# External Notification Service (ENS)

This document describes how to successfully subscribe to the External Notification Service (ENS), and how to interpret the notifications you will receive from the service.

ENS provides notifications by subscribing to a Web Hook (part of the Azure Event Grid), which the UKHO use to provide this service. It conforms to the CloudEvent 1.0 Specification over HTTP/1.1, details of which can be found [here.](https://github.com/cloudevents/spec)

You are currently able to subscribe to the following notifications:

* **AVCS Data Content Published**

Notification that new AVCS content is available, and can be requested from the Exchange Set Service (ESS).

* **FSS Files Published**
  + **AVCS Weekly Data**

Notification that new AVCS Weekly Data files have been uploaded to the File Share Service (FSS), which you are able to download.

* + **Notice to Mariners**

Notification that new NM data files have been uploaded to the File Share Service, which you are able to download.

# Setting up a subscription

The first step is to request that a subscription is set up, via the Customer Services Portal. Please raise a case in the portal in the usual manner. The case should be raised under the following:

**Function > Notification Service**

**Sub Function > Request Access**

**Product Function > ADDS**

Please ensure that the following information is included:

|  |  |
| --- | --- |
| Item | Description |
| Subscription Type | Which notification service you wish to subscribe to |
| Subscription State | Is your solution in a test/development or live state? |
| Application Name | The name of your application. This must be the application name that relates to the specific notification you are requesting |
| WebHookURL | The web hook endpoint that you are providing for notification. |

Once the web hook has been registered by us, and notifications have been sent successfully, we will change the status of the Customer Services Portal case accordingly.

Please note that if you switch your solution from development/test to a live status, please raise a new case in order to change the status.

## Reporting a fault

If you are experiencing a problem or require additional information, please raise a case in the Customer Services Portal in the normal way.

Please raise under:

**Function > Notification Service**

**Sub Function> Technical Fault**

**Product Function> ADDS**

Please include a full description of the issue you are experiencing, or what you need advice with.

# Designing your web hook

UKHO use the JSON protocol binding for cloud events, details of which can be found [here](https://github.com/cloudevents/spec/blob/v1.0.2/cloudevents/formats/json-format.md). Full details to guide you in creating your web hook endpoint can be found [here](https://github.com/cloudevents/spec/blob/v1.0/http-webhook.md).

There are two requirements for the web hook endpoint that you provide. It must:

* Be able to respond to an HTTP OPTIONS request, as detailed below. This is to provide an initial handshake mechanism to confirm the validity of the web hook.
* Be able to accept, read and respond to an HTTP POST request, as detailed below. This is mechanism by which individual notifications are delivered to you.

Please take note of the following:

* The web hook endpoint MUST be configured for HTTP/1.1 over TLS (i.e. HTTPS)
* HTTP response codes must be carefully considered. You MUST respond with one of the following:

|  |  |  |
| --- | --- | --- |
| HTTP Response Code | State | Description |
| 200 (OK) | Success | The notification has been read and successfully processed. |
| 201 (Created) | Success | The notification has been read and successfully processed. |
| 202 (Accepted) | Success | The notification has been read and successfully processed. |
| 204 (No content) | Success | The notification has been read and successfully processed. |
| 5xx (Error conditions) | Failure | The webhook retry mechanism will be invoked. |

It is important to note that your web hook should be made permanently available. Do not attempt to register a web hook URL that is only partially available. Doing so will result in the notification service being suspended.

If an error is encountered during processing, you should return one of the HTTP status error codes (500, 501 etc). The web hook notification will then be retried with an exponential back-off, starting with a typical delay of 10 seconds, gradually increasing to every few hours. If the notification has not been successfully processed after 24 hours, the subscription will be suspended, and we will contact you to advise accordingly.

## Handshaking

The Cloud Event specification requires that a new registration of a webhook must complete a handshake to indicate that the configured HTTP endpoint agrees with notifications being delivered to it. The External Notification Service will send an HTTP OPTIONS request to your configured URI.

