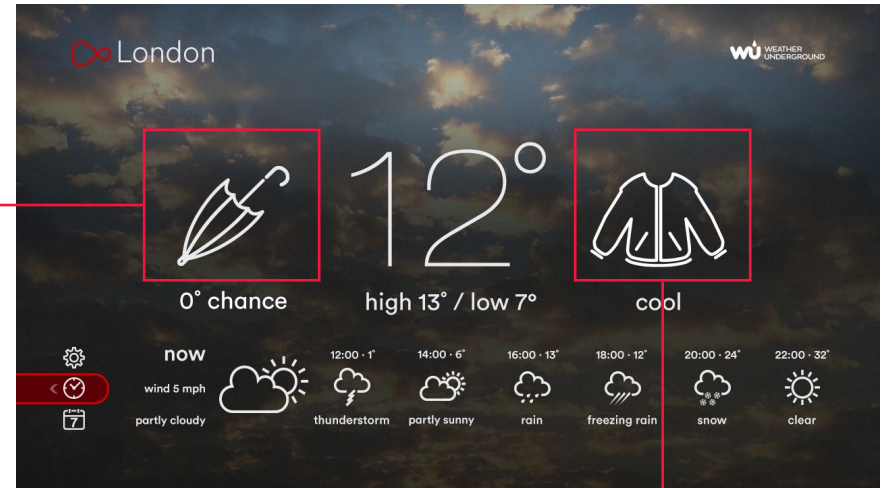
What do I wear today?
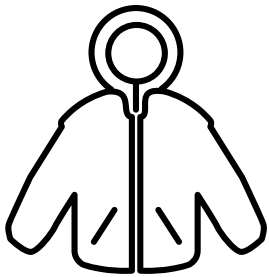
Very cold
(feels like < 0˚C)

Cold
(feels like 0-7˚C)

Cool
(feels like 7-14˚C)

Mild
(feels like 14-23˚C)
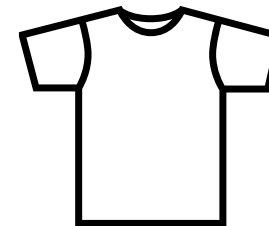
Warm
(feels like 23-28˚C)
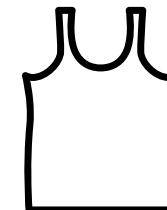
Hot
(feels like 28-33˚C)
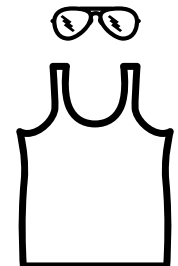
Very hot
(feels like > 33˚C)

Weather Icons

Icons used by Weather Underground

chanceflurries.svg	chancerain.svg	chancesleet.svg	chancesnow.svg	chancetstorms.svg	clear.svg	cloudy.svg	flurries.svg	fog.svg	hazy.svg
mostlycloudy.svg	mostlysunny.svg	partlycloudy.svg	partlysunny.svg	rain.svg	sleet.svg	snow.svg	sunny.svg	tstorms.svg	
nt_chanceflurries.svg	nt_chancerain.svg	nt_chancesleet.svg	nt_chancesnow.svg	nt_chancetstorms.svg	nt_clear.svg	nt_cloudy.svg	nt_flurries.svg	nt_fog.svg	nt_hazy.svg
nt_mostlycloudy.svg	nt_mostlysunny.svg	nt_partlycloudy.svg	nt_partlysunny.svg	nt_rain.svg	nt_sleet.svg	nt_snow.svg	nt_sunny.svg	nt_tstorms.svg	

Our icons

chanceflurries.png	chancerain.png	chancesleet.png	chancesnow.png	chancetstorms.png	clear.png	cloudy.png	flurries.png	fog.png	hazy.png
mostlycloudy.png	mostlysunny.png	partlycloudy.png	partlysunny.png	rain.png	sleet.png	snow.png	sunny.png	tstorms.png	
nt_chanceflurries.png	nt_chancerain.png	nt_chancesleet.png	nt_chancesnow.png	nt_chancetstorms.png	nt_clear.png	nt_cloudy.png	nt_flurries.png	nt_fog.png	nt_hazy.png
nt_mostlycloudy.png	nt_mostlysunny.png	nt_partlycloudy.png	nt_partlysunny.png	nt_rain.png	nt_sleet.png	nt_snow.png	nt_sunny.png	nt_tstorms.png	

This weather app has it's own look and feel and therefore uses different iconongraphy than what's returned by the Weather Underground API.

