

ECG API MANUAL

V3.0

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DEFINITIONS

ABBREVIATION EXPLANATION

API	Application Programming Interface. A means for two or more computer programs to communicate with each other via a recognised set of protocols.
EGC	Enhanced Group Call, means the international broadcast of coordinated Maritime Safety Information and Search and Rescue related information, to a defined geographical area using a recognized mobile satellite service
JSON	JavaScript Object Notation. A standard text-based format for representing structured data based on JavaScript object syntax.
MSI	Maritime Safety Information means navigational and meteorological warnings, meteorological forecasts and other urgent safety-related messages broadcast to ships.
MSI PROVIDERS	Maritime Safety Information Provider means any authority who is certified by the IMO to broadcast MSI through a Recognised Mobile Satellite Service Provider.
RCC	Rescue Coordination Centre means a unit responsible for promoting efficient organization of Search and Rescue services and for coordinating the conduct of Search and Rescue operations within a search and rescue region. Note: the term RCC will be used within this Manual to apply to either joint, aeronautical, or maritime centres; JRCC, ARCC or MRCC will be used as the context warrants.
RESCUENET	RescueNET is a bespoke safety service tailored specifically for Rescue Coordination Centres to enable Search and Rescue (SAR) services such as reception of Distress Alerts, broadcast of SAR EGC and Distress Messaging.
RESTFUL	RESTful API is an interface that two computer systems use to exchange information securely over the internet.
RMSS	Recognized Mobile Satellite Service is a service recognised by the IMO to operate in the GMDSS
RMSSP	Recognized Mobile Satellite Service Provider is a satellite provider recognised by the IMO to provider recognised satellite services within the GMDSS
SAFETYNET	International SafetyNET service means the coordinated broadcast and automatic reception of Maritime Safety Information via the Inmarsat Enhanced Group Call system, using the English language, in accordance with the provisions of the International Convention for the Safety of Life at Sea, 1974, as amended.
SAFETYNET II	International SafetyNET II service means Inmarsat's enhancement to the SafetyNET service, providing coordinated broadcasting and automated reception of Maritime Safety Information on Inmarsat approved terminals including Inmarsat C, Mini C and Fleet Safety, via an interactive web-based interface, using the English language, in accordance with the provisions of the International Convention for the Safety of Life at Sea, 1974, as amended.
SAR	Search and Rescue related information means distress alert relays and other urgent Search and Rescue related information broadcast to ships.

1. INTRODUCTION

The IHO EGC API CG was tasked with the creation of a recommended common API standard for Recognized Mobile Satellite Service Providers (RMSSP). Although Satellite Providers can offer a variety of API standards, it was proposed that a “Basic API” standard and input mechanism is agreed to allow Maritime Safety Information Providers (MSIPs) the option of creating a single method of delivery to multiple RMSSP.

The API standard was agreed to be a JSON REST API and the input method was agreed to be Inmarsat-C codes, as historically used by all MSIPs globally.

RMSSP can add additional services and input methods, however all RMSSP EGC API should be JSON REST standard and capable of receiving information in the Inmarsat-C code format.

2. PURPOSE

The purpose of this document is to provide information and guidance on how to access and make use of the Inmarsat EGC API within the test and live environments. Giving instruction and examples of how to create and make use of different API codes, or syntax, to make the most of the system. Whilst this manual covers a range of methods and formats, it is not comprehensive and there are other API development tools available. For more specific details or questions, please contact your IT, API developer or Inmarsat Maritime Safety Team.

The information within this manual should enable you to understand how you can make the most of the Inmarsat SafetyNET II API system and integrate it into your working infrastructure.

3. API OVERVIEW

The EGC SafetyNET II API system is a secured RESTful API making use of the JSON file format, for IMO certified NAVAREA's, METAREAs and RCC's to utilize for broadcasting of Maritime Safety Information (MSI) and Search and Rescue (SAR) EGC broadcasts.

The MSI formatting will still make use of the common Inmarsat-C codes, used within the Inmarsat SafetyNET services.

This RESTful, JSON API structure and format, has been agreed by two Recognized Mobile Satellite Service (RMSS) providers, namely Inmarsat and Iridium, to aid in the interoperability of broadcasting MSI in a multi satellite provider GMDSS.

The Inmarsat API is part of the SafetyNET II system and as such, to access the live environment, you require a SafetyNET II contract. Inmarsat can grant temporary access to the test environment without the need for a SafetyNET II account.

The SafetyNET II provides one account that is accessible through the API and web interface. This enables the user to make use of both the API functions whilst also having additional features and backup from the secure web interface. This is a single account visible from the API and web interface, fully synchronized.

The key benefit of this API is the ability to create an interface within your IT infrastructure that is compatible with multiple RMSS providers EGC systems, allowing you to create and send one message to be delivered and broadcast over multiple RMSS providers systems. Figure 1 shows an example of how this would work over the Inmarsat SafetyNET II and Iridium SafetyCast systems.

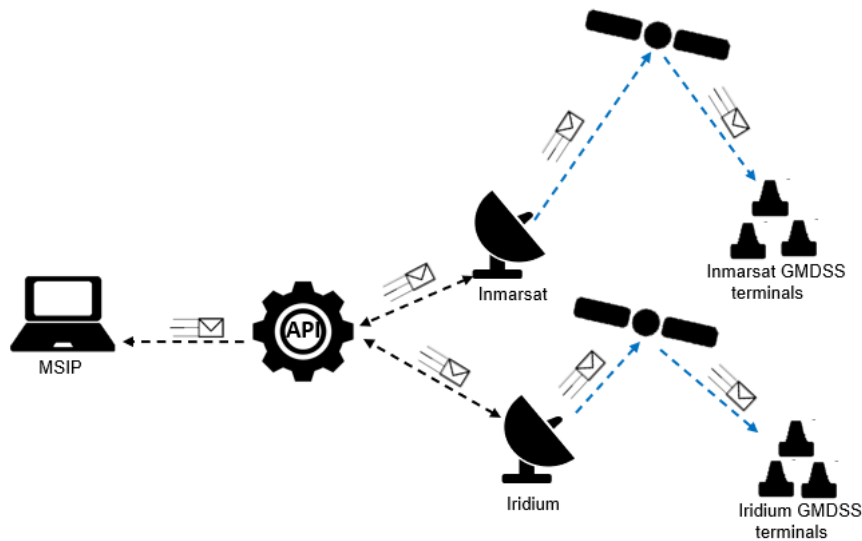


Figure 1 Basic concept of the EGC API 1

It is the responsibility of the certified EGC provider to comply with all IMO resolutions and circulars relating to EGC broadcast.

Additional information on how to become EGC certified and creation of EGC broadcasts, can be found in the IMO EGC SafetyNET Manual.

4. MINIMUM “BASIC API” REQUIREMENTS

4.1 IMO RESOLUTION A.1001(25) - 4.9

- Satellite systems forming part of the GMDSS should technically be capable of offering facilities for broadcasting Maritime Safety Information (MSI) from RCCs and authorized providers of MSI, such as Hydrographic Offices and Meteorological Offices, to ships at sea.
- Such facilities for broadcast of MSI should provide for automatic, continuous, and reliable reception on board ships and should, as a minimum, fulfil the requirements specified in sections below.
- The facilities should provide for recognition and processing of the four levels of priority specified in paragraph 3.3.1. [1. Distress 2. Urgency 3. Safety 4. Routine (general communications)]
- It should be possible to address the broadcast of MSI to all properly equipped ships within a specified area for at least the following types of areas:
 - the entire region covered by the satellite or system over which the transmission is made.
 - the NAVAREAs/MET AREAs as established by the International Maritime Organization (IMO), the International Hydrographic Organization (IHO) and the World Meteorological Organization (WMO) respectively; and
 - a temporary area chosen and specified by the originator of the MSI message, including circular or rectangular user -specified areas appropriate for broadcast of distress alert relays and search and rescue co-ordinating communications.
- The facilities should provide for transmission of at least the types of Maritime Safety Information required by SOLAS, as follows:
 - Search and rescue co-ordination information, including distress alert relays.

- Navigational warnings; and
- Meteorological warnings and forecasts.
- The facilities for broadcast of navigational and meteorological warnings should include possibilities for:
 - scheduling the broadcast at fixed times or transmitting messages as unscheduled broadcast transmissions; and
 - automatic repetition of the broadcast with time intervals and number of broadcast transmissions as specified by the MSI provider, or until cancelled by the MSI provider.
 - The facilities should provide for marking MSI messages with a unique identity, enabling the shipborne equipment that receives these broadcasts to automatically ignore messages already received.
 - The broadcasting service should in addition provide facilities for broadcasts similar to NAVTEX to coastal areas not covered by the International NAVTEX Service, in accordance with the identification system (i.e., the identification characters B1, B2, B3, B4) used in the International NAVTEX Service.

4.2 A.706(17) & A.1051(27)

Resolutions A.706(17) and A.1051(27) also need to be adhered to where applicable.

5. STRUCTURE OF API MESSAGES EXPLAINED (SAFETYNET, SAFETYNET II AND API)

The common standard used by all MSIPs and RCCs to format and broadcasts EGC messages has been the Inmarsat-C codes. To allow for easy transition from SafetyNET, to SafetyNET II, Inmarsat has continued to use these well-known C-codes and with agreement, opened this format to other RMSS providers within their EGC API systems. This means that by continuing to use these C-codes, MSIPs and RCCs can broadcast a single formatted message that can be accepted by multiple satellite providers.

Note: C0 (satellite selection) is not required for this API and has been removed from the C-Code table below. The SafetyNET II will automatically broadcast your message through ALL satellites covering the intended broadcast area.

C1 PRIORITY CODE	C2 SERVICE CODE	C3 ADDRESS CODE	C4 REPETITION CODE
1 digit code	2-digit code	2, 3, 10 or 12 alphanumeric codes	2-digit code
1-Safety 2-Urgency 3-Distress 9-All Ocean	00 – All Ships (general call)	2 digit – 00 (All ships)	Category (a) for EGC messages to be repeated a finite number of times Category (b) for EGC messages to be repeated at specified
	04 - Navigational, Meteorological or Piracy WARNING to a rectangular area	12 alphanumeric rectangular area address D1D2N(S)D3D4D5E(W)D6D7D8D9D10	
	13- Navigational, Meteorological or Piracy Coastal WARNING	4 alphanumeric coastal warning area address X1X2B1B2	
	14 - Shore-to-Ship Distress Alert to a circular area	10 alphanumeric circular area address D1D2N(S)D3D4D5E(W)M1M2M	
	24 - Navigational, Meteorological or Piracy WARNING to a circular area	10 alphanumeric circular area address D1D2N(S)D3D4D5E(W)M1M2M	

	31 - NAVAREA/METAREA warning, MET Forecast or Piracy warning to NAVAREA/METAREA	2 digit – NAVAREA/METAREA number	intervals until cancelled by the MSI provider
	34 – SAR Coordination to a rectangular area	12 alphanumeric rectangular area address D1D2N(S)D3D4D5E(W)D6D7D8D9 D10	
	44- SAR Coordination to a circular area	10 alphanumeric circular area address D1D2N(S)D3D4D5E(W)M1M2M	

Table 1 Inmarsat C Code Table

To make use of these C-codes is straight forward:

- Choose message priority 1-safety, 2-urgency, or 3-distress (note 9 is for Inmarsat NOC broadcasts only)
- Chose the type off message you want to send i.e., 31- NAV/METAREA message, 14- Distress Relay to Circular area.
- Enter to corresponding area or coordinates i.e., if you chose a NAV/METAREA broadcast, it will be followed by a 2-digit NAVAREA or METAREA for example METAREA V would be 05.
- Finally chose the repetition code, these can be found in Annex A.