The response to the OPTIONS request is expected to be a 200-OK response that must also include the following HTTP headers:

|  |  |
| --- | --- |
| Header | Value |
| WebHook-Allowed-Rate | \* |
| WebHook-Allowed-Origin | Copy the value that is sent to you in the WebHook-Request-Origin header from the OPTIONS request you receive. |

Full details on the Cloud Event abuse protection specification can be found [here.](https://github.com/cloudevents/spec/blob/v1.0/http-webhook.md#4-abuse-protection)

## WebHook Notification

When a new notification is ready, the ENS will send an HTTP POST request to the endpoint you have specified. The request body will contain the JSON document describing the notification.

The configured endpoint MUST respond with a 200-OK, 201-Created, 202-Accepted or 204-No Content.

# Notifications

All notifications delivered by ENS will conform to the CloudEvent 1.0 specification. They consist of a standard set of properties, and a property that specifies the data particular to the event notification in question.

## Common Properties

All CloudEvent notifications contain some or all of the properties shown here.

Note that if the value of a property is NULL (for those properties which are optional as detailed below), it may not be present in the JSON document. Care should be taken to verify the existence of a property before attempting to read its value. Also note that capitalization of property names may vary, and any comparisons should be case insensitive.

{

"Subject": "NO4F1615",

"Type": "uk.co.admiralty.avcsData.contentPublished.v1",

"Time": "2021-11-02T17:43:21.2961112+00:00",

"DataContentType": "application/json", "specversion":"1.0",

"traceparent":"00-15f036867c778be050eacace4dfbfdac-104721e9f0091e43-00",

"Id": "0d2f05f5-3691-476a-9011-6007bcaa9cbf",

"Source": <https://notifications.admiralty.co.uk>,

"DataSchema": **null**, // shown for example, NULL value would not be present

"Data": {

}

}

|  |  |  |  |
| --- | --- | --- | --- |
| Property | Type | Mandatory | Comments |
| Id | String | Y | Identifies the event. The value of Source + Id is unique for each distinct event. If a duplicate event is re-sent (e.g. due to a network error) it MAY have the same Id. You MAY assume that Events with identical Source and Id are duplicates. |
| Source | URI | Y | Identifies the context in which an event happened. The exact syntax and semantics behind the data encoded in the URI is particular to the notification. |
| Specversion | String | Y | The version of the CloudEvents specification which the event uses. This is currently 1.0. |
| Type | String | Y | This attribute contains a value describing the type of event related to the originating occurrence. Often this attribute is used for routing, observability, policy enforcement, etc. |
| DataContentType | String | N | Content type of the data value. This attribute enables data to carry any type of content, whereby format and encoding might differ from that of the chosen event format. At the present time, all data is supplied as a JSON document. |
| DataSchema | URI | N | Identifies the schema that the data property adheres to, if any |
| Subject | String | N | This describes the subject of the event in the context of the event producer (identified by the source property) |
| Time | Timestamp | N | Timestamp of when the occurrence happened |
| Traceparent | String | - | A value used by the Azure Event Grid for internal tracking |

Following is a description of the various JSON notification documents that you could receive from the ENS.

## AVCS Data Content Published

This is a notification that new AVCS Weekly Data files have been uploaded to the File Share Service (FSS), which you are able to download.

{

"Subject": "NO4F1615",

"Type": "uk.co.admiralty.avcsData.contentPublished.v1",

"Time": "2021-11-02T17:43:21.2961112+00:00",

"DataContentType": "application/json", "specversion":"1.0",

"traceparent":"00-15f036867c778be050eacace4dfbfdac-104721e9f0091e43-00",

"Id": "0d2f05f5-3691-476a-9011-6007bcaa9cbf",

"Source": "https://notifications.admiralty.co.uk"

"DataSchema": **null**,

"Data": {

"productName": "NO4F1615",

"productType": "ENC S57",

"editionNumber": 15,

"updateNumber": 18,

"boundingBox": {

"northLimit": 63.25,

"southLimit": 63,

"eastLimit": 8,

"westLimit": 7.75

},

"status": {

"statusDate": "2021-10-07T00:00:00",

"isNewCell": **false**,

"statusName": "Update"

},

"replaces": ["GB4F115"]