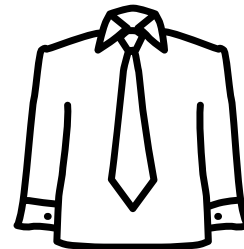Note: there are 2 icon sets, one for forecasted conditions (68 x 60 pixels) and one for current conditions (which look similar to the ones shown at left but larger (134 x 120 pixels) and with a thinner line weight. They are prefixed with 'lge_' in their filenames. e.g. the weather icon 'nt_clear.png' is used for a forecast and the larger 'lge_nt_ clear.png' is used for a current condition).
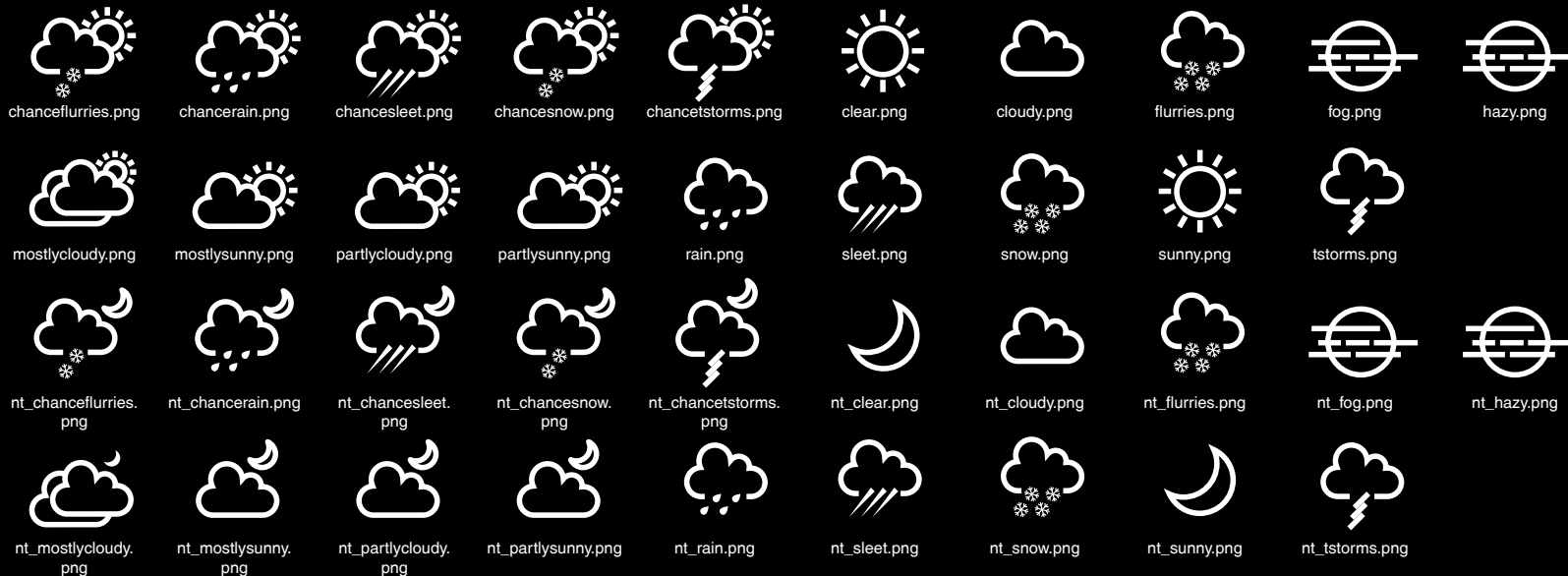
current
(134 x 120)

forcasted
(68 x 60)

Weather Condition Phase Shorthands

Because screen space is limited in the app the weather condition phrases must be translated to shorthand versions.

