



MetService CAP Feed User Guide

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Document History

Versions

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0.3_draft	5 Aug 2019	Second draft, incl. Code of Practice, recommendations and other minor edits	Chris Noble
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DISCLAIMER

This User Guide describes the implementation of CAP at MetService for Severe Weather alert messages as at the date of the publication of this document.

MetService reserves the right to modify the CAP implementation, Code of Practice or Terms of Use and/or this User Guide in the future. In particular, element usage or implementation may change in accordance with changes to the OASIS CAP Standard, the CAP-NZ Technical Standard, or other recommended practice such as on advice from the World Meteorological Organization.

Where possible, and on a best endeavours basis, MetService will notify known users of the feed of any planned changes.

This document has been issued without formal editing.



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1. Introduction

“Common Alerting Protocol (CAP) is an international XML-based open, non-proprietary digital message format for exchanging all-hazard emergency alerts. It supports consistency in the application of public warnings across Alerting Authorities, and the dissemination of warnings over many channels at the same time. The net result is increased effectiveness of warnings.”

“The [CAP standard](#)¹ was developed by the Organisation for the Advancement of Structured Information Standards (OASIS) and is based on best practices identified in academic research and practical experience. The International Telecommunication Union, Telecommunication Standardization Sector (ITU-T) adopted CAP in 2007.”²

1.1 Document Purpose

The purpose of this document is to provide a guide for users of the MetService CAP feed, including details of the implementation of CAP at MetService for the dissemination of Severe Weather Alerts.

¹ <https://docs.oasis-open.org/emergency/cap/v1.2/CAP-v1.2-os.html>

² Excerpts from the CAP-NZ Technical Standard [04/18], via:
<https://www.civildefence.govt.nz/guidance-training/guidelines/technical-standards/common-alerting-protocol>



1.2 Code of Practice

Code of practice for the conveyance of advice of Severe Weather for individuals and agencies without statutory authority³

Advice of severe weather is in the national interest since in most severe weather events, if sufficient warning is provided, actions to reduce the risk of loss of life and property can be taken.

Any of the following weather information may lead to public confusion:

- Is not from the organisation designated under the Meteorological Services Act 1990 to provide the meteorological warning service (the "Official Alerting Authority"), and
- Conflicts with information provided by the Official Alerting Authority, and
- Could be reasonably construed by anyone receiving it to be advice from the Official Alerting Authority about severe weather

Accordingly, persons and organisations who receive information about potential severe weather provided by the Official Alerting Authority shall:

- Pass such information on without modification.
- Pass such information on as top priority, and within 10 minutes of the time of receipt.
- Have systems in place that alert them when information about potential severe weather has been updated by the Official Alerting Authority.
- Acknowledge the Official Alerting Authority as being the source of the information when passing it on.
- Present such information in a way that maintains, and does not detract from, the reputation of the Crown or the Official Alerting Authority.

MetService is the Official Alerting Authority and provides information about potential severe weather with the stipulation that those conveying that information comply with the above Code. In the event that MetService believes there has been a breach of any of these conditions, MetService will advise the Ministry of Transport (being the responsible Ministry for the provision of the meteorological warning service in accordance with the Meteorological Services Act) and will agree with the Ministry whether it is appropriate to suspend the provision of information about severe weather to the person or organisation that is in breach.

³ Reproduced from the MetService website at: <https://www.metservice.com/warnings/home>



2. MetService CAP Feed

2.1 Feed URI

The MetService CAP feed is available publicly in [RSS 2.0](#)⁴ format at:

<https://alerts.metservice.com/cap/rss>

and in [Atom](#)⁵ format at:

<https://alerts.metservice.com/cap/atom>

Both versions of the feed, and the alert XML documents referenced within, are valid as tested with [Google's CAP Validator](#)⁶. They are also valid when tested against the Google Public Alerts CAP v1.0 profile.

2.2 Feed Scope

The MetService CAP feed includes alerts for the following severe weather products:

- Severe Weather Watches (for heavy rain, heavy snow or strong winds)
- Orange Severe Weather Warnings (for heavy rain, heavy snow or strong winds)
- Red Severe Weather Warnings (for heavy rain, heavy snow or strong winds)
- Severe Thunderstorm Watches
- Severe Thunderstorm Warnings
- Road Snowfall Warnings

For further information on these products and the meteorological thresholds used for their issuance, see [MetService Weather Warning Criteria](#)⁷.

Note, the CAP Feed does NOT contain alerts for other warning products from MetService such as Marine Warnings, nor does it contain the daily issues of the Severe Weather Outlook and Thunderstorm Outlook. Furthermore, the CAP Feed and the alerts referenced within do NOT contain the severe weather "Media Headline" or "Media Situation Statement" that are included as event summary content at the top of the national Severe Weather Warning or Watch bulletins as published on metservice.com or sent via email.

⁴ <https://cyber.harvard.edu/rss/rss.html>

⁵ <https://validator.w3.org/feed/docs/atom.html>

⁶ <https://cap-validator.appspot.com/validate>

⁷ <https://www.metservice.com/warnings/weather-warning-criteria>



2.3 Feed Contents

The CAP Feed may contain one or more “item” in RSS, or “entry” in Atom, where each item or entry respectively summarises and links to an XML-based CAP Alert describing one Watch or Warning area currently in force. Multiple Watch and/or Warning areas can and often are issued concurrently for a severe weather event. For example, a warning for an area of heavy rain in Westland concurrent with a warning for an area of strong northwest winds in Canterbury, both occurring ahead of a front crossing the South Island.

The CAP Feed only contains alerts for Watches and Warnings (per the Feed Scope section above) that are currently in force at the time the feed is queried, either for a severe weather threat now or in the near future.

The CAP Feed does not include alerts that have been lifted or cancelled, nor those that have been replaced by a more recent update, nor those which have an expiry time in the past (before the feed was queried).

Recommendation R.1. – Old Alerts

While previous CAP Feed URIs for old alert messages may still return the XML-based document for that alert, MetService strongly recommends expired alert messages are not requested directly via old URIs and makes no guarantee such URIs will return content in the future. The CAP Feeds should be the only method used to retrieve alert messages.

When no Severe Weather or Severe Thunderstorm Watches or Warnings, or Road Snowfall Warnings are in force, the CAP Feed contains no references to an alert. See Appendix A.3. for feed examples containing no alerts.

2.3.1 RSS Feed Structure and Content

For a full example of the CAP feed in RSS format, see Appendix A.1. The following is a summary of the RSS feed elements with their brief description.