"isPermitUpdateRequired": **false**,

"fileSize": "1584"

}

}

The Data property will contain a JSON object with the following properties:

|  |  |  |  |
| --- | --- | --- | --- |
| Property | Type | Mandatory | Comments |
| ProductName | String | Y | The name of the AVCS product |
| ProductType | String | Y | The type of the AVCS product |
| EditionNumber | Integer | Y | The edition of the AVCS product |
| UpdateNumber | Integer | Y | The update number pertinent to that edition |
| BoundingBox.NorthLimit | Float | Y | The North bounding limit in degrees |
| BoundingBox.SouthLimit | Float | Y | The South bounding limit in degrees |
| BoundingBox.EastLimit | Float | Y | The East bounding limit in degrees |
| BoundingBox.WestLimit | Float | Y | The West bounding limit in degrees |
| Status.StatusDate | Timestamp | Y | The time at which the update was posted |
| Status.IsNewCell | Bool | Y | Determines whether this is new data, or replaces existing data |
| Replaces | String | N | If this is replacement data (see Status), this is product name of the data that is being replaced |
| IsPermitUpdateRequired | Bool | N |  |
| FileSize | Integer | N | The file size in bytes |

## FSS Files Published (AVCS)

{

"Subject": "25dbc807-12e0-4690-b0bc-374b1da28192",

(… OMITTED for brevity)

"Type": "uk.co.admiralty.fss.filesPublished.v1",

"Data": {

"batchId": "25dbc807-12e0-4690-b0bc-374b1da28192",

"businessUnit": "AVCSData",

"files": [

{

"fileSize": 2224988,

"hash": "+lMVdytWqayEP5zQ3tJMtg==",

"mimeType": "text/plain",

"attributes": [],

"links": {

"get": {

"href": "https://admiralty.azure-api.net/fss/batch/25dbc807-12e0-4690-b0bc-374b1da28192/files/Wk44\_21\_Products.txt"

}

},

"filename": "Wk44\_21\_Products.txt"

}

],

"attributes": [

{

"value": "Catalogue",

"key": "Content"

},

{

"value": "AVCS",

"key": "Product Type"

},

{

"value": "44",

"key": "Week Number"

},

{

"value": "2021",

"key": "Year"

}

],

"links": {

"batchStatus": {

"href": "https://admiralty.azure-api.net/fss/batch/25dbc807-12e0-4690-b0bc-374b1da28192/status"

},

"batchDetails": {

"href": "https://admiralty.azure-api.net/fss/batch/25dbc807-12e0-4690-b0bc-374b1da28192"

}

},

"batchPublishedDate": "2021-11-02T16:40:00.6457821Z"

}

}

This is a notification that new AVCS Weekly Data files have been uploaded to the File Share Service (FSS), which you are able to download.

The Data property will contain a JSON object with the following properties:

|  |  |  |  |
| --- | --- | --- | --- |
| Property | Type | Mandatory | Comments |
| BatchId | String | Y | The batch ID for the update. This is also contained in the Source property. |
| BusinessUnit | String | Y | The business unit for which the change is published |
| Files | Array | Y | An array of objects describing the files present in the update |
| Files[].FileSize | Integer | Y | The file size in bytes |
| Files[].Hash | String | Y | An MD5 checksum value for the file |
| Files[].MimeType | String | Y | The MIME type of the file content |
| Files[].Links | Array | Y | A list of JSON objects containing an HREF to allow each file to be downloaded from the File Share Service. |
| Attributes[] | Array | Y | An array of key value attribute pairs for the update, described below. |
| Links[] | Array | T | An array of links, described below. |
| BatchPublishedDate | Timestamp | Y | The published date of the update. |

### Attributes

|  |  |
| --- | --- |
| Attribute (Key) | Value |
| Content | Describes the type of content e.g. ‘Catalogue’ |
| Product Type | AVCS |
| Week Number | The week number for the AVCS weekly update |
| Year | The year for the AVCS weekly update |

Links

|  |  |
| --- | --- |
| Link Property Name | Value |
| Links.BatchStatus | An href to read the current status of the batch |
| Links.BatchDetails | An href to read batch details |