Examples:

Below are several examples of how the same broadcast type would look through SafetyNET, SafetyNET II Web Interface and the API:

This is an example of a SAFETY priority message, sent to METAREA V, broadcast immediately and repeated one hour later (repetition code 61).

5.1 SafetyNET

EGC 1 1 31 05 61 00

EGC	1	1	31	05	61	00
EGC informs the SafetyNET system it's an EGC call. Not needed in SafetyNET II or API	This informs SafetyNET that it's to be broadcast over the AOR-E satellite. This is not needed in SafetyNET II or the API	This indicates that the priority required is SAFETY	The 31 indicates this is a message to a NAV or METAREA	This informs the system the broadcast is to NAV/METAREA V (05)	61 is the repetition code for broadcast immediately and repeat in 1 hour	This is used to inform the system of the presentation code, no longer required on SafetyNET II or the API

The Text would then proceed the C-Code and be sent to the LES for broadcasting.

5.2 SafetyNET II Web Interface

The SafetyNET II web interface, continues to make use of the C-Codes, however these are translated behind the scenes and instead the user choses from drop down menus:

User choses METAREA

Choses Safety Priority

Choses METAREA V

Selects repetition

Inputs text before clicking send

5.3 API Syntax

```
"msiType": "inmc-nav",
"areaType": "NAVMET",
"priority": "safety",
"serviceCode": "31",
"address": "05",
"repetitionCode": "61",
"payload": "METAREA V Weather Report \n TEXT TEXT TEXT"
```

API SYNTYAX		EXPLANATION
"msiType"	"inmc-nav",	Standard heading for NAV/MET broadcasts
"areaType"	"NAVMET",	This is a NAV or MET message and not SAR
"priority"	"safety",	Priority could be written as 01, 1 or safety
"serviceCode"	"31",	31 represents that this is a broadcast to a NAV/MET AREA
"address"	"05",	This indicates the broadcast address is to area V (05)
"repetitionCode"	"61",	The repetition code is 61 two transmissions with an hour interval
"payload"	"METAREA V Weather Report \n TEXT TEXT TEXT"	The message text

6. ACCESSING AND AUTHENTICATING ON THE INMARSAT ENVIRONMENT

Inmarsat has created a fully replicated satellite and ground infrastructure environment for you to use whilst evaluating the API. This will allow you to login via the API and Web Interface to test all the SafetyNET II API features in a safe environment, without sending live messages to the maritime industry. Once testing has been completed, you can simply redirect your API to the live environment.

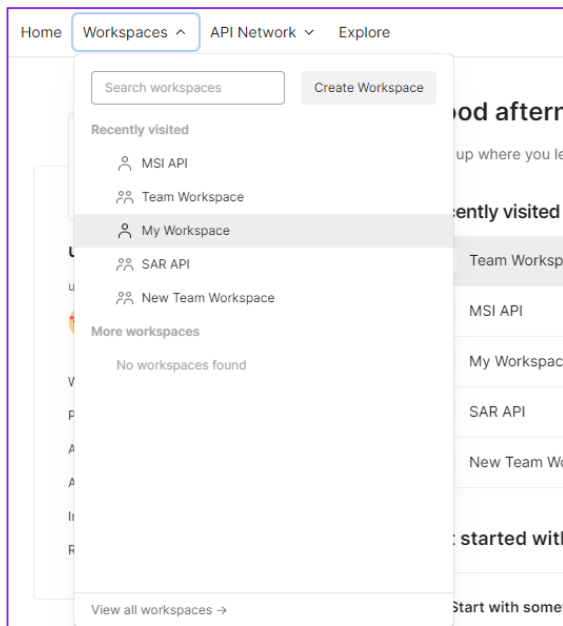
For more information on how to setup and test your API please visit the Inmarsat Maritime Safety Training Hub and chose the “MSI API” training pack:
<https://safetytraininghub.inmarsat.com/>

There are a number of API creator tools and test tools available, however, this document will be making use of the free online tool called POSTMAN. This free software can be downloaded from <https://www.postman.com/downloads/>

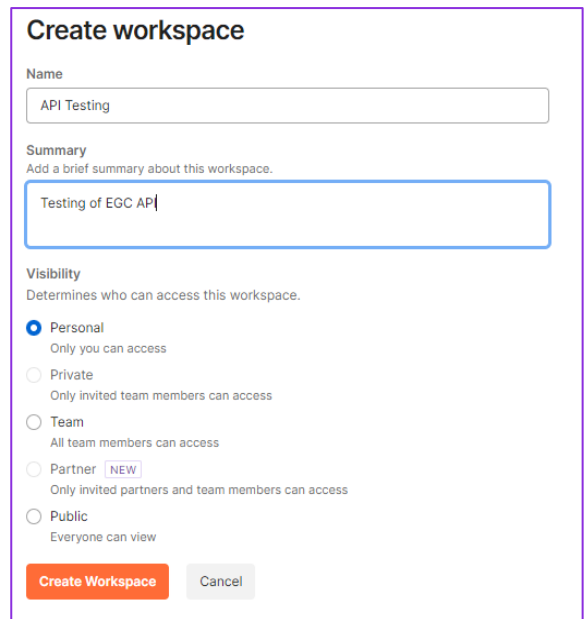
On request, the Inmarsat Maritime Safety Team will create an account for you on the test environment and provide you with a username and password.

Below is a basic set of instructions on how to access and test, however, your IT or API developer may choose to use a different program or methods. As this is a common API setup, there are many different ways to accomplish the same outcome.

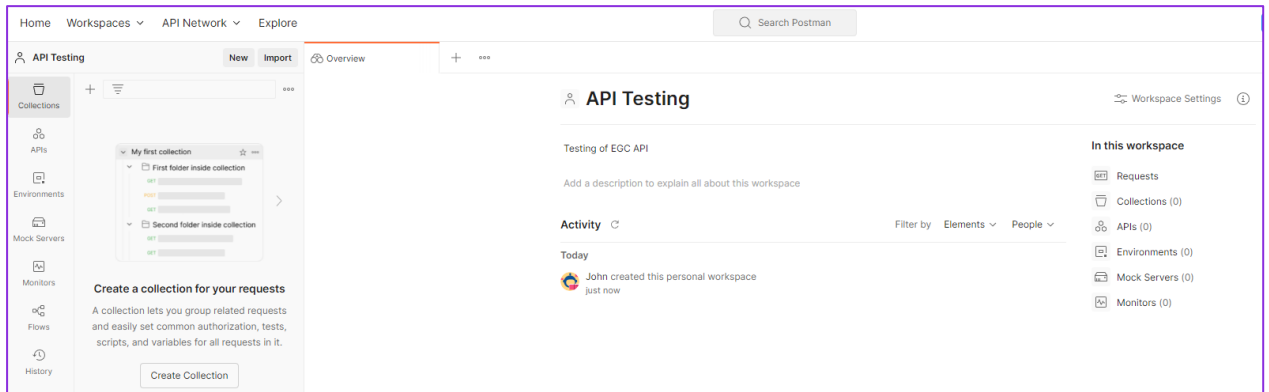
After downloading the Postman software, you will first need to create a “workspace”



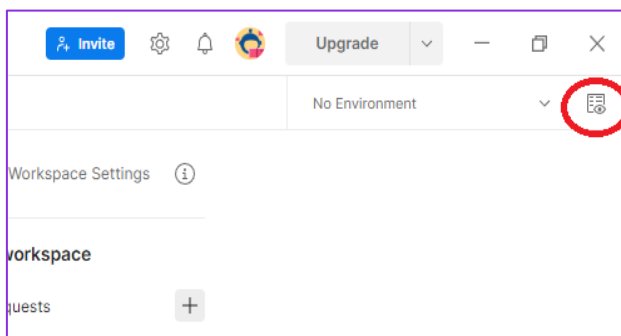
From the workspace dropdown, select “create new Workspace”



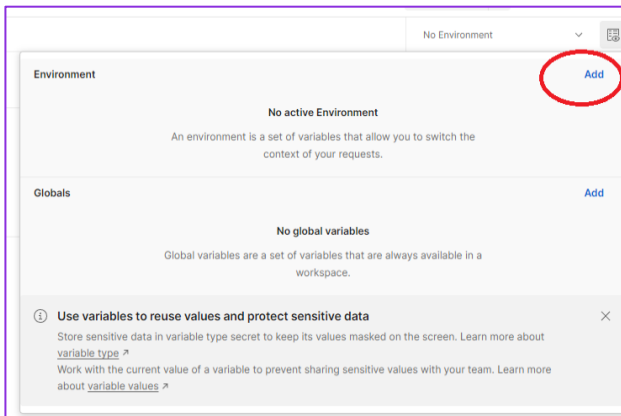
Name your workspace, give a brief description, chose a visibility setting. Click Create Workspace.



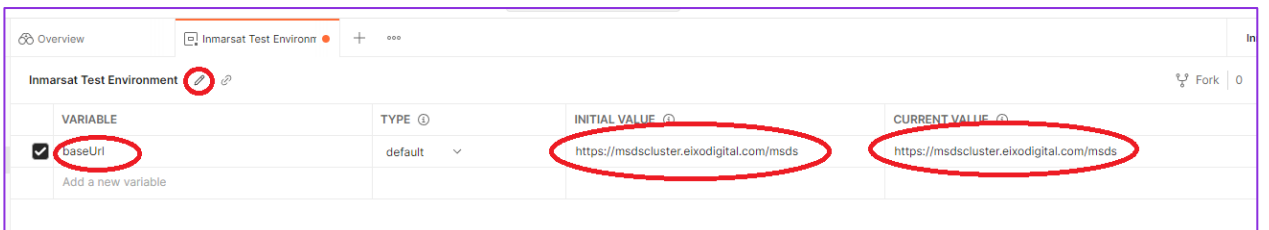
You now have a new API test workspace created; the next step is to create an environment. This environment will be the Inmarsat API Test Environment



On the top right, next to the drop down where it says, 'No Environment' Click on the icon on the top right.