*Table 1. Summary of RSS CAP Feed content elements and sub-elements used by MetService. Elements in **bold** are always present in the RSS CAP Feed from MetService.*

Element name	Description
rss	Container for all components of the document
channel	Container for all components of the channel
title	The name of the channel
link	URI for the website corresponding to the channel
description	A sentence describing the channel



copyright	Copyright and licence for all components of the channel
pubDate	Publication date/time for the content in the channel
item	Container for all components relating to one alert message Multiple instances can occur within the <channel> block.
title	Title of the item (set to the <headline> element of the alert message)
guid	A unique string that identifies the item (set to the <identifier> element of the alert message)
category	Category of the item (set to the <category> element of the alert message)
pubDate	Publication date/time of the item (set to the <sent> element of the alert message)
description	Description of the subject event in the alert (set to the <description> element of the alert message)
link	The URI of the XML-based alert message the item describes

2.3.2 Atom Feed Structure and Content

For a full example of the CAP feed in Atom format, see Appendix A.2. The following is a summary of the Atom feed elements with their brief description.

*Table 2. Summary of Atom CAP Feed content elements and sub-elements used by MetService. Elements in **bold** are always present in the Atom CAP Feed from MetService.*

Element name	Description
feed	Container for all components of the document
id	The unique URI for the feed
link	URI for the website related to the feed
updated	The date/time the feed was updated
title	Human readable title for the feed
rights	Copyright and licence for all components of the channel
entry	Container for all components relating to one alert message Multiple instances can occur within the <feed> block.
title	Title of the entry (set to the <headline> element of the alert message)
id	A unique string that identifies the entry (set to the <identifier> element of the alert message)
category	Category of the entry (set to the <category> element of the alert message)



summary	A short summary of the entry (set to the <description> element of the alert message)
updated	The date/time the entry was updated (set to the <sent> element of the alert message)
published	The date/time the entry was published (set to the <sent> element of the alert message)
author	Container for the <name> sub-element
name	The name of the author or issuing agency (set to the <senderName> element of the alert message)
link	The URI of the XML-based alert message the entry describes

2.4 Feed Update Times and Polling Frequency

The MetService CAP feed may have new alert messages added at any time of the day, on any day of the year. This is especially true for Severe Thunderstorm Warnings which are published on *observation* of a severe thunderstorm once formed and as such are the most time-critical alert messages for dissemination.

Recommendation R.2. – Polling Frequency

MetService recommends the CAP Feed is polled at least every five minutes to ensure timely receipt of all Warnings and Watches, but not polled more frequently than every two minutes.

While updates may be published at any time, MetService Standard Operating Procedures require updates for Severe Weather Warnings (Orange or Red for heavy rain, heavy snow or strong winds) and Road Snowfall Warnings to be published approximately every 12 hours during a warning or alert message sequence once warnings are initiated for a weather event. Under these procedures, nominal or target update times during an event are 9am and 9pm NZ local time.



3. Alert Message Structure and Content

This section details the MetService implementation of alert message elements as specified in the [OASIS CAP Standard](#)⁸ which should be referenced in conjunction with this section.

*Table 3. Summary of CAP content elements and sub-elements used by MetService. Elements in **bold** are always present in alerts from MetService.*

Element name	Description
alert	Container for all components of the alert
identifier	Unique identifier of the alert message
sender	Web address of the sender
sent	Time the alert was originated
status	Handling code for the alert
msgType	Message type code for the alert
scope	Distribution code for the alert
references	Group that references an earlier alert
info	Container for all components of the info sub-element of the alert
category	Category of the event
event	Descriptive term for the nature of the subject event of the alert
responseType	Code denoting the recommended action for the audience of the alert
urgency	Code denoting the urgency of the action for the subject event of the alert
severity	Code denoting the severity of the subject event of the alert
certainty	Code denoting the certainty of the subject event of the alert
onset	Time of the beginning of the subject event of the alert
expires	Time of the expiry of the alert message
senderName	Name of the issuing agency
headline	Short human readable headline for the subject event of the alert
description	Extended human readable description of the subject event of the alert
instruction	Extended human readable instruction for recipients of the alert
web	URI for a web page relating to the alert
parameter	Container for an alert specific parameter described by "valueName" and "value" sub-elements in the form:

⁸ <https://docs.oasis-open.org/emergency/cap/v1.2/CAP-v1.2-os.html>



	<pre> <parameter> <valueName>valueName</valueName> <value>value</value> </parameter> </pre> Multiple instances can occur within the <info> block.
area	Container for all components of the area sub-element of the alert
areaDesc	Text description of the affected area
polygon	Group of latitude, longitude coordinate pairs defining the polygon that delineates the affected area. Multiple instances can occur within the <area> block.

In addition to the above content elements and sub-elements, each alert message from MetService contains a digital signature, enveloped in a <Signature> tag, described by [W3C XML-Signature Syntax and Processing](#)⁹ (not documented here, but shown in the example alert message in Appendix B).

Note, the order of the elements in the alert message should not be assumed to match the above table, the order stated in the following sections, or the order in the sample in Appendix B.

3.1 <alert> element

A container for all component parts of the alert message.

3.1.1 <identifier> element

The <identifier> element contains a string that uniquely identifies the alert message, comprised of five components delimited by a period. For example:

```

<identifier>
2.49.0.0.554.0.severeweather.nz.20190728201509508.0
</identifier>

```

Using the above example these components are:

Component	Description
2.49.0.0.554.0	MetService's WMO Alerting Authority ¹⁰ Object Identifier (OID)
severeweather	Product ID code (in this case a Severe Weather Watch or Warning)

⁹ <https://www.w3.org/TR/2002/REC-xmlsig-core-20020212/>

¹⁰ <https://alertingauthority.wmo.int/authorities.php?recId=114>



nz	Product area abbreviation (in this case New Zealand)
20190728201509508	Date/time in UTC the message was originated or sent, expressed to the millisecond, formatted as YYYYMMDDhhmmsssss (in this case 20:15:09 (and 508 milliseconds) UTC 28 July 2019)
0	Sequence number (from 0) of the alert in the group of alerts issued in the millisecond above

Product ID codes:

Product ID code	Usage
severeweather	- Severe Weather Watch - Orange Severe Weather Warning - Red Severe Weather Warning
tswatch	Severe Thunderstorm Watch
tswarning	Severe Thunderstorm Warning
roadsnow	Road Snowfall Warning

Product area abbreviations:

Area abbreviation	Description and usage
nz	New Zealand: used with ID "severeweather" or "tswatch"
nl	Northland radar area: used with ID "tswarning"
ak	Auckland radar area: used with ID "tswarning"
bp	Bay of Plenty radar area: used with ID "tswarning"
mh	Mahia radar area: used with ID "tswarning"
np	New Plymouth radar area: used with ID "tswarning"
wn	Wellington radar area: used with ID "tswarning"
wl	Westland radar area: used with ID "tswarning"
ch	Christchurch radar area: used with ID "tswarning"
nv	Invercargill radar area: used with ID "tswarning"
arthurspass	Arthurs Pass (SH73): used with ID "roadsnow"
crownrangeroad	Crown Range Road: used with ID "roadsnow"
desertroad	Desert Road (SH1): used with ID "roadsnow"
dunedintowaitatighway	Dunedin to Waitati Highway (SH1): used with ID "roadsnow"
haastpass	Haast Pass (SH6): used with ID "roadsnow"
lewisspass	Lewis Pass (SH7): used with ID "roadsnow"



lindispass	Lindis Pass (SH8): used with ID "roadsnow"
milfordroad	Milford Road (SH94): used with ID "roadsnow"
napiertauporoad	Napier-Taupo Road (SH5): used with ID "roadsnow"
porterspass	Porters Pass (SH73): used with ID "roadsnow"
remutakahillroad	Remutaka Hill Road (SH2): used with ID "roadsnow"

Recommendation R.3. – Identifier as a Unique Random String

While this section details how the <identifier> value is constructed, it should be treated as a unique random string. MetService strongly recommends this string is not parsed or deconstructed for components (such as the timestamp), those should be sourced from other alert message elements. The construction of the <identifier> value may change in the future.

3.1.2 <sender> element

The <sender> element contains a fixed string that is common to all MetService alert messages, the web address of the MetService public website as in the example below:

```
<sender>https://www.metservice.com</sender>
```

3.1.3 <sent> element

The <sent> element contains the date and time for the origination of the alert in the DateTime Data Type format, using the [ISO 8601 Standard](https://en.wikipedia.org/wiki/ISO_8601)¹¹, as specified in the OASIS CAP Standard (see Appendix C). For example:

```
<sent>2019-07-29T08:15:09+12:00</sent>
```

For the above example:

Component	Description
2019-07-29	Date (29 July 2019)
T	"T" symbol indicates the start of the time component
08:15:09	Time (8:15am and 9 seconds)

¹¹ https://en.wikipedia.org/wiki/ISO_8601



+	"+" symbol indicates the preceding date/time is in a time zone ahead of UTC (New Zealand time zone ahead of UTC)
12:00	Hours and minutes of the offset from the preceding date/time to UTC (in this case 12 hours, indicating NZST. During NZDT this will be 13:00, indicating 13 hours ahead of UTC)

3.1.4 <status> element

The <status> element contains the handling code for the alert message and is currently fixed for all MetService alert messages as in the example below:

```
<status>Actual</status>
```

Note: only alerts with a status of "Actual" should be actioned by recipients. All other settings of status (such as "Test", "Exercise", "System" or "Draft") should be ignored and/or discarded.

3.1.5 <msgType> element

The <msgType> element contains a code for the type of the alert message, for example:

```
<msgType>Update</msgType>
```

Alert messages from MetService are published with one of two values for <msgType>:

Value	Usage
Alert	- All Severe Thunderstorm Watch alerts - All Severe Thunderstorm Warning alerts - The first issue of a Severe Weather Watch, an Orange Severe Weather Warning, a Red Severe Weather Warning or a Road Snowfall Warning alert in that individual alert's sequence of messages
Update	Subsequent issues of Severe Weather Watch, Orange Severe Weather Warning, Red Severe Weather Warning or Road Snowfall Warning alerts that update and replace earlier alerts in each alert's sequence of messages (used in conjunction with the <references> element – see section 3.1.7 below)

For example:

- The first issue of an individual Severe Weather alert (issue #1) will use "Alert"

- The second issue of that individual Severe Weather alert (issue #2 that updates and replaces issue #1) will use “Update”
- The third issue of that individual Severe Weather alert (issue #3 that updates and replaces issue #2) will use “Update” (and so on)

Note: the CAP feed may contain a number of alerts for a weather event at any one time, some with the msgType element set to “Alert” and others set to “Update”.

3.1.6 <scope> element

The <scope> element contains the distribution code for the alert message and is fixed for all MetService alert messages as in the example below:

```
<scope>Public</scope>
```

As per the OASIS CAP Standard, “Public” is for general dissemination to unrestricted audiences.

3.1.7 <references> element

The <references> element is only included in the alert when the <msgType> element is set to “Update”. It contains a group of three components, delimited by a comma, that together reference the previous message in the sequence of messages related to the current alert. In other words, the <references> element indicates which previous alert message the current alert message replaces. For example:

```
<references>
https://www.metservice.com,2.49.0.0.554.0.severeweather.nz.2019072808310
3778.0,2019-07-28T20:31:03+12:00
</references>
```

Using the above example these components are:

Component	Description
https://www.metservice.com	The <sender> element of the previous alert that this alert replaces
2.49.0.0.554.0.severeweather.nz.20190728083103778.0	The <identifier> element of the previous alert that this alert replaces
2019-07-28T20:31:03+12:00	The <sent> element of the previous alert that this alert replaces

3.2 <info> element

A container for all component parts of the <info> sub-element of the alert message.

3.2.1 <category> element

The <category> element contains a code for the category of the event that the alert message relates to and is fixed for all MetService alert messages as in the example below:

```
<category>Met</category>
```

As per the OASIS CAP Standard, "Met" is the code used for a Meteorological subject event.

3.2.2 <event> element

The <event> element contains a short descriptive term for the nature of the subject event that the alert relates to. For example:

```
<event>rain</event>
```

MetService alerts use one of the following five values for the <event> element:

Value	Usage
rain	- Severe Weather Watch for heavy rain - Orange Severe Weather Warning for heavy rain - Red Severe Weather Warning for heavy rain
snow	- Severe Weather Watch for heavy snow - Orange Severe Weather Warning for heavy snow - Red Severe Weather Warning for heavy snow - Road Snowfall Warning
wind	- Severe Weather Watch for strong wind - Orange Severe Weather Warning for strong wind - Red Severe Weather Warning for strong wind
thunderstorm	- Severe Thunderstorm Warning - Common usage for a Severe Thunderstorm Watch that describes a localised severe weather event that is the result of thunderstorms accompanied by lightning
localStorm	May be used (but usage is infrequent) for a Severe Thunderstorm Watch that describes a localised severe weather event that is not the result of thunderstorms (and hence not accompanied by lightning)

Warning W.1. – Possible change to <event> element

As a result of discussions and advice received at a CAP-NZ Task Group Session led by the Ministry of Civil Defence & Emergency Management on 6 August 2019, MetService is considering a change to the implementation of the <event> element. The current value may be moved to an optional <eventCode> element (not yet implemented) with the <event> element reset to a Tier I or Tier II event description per the CAP-NZ Technical Standard.