Note: Rows using square brackets are abbreviations for 3 weather condition phrases: for example "[Light/Heavy] Drizzle" means Light Drizzle, Heavy Drizzle, Drizzle.

Current Conditions

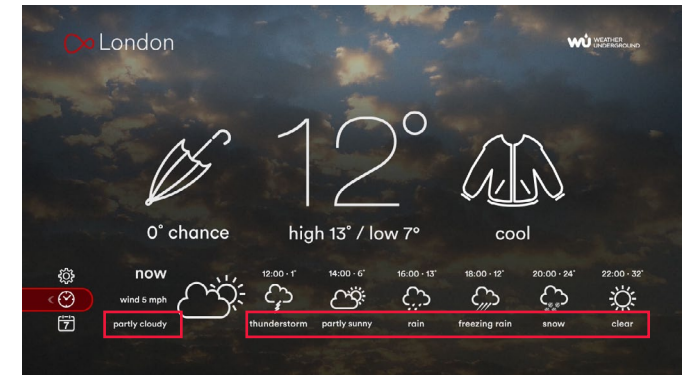| phrase in Weather Underground API	shorthands
[Light/Heavy] Drizzle	[light/heavy] drizzle
[Light/Heavy] Rain	[light/heavy] rain
[Light/Heavy] Snow	[light/heavy] snow
[Light/Heavy] Snow Grains	[light/heavy] snow
[Light/Heavy] Ice Crystals	[light/heavy] ice
[Light/Heavy] Ice Pellets	[light/heavy] ice
[Light/Heavy] Hail	[light/heavy] hail
[Light/Heavy] Mist	[light/heavy] mist
[Light/Heavy] Fog	[light/heavy] fog
[Light/Heavy] Fog Patches	[light/heavy] fog
[Light/Heavy] Smoke	[light/heavy] smoke
[Light/Heavy] Volcanic Ash	[light/heavy] ash
[Light/Heavy] Widespread Dust	[light/heavy] dust
[Light/Heavy] Sand	[light/heavy] sand
[Light/Heavy] Haze	[light/heavy] haze
[Light/Heavy] Spray	[light/heavy] spray
[Light/Heavy] Dust Whirls	[light/heavy] dust
[Light/Heavy] Sandstorm	[light/heavy] storm
[Light/Heavy] Low Drifting Snow	[light/heavy] snow
[Light/Heavy] Low Drifting Widespread Dust	[light/heavy] dust
[Light/Heavy] Low Drifting Sand	[light/heavy] sand
[Light/Heavy] Blowing Snow	[light/heavy] snow
[Light/Heavy] Blowing Widespread Dust	[light/heavy] dust
[Light/Heavy] Blowing Sand	[light/heavy] sand
[Light/Heavy] Rain Mist	[light/heavy] rain mist
[Light/Heavy] Rain Showers	[light/heavy] rain
[Light/Heavy] Snow Showers	[light/heavy] snow

phrase in Weather Underground API	shorthands
[Light/Heavy] Snow Blowing Snow Mist	[light/heavy] snow
[Light/Heavy] Ice Pellet Showers	wintry showers
[Light/Heavy] Hail Showers	[light/heavy] hail
[Light/Heavy] Small Hail Showers	[light/heavy] hail
[Light/Heavy] Thunderstorm	[light/heavy] storms
[Light/Heavy] Thunderstorms and Rain	[light/heavy] storms
[Light/Heavy] Thunderstorms and Snow	snow storms
[Light/Heavy] Thunderstorms and Ice Pellets	wintry showers
[Light/Heavy] Thunderstorms with Hail	hail storms
[Light/Heavy] Thunderstorms with Small Hail	hail storms
[Light/Heavy] Freezing Drizzle	[light/heavy] drizzle
[Light/Heavy] Freezing Rain	[light/heavy] rain
[Light/Heavy] Freezing Fog	[light/heavy] fog
Patches of Fog	patches of fog
Shallow Fog	shallow fog
Partial Fog	partial fog
Overcast	overcast
Clear	clear
Partly Cloudy	partly cloudy
Mostly Cloudy	mostly cloudy
Scattered Clouds	partly cloudy
Small Hail	small hail
Squalls	squalls
Funnel Cloud	funnel cloud
Unknown Precipitation	unknown
Unknown	unknown

