

Canadian Profile of the Common Alerting Protocol (CAP-CP)

Location References

Title:	CAP-CP Location References
Description:	Identifies the specific location references to be used to identify the geographical area that pertains to the alert message, when issuing an alert to the requirements of the Canadian Profile of the Common Alerting Protocol (CAP-CP)
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Replaces:	Beta 0.3 Revision B
CAP-CP Documents:	<ol style="list-style-type: none">1. CAP-CP Introduction and Rule Set2. CAP-CP Event References3. CAP-CP Location References
Associated Documents	<ol style="list-style-type: none">1. Statistics Canada - Standard Geographical Classification (SGC)

Purpose of this Document

This document identifies the specific alert location references to be used, in order to satisfy the requirements of the *Common Alerting Protocol - Canadian Profile (CAP-CP)*.

This document is versioned independently of CAP-CP rules included in the CAP-CP Introduction and Rule Set document, since it applies directly to the business of public alerting, rather than the technical specifics of XML formatting and structure. The location list is expected to be updated more frequently than the rule set which addresses the CAP-CP position on CAP formatting and structure.

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III. Notices

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IV. Revision Summary

This version includes the following updates:

1. References the 2011 Standard Geographical Classification (SGC) from Statistics Canada
2. Comments clarifying SGC compatibility with CAP-CP were added.
3. Discussion regarding the national geo-code of 00 was added.
4. Discussion regarding the "none" value were updated.

V. Other CAP-CP Documents

The entire CAP-CP is defined in this document, and the following two additional documents, all of which can be found at www.CAP-CP.ca:

1. [CAP-CP Introduction and Rule Set](#). This document details the specific requirements, constraints, and recommendations associated with the Canadian Profile of the CAP. It is versioned independently of this document.
2. [CAP-CP Event References](#). This document details a comprehensive list of recognized events associated with Public Alerting in Canada. It is versioned independently of this document.

Be sure to check www.CAP-CP.ca for updates to this document.

VI. Associated Documents and Resources

1. www.CAP-CP.ca. The CAP-CP website identifies other CAP-CP related resources.

VII. Terminology

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in IETF RFC 2119, available at <http://www.ietf.org/rfc/rfc2119.txt>

Additional terminology is specified in the CAP-CP Introduction and Rule Set document.

VIII. CAP-CP Location Requirements

CAP-CP rules currently require originators of alerts to identify appropriate location geocode(s) for which, or within which, the subject of the alert message pertains. CAP-CP geocode requirements are only minimum requirements and are subject to gross over estimations of the area to be alerted. This requirement will be deprecated, and developers are encouraged to plan for such changes. Therefore, users of CAP-CP messages with GIS capabilities are encouraged to provide and distribute to the more specific information that can be found in the polygon and or circle elements, when such values are present.

For terrestrial areas, the locations are identified using geocode(s) that have their basis in the Statistics Canada Standard Geographical Classification (SGC). Marine areas are not yet finalized for CAP-CP, although Environment Canada marine areas are under consideration.

The textual description (areaDesc) need not include the actual names associated with the geocodes, however, their inclusion is encouraged where the area otherwise described would not be familiar to visitors to the region.

The rest of this document describes the use of the geocodes.

IX. Standard Geographical Classification (SGC)

SGC are defined and maintained in Canada by Statistics Canada. Every five years (2006, 2011) Statistics Canada issues a full SGC update with documentation in step with the national census. Between these major issues, changes do occur, and Statistics

Canada shares these updates in the form of lists and updated geographic boundary files. These updates reflect the changes with provincial recognition of newly incorporated areas, newly amalgamated areas, etc. The goal of the CAP-CP will be to attempt to keep current with these intermediate updates.

Note however, that CAP-CP Location references are only based on the SGC as of early 2010. Therefore, whenever an SGC update occurs, additional work is needed within the CAP-CP world to consider possible new issues as well as fill in any gaps in the CAP-CP Location References documentation. This means that CAP-CP Location reference updates will be scheduled a period of time after the corresponding SGC updates occur.

The Statistics Canada information page for SGC, at the time of writing, is located at the following URL: <http://www.statcan.gc.ca/subjects-sujets/standard-norme/sgc-cgt/2011/index-indexe-eng.htm> SGC values are available for free, and related geomatics data for a fee, on Statistics Canada's website.

The SGC codes to be used with CAP-CP are as follows:

1. National
2. Province / Territory
3. Census Division (CD), which pertains to provincial or territorial legislated locations typically referenced as a county or region. The combination of CDs for a province/territory equals the combined area of the province/territory.
4. Census Sub-Division (CSD), which pertains to municipalities and Indian reserves. CSDs are combined geographically to form a CD.

The new "Region of Canada" codes introduced in SGC 2011 are not recognized in this version and previous versions of CAP-CP.