3.2.3 <responseType> element

The <responseType> element contains a code denoting the recommended action by the audience of the alert. For example:

```
<responseType>Monitor</responseType>
```

MetService alerts use one of two values for the <responseType> element:

Value	Usage
Monitor	- Severe Weather Watch (for heavy rain, heavy snow or strong wind) - Orange Severe Weather Warning (for heavy rain, heavy snow or strong wind) - Red Severe Weather Warning (for heavy rain, heavy snow or strong wind) - Severe Thunderstorm Watch - Road Snowfall Warning (indicates the recipient should “attend to information sources as described in <instruction>” per the CAP Standard)
Prepare	Severe Thunderstorm Warning (indicates the recipient should “make preparations per the <instruction>” per the CAP Standard)

3.2.4 <urgency> element

The <urgency> element contains a code denoting the urgency of the responsive action for the subject event of the alert. For example:

```
<urgency>Immediate</urgency>
```

MetService alerts have the value of the <urgency> element set to one of three values according to the time difference between the <sent> and <onset> elements, in other words set according



to the lead time to the start of the threat period from the time of origination of the alert message.

Value	Usage
Future	When the <onset> time is more than one hour after the <sent> time (indicates “responsive action should be taken in the near future” per the CAP Standard)
Expected	When the <onset> time is less than one hour after the <sent> time (indicates “responsive action should be taken soon (within next hour)” per the CAP Standard)
Immediate	When the <onset> time is equal to or before the <sent> time. In other words, the threat period or event had already started at the time the alert was sent. The alert may be an update issued during the event. (indicates “responsive action should be taken immediately” per the CAP Standard)

Note: Severe Thunderstorm Warnings from MetService are issued on an *observation* of a severe thunderstorm. As such, the <onset> time is always earlier than the <sent> time for Severe Thunderstorm Warning alerts which always have their <urgency> set to “Immediate”.

3.2.5 <severity> element

The <severity> element contains a code denoting the severity of the subject event of the alert. For example:

```
<severity>Minor</severity>
```

MetService alerts have the <severity> element set to one of three values as follows:

Value	Usage
Minor	Severe Weather Watch (for heavy rain, heavy snow or strong wind) (indicates “minimal to no known threat to life or property” per the CAP Standard)
Moderate	- Severe Thunderstorm Watch - Orange Severe Weather Warning (for heavy rain, heavy snow or strong wind) - Road Snowfall Warning

	(indicates “possible threat to life or property” per the CAP Standard)
Severe	- Severe Thunderstorm Warning - Red Severe Weather Warning (for heavy rain, heavy snow or strong wind) (indicates “significant threat to life or property” per the CAP Standard)

3.2.6 <certainty> element

The <certainty> element contains a code denoting the certainty of the subject event of the alert. For example:

```
<certainty>Possible</certainty>
```

MetService alerts have the <certainty> element set to one of three values as follows:

Value	Usage
Possible	- Severe Weather Watch (for heavy rain, heavy snow or strong wind) - Severe Thunderstorm Watch (indicates “possible but not likely (p ≤ 50%)” per the CAP Standard)
Likely	- Orange Severe Weather Warning (for heavy rain, heavy snow or strong wind) - Red Severe Weather Warning (for heavy rain, heavy snow or strong wind) - Road Snowfall Warning (indicates “likely (p > 50%)” per the CAP Standard)
Observed	Severe Thunderstorm Warning (indicates “determined to have occurred or to be ongoing” per the CAP Standard)

Note: Severe Thunderstorm Warnings from MetService are issued on an *observation* of a severe thunderstorm. As such, the <certainty> element in Severe Thunderstorm Warning alerts is always set to “Observed”.

3.2.7 <onset> element

The <onset> element contains the date and time for the beginning of the subject event of the alert, or in other words, the beginning of the threat period the alert describes. The date and time



is stated in the DateTime Data Type format, using the ISO 8601 Standard, as specified in the OASIS CAP Standard (see Appendix C).

For example:

```
<onset>2019-07-29T08:00:00+12:00</onset>
```

For the above example:

Component	Description
2019-07-29	Date (29 July 2019)
T	"T" symbol indicates the start of the time component
08:00:00	Time (8:00am and 0 seconds)
+	"+" symbol indicates the preceding date/time is in a time zone ahead of UTC (New Zealand time zone ahead of UTC)
12:00	Hours and minutes of the offset from the preceding date/time to UTC (in this case 12 hours, indicating NZST. During NZDT this will be 13:00, indicating 13 hours ahead of UTC)

3.2.8 <expires> element

The <expires> element contains the date and time for the expiry of the alert message in the DateTime Data Type format, using the ISO 8601 Standard, as specified in the OASIS CAP Standard (see Appendix C).

For example:

```
<expires>2019-07-30T06:00:00+12:00</expires>
```

For the above example:

Component	Description
2019-07-30	Date (30 July 2019)
T	"T" symbol indicates the start of the time component
06:00:00	Time (6:00am and 0 seconds)
+	"+" symbol indicates the preceding date/time is in a time zone ahead of UTC (New Zealand time zone ahead of UTC)
12:00	Hours and minutes of the offset from the preceding date/time to UTC (in this case 12 hours, indicating NZST. During NZDT this will be 13:00, indicating 13 hours ahead of UTC)



Notes:

For Severe Weather Watches, Severe Weather Warnings (Orange or Red), Severe Thunderstorm Watches and Road Snowfall Warnings, <expires> is set to the end of the subject event of the alert, or in other words, the end of the threat period that the alert describes.

For Severe Thunderstorm Warnings, <expires> is always set to one hour after <onset> based on MetService Standard Operating Procedures that require Severe Thunderstorm Warnings are updated within one hour of the observation time (<onset>) of the Warning.

It is often the case that an updated alert message will be issued before the <expires> time of the alert is reached. For example, MetService Severe Weather Watches, Severe Weather Warnings (Orange or Red) and Road Snowfall Warnings are typically updated every 12 hours until the threat has ceased and the Watch or Warning is lifted.