## FSS Files Published (Notice To Mariners)

{

"batchId": "e2ea303c-5a28-47ff-b9d0-c5409ffbfed8",

"businessUnit": "MaritimeSafetyInformation",

"files": [

{

"filename": "rs6-nms-2022-30.xml",

"fileSize": 16235,

"mimeType": "application/xml",

"hash": "G6USaX7xdgLxi+UX1y9JpQ==",

"attributes": [],

"links": {

"get": {

"href": "https://admiralty.azure-api.net/fss/batch/e2ea303c-5a28-47ff-b9d0-c5409ffbfed8/files/rs6-nms-2022-30.xml"

}

}

},

{

"filename": "2022-30.pdf",

"fileSize": 421782,

"mimeType": "application/pdf",

"hash": "P3N8z+VjvzkOVvSKW0yS7g==",

"attributes": [],

"links": {

"get": {

"href": "https://admiralty.azure-api.net/fss/batch/e2ea303c-5a28-47ff-b9d0-c5409ffbfed8/files/2022-30.pdf"

}

}

},

{

"filename": "Wk30-22 NM AND TRACINGS DATA.zip",

"fileSize": 2506036,

"mimeType": "application/zip",

"hash": "jd5gqv+XtzAGulqvyP1Now==",

"attributes": [],

"links": {

"get": {

"href": "https://admiralty.azure-api.net/fss/batch/e2ea303c-5a28-47ff-b9d0-c5409ffbfed8/files/Wk30-22%20NM%20AND%20TRACINGS%20DATA.zip"

}

}

}

],

"attributes": [

{

"key": "Content",

"value": "tracings"

},

{

"key": "Data Date",

"value": "2022-07-28"

},

{

"key": "Frequency",

"value": "Weekly"

},

{

"key": "Product Type",

"value": "Notices to Mariners"

},

{

"key": "Week Number",

"value": "30"

},

{

"key": "Year",

"value": "2022"

},

{

"key": "Year / Week",

"value": "2022 / 30"

}

],

"links": {

"batchStatus": {

"href": "https://admiralty.azure-api.net/fss/batch/e2ea303c-5a28-47ff-b9d0-c5409ffbfed8/status"

},

"batchDetails": {

"href": "https://admiralty.azure-api.net/fss/batch/e2ea303c-5a28-47ff-b9d0-c5409ffbfed8"

}

},

"batchPublishedDate": "2022-08-22T14:22:04.74Z"

}

This is a notification that new NM data files have been uploaded to the File Share Service, which you are able to download.

The Data property will contain a JSON object with the following properties:

|  |  |  |  |
| --- | --- | --- | --- |
| Property | Type | Mandatory | Comments |
| BatchId | String | Y | The batch ID for the update. |
| BusinessUnit | String | Y | The business unit for which the change is published |
| Files | Array | Y | An array of objects describing the files present in the update |
| Files[].FileName | String | Y | The filename (\*.xml) of the update |
| Files[].FileSize | Integer | Y | The file size in bytes |
| Files[].Hash | String | Y | An MD5 checksum value for the file |
| Files[].MimeType | String | Y | The MIME type of the file content |
| Files[].Links | Array | Y | A list of JSON objects containing an HREF to allow each file to be downloaded from the File Share Service. |
| Attributes[] | Array | Y | An array of key value attribute pairs for the update, described below. |
| Links[] | Array | T | An array of links, described below. |
| BatchPublishedDate | Timestamp | Y | The published date of the update. |

### Attributes

|  |  |
| --- | --- |
| Attribute (Key) | Value |
| Content | Describes the type of content e.g. ‘Catalogue’ |
| Product Type | Notice to Mariners |
| Week Number | The week number for the AVCS weekly update |
| Year | The year for the AVCS weekly update |
| Year / Week | The year and week as a / delimited string |
| Data Date | The date for which the data is pertinent |
| Frequency | The frequency of the update e.g. ‘Weekly’ |

Links

|  |  |
| --- | --- |
| Link Property Name | Value |
| Links.BatchStatus | An href to read the current status of the batch |
| Links.BatchDetails | An href to read batch details |