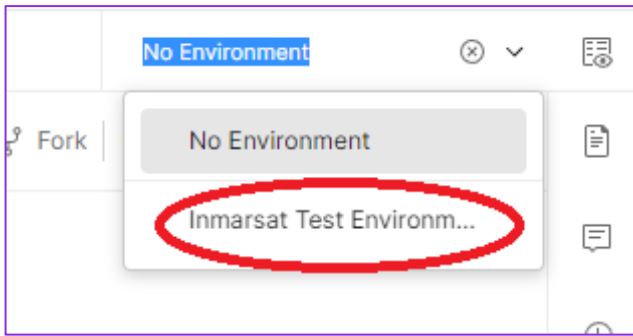


Click on 'Add' in the



Use the pencil icon to edit the name of this environment to 'Inmarsat Test Environment', type in 'baseUri' under VARIABLE, and in INITIAL VALUE and CURRENT VALUE type in <https://msdscluster.eixodigital.com/msds>

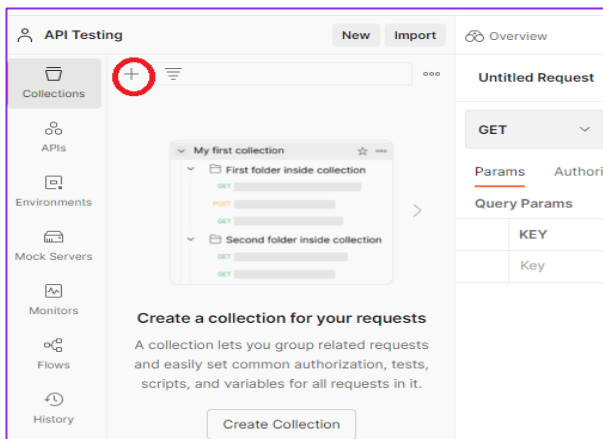
Now click 'Save'



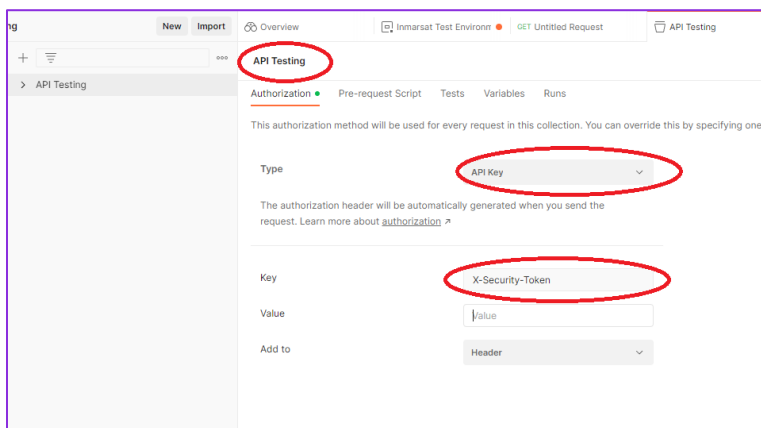
Now use the drop-down menu to select the 'Inmarsat Test Environment' you have just created

You have now directed your API tool to the test environment.

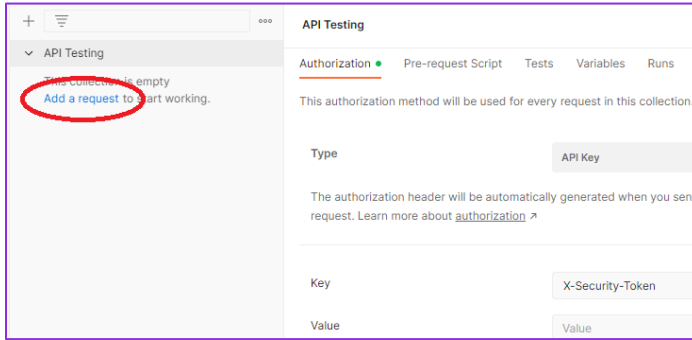
The 'Collections' tab on the left is where you create and store your syntax messages. The first one that should be created is the **Authentication** request, before you do this, you will need the Inmarsat Safety Team to provide you with your SafetyNET II test environment username and Password. This username and password also enable access to the web interface at <https://msdscluster.eixodigital.com/msds>. This is a two-part process, first is creating the 'API Testing' collection, this is where you will input your security Token once received, the second is the process of sending your username and password to receive your security Token.



On the right hand side select 'Collections' and click the + symbol, this is where you will keep your syntax list of all the different API commands.



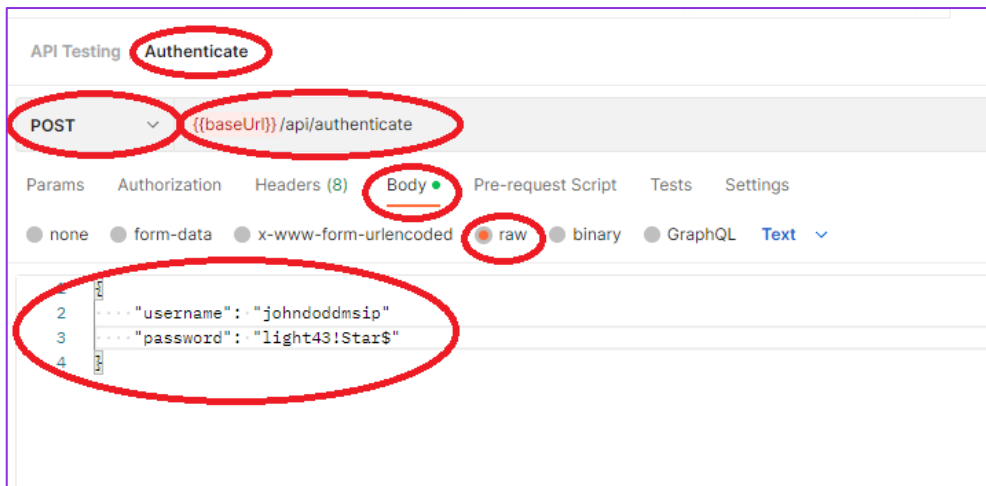
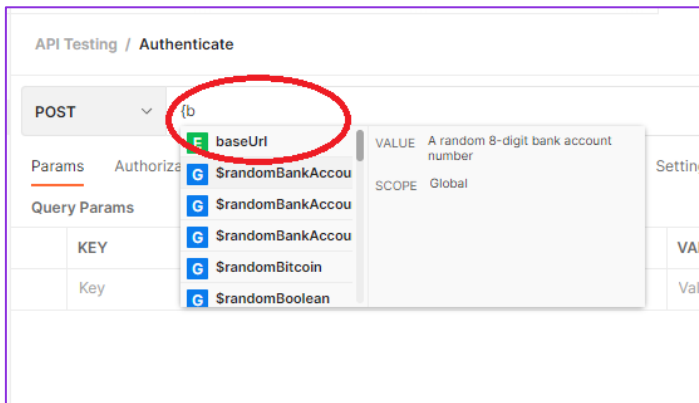
- Change the name to 'API Testing'.
 - In the 'Type' drop down select 'API Key'
 - Type 'X-Security-Token' in the Key box.
- Now click Save on the right-hand side.
- The 'Value' box is where you will enter your security Token later.



You can now start adding your syntax. The next one you will need is to enter your username and password provided by Inmarsat Safety Team to retrieve a Security Token. Click on your 'API Testing' then click on 'Add a request'

Rename at the top to 'Authenticate' this is so you can find this syntax easily when you need to login to the API.

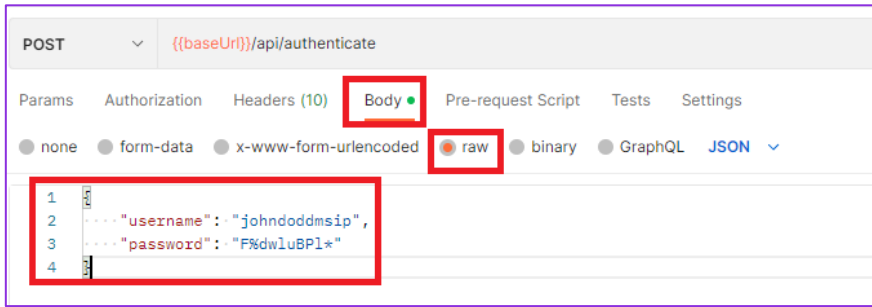
From the drop-down menu at the top left, select 'POST' and in the box next to it start to type in '{base' you will see a green **E** appear with 'baseUrl' select this and then continue to type `{{baseUrl}}/api/authenticate`



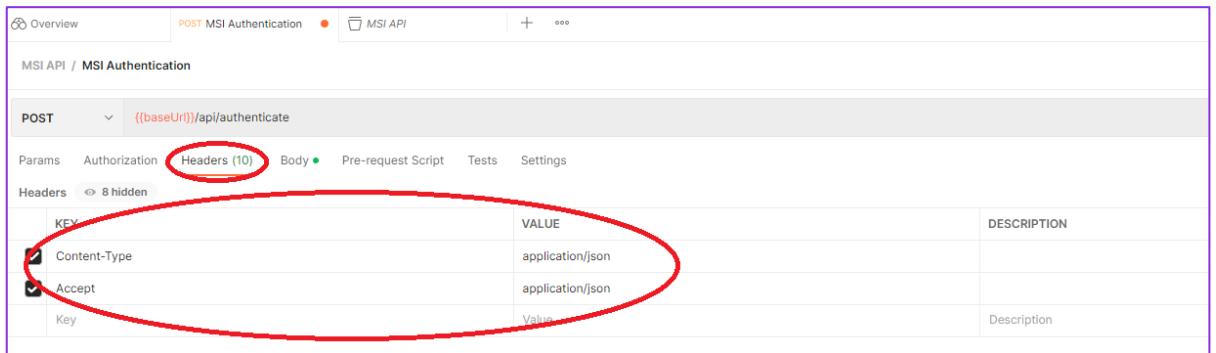
Now click on 'Body' and 'raw'

In the box below, type in:

```
{
  "username": "your username",
  "password": "your password"
}
```



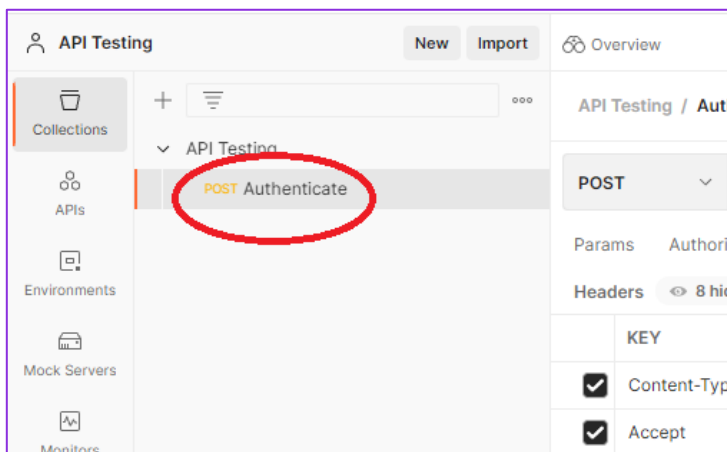
Now click on 'Headers' and in the 'Key' box you need to enter as per the below. If you start typing 'Content-Type', you will be able to select from a drop-down list, the same goes for 'application/json' and 'Accept'.



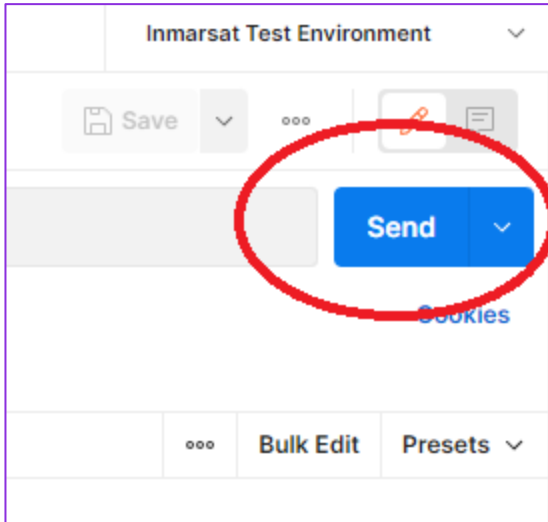
Now click on 'Save'

You have now created the security login API connection to the test environment.