3.2.9 <senderName> element

The <senderName> element contains the name of the issuing agency which is fixed for all MetService alert messages as in the example below:

```
<senderName>Meteorological Service of New Zealand Limited</senderName>
```

3.2.10 <headline> element

The <headline> element contains a short human readable headline describing the subject event of the alert. For example:

```
<headline>Heavy Rain Watch</headline>
```

MetService alerts use a fixed number of headlines for Watch or Warning types as follows:

Value
Heavy Rain Watch
Heavy Rain Warning - Orange
Heavy Rain Warning - Red
Heavy Snow Watch
Heavy Snow Warning - Orange
Heavy Snow Warning - Red
Strong Wind Watch
Strong Wind Warning - Orange



Strong Wind Warning - Red
Severe Thunderstorm Watch
Severe Thunderstorm Warning
Road Snowfall Warning

3.2.11 <description> element

When present, the <description> element contains an extended human readable description of the subject event of the alert. It is free-form text, sometimes including multiple paragraphs, that is written by the meteorologist issuing the alert. It often includes technical details, containing words and numbers and may include other characters, commonly: parentheses, hyphens and forward slashes.

Example from a Severe Weather Watch:

```
<description>
Periods of heavy rain with possible thunderstorms, and amounts may
approach warning criteria in localised areas. Chance of upgrading to a
Warning: Moderate.
</description>
```

Example from a Severe Weather Warning:

```
<description>
Expect 80 to 110 mm of rain, likely more about Taranaki Maunga. Peaks
rates of 15 to 25 mm/h in possible thunderstorms, and a low risk of
localised downpours of 25 to 40 mm/h. Impact: Streams and rivers may
rise rapidly. Surface flooding, slips, and difficult driving conditions
possible. Chance of upgrading to a Red Warning: Low.
</description>
```

Example from a Severe Thunderstorm Watch:

```
<description>
Isolated thunderstorms have developed just south of Christchurch this
afternoon, and are likely to affect the Christchurch and Banks Peninsula
area between 3pm and 5pm today (Saturday).
There is a possibility these storms could be severe producing localised
heavy rain of 20-30mm/hr, hail and possibly a small tornado.
Rainfall of this intensity can cause flash flooding, especially about
low-lying areas such as streams, rivers or narrow valleys, and may also
lead to slips.
Driving conditions will also be hazardous with surface flooding and poor
visibility in heavy rain.
</description>
```

Example from a Severe Thunderstorm Warning:

```
<description>
At 03:15 pm, MetService weather radar detected severe thunderstorms near
MATAMATA, TIRAU, WAHAROA, PUTARURU, THE MAMAKU PLATEAU, TE POI,
OKOROIRE, LICHFIELD and HINUERA. These severe thunderstorms are moving
towards the southeast, and are expected to lie near THE MAMAKU PLATEAU,
MAMAKU, THE SOUTHERN KAIMAI RANGES, TE WHETU and THE HILLS AND RANGES
EAST OF TOKOROA at 03:45 pm and near ROTORUA, REPOROA, WAIOTAPU, WAIKITE
VALLEY, GOLDEN SPRINGS, LAKE TARAWERA, OKERE FALLS, NGONGOTAHA, WAIREKA
and GUTHRIE at 04:15 pm. These thunderstorms are expected to be
accompanied by very heavy rain. Impact: Very heavy rain can cause
surface and/or flash flooding about streams, gullies and urban areas,
and make driving conditions extremely hazardous.
</description>
```

Note: the `<description>` element may be omitted in a Severe Weather Watch alert (for heavy rain, heavy snow or strong wind) but is often present in practice. The `<description>` element is always present for: all Severe Weather Warnings (Orange or Red for heavy rain, heavy snow or strong wind), all Road Snowfall Warnings and for all Severe Thunderstorm Watches and Severe Thunderstorm Warnings. The `<description>` element may contain information on impacts of the hazard, typically at the end of the text in the element. For Severe Weather Watches and Orange Severe Weather Warnings, the `<description>` element also contains a statement indicating the “chance of upgrade” to a higher level of warning (signalled as: minimal, low, moderate, or high).

3.2.12 `<instruction>` element

The `<instruction>` element contains an extended human readable instruction for recipients of the alert.

Example from a Severe Weather Watch:

```
<instruction>Action: Monitor for updates.</instruction>
```

Example from a Severe Weather Warning:

```
<instruction>
Action: Clear your drains and gutters to prepare for heavy rain. Avoid
low-lying areas and drive cautiously.
</instruction>
```

Example from a Severe Thunderstorm Warning, including multiple impact statements and responsive actions:



```
<instruction>
The National Emergency Management Agency advises that as storms approach
you should: - Take shelter, preferably indoors away from windows; -
Avoid sheltering under trees, if outside; - Get back to land, if
outdoors on the water; - Move cars under cover or away from trees; -
Secure any loose objects around your property; - Check that drains and
gutters are clear; - Be ready to slow down or stop, if driving. During
and after the storm, you should also: - Beware of fallen trees and power
lines; - Avoid streams and drains as you may be swept away in flash
flooding.
</instruction>
```

3.2.13 <web> element

The <web> element contains a URI for the web page relating to the alert, which is common to all Watch and Warning alerts from MetService as in the example below:

```
<web>https:// metservice.com/warnings/home</web>
```

3.2.14 <parameter> element

A container for an alert specific parameter described by <valueName> and <value> sub-elements in the form shown in examples below which detail three common <parameter> blocks used in MetService alerts.

Note: <parameter> elements are optional as detailed in the OASIS CAP Standard but are always present in MetService alert messages.

3.2.14.1 <parameter> - NextUpdate

The “NextUpdate” parameter contains a date and time value indicating when the next alert message in the sequence (that will replace the current alert message) is expected to be published by. The date and time value is given in the DateTime Data Type format, using the ISO 8601 Standard, as specified in the OASIS CAP Standard (see Appendix C).

For example:

```
<parameter>
<valueName>NextUpdate</valueName>
<value>2019-07-29T21:00:00+12:00</value>
</parameter>
```

For the above example:

Component	Description
2019-07-29	Date (29 July 2019)
T	"T" symbol indicates the start of the time component
21:00:00	Time (9:00pm and 0 seconds)
+	"+" symbol indicates the preceding date/time is in a time zone ahead of UTC (New Zealand time zone ahead of UTC)
12:00	Hours and minutes of the offset from the preceding date/time to UTC (in this case 12 hours, indicating NZST. During NZDT this will be 13:00, indicating 13 hours ahead of UTC)

Note: while this parameter indicates an expected "NextUpdate" time, MetService does not guarantee that the next alert message will be issued at or before this time. On occasion, the next alert message may be published after this time. In the case of Severe Weather Watches, Severe Weather Warnings and Road Snowfall warnings, nominal or target update times during an event are 9am and 9pm, i.e. updates are published approximately every 12 hours until the threat has ceased and the Watch or Warning is lifted.

