



MARP API Specification

Open Data

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1 Maritime Alerts Reporting Platform (MARP)

This document is intended to provide the technical specification and accompanying business rules of the proposed Maritime Alerts Reporting Platform (MARP) API.

1.1 Overview

The Maritime Alerts Reporting Platform (MARP) API is a real-time GeoJSON feed of alerts intended for vessel operators. It includes information from both Roads and Maritime Services (RMS) and Centre for Maritime Safety (CMS).

There are currently three proposed types of information to be covered by the MARP API: Marine Notices, Campaigns and Other Information.

The document also includes business intentions intended for the development of boating companion applications.

2 Data structure

2.1 High level data explanation

Field Name	Field Description
Geofence region	Vessel operators in this region should be informed of this alert. However, they may not be affected by this alert (see Affected entities below).
Title	A one-line summary of the alert
Description	An expanded body and description of the alert
Weblinks	A list of links and a very concise title of the link where users can find more information and content
Marine Notice ID	If the alert is a marine notice, then a marine notice ID may be supplied.
Created At / Last Modified At	The time the alert was created and last modified. The modified at time allows app developers to determine whether an alert has been updated.
Type	The type of information/alert being sent: <ul style="list-style-type: none">• Marine Notice,• Campaign or• Other Information
Subtype	Provides more detail on the information being sent: <ul style="list-style-type: none">• Navigation Restriction• Navigation Warning• Other• Incident• Legislative changes
Affected entities	An alert can have several affected entities. These are specific regions or features which are affected by the alert. For example: an exclusion zone, a wharf being closed or an aid to navigation mark being moved. <ul style="list-style-type: none">• Type: Aquatic Licence Region, Boat Ramp, Public Wharves, Public Moorings, Aid to Navigation, other manually specified regions• Cause: Describes what's causing the alert – e.g: special event, construction, maintenance, environment• Effect: What effect this has on the specific entity – e.g. closed, relocated, exclusion zone, speed limit change• Link ID: If the affected entity is based on data from another RMS/TfNSW Maritime dataset, an identifier will be provided to link the alert the dataset.
Validity periods	One or more time periods the alert is valid for
Cancelled	Identifies alerts which were previously published in the feed, but has since been withdrawn (for example, a special event has been cancelled).

2.2 Information types

2.2.1 Marine Notices

Marine Notices are issued both to provide safety advice to vessel operators and in accordance with certain statutory requirements.

These are currently published in the NSW Government Gazette in addition to a summary made available on the Roads and Maritime Services website. Relevant marine notices will also be made available programmatically over the MARP API.

There are three subtypes under marine notices:

Type	SubType	Description
MARINE_NOTICE	NAVIGATION_RESTRICTION	Navigation Restriction
MARINE_NOTICE	NAVIGATION_WARNING	Navigation Warning
MARINE_NOTICE	OTHER	An alert relating to an event that is similar to a marine notice, but is not formally issued as a marine notice. For example, an alert about a live incident on NSW waterways.

2.2.2 Campaigns

Campaigns are issued by the Centre for Maritime Safety (CMS) and are the result of approved government priority and investment for evidence-based issues.

These are currently published on the CMS website. Relevant campaigns will also be available programmatically over the MARP API.

There are eleven subtypes under campaigns:

Type	SubType	Description
CAMPAIGN	LIFEJACKETS	Campaign information on how, why, when to wear lifejackets
CAMPAIGN	WEATHER	Campaign information related to the weather
CAMPAIGN	COLD_WATER	Campaign information for cold water boating
CAMPAIGN	PERSONAL_WATERCRAFT	Campaign information relating to personal watercraft use
CAMPAIGN	JUDGEMENT	Campaign information relating to the use of judgement on waterways
CAMPAIGN	ALCOHOL_AND_DRUGS	Campaign information relating to the use of alcohol and drugs
CAMPAIGN	PROPER_LOOKOUT	Campaign information concerning keeping a proper lookout
CAMPAIGN	SPEED	Campaign information for safe speed

Type	SubType	Description
CAMPAIGN	PADDLE_SAFE	Campaign information relating to the use of paddle craft
CAMPAIGN	TOW_SAFE	Campaign information relating to the tow sports
CAMPAIGN	OTHER	A campaign message that does not fit into the defined subtypes.