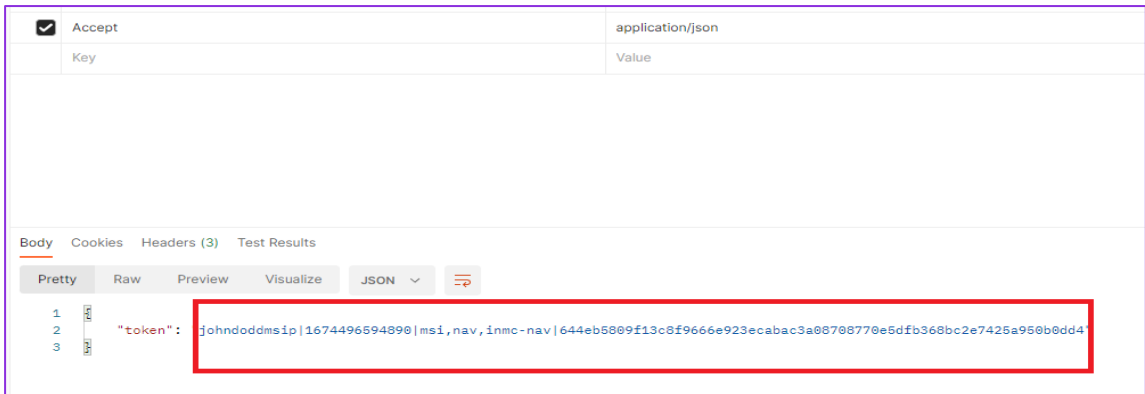
To test this works:



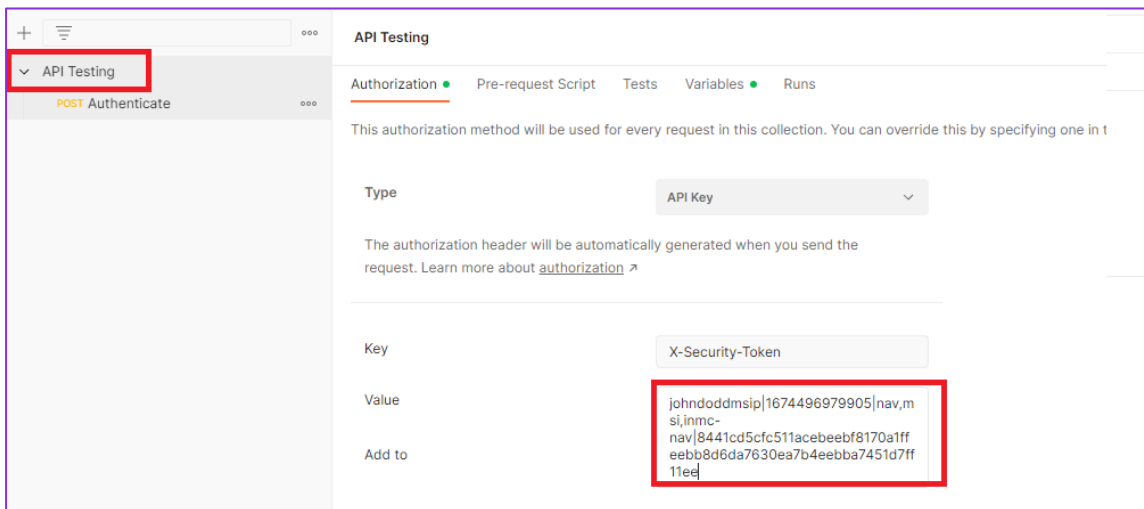
Click on Authenticate under your 'API Testing'



Now Click 'Send' on the right-hand side. This will send your login request to the test environment along with your Username and Password.



The API will return a unique secure token. To complete the login process manually (this can be made automated through your API developer) copy the token, **note**: only copy from your username to the last digit, do not copy the ""



Once copied, click on 'API Testing', then paste your Token into the Value box before clicking on 'Save' on the right-hand side. You are now securely logged into the test environment.

Your security token will last for 10 minutes, after that you will need to:

Click on Authenticate, click on Send, copy token and paste into API Testing before clicking save, as per above steps. You will be able to automate this through your API developer.

NOTE: Once testing has been completed, Inmarsat will create your live account in the live environment. To redirect your API to the Live environment, you can simply create a new environment, as above, and change the URL to <https://msds.inmarsat.com/msds>

7. ADDING A SYNTAX

The API consists of sending commands through the API to the test environment and requesting information back. The commands you send, or syntax, have been created in line with the C-code format, although flexibility has been enabled to allow for the use of codes or written words.

Although the syntax may change, the method for creating one remains the same for all types. Remember, you only need to create the syntax once and save it once.

7.1 Explanation of the syntax to C codes.

The Syntax MUST start with the "MSI Type" on the second line, after { the following commands can be placed in an order of your choosing, however, we have kept these in order of the Inmarsat C-codes as explained below

"msiType": "inmc-nav",	This is the type of message. inmc-nav means you are using the Inmarsat C codes and you are a METAREA or NAVAREA coordinator. "inmc-sar" would be used by SAR authorities using SAR messages
"areaType": "NAVMET",	This tells the satellite system you are an approved NAV or METAREA coordinator
"priority": "2",	The priority you would like to allocate NAV and MET can chose 1=safety or 2=urgency whilst RCCs can also chose 3=Distress (note you can also type safety, urgency or distress)
"serviceCode": "31",	This is the C2 service, only authorized service codes can be used for each account i.e., a NAVAREA cannot send a "44- SAR Coordination to a circular area" unless authorized. The Code must be 2 digits.
"address": "01",	This is C3 code, the alphanumeric entry must Align with the type of Service Code i.e. for service code 31 you would enter the NAV or METAREA as a one or two digit area, for example METAREA II could be entered as "02" or "2" If you send a C code 12 to a rectangular area, you would input the coordinates as per the C code table and SafetyNET Manual i.e. D1D2N(S)D3D4D5E(W)D6D7D8D9 D10
"repetitionCode": "01",	This is C4 code "repetition" the repetition codes can be found in the IMO EGC SafetyNET Manual and should be entered as a two-digit number i.e., "01" to transmit once immediately

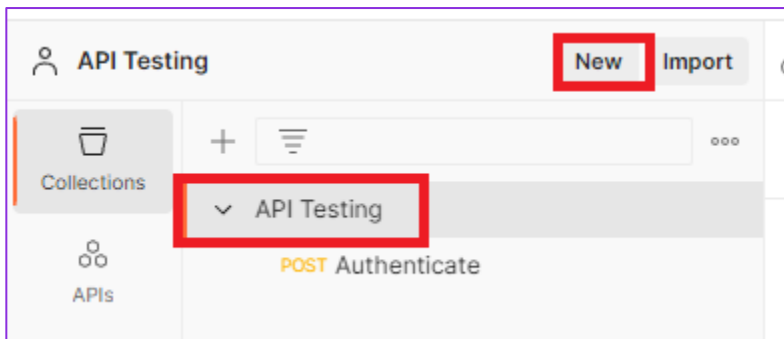
"startDate": "",	The start date is only used if you are scheduling the broadcast for the future, if so the format of the startDate is: 2023-05-11T15:30:00Z
"endDate": "",	The end date is only used if using a repetition code that requires an end date, the end date format is: 2023-05-11T15:30:00Z
"payload": "Test case M13"	The payload is the text to be broadcast, this must be in A15 format. To include a carriage return within Postman, use the \n i.e., "Test for JD \n this is the second line"

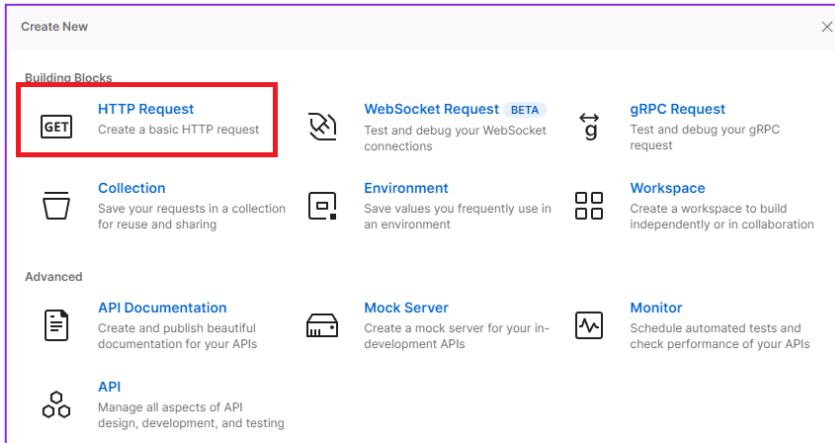
7.2 Entering your syntax into POSTMAN:

Below is an example of an Urgency broadcast (C code priority 2), METAREA broadcast (C code 31), to METAREA 05, with repetition code 01 (send immediately once) and the text to be broadcast is "Test case M13"

```
{  
  "msiType": "inmc-nav",  
  "areaType": "NAVMET",  
  "priority": "2",  
  "serviceCode": "31",  
  "address": "05",  
  "repetitionCode": "01",  
  "startDate": "",  
  "endDate": "",  
  "payload": "Test case M13"  
}
```

To store this syntax that you may want to use in the future, remember these can be amended at any time including the priority, area, repetition, and text, you need to select your 'API Testing' and then click on 'New'

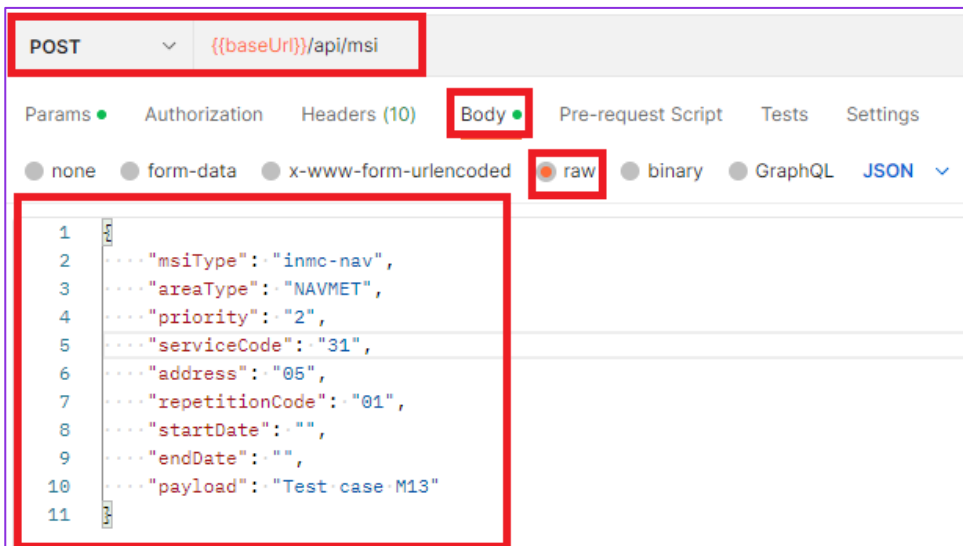




From the pop-up screen, you should select the HTTP Request option.

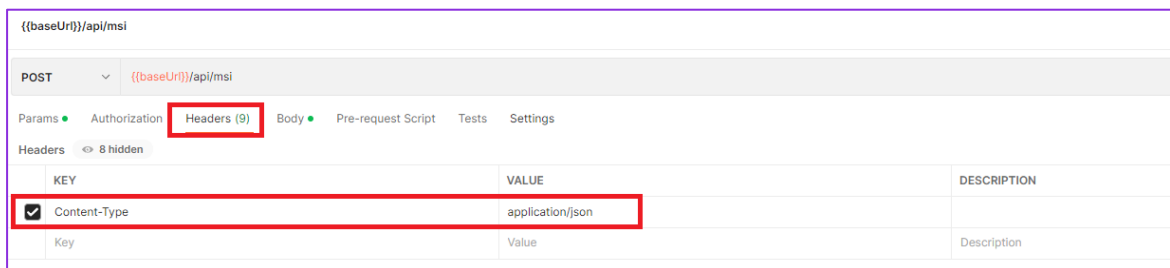
This will then display the area where you create your syntax.

