

Product:

PSMA | CLOUD

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PSMA Cloud

Product Description



Revision History

Date	Version	Change	Coordinator
March 2013	1.0	Initial Version	Darryl Gibson
May 2014	2.0	System rename to "PSMA Cloud" and update.	Lan Nguyen
February 2015	2.1	Minor updates	Darryl Gibson
September 2016	2.2	Updates	Darryl Gibson
May 2017	2.3	Minor updates	Darryl Gibson

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Introduction

Document Purpose

This document provides a detailed description of the services provided by PSMA Cloud.

Audience

This document is intended to be used by managers, analysts and decision makers as a guide and reference to the functionality and services provided by PSMA Cloud.

References

- NAMF Interface Standard 1.0
- OpenGIS Web Feature Service 1.0 Interface Standard (<http://www.opengeospatial.org/standards/wfs>)
- OpenGIS Web Map Service (WMS)1.1.1 (<http://www.opengeospatial.org/standards/wms>)
- AS/NZS 4590 – Interchange of Client Information
- PSMA Cloud Developers Manual

Copyright PSMA Cloud datasets

Please see www.psm.com.au/psma-data-copyright-and-disclaimer for the Copyright and Disclaimer Notice for the PSMA datasets used in PSMA Cloud.

Support

PSMA Australia Support

PSMA Australia Limited

Email: support@psma.com.au

Web: www.psm.com.au

Definitions, Acronyms and Abbreviations

AV	Address Verification
Batch	The process of undertaking bulk address verifications initiated through a single transaction.
CSV	Comma Separated Value. A file format used to store tabular data.
endpoint	The URL location for accessing a web service using a specific protocol and data format.
function	A web service that can be invoked with capabilities for searching and verifying addresses and providing other geospatial information.
G-NAF	The Geocoded National Address File is an index of physical Australian addresses, each with a geographic coordinate.
IAM	Integrated Identity and Access Management.
jurisdiction	A state/territory regional authority responsible for the provision of geospatial data.
mesh block	Mesh Blocks are areas defined by the Australian Bureau of Statistics (ABS). PSMA source mesh block data from the ABS and are the smallest geographical unit within the Australian Statistical Geography Standard (ASGS), their boundaries are contiguous and cover the whole of Australia without gaps or overlaps. There are approximately 347,600 Mesh Blocks. They were developed to fulfil the need for more accurate small area statistics and will improve the relationship between small area geography and the social, physical and economic realities of the landscape.
NAMF	National Address Management Framework. A Web Service that supports the use of address information.
NCS	NAMF Notification and Compliance Service
NWS	NAMF Web Service. A Web Service that supports the use of address information within the National Address Management Framework.
OGC	The Open Geospatial Consortium is a non-profit, international, voluntary consensus standards organisation that is leading the development of standards for geospatial and location based services.
PAF	The Australia Post Postal Address File (PAF) is a list of Australian addresses used for postal purposes. The PAF is only available through the AMAS (Address Matching Approval System) program and is used to support the efficient processing of mail through Australia Post's operational network.
parse/parsing	The process of separating individual components within a string of text into separate parts. For example, breaking up an address line into parts such as Number, Street Name, Street Type, Locality, State and Postcode amongst others.
parsed address	An address that is presented as a set of discreet fields in a NAMF compliant structure.

PSMA	PSMA Australia Limited, formerly known as Public Sector Mapping Agencies, is an unlisted public company wholly owned by the State, Territory and Australian Governments. It combines reliable spatial data from Australia's governments with leading-edge technology to create national spatial information datasets.
unparsed address	An address that is presented as a single text string.
WFS	Web Feature Service. An OGC defined interface for requesting geographical features across the web using platform independent calls.
WMS	Web Map Service. An OGC defined interface for requesting Map images across the web using platform independent calls.
workflow	Workflows encapsulate a set of functions, including parameter settings, so that they can be used (and re-used) in a simple manner in application programs.

Overview

PSMA Cloud is a web service to support address verification services and the delivery of associated geospatial data.

Web services is a technology for transmitting data over the Internet and allowing programmatic access to that data using standard internet protocols through a common XML interface. XML enables the structuring, description and interchange of data.

