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“Loc8 codes – directions made easy”

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The Society publishes a wide range of books and booklets on historic OS map series and its journal, *Sheetlines*, is recognised internationally for its specialist articles on Ordnance Survey-related topics.

Loc8 codes – directions made easy

Gary Delaney¹

A Loc8 code is a digital address code designed as a smarter form of postcode for use with modern location-based technologies. Every Loc8 code defines a position to an accuracy of +/-6 metres with respect to ITM (Irish Transverse Mercator) Grid, allowing a vehicle or pedestrian to navigate to within visual distance of the desired destination.

Garmin assisted in field testing the technology and has now released it as standard on all its popular consumer satnavs. Loc8 codes are now available to all manufacturers and developers and an iPhone app is shortly to be released also.

Ireland is famous for the long-winded directions used to assist visitors and natives alike find places. If you were coming to our office we would guide you as follows: *Get to roundabout in Crosshaven by Cronin's pub (7km from Carrigaline); take second exit, start up hill, continue 200 yds, slow sign on left, white building (Cobbles) on left, go another 10 metres and turn left into Cobbles.*

In the UK this might be done with postcodes and road and junction numbers. In Ireland we have traditionally used landmarks instead. However, with the advent of popular GPS and web mapping such as that provided by Google, ordinary people have discovered 'GPS coordinates', previously known to professionals as latitude and longitude. In addition, those who are surveyors or hillwalkers will have some experience with alternative grid coordinates. So whilst the professional art of navigation has moved to the consumer world, the means by which location is defined has not. As a result, in an effort to get around the vagaries of Irish addresses and related landmark directions, in recent years many forms of coordinates have been thrown at the ill-prepared with disastrous consequences. So our address in Crosshaven, Cork could be precisely defined in any of six coordinate forms, as follows:

51.800883 N, 8.293833 W or 51 48 03.2 N, 8 17 37.8 W or 51 48.053 N, 8 17.630 W or 579734 E, 560997 N or 179780 E, 60934 N or W 79780, 60934

This does not take into account other possible variables in terms of axis or quadrant definition. In our own trials we saw that those who have no experience of using these easily mistake one for the other and lat/long decimal degrees mistakenly entered as minutes and decimals of minutes could see errors in destination selection in the order of tens of kilometres – catastrophic in the case of an ambulance!

To solve this problem we investigated postcode-related solutions but discovered many limitations related to postcodes. As an example, even the UK postcode only works if every road has a name and every property has a

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number. This is not the case in the island of Ireland. In Northern Ireland, efforts to impose them in order to introduce the UK postcode were less than satisfactory, rendering the postcode there, and in other rural areas of the UK, less than precise. Postcodes also are a solution invented in the 1960s to help sort mail not find places. Places were still to be found by postmen; all pre-dating the powers of GPS, GIS and routing software. So whilst traditional postcodes contain inherent visual elements to define sorting offices, they very much rely on the local knowledge of a postman to deliver them. Nowadays we can define the exact destination and let GIS identify the sorting process; especially given that all bulk sorting is done by machines rather than human beings.

So the eventual Loc8 code solution is not aimed at sorting mail but rather at defining the exact destination. Once the exact destination is known, the required sorting process can be identified by GIS and routing software and varied to suit different operations – mail, courier, white goods delivery and service delivery to name a few. In the case of people finding places for business, pleasure or tourism then no sorting at all is required and they can go directly to the desired destination using a Loc8 code.

A Loc8 code therefore is seven alphanumeric characters, concatenated to allow it define areas, zones and localities visually in its structure. It is separated by dashes rather than spaces as spaces in traditional postcodes are an invitation to add something in error. So we have replaced long-winded directions and a variety of error prone coordinate variations with a simple W8L-82-4YK; a seven character Loc8 code with an additional eighth character for extra robustness, as it introduces error checking. W is an area on the south coast, W8L is a zone around the town of Crosshaven and W8L-4YK is the street-related locality. 82 is the target destination; a bit like the property number but actually the +/-6m accuracy grid coordinate.

So some say Loc8 should contain a place name. There are 60,000 townland place names in Ireland, so not practical at all and once you add names you lose accuracy, require a database and you get into all the local issues relating to Irish and English language versions of places names and local variations in spelling. Many more modern postcodes do not use names either. Canada and The Netherlands are two notables; the place names are already in an address so this would just be unnecessary duplication for no more than cosmetic reasons. In fact, in many UK postcode areas the place name abbreviation actually has no local relevance at all. Take BT for example, representing Belfast but used everywhere in Northern Ireland including Derry.

Some also say that Loc8 is too long and difficult to remember. Loc8 code is finite at eight characters; it never has to get longer. To find a property in the UK, you need the postcode plus a property number. This is on average nine characters long (variable) and if there is no property number then the postcode only gets you to an area and you need the postman to guide you in. A Loc8 code fixed at eight characters needs no property number, will get you to the

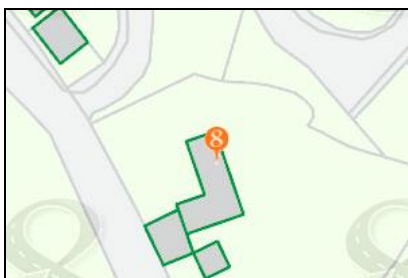
door and also will work on non-property destinations (specific gates, construction sites etc.), something that a postcode can never do. In the same way that Irish people became familiar with the fact that Dublin 11 is around the Ballymun area in Dublin, so too will they quickly establish that our zone, W8L, defines an area around Crosshaven in Cork and the zone NN6 is around where the Parliamentary Buildings are in Dublin. So once all this is understood, remembering the locality W8L-4YK is no problem with 82 (W8L-82-4YK) as the required door.

Furthermore, unlike traditional postcodes, Loc8 codes do not need an expensive address database loaded to make them work on mobile devices. Nor does a code have to change as property densification occurs; Loc8 codes are mathematically related to ITM grid and so they never have to change.

Key features which differentiate Loc8 codes from anything else in use globally are as follows:

- a checker code which checks a user entered code and prompts error correction
- key features which ensure that a Loc8 code can be easily validated
- key features which allow software or scanning devices to robustly pick out a Loc8 code in the middle of many other items of text, addresses, reference numbers and codes
- language independent
- does not require an existing address to be changed and can be used on devices without a loaded address database
- can be used to identify non-property based destinations
- in a web connected scenario the Loc8 code can identify other key information to help guide the user to the destination
- there is no requirement to change property codes as densification occurs as is normal with traditional postcodes
- a Loc8 code is formatted in such a way as to allow it to be added to a standard URL to pinpoint the location on a web map; for example, enter www.loc8code.com/W8L-82-4YK to see its location on Loc8's web mapping service

So Loc8 codes are a modern location solution which avoid the complications of coordinates for the untrained and solve the inadequacies of postcodes with added robustness and flexibility. They are now in use in Ireland and Northern Ireland with plans to implement in other territories.



The location of W8L-82-4YK identified on Loc8 website