Forcasted Conditions

| phrase in Weather Underground API	shorthands
Chance of Flurries	flurries
Chance of Rain	rain
Chance Rain	rain
Chance of Freezing Rain	freezing rain
Chance of Sleet	sleet
Chance of Snow	snow
Chance of Thunderstorms	thunderstorms
Chance of a Thunderstorm	thunderstorm
Clear	clear
Cloudy	cloudy
Flurries	flurries
Fog	fog
Haze	hazy
Mostly Cloudy	mostly cloudy
Mostly Sunny	mostly sunny
Partly Cloudy	partly cloudy
Partly Sunny	partly sunny
Freezing Rain	freezing rain
Rain	rain
Sleet	sleet
Snow	snow
Sunny	sunny
Thunderstorms	thunderstorms
Thunderstorm	thunderstorm
Unknown	unknown
Overcast	overcast
Scattered Clouds	partly cloudy

Setting a New Location

UK Regions Map

By default the app shows the weather at the user's set top box location, but some users may want to change this (because the user wants to see the weather forecast for a travel destination, for example). The app contains a shortlist of locations so that user can quickly change to another town in the UK without any typing on the remote control.

Once the user chooses to switch to a new location they first must select one of 15 regions by navigating a map (shown at right. These are the regions currently used by the Met Office). As they navigate around the map using the ARROW buttons the list on the right-hand side of the screen updates. If the current location is on one of the lists it will be marked with a forward ghosted hightlight, otherwise the first item on the list will show the forward ghosted hightlight, which indicates where the user will advance to next.

The user advances to the right-hand list by pressing OK. The current region now has a ghosted highlight and the location in focus on the list is plotted on the map with a red highlight. As the user arrows up and down the list the location updates on the map (plotted by a small red circle. See next page).