Users do not directly access PSMA Cloud, but rather, operate on remote devices using business applications which send formatted requests for information. PSMA Cloud contains functions and workflows which invoke services from the input request (processing, search, and data) to deliver a formatted response which is used by the application to display information to the user.

An administration interface to PSMA Cloud is provided to allow Service Providers and other appointed administrators to manage functions, workflows, client access and view usage reports.

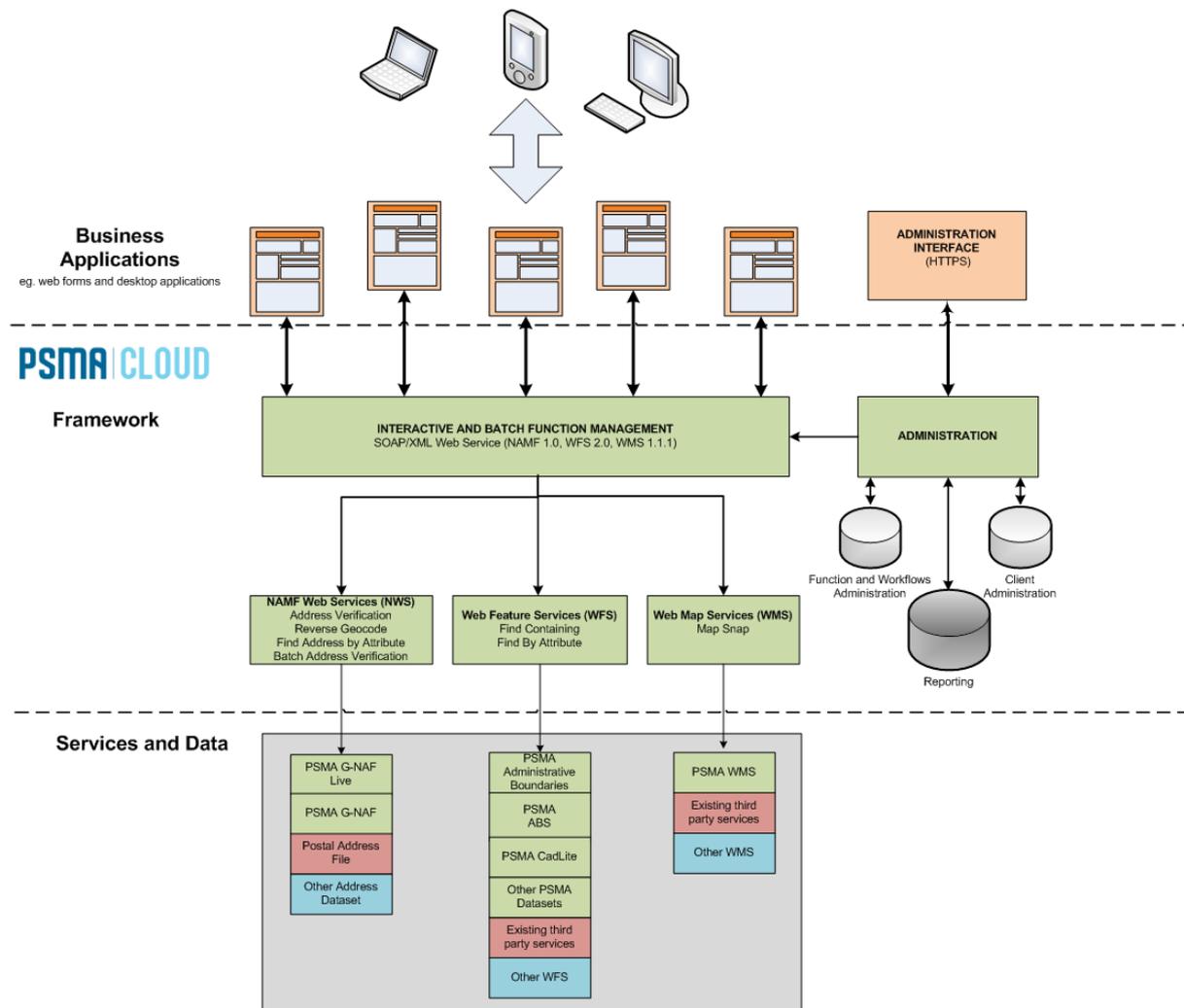


Figure 1 - PSMA Cloud Overview

Services

PSMA Cloud provides address verification and features information through the delivery of the following web services as functions:

- National Address Management Framework (NAMF) Web Services (NWS)
- Web Feature Services (WFS)
- Web Map Services (WMS)

PSMA Cloud allows for enlisted service providers to register NWS, WFS and WMS functions and publish them for use by other service providers, consumer organisations and users.