3.2.14.2 <parameter> - ColourCode

The "ColourCode" parameter contains a text description of the colour that is recommended for use in a graphical depiction of the alert area in a map based display.

For example:

```
<parameter>
<valueName>ColourCode</valueName>
<value>Yellow</value>
</parameter>
```

MetService alerts use one of three colours in the "ColourCode" parameter:

Value	Usage
Yellow	- Severe Weather Watch (for heavy rain, heavy snow or strong wind) - Severe Thunderstorm Watch
Orange	- Severe Weather Warning - Orange - Road Snowfall Warning
Red	- Severe Weather Warning - Red - Severe Thunderstorm Warning

3.2.14.3 <parameter> - ColourCodeHex

The “ColourCodeHex” parameter contains a hexadecimal value representing the colour contained in the “ColourCode” parameter. The value is always quoted as a hex triplet (six-digit, three-byte hexadecimal number) preceded by the “#” symbol.

For example:

```
<parameter>
<valueName>ColourCodeHex</valueName>
<value>#FFEB18</value>
</parameter>
```

The three “ColourCodeHex” values used in MetService alerts are as follows:

Value	Usage
#FFEB18	“ColourCode” = Yellow, for: - Severe Weather Watch (for heavy rain, heavy snow or strong wind) - Severe Thunderstorm Watch
#FF8918	“ColourCode” = Orange, for: - Severe Weather Warning - Orange - Road Snowfall Warning
#FF181E	“ColourCode” = Red, for: - Severe Weather Warning - Red - Severe Thunderstorm Warning

Graphically, the “ColourCode” and associated “ColourCodeHex” colours (along with an equivalent RGB colour model triplet) are as follows:

Yellow / #FFEB18 RGB(255,235,24)	Orange / #FF8918 RGB(255,137,24)	Red / #FF181E RGB(255,24,30)
---	---	---

Recommendation R.4. – Colour Usage

Warnings are most effective when supported by consistent terminology and visual representation across multiple distribution channels. As such, MetService strongly recommends the colours specified in the <ColourCodeHex> parameter are used when depicting alerts graphically in a map-based presentation.



3.3 <area> element

A container for all component parts of the <area> sub-element of the <info> sub-element of the alert message.

3.3.1 <areaDesc> element

The <areaDesc> element contains a human readable text description of the affected area of the alert message.

The text may be a free-form description of the area affected, for example:

```
<areaDesc>Westland from Hokitika southwards</areaDesc>
```

Or it may contain a comma separated list of MetService forecast areas or territorial authority or local government districts. For example:

```
<areaDesc>Selwyn, Christchurch City</areaDesc>
```

3.3.2 <polygon> element

The <polygon> element contains a group of latitude, longitude coordinate pairs defining the polygon that delineates the affected area. Multiple instances of <polygon> can occur within the <area> block. Each polygon has a minimum of 4 coordinate pairs, with the first and last pair being identical.

Note: <polygon> elements are optional as detailed in the OASIS CAP Standard, but are always present in MetService alert messages.

For example:

```
<polygon>
-44.190,168.132 -44.128,168.238 -43.986,168.360 -43.986,168.475
-43.941,168.631 -43.974,168.644 -43.967,168.750 -43.938,168.822
-43.872,168.898 -43.826,169.007 -43.707,169.169 -43.621,169.377
-43.559,169.592 -43.504,169.675 -43.398,169.794 -43.341,169.952
-43.090,170.263 -43.081,170.329 -43.011,170.421 -42.984,170.573
-42.880,170.765 -42.715,170.930 -42.708,170.940 -42.708,170.946
-42.769,171.085 -42.817,171.174 -42.880,171.270 -42.928,171.313
-42.950,171.310 -42.972,171.287 -42.994,171.257 -43.015,171.221
-43.119,171.032 -43.201,170.950 -43.312,170.781 -43.442,170.540
-43.640,170.121 -43.757,169.959 -43.862,169.800 -43.967,169.460
-44.117,169.090 -44.244,168.915 -44.358,168.703 -44.393,168.541
-44.372,168.366 -44.301,168.238 -44.209,168.142 -44.190,168.132
</polygon>
```



4.Summary Table for Key Alert Message <info> Block Elements

Table 4. A summary of key alert message <info> block elements as used in MetService Severe Weather and Thunderstorm alerts.

<headline>	<event>	"ColourCode"	<onset> vs <sent>	<urgency>	<severity>	<certainty>	<responseType>
"Heavy Rain Watch" OR "Heavy Snow Watch" OR "Strong Wind Watch"	rain OR snow OR wind	Yellow	onset >1 hour	future	minor	possible	monitor
			onset <1 hour	expected			
			onset now / past	immediate			
"Heavy Rain Warning – Orange" OR "Heavy Snow Warning – Orange" OR "Road Snowfall Warning" OR "Strong Wind Warning – Orange"	rain OR snow OR wind	Orange	onset >1 hour	future	moderate	likely	monitor
			onset <1 hour	expected			
			onset now / past	immediate			
"Heavy Rain Warning – Red" OR "Heavy Snow Warning – Red" OR "Strong Wind Warning – Red"	rain OR snow OR wind	Red	onset >1 hour	future	severe	likely	monitor
			onset <1 hour	expected			
			onset now / past	immediate			
"Severe Thunderstorm Watch"	thunderstorm OR localStorm	Yellow	onset >1 hour	future	moderate	possible	monitor
			onset <1 hour	expected			
			onset now / past	immediate			
"Severe Thunderstorm Warning"	thunderstorm	Red	onset past	immediate	severe	observed	prepare

Note: As noted in the OASIS CAP Standard, "the <urgency>, <severity>, and <certainty> elements collectively distinguish less emphatic from more emphatic messages". Alerts with the highest level of importance ("high-priority alerts") are, per an emerging global standard, those with values of <urgency>, <severity>, and <certainty> all in the top two levels of importance for each element ("immediate" or "expected", "extreme" or "severe", and "observed" or "likely" respectively). Only Red Severe Weather Warnings or Severe Thunderstorm Warnings from MetService satisfy that criteria for "high-priority alerts".