1. Highlands & Eilean Siar
2. Grampian
3. Central, Tayside & Fife
4. Strathclyde
5. SW & Lothian Borders
6. Northern Ireland
7. North West England
8. North East England
9. Yorkshire and Humber
10. West Midlands
11. East Midlands
12. South West England
13. London and SE England
14. East of England
15. Wales
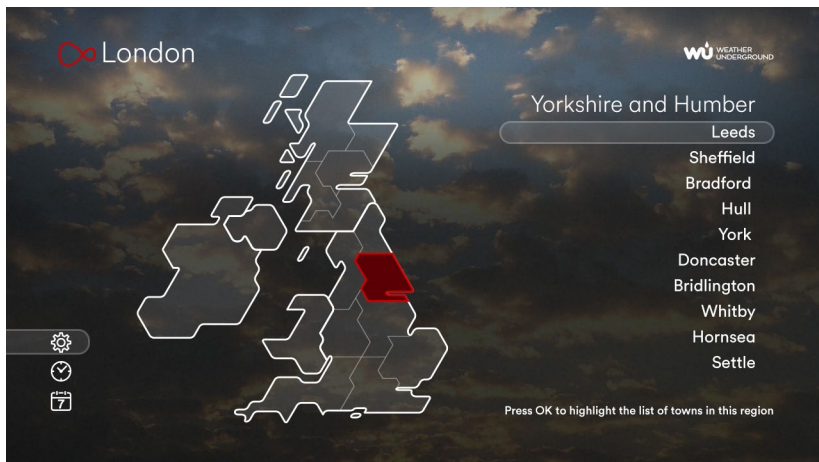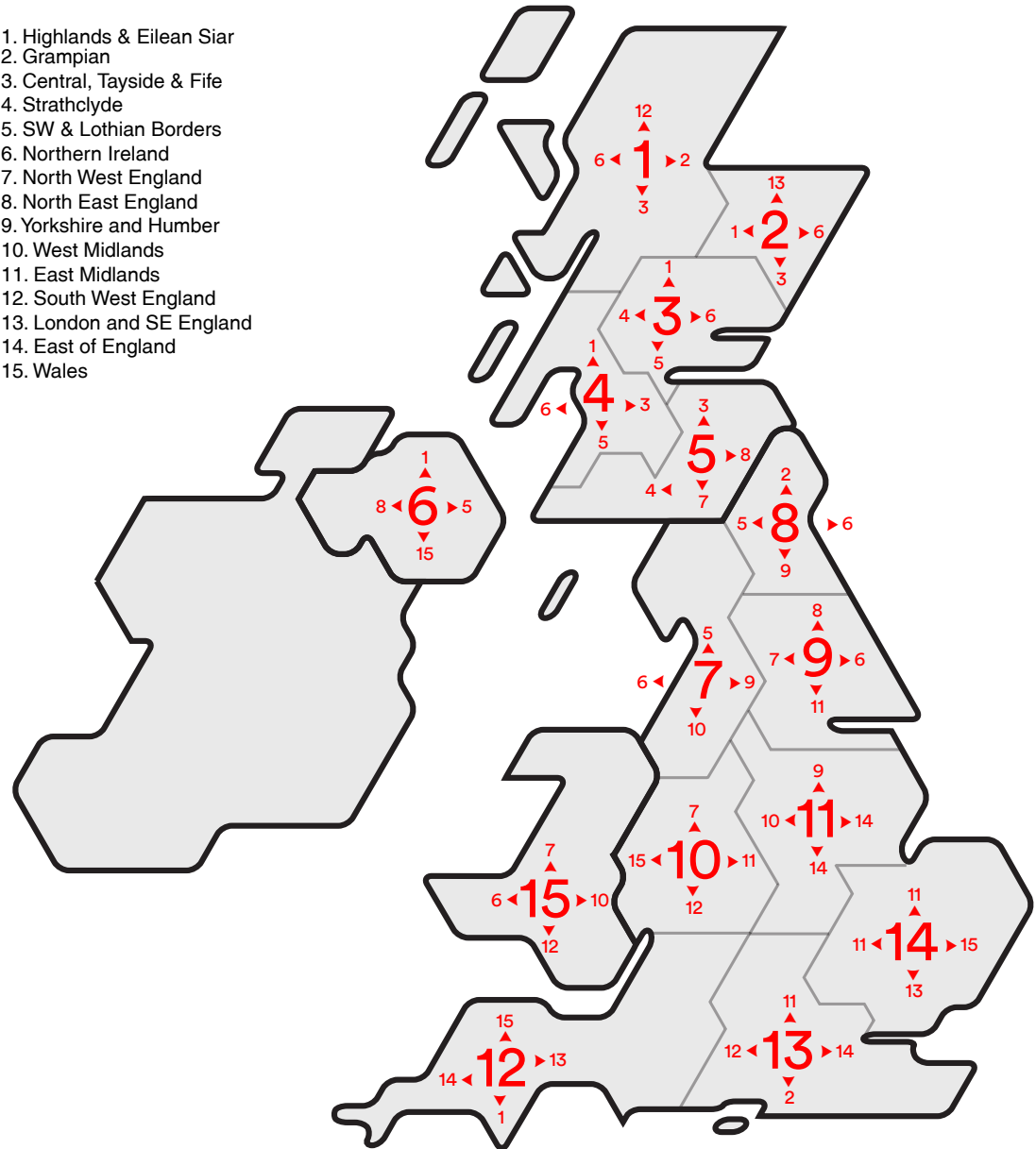
Key map showing which regions the user will navigate to if they press UP, DOWN, LEFT, or RIGHT from any region.

Locations

Location plots of UK Town Shortlist

The table below shows the location names next to plotted co-ordinates on the 1280 x 720 TV screen (with the origin point at upper left).