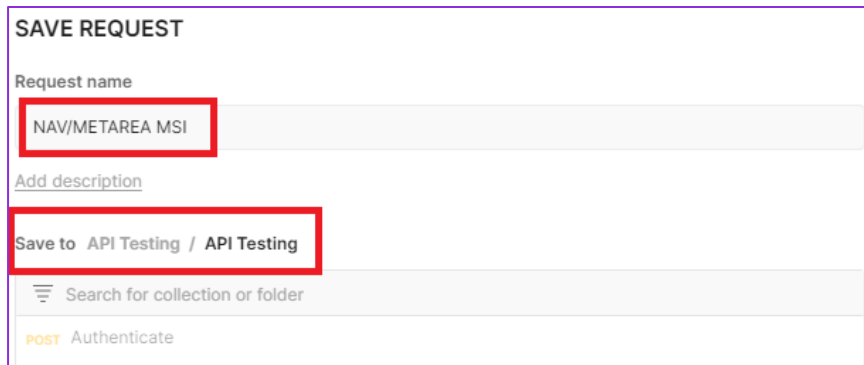
Start by changing the settings to a 'POST' then in the box next to it start to type `{{baseUrl}}`, as with earlier, select the green **E** symbol to link this to the URL you entered for the 'Inmarsat Test Environment', followed by typing `/api/msi`



Now select 'body' and 'raw', in the box below, type (or copy and paste) the syntax you require. Note that because this repetition is intended to go immediately, we would not need a start date or end date, these can be completely removed or left blank.

Now select 'Headers' and from the drop-down when you start to type, select 'Content-Type' for the 'KEY' and 'application/json' for the 'VALUE'. Then Click on 'Save'





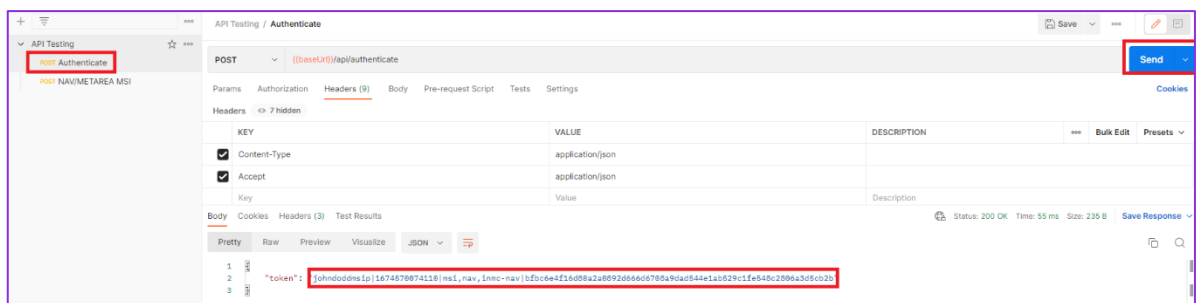
Rename to something rememberable such as NAV/METAREA MSI, make sure you select the 'API Testing' area to save in.

8. HOW TO SEND AN MSI THROUGH API.

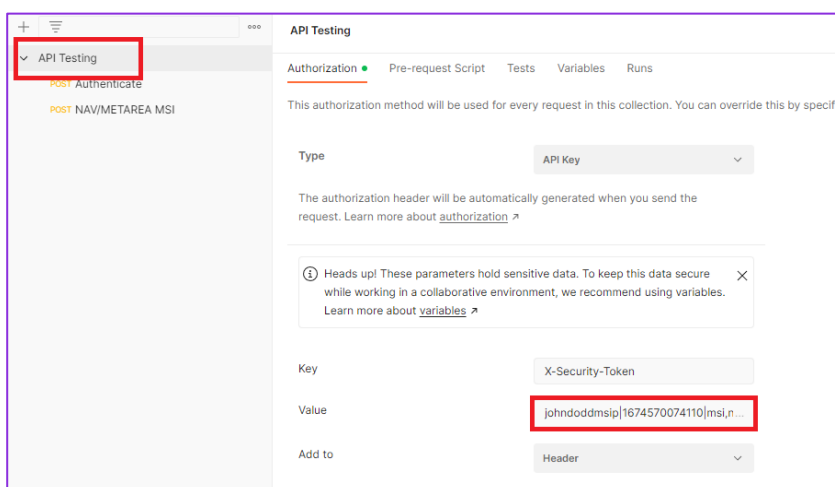
Now you have two syntax created and saved within your test environment, the below will demonstrate how to authenticate and broadcast your MSI.

Authenticate:

Click on your 'Authenticate' syntax and click 'Send'



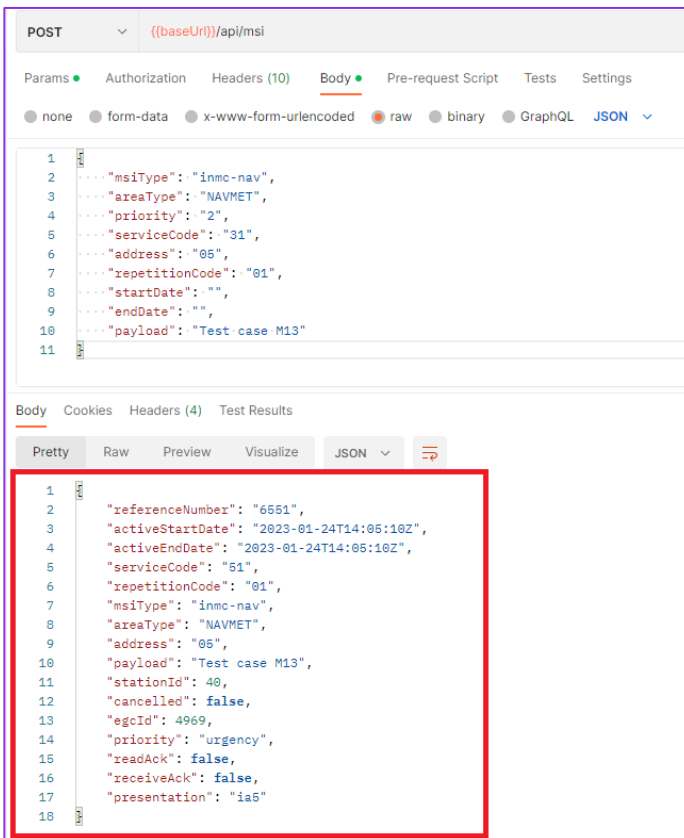
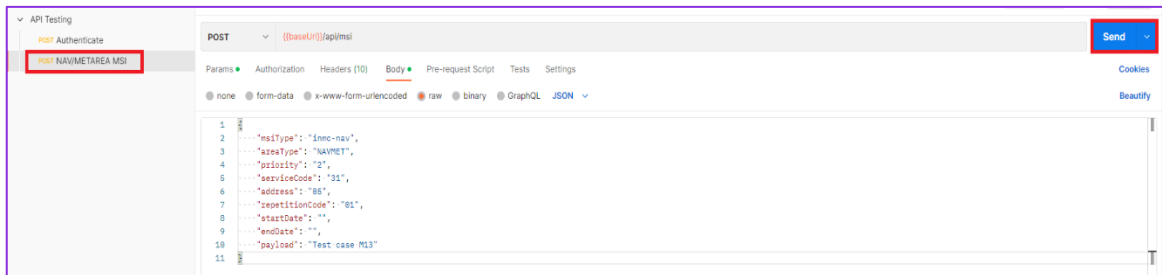
Now copy the Token (without the "") and past it into the 'Value' box in the 'API Testing' screen.



Now click Save. You have now logged into the SafetyNET II system through the API.

Send your MSI:

To send the MSI you have created via a syntax, click on the syntax name, check and amend the information in the 'body' section, as required, then click 'Send'



After you click 'Send' you will receive a confirmation on the lower screen showing the broadcast information and reference number. The reference numbers can be used to recall this message information through the API or cancel messages with ongoing repetitions. The reference number can also be used to view the message in the web interface.

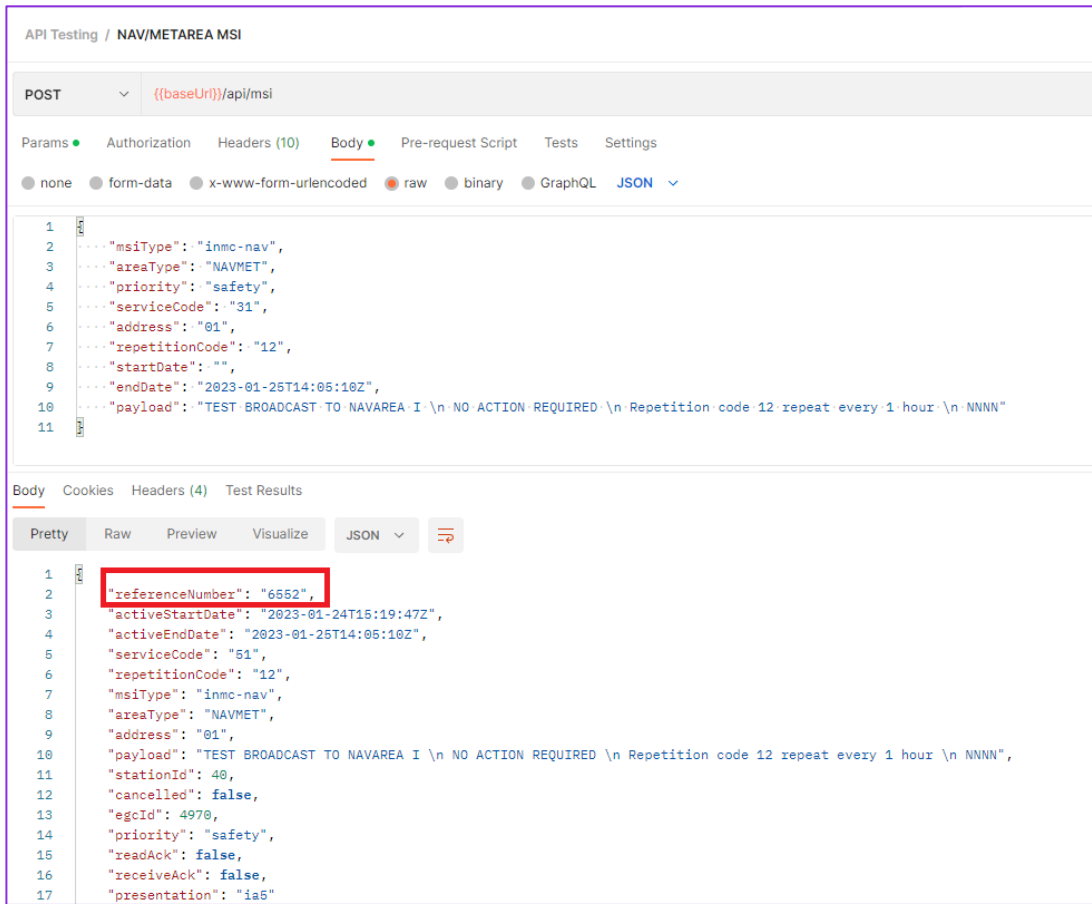
You will notice the Service Code in the confirmation will be different, this is because a translation table is employed to enable broadcast over multiple systems including Fleet Safety service codes which are returned.

9. VIEW BROADCAST

By amending the previous syntax, we have created the below. This message is now safety priority, sending to NAVAREA I, repetition code is 12, this means it will broadcast a repetition every hour, for this type of message you can leave the start date and time empty if you want the message to go immediately, or set a start date/time for the future, however, you are required to enter an end date/time. You can cancel this message before the end date/time if required.