Appendix A: CAP Feed Examples

A.1. RSS feed example containing alerts

The following is an example of the RSS feed containing two alerts:

```
<?xml version="1.0" encoding="UTF-8" ?>
<rss version="2.0">
  <channel>
    <title>MetService Public CAP Alerts</title>
    <link>https://www.metservice.com</link>
    <description>Current Watches, Warnings and Advisories for New Zealand issued
    by MetService</description>
    <copyright>Copyright Meteorological Service of New Zealand Limited, 2026.
    Licensed under Creative Commons BY 4.0.</copyright>
    <pubDate>Fri, 17 Apr 2026 20:49:07 +1200</pubDate>
    <item>
      <title>Heavy Rain Warning - Orange</title>
      <guid>2.49.0.0.554.0.severeweather.nz.20260417084015053.11</guid>
      <category>Met</category>
      <pubDate>Fri, 17 Apr 2026 20:40:15 +1200</pubDate>
      <description>Expect 80 to 110 mm of rain, likely more about Taranaki Maunga.
      Peaks rates of 15 to 25 mm/h in possible thunderstorms, and a low risk of
      localised downpours of 25 to 40 mm/h. Impact: Streams and rivers may rise
      rapidly. Surface flooding, slips, and difficult driving conditions possible.
      Chance of upgrading to a Red Warning: Low.</description>
      <link>https://alerts.metservice.com/cap/alert?id=2.49.0.0.554.0.severeweathe
      r.nz.20260417084015053.11</link>
    </item>
    <item>
      <title>Heavy Rain Watch</title>
      <guid>2.49.0.0.554.0.severeweather.nz.20260417084015053.7</guid>
      <category>Met</category>
      <pubDate>Fri, 17 Apr 2026 20:40:15 +1200</pubDate>
      <description>Periods of heavy rain with possible thunderstorms, and amounts
      may approach warning criteria in localised areas. Chance of upgrading to a
      Warning: Moderate.</description>
      <link>https://alerts.metservice.com/cap/alert?id=2.49.0.0.554.0.severeweathe
      r.nz.20260417084015053.7</link>
    </item>
  </channel>
</rss>
```



A.2. Atom feed example containing alerts

The following is an example of the Atom feed containing two alerts:

```
<?xml version="1.0" encoding="utf-8"?>
<feed xmlns="http://www.w3.org/2005/Atom">
  <id>https://alerts.metservice.com/cap/atom</id>
  <link href="https://metservice.com"/>
  <updated>2026-04-17T20:40:15+12:00</updated>
  <title>Current Watches, Warnings and Advisories for New Zealand issued by
MetService</title>
  <rights>Copyright Meteorological Service of New Zealand Limited, 2026. Licensed
under Creative Commons BY 4.0.</rights>
  <entry>
    <title>Heavy Rain Warning - Orange</title>
    <id>2.49.0.0.554.0.severeweather.nz.20260417084015053.11</id>
    <category term="Met" />
    <summary>Expect 80 to 110 mm of rain, likely more about Taranaki Maunga.
Peaks rates of 15 to 25 mm/h in possible thunderstorms, and a low risk of
localised downpours of 25 to 40 mm/h. Impact: Streams and rivers may rise
rapidly. Surface flooding, slips, and difficult driving conditions possible.
Chance of upgrading to a Red Warning: Low.</summary>
    <updated>2026-04-17T20:40:15+12:00</updated>
    <published>2026-04-17T20:40:15+12:00</published>
    <author>
      <name>Meteorological Service of New Zealand Limited</name>
    </author>
    <link rel="related" type="application/cap+xml"
href="https://alerts.metservice.com/cap/alert?id=2.49.0.0.554.0.severeweather
.nz.20260417084015053.11"/>
  </entry>
  <entry>
    <title>Heavy Rain Watch</title>
    <id>2.49.0.0.554.0.severeweather.nz.20260417084015053.7</id>
    <category term="Met" />
    <summary>Periods of heavy rain with possible thunderstorms, and amounts may
approach warning criteria in localised areas. Chance of upgrading to a
Warning: Moderate.</summary>
    <updated>2026-04-17T20:40:15+12:00</updated>
    <published>2026-04-17T20:40:15+12:00</published>
    <author>
      <name>Meteorological Service of New Zealand Limited</name>
    </author>
    <link rel="related" type="application/cap+xml"
href="https://alerts.metservice.com/cap/alert?id=2.49.0.0.554.0.severeweather
.nz.20260417084015053.7"/>
  </entry>
</feed>
```



A.3. RSS and Atom feed examples containing no alerts

RSS Feed example containing no alerts:

```
<?xml version="1.0" encoding="UTF-8" ?>
<rss version="2.0">
<channel>
<title>MetService Public CAP Alerts</title>
<link>https://www.metservice.com</link>
<description>Current Watches, Warnings and Advisories for New Zealand
issued by MetService</description>
<copyright>Copyright Meteorological Service of New Zealand Limited,
2026. Licensed under Creative Commons BY 4.0.</copyright>
<pubDate>Wed, 31 Jul 2019 15:08:33 +1200</pubDate>
</channel>
</rss>
```

Atom Feed example containing no alerts:

```
<?xml version="1.0" encoding="utf-8"?>
<feed xmlns="http://www.w3.org/2005/Atom">
<id>https://alerts.metservice.com/cap/atom</id>
<link href="https://metservice.com"/>
<updated>2019-07-31T00:00:00+12:00</updated>
<title>Current Watches, Warnings and Advisories for New Zealand issued
by MetService</title>
<rights>Copyright Meteorological Service of New Zealand Limited, 2026.
Licensed under Creative Commons BY 4.0.</rights>
</feed>
```



Appendix B: Alert Message Example

The following is an example of a full alert message from MetService in CAP format:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<alert xmlns="urn:oasis:names:tc:emergency:cap:1.2">
<identifier>2.49.0.0.554.0.severeweather.nz.20260417084015053.11</identifier>
<sender>https://www.metservice.com</sender>
<sent>2026-04-17T20:40:15+12:00</sent>
<status>Actual</status>
<msgType>Update</msgType>
<scope>Public</scope>
<references>https://www.metservice.com,2.49.0.0.554.0.severeweather.nz.202604162
15217405.9,2026-04-17T09:52:17+12:00</references>
<info>
<category>Met</category>
<event>rain</event>
<responseType>Monitor</responseType>
<urgency>Future</urgency>
<severity>Moderate</severity>
<certainty>Likely</certainty>
<onset>2026-04-18T10:00:00+12:00</onset>
<expires>2026-04-19T05:00:00+12:00</expires>
<senderName>Meteorological Service of New Zealand Limited</senderName>
<headline>Heavy Rain Warning - Orange</headline>
<description>Expect 80 to 110 mm of rain, likely more about Taranaki Maunga.
Peaks rates of 15 to 25 mm/h in possible thunderstorms, and a low risk of
localised downpours of 25 to 40 mm/h. Impact: Streams and rivers may rise
rapidly. Surface flooding, slips, and difficult driving conditions possible.
Chance of upgrading to a Red Warning: Low.</description>
<instruction>Action: Clear your drains and gutters to prepare for heavy rain.
Avoid low-lying areas and drive cautiously.</instruction>
<web>https://metservice.com/warnings/home</web>
<parameter>
<valueName>ChanceOfUpgrade</valueName>
<value>Low</value>
</parameter>
<parameter>
<valueName>ColourCode</valueName>
<value>Orange</value>
</parameter>
<parameter>
<valueName>ColourCodeHex</valueName>
<value>#FF8918</value>
</parameter>
<parameter>
<valueName>NextUpdate</valueName>
<value>2026-04-18T10:00:00+12:00</value>
</parameter>
```

(continues next page)