UK regions were divided into a shortlist of towns chosen based on a combination of high population and wide geographical coverage.

Town / City	X, Y
1. Highlands & Eilean Siar	
Inverness	534, 182
Fort William	481, 215
Stornoway	464, 121
Wick	565, 124
Portree	457, 171
Ullapool	490, 148
Benbecula Airport	413, 159
Lairg	524, 151
Durness	509, 116
Craig	492, 179
2. Grampian	
Aberdeen	591, 215
Fraserburgh	603, 181
Forres	547, 183
Stonehaven	586, 228
Lossiemouth	560, 182
Laurencekirk	575, 231
Huntly	573, 202
Banff	582, 184
Braemar	553, 222
Aberlour	561, 198
3. Central, Tayside & Fife	
Dundee	556, 260
Perth	539, 262
Stirling	518, 274
Brechin	566, 245
Crieff	523, 259
Pitlochry	531, 239
Dunkeld	535, 249
Killin	505, 248
Strathyre	504, 259
4. Strathclyde	
Glasgow	502, 293
Paisley	494, 292
Cumbernauld	509, 288
Ayr	472, 312
Larkhall	509, 302
Cumnock	491, 318
Girvan	462, 328
Tarbert	458, 282
Biggar	519, 314
Tiree	417, 229

Town / City	X, Y
5. SW & Lothian Borders	
Edinburgh	546, 286
Dumfries	513, 341
Bathgate	530, 290
Stranraer	458, 343
Peebles	542, 308
North Berwick	563, 286
Jedburgh	559, 309
Kelso	553, 316
Dalbeattie	496, 343
Duns	565, 299
6. Northern Ireland	
Belfast	422, 345
Londonderry	378, 320
Newry	404, 376
Coleraine	399, 315
Armagh	392, 361
Enniskillen	358, 348
Cookstown	391, 347
Ballycastle	415, 311
Castlewellan	423, 366
Dungiven	391, 325
7. North West England	
Manchester	545, 446
Liverpool	514, 449
Blackpool	519, 421
Chester	518, 465
Southport	518, 434
Carlisle	538, 361
Kendal	535, 390
Douglas	467, 387
Northwich	537, 461
Nantwich	533, 471
8. North East England	
Newcastle	584, 356
Middlesbrough	594, 383
Darlington	581, 384
Durham	583, 368
Bishop Auckland	577, 375
Morpeth	580, 343
Berwick	579, 310
Hexham	565, 353
Stanhope	566, 367
Wooler	579, 322

Town / City	X, Y
9. Yorkshire and Humber	
Leeds	580, 436
Sheffield	577, 458
Bradford	571, 435
Hull	619, 442
York	597, 427
Doncaster	589, 454
Bridlington	629, 424
Whitby	616, 407
Hornsea	632, 437
Settle	554, 408
10. West Midlands	
Birmingham	551, 510
Wolverhampton	543, 501
Stoke on Trent	545, 482
Coventry	569, 524
Solihull	556, 516
Worcester	535, 525
Telford	532, 493
Shrewsbury	516, 489
Hereford	514, 528
Ludlow	516, 509
11. East Midlands	
Leicester	581, 513
Nottingham	582, 493
Derby	569, 493
Northampton	585, 539
Lincoln	605, 471
Corby	597, 525
Boston	622, 504
Grantham	599, 489
Skegness	637, 486
Louth	624, 471
12. South West England	
Bristol	506, 568
Plymouth	421, 630
Exeter	448, 613
Swindon	541, 562
Bournemouth	521, 628
Bath	516, 578
Yeovil	503, 600
Barnstaple	427, 586
Camborne	372, 629
Camelford	407, 609