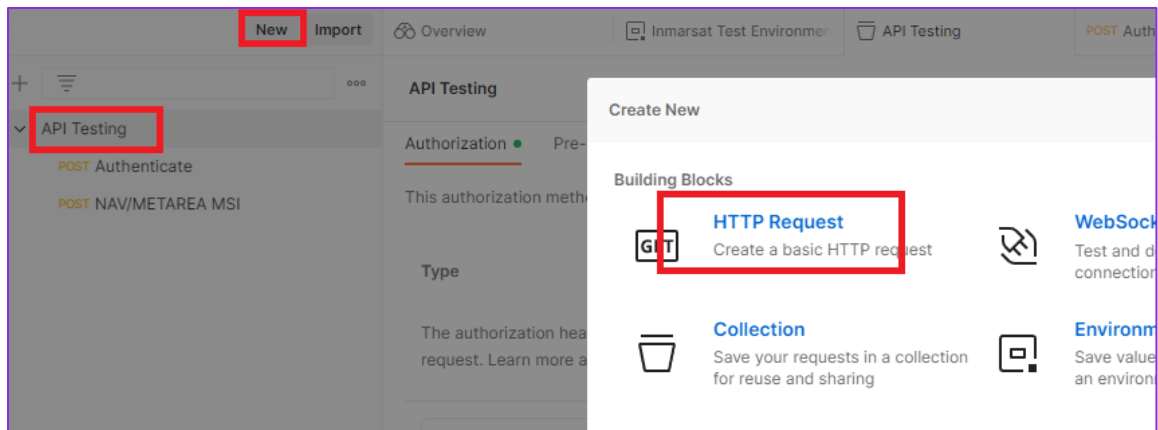
```
{
  "msiType": "inmc-nav",
  "areaType": "NAVMET",
  "priority": "safety",
  "serviceCode": "31",
  "address": "01",
  "repetitionCode": "12",
  "startDate": "",
  "endDate": "2023-01-25T14:05:10Z",
```

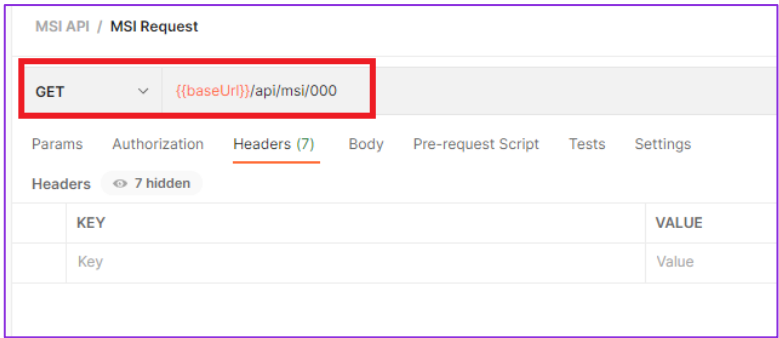
```
"payload": "TEST BROADCAST TO NAVAREA I \n NO ACTION REQUIRED \n Repetition c  
ode 12 repeat every 1 hour \n NNNN"  
}
```



We can see the message was successfully broadcast at 16:19Z on 24th Jan 2023 and the repetition will stop at 14:06Z on 25th Jan 2023. The message has reference number 6552

You can use the message reference number to view broadcasts that have been sent through your login account that are, active, finished, scheduled, or cancelled. To do this you need to create a new syntax, as before, select 'new' and chose the 'HTTP Request'



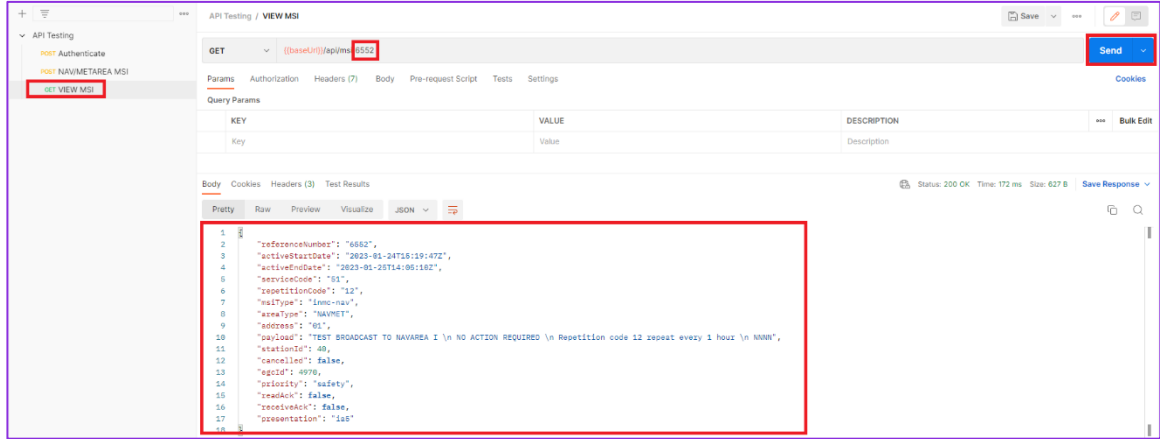


Now use the 'GET' command followed by `{{baseUri}}/api/msi/0000`

Save this to your 'API Testing' space and name it 'View MSI'

To use this function, you can (after authenticating if required) simply click on 'View MSI' then after `{{baseUri}}/api/msi/` replace the four 0's with your MSI reference number, in this instance we used the 6552 reference number, then click on 'Send'.

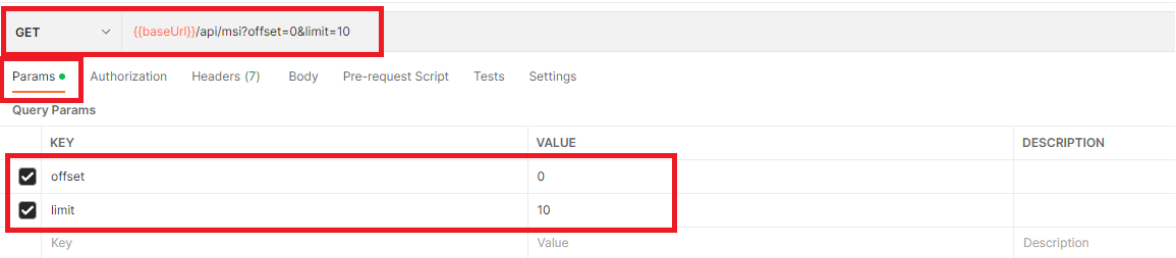
The API will return your MSI details back in the lower half the screen.



10. USING MSI PARAMETERS FOR LIST ALL MSI

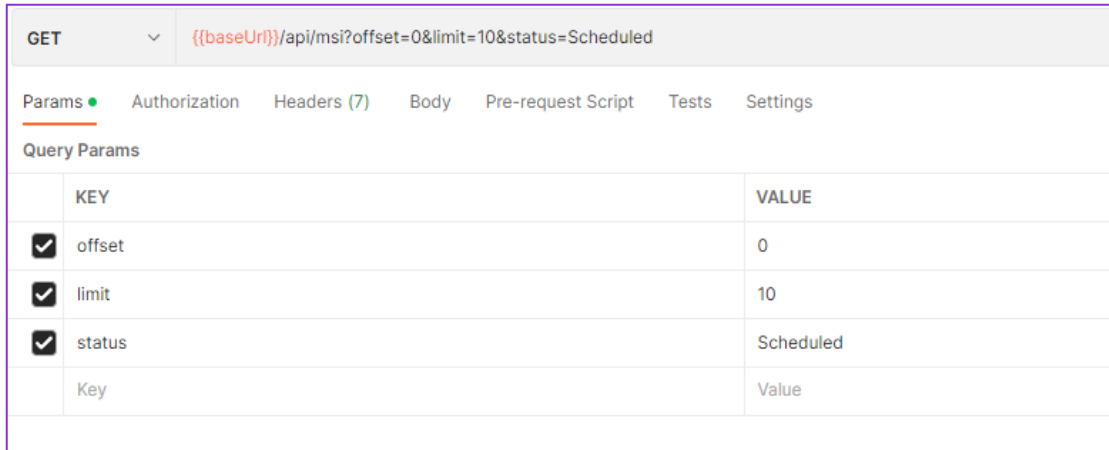
Create a new syntax as above. Use 'GET' and `{{baseUri}}/api/msi` but do not put anything more in this box. Now chose the 'Params' tab. In the 'KEY' make two new entries by typing 'offset' and 'limit' now in the corresponding 'VALUE' type '0' and '10'.

Save this syntax and name as 'List all MSI'. Once saved, select and click 'Send' this will return the last 10 MSIs sent from your account in the past 30 days. You can change the 'limit' value to show more or less MSI as you require.



11. USING MSI PARAMETERS FOR LIST SCHEDULED MSI

This is the same process as section 10, however you can include a status parameter and set the 'VALUE' to 'Scheduled', this will only return your scheduled messages.

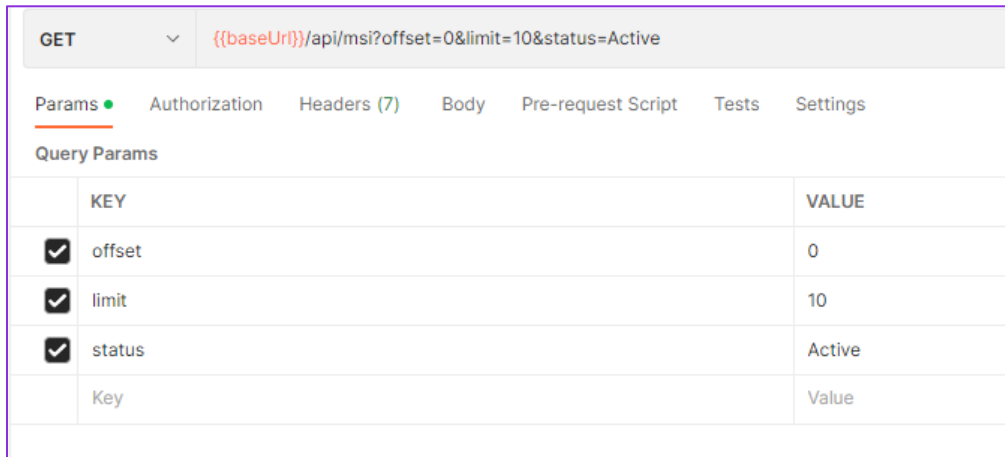


The screenshot shows a REST client interface with a GET request to `{{baseUrl}}/api/msi?offset=0&limit=10&status=Scheduled`. The 'Params' tab is selected, showing a table of query parameters:

	KEY	VALUE
<input checked="" type="checkbox"/>	offset	0
<input checked="" type="checkbox"/>	limit	10
<input checked="" type="checkbox"/>	status	Scheduled
	Key	Value

12. USING MSI PARAMETERS TO LIST BY ACTIVE MSI

This is the same process as section 10, however you can include a status parameter and set the 'VALUE' to 'Active', this will only return your active messages.