```

<area>
<areaDesc>Taranaki north of about Eltham, also the King Country</areaDesc>
<polygon>-39.374,174.888 -39.369,174.804 -39.381,174.569 -39.377,174.383 -
39.377,173.808 -39.366,173.753 -39.282,173.734 -39.191,173.771 -39.143,173.820 -
39.104,173.903 -39.097,173.947 -39.044,174.016 -38.977,174.177 -38.967,174.395 -
38.839,174.547 -38.729,174.584 -38.706,174.587 -38.583,174.607 -38.377,174.620 -
38.306,174.693 -38.203,174.694 -38.108,174.665 -38.092,174.684 -38.103,174.721 -
38.095,174.741 -38.075,174.755 -38.081,174.778 -38.100,174.804 -38.104,174.819 -
38.111,174.820 -38.120,174.814 -38.128,174.813 -38.131,174.819 -38.131,174.830 -
38.129,174.840 -38.130,174.845 -38.129,174.849 -38.130,174.851 -38.135,174.851 -
38.138,174.850 -38.141,174.856 -38.147,174.855 -38.151,174.855 -38.152,174.858 -
38.155,174.855 -38.155,174.853 -38.161,174.848 -38.163,174.840 -38.168,174.837 -
38.174,174.839 -38.174,174.835 -38.208,174.836 -38.208,174.851 -38.203,174.849 -
38.197,174.869 -38.194,174.868 -38.190,174.882 -38.192,174.884 -38.194,174.891 -
38.192,174.892 -38.193,174.897 -38.191,174.901 -38.191,174.904 -38.193,174.905 -
38.194,174.919 -38.190,174.933 -38.193,174.940 -38.194,174.948 -38.196,174.953 -
38.198,174.978 -38.196,174.980 -38.194,174.978 -38.191,174.973 -38.183,174.976 -
38.178,174.973 -38.177,174.979 -38.171,174.974 -38.164,174.977 -38.165,174.986 -
38.162,174.988 -38.163,174.993 -38.165,174.995 -38.164,175.019 -38.167,175.020 -
38.172,175.014 -38.174,175.012 -38.175,175.049 -38.177,175.050 -38.177,175.052 -
38.195,175.052 -38.201,175.057 -38.205,175.074 -38.206,175.084 -38.217,175.112 -
38.222,175.130 -38.223,175.131 -38.228,175.127 -38.228,175.141 -38.225,175.141 -
38.223,175.149 -38.223,175.163 -38.217,175.179 -38.224,175.185 -38.236,175.187 -
38.244,175.187 -38.247,175.182 -38.253,175.189 -38.259,175.183 -38.261,175.183 -
38.261,175.187 -38.256,175.190 -38.256,175.192 -38.257,175.195 -38.260,175.195 -
38.265,175.219 -38.276,175.211 -38.285,175.212 -38.288,175.231 -38.306,175.220 -
38.310,175.219 -38.306,175.235 -38.311,175.258 -38.310,175.266 -38.302,175.265 -
38.304,175.289 -38.308,175.289 -38.309,175.294 -38.306,175.304 -38.307,175.319 -
38.315,175.318 -38.316,175.324 -38.324,175.322 -38.326,175.325 -38.339,175.331 -
38.344,175.331 -38.348,175.335 -38.350,175.331 -38.351,175.334 -38.353,175.331 -
38.356,175.333 -38.363,175.333 -38.360,175.349 -38.373,175.354 -38.375,175.344 -
38.385,175.351 -38.389,175.352 -38.390,175.355 -38.393,175.357 -38.398,175.369 -
38.402,175.372 -38.398,175.388 -38.402,175.389 -38.397,175.412 -38.374,175.403 -
38.369,175.422 -38.402,175.435 -38.397,175.473 -38.414,175.480 -38.448,175.524 -
38.450,175.523 -38.463,175.538 -38.469,175.543 -38.470,175.538 -38.488,175.558 -
38.490,175.560 -38.587,175.600 -38.620,175.613 -38.634,175.600 -38.638,175.592 -
38.650,175.576 -38.653,175.579 -38.663,175.577 -38.666,175.579 -38.672,175.575 -
38.675,175.576 -38.678,175.581 -38.682,175.580 -38.690,175.573 -38.695,175.565 -
38.701,175.563 -38.714,175.555 -38.731,175.538 -38.744,175.529 -38.746,175.524 -
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39.136,175.637 -39.159,175.635 -39.183,175.619 -39.194,175.612 -39.254,175.572 -
39.276,175.558 -39.283,175.596 -39.319,175.560 -39.360,175.474 -39.377,175.384 -
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</area>
</info>

```

(continues next page)



```

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<SignedInfo>
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<SignatureMethod Algorithm="http://www.w3.org/2001/04/xmldsig-more#rsa-sha256"/>
<Reference URI="">
<Transforms>
<Transform Algorithm="http://www.w3.org/2000/09/xmldsig#enveloped-signature"/>
</Transforms>
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rtificate>
</X509Data>
</KeyInfo>
</Signature>
</alert>

```

Note: the order of the elements in the alert message should not be assumed to match the above example.



Appendix C: DateTime Data Type

All date/time elements (<sent>, <onset>, <expires> and the "NextUpdate" parameter) use the DateTime Data Type as specified in the OASIS CAP Standard, formatted according to the [ISO 8601 Standard](#)¹². The format used is:

```
YYYY-MM-DDThh:mm:ssXzh:zm
```

where:

- YYYY indicates the year
- MM indicates the month
- DD indicates the day
- T indicates the symbol "T" marking the start of the required time section
- hh indicates the hour
- mm indicates the minute
- ss indicates the second
- X indicates either the symbol "+" if the preceding date and time are in a time zone ahead of UTC, or the symbol "-" if the preceding date and time are in a time zone behind UTC. If the time is in UTC, the symbol "-" will be used.
- zh indicates the hours of offset from the preceding date and time to UTC, or "00" if the preceding time is in UTC
- zm indicates the minutes of offset from the preceding date and time to UTC, or "00" if the preceding time is in UTC

¹² https://en.wikipedia.org/wiki/ISO_8601