Town / City	X, Y
13. London and SE England	
London	607, 583
Brighton	600, 633
Southampton	547, 617
Milton Keynes	587, 552
Reading	574, 581
Oxford	566, 561
Andover	551, 594
Banbury	562, 548
Dover	657, 621
Rochester	626, 602
14. East of England	
Luton	600, 557
Peterborough	615, 524
Norwich	667, 526
Ipswich	659, 563
Cambridge	615, 547
Colchester	645, 548
Bury St Edmunds	647, 571
Watford	599, 571
King's Lynn	638, 515
Huntingdon	614, 538
15. Wales	
Cardiff	481, 570
Swansea	452, 553
Wrexham	501, 471
Aberystwyth	451, 500
Newtown	486, 497
Caernarfon	449, 460
Brecon	474, 533
Pembroke	420, 544
Cardigan	424, 521
Tregaron	454, 515

Locations

Geo-lookup Queries

Example of URL with query in **bold**: http://api.wunderground.com/api/[key]/forecast/geolookup/conditions/q/**zmw:00000.6.03246**.json

Town/City	Query
1. Highlands & Eilean Siar	
Inverness	zmw:00000.1.03059
Fort William	zmw:00000.2.03041
Stornoway	zmw:00000.1.03026
Wick	zmw:00000.1.03075
Portree	zmw:00000.2.03037
Ullapool	zmw:00000.2.03031
Benbecula (Balivanch) Airport	zmw:00000.1.03022
Lairg	locid:UKXX1369;loctype:1
Durness	locid:UKSC0882;loctype:1
Craig	locid:UKXX5425;loctype:1
2. Grampian	
Aberdeen	zmw:00000.1.03091
Fraserburgh	zmw:00000.4.03094
Forres	zmw:00000.8.03066
Stonehaven	zmw:00000.5.03088
Lossiemouth	zmw:00000.1.03068
Laurencekirk	zmw:00000.3.03088
Huntly	zmw:00000.4.03070
Banff	zmw:00000.3.03094
Braemar	locid:UKXX4931;loctype:1
Aberlour	locid:UKXX0533;loctype:1
3. Central, Tayside & Fife	
Dundee	zmw:00000.1.03163
Perth	zmw:00000.1.03157
Stirling	zmw:00000.15.03144
Brechin	zmw:00000.2.03088
Crieff	zmw:00000.9.03144
Pitlochry	zmw:00000.2.03072
Dunkeld	locid:UKXX0998;loctype:1
Killin	locid:UKXX1465;loctype:1
Strathyre	locid:UKSC0138;loctype:1
4. Strathclyde	
Glasgow	zmw:00000.1.03140
Paisley	zmw:00000.34.03140
Cumbernauld	zmw:00000.3.03152
Ayr	zmw:00000.5.03135
Larkhall	zmw:00000.31.03152
Cumnock	zmw:00000.4.03139
Girvan	zmw:00000.8.03135
Tarbert	zmw:00000.7.03120
Biggar	zmw:00000.2.03155
Tiree	zmw:00000.1.03100

Town/City	Query
5. SW & Lothian Borders	
Edinburgh	zmw:00000.25.03160
Dumfries	zmw:00000.1.03154
Bathgate	zmw:00000.9.03152
Stranraer	zmw:00000.4.03130
Peebles	zmw:00000.11.03155
North Berwick	zmw:00000.6.03174
Jedburgh	zmw:00003.3.03176
Kelso	zmw:00000.7.03158
Dalbeattie	zmw:00002.2.03154
Duns	zmw:00003.3.03158
6. Northern Ireland	
Belfast	zmw:00000.1.03917
Londonderry	zmw:00000.4.03906
Newry	zmw:00000.11.03923
Coleraine	zmw:00000.5.03914
Armagh	zmw:00002.2.03923
Enniskillen	zmw:00000.7.03903
Cookstown	zmw:00003.3.03911
Ballycastle	zmw:00002.2.03916
Castlewellan	zmw:00000.4.03926
Dungiven	zmw:00000.4.03908
7. North West England	
Manchester	zmw:00000.1.03334
Liverpool	zmw:00000.1.03323
Blackpool	zmw:00000.1.03318
Chester	zmw:00007.7.03321
Southport	zmw:00000.19.03318
Carlisle	zmw:00000.1.03220
Kendal	zmw:00000.3.03225
Douglas (Isle of Man)	zmw:00000.7.03155
Northwich	zmw:00000.39.03334
Nantwich	zmw:00000.17.03338
8. North East England	
Newcastle upon Tyne	zmw:00000.6.03246
Middlesbrough	zmw:00000.13.03263
Darlington	zmw:00000.7.03263
Durham	zmw:00000.9.03242
Bishop Auckland	zmw:00003.3.03242
Morpeth	zmw:00000.7.03243
Berwick-Upon-Tweed	zmw:00000.1.03188
Hexham	zmw:00003.3.03235
Stanhope	zmw:00000.4.03235
Wooler	zmw:00000.5.03188