2.2.3 Information

Other alerts are classified as information. This could include information such as changes in legislation and messages from the Centre of Maritime Safety.

There are two subtypes under information:

Type	SubType	Description
INFORMATION	LEGISLATIVE_CHANGES	Changes to legislation
	OTHER	An information notice that does not fit into the defined subtypes.

2.2.4 Business intention

The following business intentions should be considered when using the alerts feed:

- Marine notices should be displayed on the map as a visible and unique marker
- There should also be the ability to view the detailed information of the marine notice – for example, by clicking by the marker icon
- The user should also be able to access a complete list of marine notices and view the detail as required
- The information and campaign types should be displayed to the user in a way that supports the best customer experience
- The developer should use this content as it is sent and without modification to the message. For example, if a weblink is provided with video content, the expectation is that the developer would display this content within their app

2.3 Geofence region

The geometry included in each alert GeoJSON feature is an indicative geofence region for the alert. Vessel operators within this geofence region should be informed of the alert, but are not necessarily affected by it (see Affected regions).

These geofence regions are described in the Feature's geometry and is described using valid GeoJSON. Typically, the geometry will be one of Polygon, MultiPolygon or GeometryCollection (consisting of Polygons or MultiPolygons). However, other GeoJSON geometries may be present.

Geofence regions can be custom defined by the data entry operator, a large bounding box (e.g. covering NSW), or could be generated from a collection of aquatic licence areas with a buffer.

2.4 Field definitions

The following fields are supplied as Feature<properties> of the alert:

Field Name	Type	Description	Example	Mandatory	Cardinality
cartodb_id	Int	A unique identifier for the alert.	1	Yes	One
title	String	A one-line summary of the alert.	NH16114 - Navigation Warning - Coastal Waters – Tweed Heads to Merimbula - Listening station buoys	Yes	One
description	String	An expanded body and description of the alert.		Yes	One
weblinks	[WebLink]	(Optional) Weblinks where users can find additional information, expressed as an array of WebLink objects. A WebLink object can have a type value of: <ul style="list-style-type: none"> weblink video image 	<pre>{ title: "RMS Marine Notice", url: "http://www.rms.nsw.gov.au/maritime/using-waterways/restrictions-closures/marine-notices/nh16114-navigation-warning-coastal-waters-tweed-heads-to-merimbula.html", type: "webpage" }</pre>	No	One, Many or None
marine_notice_id	String	(Optional) The associated marine notice identifier.	NH16114	No	One or None
created_at	Int	Unix timestamp of the time the alert was created	1524591962	Yes	One

Field Name	Type	Description	Example	Mandatory	Cardinality
modified_at	Int	Unix timestamp of the time the alert was last modified	1524678365	Yes	One
type	Enum	See Information types	MARINE_NOTICE	Yes	One
subtype	Enum	See Information types	NAVIGATION_WARNIN G	Yes	One
validity_period	[ValidityPeriod]	An array of ValidityPeriod objects describing the validity period of the alert.	[{ valid_from: 1524937582, valid_to: 1525023987 }, { valid_from: 1524591962, valid_to: 1524678365 }]	Yes	One or Many
affected_regions	[GeoJSON<Feature>]	(Optional) An array of GeoJSON Features describing the regions affected by the alert. For example, if an alert has defined exclusion zones, each exclusion zone will be listed	[{ type: "Feature", geometry: GeoJSON <Geometry>, properties: { id: "B051AD", name: "BOTANY BAY - SOUTH WEST", type: "NSW_AQL", cause: "SPECIAL_EVENT", effect: "EXCLUSION_ZONE" }, ... <additional affected regions> }]	No	One, Many or None
cancelled	Boolean	The alert was previously published but has since been withdrawn.	FALSE	Yes	One

Field Name	Type	Description	Example	Mandatory	Cardinality
api_version	String	Indicates the version number of the API endpoint.	0.3.1	Yes	One
priority	Enum	Indicates the alert priority	low, normal, high	Yes	Other

3 Affected regions

Affected regions are specific entities located within the geofence region that are affected by the alert. For example, if an alert has defined exclusion zones, each exclusion zone will be listed as a separate affected region.