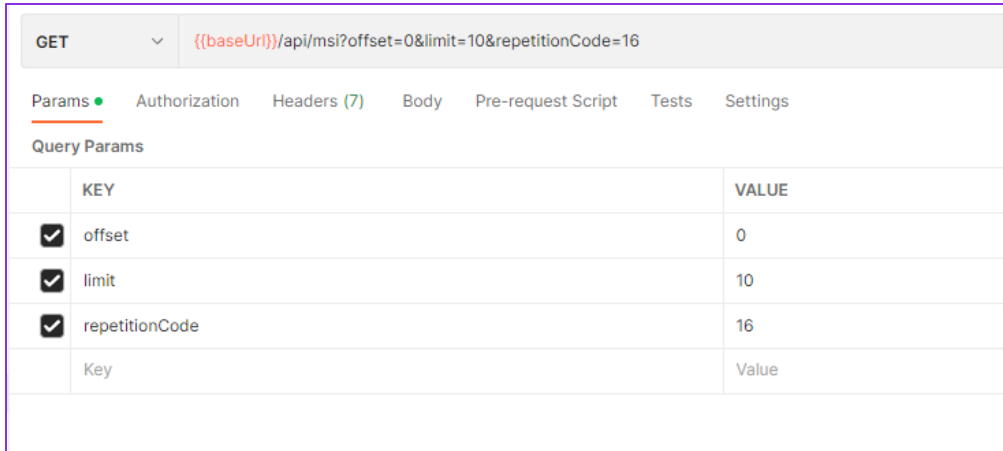


The screenshot shows a REST client interface with a GET request to `{{baseUrl}}/api/msi?offset=0&limit=10&status=Active`. The 'Params' tab is selected, showing a table of query parameters:

	KEY	VALUE
<input checked="" type="checkbox"/>	offset	0
<input checked="" type="checkbox"/>	limit	10
<input checked="" type="checkbox"/>	status	Active
	Key	Value

13. USING MSI PARAMETERS TO LIST BY REPETITION CODE MSI

This is the same process as section 10; however you can include a 'repetitionCode' parameter. Set the 'KEY' to 'RepetitionCode', and the 'VALUE' to the repetition code you want to search by.



KEY	VALUE
<input checked="" type="checkbox"/> offset	0
<input checked="" type="checkbox"/> limit	10
<input checked="" type="checkbox"/> repetitionCode	16
Key	Value

This type of parameter search can be run for any of the fields returned through the API such as Priority or Cancelled status.

14. CANCELLING A MSI THROUGH THE API

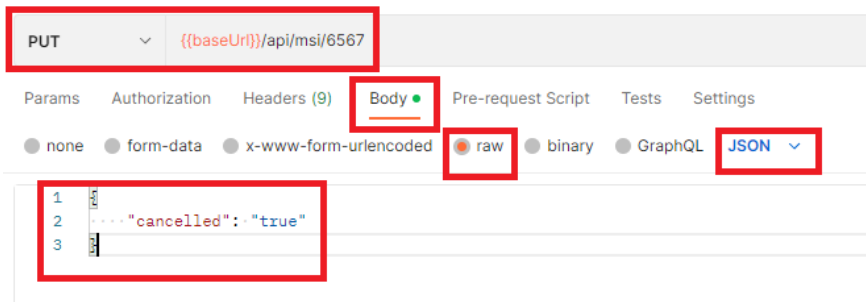
You can cancel any of your broadcasts that are scheduled or still running on repetition. To do this, create a new syntax but this time use the 'PUT' command followed by {{baseUrl}}/api/msi/0000

Select 'Body' and 'raw' and add the new syntax:

```
{  
  "cancelled": "true"  
}
```

Ensure the last option is set to JSON

Save this syntax and assign an appropriate name.



To run this command, select the newly saved syntax, replace the 0000 with the message reference number you wish to cancel, and click 'Send'. This will now return confirmation that the MSI status 'cancelled' as 'true'.

15. SAR DISTRESS ALERT RELAY EXAMPLE

The API can be used for any EGC style broadcasts, including those for SAR. The process for creating a SAR broadcast is the same as creating an MSI for NAV or MET, with minor changes in the syntax. SAR would not use "msiType" as 'inmc-nav' instead 'inmc-sar' is used. SAR can use additional priority (Distress) and C-Codes 14-Distress Alert Relay, 34-SAR Co-ordination to a Rectangular Area and 44-SAR Co-ordination to a Circular Area.

Create your syntax the same as section 7.2 and use the 'inmc-sar' as the 'msiType' and include the priority to urgency or distress. Chose the type of service code to be used and input the corresponding 'address' type.

We can also include 'readAck' and 'receiveAck' with the value as 1. This allows for the system to receive information on vessels who received and read the SAR broadcast.

The below is a SAR Distress Relay, to an area 53N003W and a 200nm radius. The repetition code is 70 = Three transmissions at 12-hour intervals. As we have not included a start date/time, the message will be broadcast immediately and stop after the third transmission.

```
{
  "msiType": "inmc-sar",
  "areaType": "CIRCULAR",
  "serviceCode": 14,
  "priority": "distress",
  "repetitionCode": "70",
  "address": "53N003W200",
  "readAck": 1,
  "receiveAck": 1,
  "payload": "THIS IS A TEST BROADCAST NUMBER NUMBER 1 \n NO ACTIN IS REQUIRED
\n NNNN "
}
```


Below you can see the message was broadcast and received with reference number 6560.

The screenshot displays an API testing interface for a POST request to the endpoint `{{baseUrl}}/api/msi`. The request body is shown in raw format as a JSON object with the following fields:

```
1 {
2   "msiType": "inmc-sar",
3   "areaType": "CIRCULAR",
4   "serviceCode": 14,
5   "priority": "distress",
6   "repetitionCode": "70",
7   "address": "53N003W200",
8   "readAck": 1,
9   "receiveAck": 1,
10  "payload": "THIS IS A TEST BROADCAST NUMBER NUMBER 1 \n NO ACTIN IS REQUIRED \n NNNN "
```

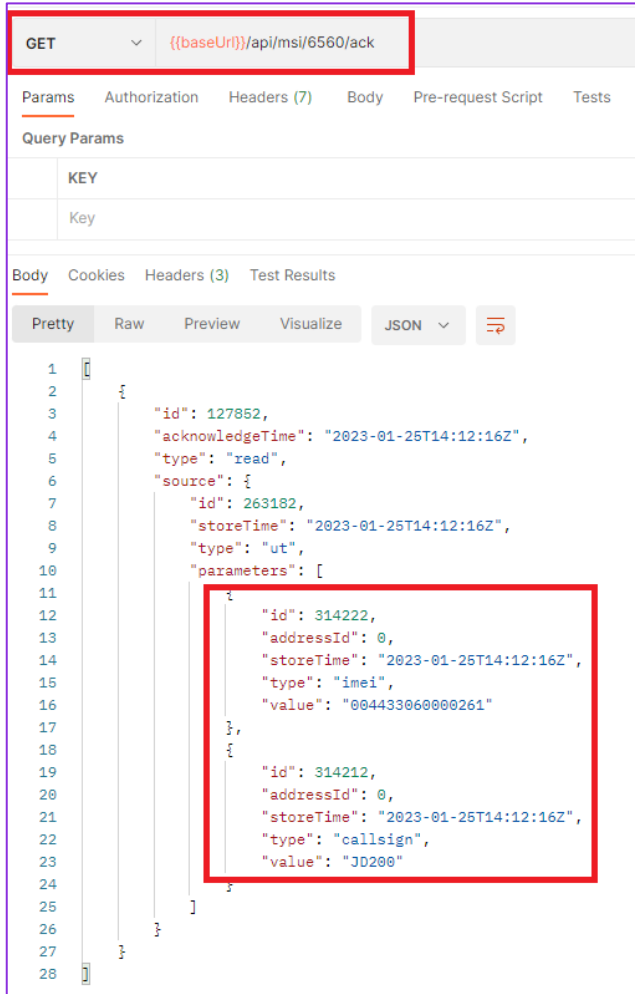
The response body is shown in JSON format with the following fields:

```
1 {
2   "referenceNumber": "6560",
3   "activeStartDate": "2023-01-25T14:11:53Z",
4   "activeEndDate": "2023-01-27T02:11:53Z",
5   "serviceCode": "14",
6   "repetitionCode": "70",
7   "msiType": "inmc-sar",
8   "areaType": "CIRCULAR",
9   "address": "53N003W200",
10  "payload": "THIS IS A TEST BROADCAST NUMBER NUMBER 1 \n NO ACTIN IS REQUIRED \n NNNN ",
11  "stationId": 0,
12  "cancelled": false,
13  "egcId": 4978,
14  "priority": "distress",
15  "readAck": true,
16  "receiveAck": true,
17  "presentation": "ia5"
18 }
```

NOTE: You must be logged in with an account that enables you to broadcast SAR EGC messages.

16. VIEW ACKNOWLEDGEMENT

To view SAR broadcasts acknowledgements from vessels, you first need to setup a syntax as you did in section 10 View broadcast. Now insert `/ack` after the trailing `'0000'`. To use this function, replace the `'0000'` with the message reference number you would like to recall the acknowledgement for. The example below uses the SAR broadcast in section 15.



You can see the 'ack' command for this message has returned that a vessel with IMEI number 004433060000261 and call sign JD200 acknowledged the message.

17. WEB INTERFACE

Users of the API also have access to the SafetyNET II web interface used by NAV/METAREA co-ordinators or RescueNET for SAR coordinators. More detailed information on SafetyNET II and RescueNET web interfaces can be found at <https://safetytraininghub.inmarsat.com/>

By logging into SafetyNET II or RescueNET at <https://msdscluster.eixodigital.com/msds/> (or <https://msds.inmarsat.com/msds/> for the live environment) using the same username and password as you do with your API, you can make use of additional functions such as exporting your MSI list to excel, running reports and exporting individual message information.

This view also allows you to view all your messages in one place, their status, the text and a more detailed view of which satellites and SpotID's used for each broadcast and their individual status.

Reference Number	Type	Service Code	Area Type	Address	Priority	Repetition Code	Size	Start Date	End Date	Status	EGC Id	Transmission Status
6560	Search and ...	14	CIRCULAR	S3N003...	distress	70	71	25/01/2023 14:11:...	27/01/2023 02:11:...	Active	4978	ok
6559	Search and ...	14	CIRCULAR	S3N003W...	distress	70	5	25/01/2023 14:09:00.1...	27/01/2023 02:09:00.1...	Active	4977	ok
6462	Search and ...	34	RECTANG...	20N010W...	distress	01	4	09/01/2023 14:30:12.6...	09/01/2023 14:30:12.6...	Finished	4890	ok
6461	Search and ...	34	RECTANG...	20N010E...	safety	01	9	09/01/2023 14:01:32.3...	09/01/2023 14:01:32.3...	Finished	4889	ok
6460	Search and ...	34	RECTANG...	30N015W...	distress	01	16	09/01/2023 13:51:14.1...	09/01/2023 13:51:14.1...	Finished	4888	ok
6136	Search and ...	44	CIRCULAR	S1N001W...	urgency	70	13	15/11/2022 12:54:22.4...	17/11/2022 00:54:22.4...	Finished	4618	ok
6123	Search and ...	14	CIRCULAR	S1N001W...	distress	11	29	15/11/2022 12:06:23.8...	15/11/2022 12:06:23.8...	Finished	4605	ok
6099	Search and ...	44	CIRCULAR	S1N001W...	urgency	01	34	14/11/2022 16:09:37.6...	14/11/2022 16:09:37.6...	Finished	4581	ok
6098	Search and ...	44	CIRCULAR	S1N001W...	safety	01	34	14/11/2022 16:08:37.1...	14/11/2022 16:08:37.1...	Finished	4580	ok