Where a higher level SGC code is applicable, CAP-CP recommends the use of the higher level code. For example, when the area pertains to an entire CD, the CD code should be used rather than listing each of the CSD codes that make up the CD. Likewise, if an entire Province is applicable, then the provincial code should be used.

Additionally, the national level requires some further explanation. Within the SGC system, the national code of 00 applies to all the other location codes combined which happens to be all the terrestrial areas within Canada. For CAP-CP location references the same rule applies, however at such time as Canadian marine location references are included in CAP-CP, the value of 00 will apply to those as well. Reworded, the CAP-CP value of 00 will apply to all the combined locations referenced within the entire suite of CAP-CP location references.

As noted above, new issues may arise with SGC updates, however there are a couple of known issues already that need some comment. For example, certain CSD's are large areas that have holes (ie a Swiss cheese affect). In most cases, these areas are CSD's representing unincorporated, less populated areas of a CD that surrounds all the populated communities (CSD's), with the holes being the communities themselves. In another example, some provinces do not have counties or regions; CD's in these provinces were introduced for statistical purposes only. One province has identified the need for additional codes for national and provincial parks, and Metis communities.

Looking forward, if an improved geo encoding system for location references at the Canadian level or even at the Provincial level arise, CAP-CP may consider moving to these new systems in forthcoming versions of CAP-CP. The inclusion of additions to the code list for marine areas already hints at this practice. The Provinces and Territories are being consulted on how to proceed with future versions.

Given that CAP-CP may be used by Canadian originators for alerts which pertain to areas outside of the country, CAP-CP also provides an add-on value for alerts which are issued for areas outside of the country. The value is "none", and it is not case sensitive. Until such time as Canadian marine location references are included in CAP-CP, the "none" value is also to be used for marine areas. Note, that this last requirement does not preclude the inclusion of an independent marine area reference, as CAP itself does support the use of multiple location reference schemes.

X. SGC Reference Version

A table of SGC values which includes name, number and type is available at www.CAP-CP.ca for the convenience of CAP-CP implementers.

The boundary files can be found at the following URI: <http://www12.statcan.ca/census-recensement/2011/geo/bound-limit/bound-limit-eng.cfm>. Efforts are underway to produce a generalized boundary file, as some of the polygons are much more detailed than required for alerting and presentation, and are proving to be burden in use for both alert issuers and receivers.

Maps in pdf format can be found at the following URI:
<http://www12.statcan.gc.ca/census-recensement/2011/geo/map-carte/ref/sgc-cgt/index-eng.cfm>

XI. Marine Area Values

Values for marine areas are being evaluated and are subject to several additional considerations. The first of these involves the fact that the terrestrial SGC codes from Statistics Canada extend out into the water whenever a SGC zone borders a shoreline. This brings up the issue that marine geocoded zones may have overlapping areas with terrestrial zones near shorelines if the marine areas snap to the shoreline or extend inland. For Inland water bodies there will be the additional consideration of the size of the water body in question.

More importantly though is the need to make sure that whatever marine geocode system is eventually employed, it is true to the intent of alert messaging over marine areas. In the absence of marine geocodes, the ability to create alert messages over water is still possible with the more accurate and more preferred use of polygons. In such cases where the polygon is to represent a marine area, the value to use for the geocode element would be “none” (see appendix).

XII. English and French Location Names

Statistics Canada publishes SGC codes with one place name value for each entry, as provided to them by the province or territory to which they pertain. Some SGC place names are in English, some are in French, and a few include both English and French values, where the geopolitical area associated with the SGC has both English and French official names. Issuers should feel free to use just the English name in an English message, just the French name in a French message, or both.

XIII. Presentation in the CAP-CP <area> Block

SGC codes are to be presented using the CAP <geocode> element.

The <valueName> SHALL be formatted as specified in the CAP-CP rules set, and set forth in the next section.

XIV. Location Reference <valueName>

CAP-CP has adopted a URN-like scheme for creating valueNames. Location reference valueNames use the following format:

```
profile:CAP-CP:Location:{version number}
```

As mentioned previously, the versioning of the CAP-CP Location References document is independent of the other CAP-CP documents. Where a change is non-substantive, such as the change herein which relates to an update to a third party list, the version number will not change.

The following <valueName> value is defined for this version of the Location References document,

profile:CAP-CP:Location:0.4

XV. Appendix:

CAP-CP Location Values

The following values are CAP-CP custom additions, which may be used in addition to the SGC values. This table is expected to grow over time as other location related challenges are identified and addressed.

CAP-CP geocode Value	Description
00	The combined area referenced by all the codes in the CAP-CP code set
none	Area of an alert that cannot be associated with a current CAP-CP location code, as it is for an unassigned area, or is outside Canada, or in a marine area of Canada. There may be other examples. The value “none” is not case sensitive.