Town/City	Query
9. Yorkshire and Humber	
Leeds	zmw:00000.1.03347
Sheffield	zmw:00000.34.03345
Bradford	zmw:00000.3.03344
Hull	zmw:00000.13.03384
York	zmw:00000.11.03266
Doncaster	zmw:00000.34.WEGCN
Bridlington	zmw:00000.1.03292
Whitby	zmw:00000.1.03282
Hornsea	zmw:00000.4.03293
Settle	zmw:00000.14.03339
10. West Midlands	
Birmingham	zmw:00000.1.03534
Wolverhampton	zmw:00000.3.03526
Stoke-on-Trent	zmw:00000.25.03338
Coventry	zmw:00000.1.03541
Solihull	zmw:00000.14.03534
Worcester	zmw:00000.1.03526
Telford	locid:UKXX0305;loctype:1
Shrewsbury	zmw:00003.33.03414
Hereford	zmw:00000.5.03521
Ludlow	zmw:00000.5.03520
11. East Midlands	
Leicester	zmw:00000.3.03453
Nottingham	zmw:00000.1.03354
Derby	zmw:00000.3.03418
Northampton	zmw:00000.15.03557
Lincoln	zmw:00000.7.03377
Corby	zmw:00000.9.03462
Boston	zmw:00000.6.03391
Grantham	zmw:00000.7.03372
Skegness	zmw:00000.6.03392
Louth	zmw:00000.13.03385
12. South West England	
Bristol	zmw:00000.3.03724
Plymouth	zmw:00000.1.03827
Exeter	zmw:00000.1.03839
Swindon	zmw:00000.11.03644
Bournemouth	zmw:00000.1.03862
Bath	zmw:00000.2.03726
Yeovil	zmw:00000.39.03853
Barnstaple	zmw:00000.3.03707
Camborne	zmw:00000.1.03808
Camelford	zmw:00000.3.03820

Town/City	Query
13. London and SE England	
London	zmw:00000.1.03772
Brighton	zmw:00000.1.WBRIG
Southampton	zmw:00000.1.03865
Milton Keynes	zmw:00000.12.03557
Reading	zmw:00000.13.03763
Oxford	zmw:00000.31.03658
Andover	zmw:00000.9.03749
Banbury	zmw:00000.10.03655
Dover	locid:UKXX0042;loctype:1
Rochester	zmw:00000.3.03784
14. East of England	
Luton	zmw:00000.1.03673
Peterborough	zmw:00000.20.03462
Norwich	zmw:00000.1.03492
Ipswich	zmw:00000.18.03590
Cambridge	zmw:00000.1.03571
Colchester	zmw:00000.7.03696
Bury St Edmunds	zmw:00000.3.03586
Watford	zmw:00000.12.03670
King's Lynn	locid:UKXX0504;loctype:1
Huntingdon	zmw:00000.7.03566
15. Wales	
Cardiff	zmw:00000.1.03717
Swansea	zmw:00000.3.03609
Wrexham	locid:UKXX0821;loctype:1
Aberystwyth	zmw:00000.2.03501
Newtown (powys)	zmw:00000.8.03511
Caernarfon	zmw:00000.3.03308
Brecon	zmw:00000.2.03507
Pembroke	zmw:00000.9.03604
Cardigan	locid:UKXX1510;loctype:1
Tregaron	locid:UKWL0042;loctype:1