THIS IS A TEST BROADCAST NUMBER NUMBER 1
NO ACTION IS REQUIRED
NNNN

Reference Number	Type	Service Code	Area Type	Address	Priority	Repetition Code	Size	Start Date	End Date	Status	EGC Id	Transmission Status
6560	Search and ...	14	CIRCULAR	53N003...	distress	70	71	25/01/2023 14:11:...	27/01/2023 02:11:...	Active	4978	ok
6559	Search and ...	14	CIRCULAR	53N003W...	distress	70	5	25/01/2023 14:09:00.1...	27/01/2023 02:09:00.1...	Active	4977	ok
6462	Search and ...	34	RECTANG...	20N010W...	distress	01	4	09/01/2023 14:30:12.6...	09/01/2023 14:30:12.6...	Finished	4890	ok
6461	Search and ...	34	RECTANG...	20N010E...	safety	01	9	09/01/2023 14:01:32.3...	09/01/2023 14:01:32.3...	Finished	4889	ok
6460	Search and ...	34	RECTANG...	30N015W...	distress	01	16	09/01/2023 13:51:14.1...	09/01/2023 13:51:14.1...	Finished	4888	ok
6136	Search and ...	44	CIRCULAR	51N001W...	urgency	70	13	15/11/2022 12:54:22.4...	17/11/2022 00:54:22.4...	Finished	4618	ok
6123	Search and ...	14	CIRCULAR	51N001W...	distress	11	29	15/11/2022 12:06:23.8...	15/11/2022 12:06:23.8...	Finished	4605	ok
6099	Search and ...	44	CIRCULAR	51N001W...	urgency	01	34	14/11/2022 16:09:37.6...	14/11/2022 16:09:37.6...	Finished	4581	ok
6098	Search and ...	44	CIRCULAR	51N001W...	safety	01	34	14/11/2022 16:08:37.1...	14/11/2022 16:08:37.1...	Finished	4580	ok

Destination	Status	Transmission Time
AORE NCS Fucino: imcocean => oceanid=1, ncsid=2	ok	25/01/2023 14:12:03.480
IOR NCS Burum: imcocean => oceanid=3, ncsid=5	ok	25/01/2023 14:12:07.046
RNS10 MEAS: ranspot => sasih=0, satid=3, spotid=243, rnsid=1, ueCount=0	ok	25/01/2023 14:12:06.937
RNS10 MEAS: ranspot => sasih=0, satid=3, spotid=40, rnsid=1, ueCount=0	ok	25/01/2023 14:12:03.645
RNS2 EMEA: ranspot => sasih=0, satid=6, spotid=243, rnsid=14, ueCount=0	ok	25/01/2023 14:12:03.617
RNS2 EMEA: ranspot => sasih=0, satid=6, spotid=248, rnsid=14, ueCount=0	ok	25/01/2023 14:12:03.525
RNS2 EMEA: ranspot => sasih=0, satid=6, spotid=72, rnsid=14, ueCount=0	ok	25/01/2023 14:12:03.503
RNS2 EMEA: ranspot => sasih=0, satid=6, spotid=88, rnsid=14, ueCount=0	ok	25/01/2023 14:12:07.047
ut => callsign=JD200, imei=004433060000261	ok	25/01/2023 14:12:07.085
ut => callsign=MQTT01, imei=9999999900002003	ok	25/01/2023 14:12:07.075

18. THE USERNAME AND PASSWORD POLICY SETS THE FOLLOWING RULES:

- Inmarsat will allocate a username when creating your account.
- Rules for password creation:
 - Minimum password length should be at least eight characters.
 - Passwords should contain at least one lowercase alphabetical character, one uppercase character and one number.
 - Passwords shall not be the same as the Identifier (i.e., username or logon name).
 - Systems should permit password length of up to sixty-four characters.
 - All printing ASCII [RFC 20] characters should be acceptable in passwords.
 - Unicode [ISO/ISC 10646] characters should be accepted as well.
- No password expiry period set.
- The API password is the same as the Web interface API password and can be updated via the web interface.

19. API ERROR RESPONSE

Incorrect authorisation, request, approval, or format will return an error message along with an error code. These error messages are revised and updated regularly. Some examples include:

- Incorrect username or password when trying to authenticate:


```
"errorMessage": "java.lang.Exception: Invalid user/password",
"errorCode": 401
```
- Broadcast request to area outside of user's authorisation or priority outside of authorisation i.e., Distress


```
"errorMessage": "Unauthorized",
"errorCode": 401
```
- Syntax data inputted is incorrect and outside of parameters i.e., incorrect entry such as service code out of range


```
"errorMessage": "java.lang.Exception: MSI Meta not defined",
"errorCode": 400
```

20. SAFETY TRAINING HUB

Inmarsat has created a new Maritime Safety Training Hub with additional documents and training videos / tutorials. The Training Hub can be accessed by anyone with no need to register and provides extensive training on MSI API and SAR API testing and implementation. This can be accessed via:

<https://safetytraininghub.inmarsat.com/>

ANNEX A REPETITION CODES

The C4 repetition codes are divided into two categories:

- Category A. for messages that are required to be repeated a finite number of times
- Category B. for messages that are required to be repeated at specified intervals until cancelled by the information provider

Category A

Code	Instruction
01	transmit once on receipt
11	transmit on receipt followed by repeat 6 min later
61	transmit on receipt and 1 hour after initial broadcast (twice)
62	transmit on receipt and 2 hours after initial broadcast (twice)
63	transmit on receipt and 3 hours after initial broadcast (twice)
64	transmit on receipt and 4 hours after initial broadcast (twice)
66	transmit on receipt and 12 hours after initial broadcast (twice)
67	transmit on receipt and 24 hours after initial broadcast (twice)
70	transmit on receipt, 12 hours after initial broadcast and then 12 hours after the second broadcast (three times)
71	transmit on receipt, 24 hours after initial broadcast and then 24 hours after the second broadcast (three times)

Category B

Code	Instruction
12	repeat broadcast every 1 hour with no echo
13	repeat broadcast every 1 hour with an echo 6 minutes after each broadcast
22	repeat broadcast every 2 hours with no echo
23	repeat broadcast every 2 hours with an echo 6 minutes after each broadcast
32	repeat broadcast every 3 hours with no echo
33	repeat broadcast every 3 hours with an echo 6 minutes after each broadcast
42	repeat broadcast every 4 hours with no echo
43	repeat broadcast every 4 hours with an echo 6 minutes after each broadcast
52	repeat broadcast every 5 hours with no echo
53	repeat broadcast every 5 hours with an echo 6 minutes after each broadcast
14	repeat broadcast every 6 hours with no echo
15	repeat broadcast every 6 hours with an echo 6 minutes after each broadcast
16 (or 24)	repeat broadcast every 12 hours with no echo
17 (or 25)	repeat broadcast every 12 hours with an echo 6 minutes after each broadcast
34	repeat broadcast every 18 hours with no echo
35	repeat broadcast every 18 hours with an echo 6 minutes after each broadcast
18 (or 26; or 44)	repeat broadcast every 24 hours with no echo
19 (or 27; or 45)	repeat broadcast every 24 hours with an echo 6 minutes after each broadcast
54	repeat broadcast every 30 hours with no echo
55	repeat broadcast every 30 hours with an echo 6 minutes after each broadcast
36	repeat broadcast every 36 hours with no echo
37	repeat broadcast every 36 hours with an echo 6 minutes after each broadcast
28 (or 46)	repeat broadcast every 48 hours with no echo
29 (or 47)	repeat broadcast every 48 hours with an echo 6 minutes after each broadcast
56	repeat broadcast every 60 hours with no echo
57	repeat broadcast every 60 hours with an echo 6 minutes after each broadcast
38	repeat broadcast every 72 hours with no echo
39	repeat broadcast every 72 hours with an echo 6 minutes after each broadcast
48	repeat broadcast every 96 hours with no echo
49	repeat broadcast every 96 hours with an echo 6 minutes after each broadcast
58	repeat broadcast every 120 hours with no echo
59	repeat broadcast every 120 hours with an echo 6 minutes after each broadcast

ANNEX B NAV/MET SYNTAX

Below is a list of some syntax used by NAVAREA and METAREA co-ordinators. The date/time, area, priority and repetition should be amended to your situation.

- Broadcast to a NAVAREA or METAREA (*safety priority / area II / send once immediately*)

```
{  
  "msiType": "inmc-nav",  
  "areaType": "NAVMET",  
  "priority": "safety",  
  "serviceCode": "31",  
  "address": "02",  
  "repetitionCode": "01",  
  "startDate": "",  
  "endDate": "",  
  "payload": "test\n NNNN"  
}
```

- Broadcast to a NAVAREA or METAREA (*safety / area X / repetition 16 includes start and end dates*)

```
{  
  "msiType": "inmc-nav",  
  "areaType": "NAVMET",  
  "priority": "1",  
  "serviceCode": "31",  
  "address": "10",  
  "repetitionCode": "16",  
  "startDate": "2023-02-16T11:30:00Z",  
  "endDate": "2023-03-18T11:30:00Z",  
  "payload": "test"  
}
```

- Broadcast MSI to a Rectangular area (*urgency / rectangular co-ordinates 30N015W15002 / repetition 25 with start and end dates*)

```
{  
  "msiType": "inmc-nav",  
  "areaType": "RECTANGULAR",  
  "priority": "2",  
  "serviceCode": "04",  
  "address": "30N015W15020",  
  "repetitionCode": "25",  
  "startDate": "2023-02-19T17:06:00Z",  
  "endDate": "2023-02-21T17:06:00Z",  
  "payload": "M5 test "  
}
```

- Broadcast MSI to a Coastal area (*safety / coastal area 10AA / send immediately*)

```
{  
  "msiType": "inmc-nav",  
  "areaType": "COASTAL",  
  "priority": "1",  
  "serviceCode": 13,  
  "address": "10AA",  
  "repetitionCode": "01",  
  "startDate": "",  
  "endDate": "",  
  "payload": "M12 test broadcast"  
}
```

- Broadcast MSI to circular area (*urgency / coordinates 51N004W 500nm radius / send immediately / date and times removed as not needed*)

```
{  
  "msiType": "inmc-nav",  
  "areaType": "CIRCULAR",  
  "priority": "urgency",  
  "serviceCode": 24,  
  "address": "51n004w500",  
  "repetitionCode": "01",  
  "payload": "TESTs"  
}
```


ANNEX C SEARCH AND RESCUE SYNTAX

Below is a list of some syntax used by Search and Rescue. The date/time, area, priority and repetition should be amended to your situation.

- Distress Alert Relay Broadcast (*distress / circular area 53N 003W 600nm radius / 3 x broadcast at 12-hour intervals / no date and time required / read and received acknowledgement required*)

```
{  
  "msiType": "inmc-sar",  
  "areaType": "CIRCULAR",  
  "serviceCode": 14,  
  "priority": "distress",  
  "repetitionCode": "70",  
  "address": "53N003W600",  
  "startDate": "",  
  "endDate": "",  
  "readAck": 1,  
  "receiveAck": 1,  
  "payload": "TEST "  
}
```

- Urgency Rectangular SAR co-ordination broadcast (*urgency / rectangular area 30N 015W 15020 / send immediately / read and read acknowledgement required*)

```
{  
  "msiType": "inmc-sar",  
  "areaType": "RECTANGULAR",  
  "serviceCode": 34,  
  "priority": "urgency",  
  "repetitionCode": "01",  
  "address": "30N015W15020",  
  "startDate": "",  
  "endDate": "",  
  "readAck": 1,  
  "receiveAck": 1,  
  "payload": "TEST"  
}
```

- Urgency Circular SAR co-ordination broadcast (*urgency / circular area 38N 009W 50nm radius / send immediately / date and time fields removed as not needed / read and read acknowledgement not needed*)

```
{  
  "msiType": "inmc-sar",  
  "areaType": "CIRCULAR",  
  "serviceCode": 44,  
  "priority": "2",  
  "repetitionCode": "01",  
  "address": "38N009W050",  
  "readAck": 0,  
  "receiveAck": 0,  
  "payload": "TEST"  
}
```