They are provided as an array of GeoJSON features in the `affected_regions` field.

These affected regions may refer to areas or points defined in other datasets. The type and id fields provided in the feature properties can be used to lookup associated metadata from the related dataset.

3.1 Affected regions data definition

Type	Related Table / Dataset	Foreign Key	Geometry Type(s)
NSW_AQL	NSW Aquatic License Area	region_id	MultiPolygon Polygon
NSW_BOAT_RAMP	NSW Boat Ramps	cartodb_id	Point
NSW_PUBLI C_WHARF	NSW Public Wharves	cartodb_id	Point
NSW_ATON_MARK	NSW Aid to Navigation Marks	cartodb_id	Point
NSW_PUBLI C_MOORIN G	NSW Public Moorings	cartodb_id	Point
MARP_ARE A	N/A, custom geographical areas or features defined for this alert	N/A	MultiPolygon Polygon Point

3.2 Cause and effect

Affected regions are designated with a cause and effect to describe the impact on vessel operators (where available).

3.2.1 Cause data definition

Cause Type	Description
UNKNOWN_CAUSE	The cause is not known.
OTHER_CAUSE	There is a cause, but it's not listed.
SPECIAL_EVENT	Caused by a special event being held in the area.
CONSTRUCTION	Caused by civil construction work. For example, construction of a bridge in the area, dredging.
MAINTENANCE	Caused by maintenance work. For example, wharf maintenance.
ENVIRONMENT	Caused by an environmental event. For example, a storm, flood or pollution event.

3.2.2 Effect data definition

Effect Type	Description
UNKNOWN_EFFECT	The effect is not known.
OTHER_EFFECT	There is an effect, but it's not listed.
EXCLUSION_ZONE	The affected area is an exclusion zone
SPEED_LIMIT_CHANGE	The affected area has a revised speed limit speed limit
CLOSED	The affected facility (such as a boat ramp or a public wharf) is closed.
HAZARD_WARNING	The affected area contains a hazard that vessel operators should be aware of. For example, obstructions such as trees or logs or the lowering of river level.
NO_WASH	The affected area is now a no-wash area
NO_TOWING	The affected area is now a no towing area
RELOCATED	The affected entity has been relocated
REMOVED	The affected entity has been permanently removed

3.2.3 Business Intention

The following business intentions should be considered when handling affected regions data:

- The preferred method is for the developer to use the Open Data API to pull the latest mapping data
 - If this is the case, then the developer should update their existing features with the new alert information by linking to the provided *id* field
- If the developer is relying on datasets from another source, the expectation is that they would perform their own data matching and update the appropriate feature on their dataset with the alert information
- If there is no match available against the developer's existing data, the developer should still show the data on the map based on the geometries returned in the API

3.2.4 Example extract of affected_regions

```
[
  {
    "type": "Feature",
    "properties": {
      "type": "MARP_AREA",
      "name": "Test_area",
      "id": "1"
      "effect": "SPECIAL_EVENT",
      "cause": "EXCLUSION_ZONE"
    },
    "geometry": {
      "type": "Polygon",
      "coordinates": [
        [
          [
            151.14355087,
            -33.84732249
          ],
          [
            151.14131927,
            -33.85986764
          ],
          [
            151.15522385,
            -33.86599699
          ],
          [
            151.17702484,
            -33.87283853
          ],
          [
            151.14355087,
            -33.84732249
          ]
        ]
      ]
    }
  }
]
```

4 Validity period

Some alerts in the feed may relate to events that occur in the future to allow vessel operators to be notified in advance. The validity period is used to describe the specific periods of time the alert applies to.

An alert may have one or more validity periods. These are defined by the *valid_from* and *valid_to* fields, which are expressed as unix timestamps.

If an alert has no known end date, *valid_to* will be *null*.

4.1 Example extract of validity_period with two validity periods

```
[{
  valid_from: 1524937582,
  valid_to: 1525023987
},{
  valid_from: 1524591962,
  valid_to: 1524678365
}]
```

4.2 Example extract of validity_period with an unknown end date

```
[{
  valid_from: 1524937582,
  valid_to: 1525023987
},{
  valid_from: 1524591962,
  valid_to: null
}]
```

5 Sample extract of feed

Note: coordinates in the GeoJSON extract below have been trimmed for brevity.

```
{
  "type": "FeatureCollection",
  "features": [
    {
      "type": "Feature",
      "geometry": {
        "type": "Polygon",
        "coordinates": [
          [
            [150.730407,-30.744467],
            <...>
            [150.732515,-30.754536]
          ]
        ]
      },
      "properties": {
        "cartodb_id": 33,
        "updated_at": 1532493872,
        "created_at": 1532493698,
        "title": "Navigation Restriction - Lake Keepit - Lake Keepit
sailing club events",
        "description": "Lake Keepit\nLAKE KEEPIT SAILING CLUB
EVENTS\n8:00am to 11:30pm - Thursday 1 February 2018 to Thursday 31
January 2019 \n\nSPECIAL EVENT \nVessel operators are advised that a
Special Event pursuant to Section 12(2) of the Marine Safety Act 1998
is to be held on Lake Keepit adjacent to the Lake Keepit Sailing Club
as marked by signs on the foreshore between 8:00am and 11:30pm on
various dates as per the annual sailing calendar from Thursday 1
February 2018 to Thursday 31 January 2019.\n\nEXCLUSION ZONE \nDue to
the potential to affect the safety of navigation, Roads and Maritime
has granted an Exclusive Use Aquatic Licence to the Lake Keepit
Sailing Club Inc. to conduct the events, and an Exclusion Zone ('the
Zone') will be established on the navigable waters of Lake Keepit
adjacent to the Lake Keepit Sailing Club marked by signs on the
foreshore no more than 150 metres apart and offshore to buoys no more
than 60 metres from the foreshore during events held throughout the
year as described above. The Zone is only in place during sailing
events held by the Lake Keepit Sailing Club. \n\nDIRECTIONS\nRoads
and Maritime advise that in relation to the Zone;\n\nPersons within
the vicinity of the Zone must comply with any directions given by any
Boating Safety Officer or Police Officer in relation to marine
safety. Failure to comply with any such direction is an offence
(Marine Safety Act 1998, s.15A - Maximum Penalty $3,300.00).\nNo
unauthorised vessels or persons are permitted to enter the Zone and
to do so may be an offence (Marine Safety Act 1998, s.12(5) -
Maximum Penalty $1,100.00) \nMAPS & CHARTS AFFECTED \nRoads and Maritime
Boating Map - Map 15\n\nFor further information concerning this
Navigation Advice, please contact Roads & Maritime Services phone:
131256 \n\nMARINE NOTICE NH1811",
        "marine_notice_id": "NH1811",
        "weblinks": [
          {
            "url": "http://www.rms.nsw.gov.au/maritime/using-
waterways/restrictions-closures/marine-notices/nh1811-lake-keepit-
sailing-club-events.html",
            "type": "weblink",

```

```

        "title": "Link to further information"
      }
    ],
    "type": "MARINE_NOTICE",
    "subtype": "NAVIGATION_WARNING",
    "validity_period": [
      {
        "valid_from": 1517428800,
        "valid_to": 1548916200
      }
    ],
    "affected_regions": [
      {
        "type": "Feature",
        "properties": {
          "type": "NSW_AQL",
          "cause": "UNKNOWN_CAUSE",
          "effect": "UNKNOWN_EFFECT",
          "name": "LAKE KEEPIT",
          "id": "B012AA"
        },
        "geometry": {
          "type": "Polygon",
          "coordinates": [
            [
              [150.715029895755,-30.7482864491317],
              <...>
              [150.523916246085,-30.805411557669]
            ],
            [
              [150.512539066749,-30.839332660708],
              <...>
              [150.512539066749,-30.839332660708]
            ],
            [
              [150.509166628778,-30.8456371154589],
              <...>
              [150.509166628778,-30.8456371154589]
            ]
          ]
        }
      }
    ],
    "cancelled": false,
    "priority": "normal",
    "api_version": "0.3.1"
  }
}
]
}

```