Workflows can also be created which encapsulate a set of functions, including parameter settings, so that they can be used (and re-used) in a simple manner in application programs.

National Address Management Framework (NAMF) Web Services (NWS)

The National Address Management Framework (NAMF) is a national, consistent, standards-based framework which guides the process for verifying addresses and provides a standard for exchange of address data. PSMA Cloud uses NAMF Interface standard version "1.0". As new versions of the NAMF Interface standard are developed, PSMA Cloud will maintain compatibility for legacy functions.

PSMA Cloud NWS services provide:

Address Verification

Address verification functions can confirm that an address is in an authoritative dataset. They may suggest alternative authoritative addresses if a full match cannot be found for a candidate address. Geocode details can be provided for confirmed addresses.

Find Address by Attribute

Addresses may be returned based on a query using a specific attribute (such as cadastral title information, eg. return the address associated with a Lot/Plan number). The query may combine both address and non-address attributes.

Batch Address Verification

Bulk address verification can be performed using a CSV file of addresses. This function runs Address Verification functions against all the listed addresses and returns the results in a CSV output file.

Web Feature Services (WFS)

PSMA Cloud provides functions that use Open Geospatial Consortium (OGC) WFS defined services to:

Find Containing

This function uses the WFS *getFeature* request to return geographical and administrative features for a given latitude/longitude location (geocode).

Find By Attribute

This function uses the WFS *getFeature* request with a defined area to return geographical and administrative features (eg. electorate name) that match provided search criteria.

Web Map Services (WMS)

PSMA Systems WMS functions provide:

Map Snapshot

Given a location and a width and height for the map, a Map Snapshot uses the WMS *getMap* request to return a map of the requested area.

Summary of Services

Service	Function Type	Input	Output
NWS	verifyUnparsedAddress	Unstructured Address	Structured Address(es) with Geocode
	verifyParsedAddress	Structured Address	Structured Address(es) with Geocode
	reverseGeocode	Geocode	Structured Address(es) with Geocode
	findAddressByAttribute	Attribute(s) criteria	Structured Address(es) with Geocode
	processBatch	CSV File	CSV File
WFS	findContaining	Geocode	WFS Features
	findByAttribute	WFS Features	WFS Features
WMS	mapSnap	Geocode	Map Image

Table 1 - Summary of Services

Datasets

PSMA Cloud functions access the following datasets to verify or obtain information:

NWS Services

PSMA G-NAF

G-NAF is the authoritative index of geocoded Australian addresses. This dataset contains more than 13 million physical addresses that are sourced from the address custodians from each state and territory and other government agencies.

G-NAF makes it possible to verify a physical address in Australia and locate its position. Every address within G-NAF is compared between the contributors and matched against authoritative spatial datasets. This ensures that there is a legal land parcel, road or locality to verify the existence and quality of the address

Data in G-NAF is updated quarterly.

PSMA G-NAF Live

G-NAF Live is a near-live database of the most recent authoritative addresses provided to PSMA Australia by the state and territory address custodians. G-NAF Live and supporting services generate substantial improvements to address currency.

Australia Post PAF

The PAF (Postal Address File) is a database of Australian postal addresses created and maintained by Australia Post to assist in the delivery of mail. It includes a Delivery Point Identifier (DPID). Updates to the PAF are released quarterly.

WFS Services

PSMA Administrative Boundaries

The Administrative Boundaries datasets contain boundaries in five digitally represented themes including Australian Bureau of Statistics (ABS) boundaries, electoral boundaries, state and territory boundaries, local government areas and suburbs/localities. It supports a wide range of analysis and segmentation activities across suburbs and local areas.

PSMA CadLite

CadLite provides a graphical representation of land parcel and property boundaries. Two themes are used for land parcel information:

- *Cadastral*: The cadastral theme contains a seamless national database of parcel boundaries. A parcel is the smallest area of land which may be sold without further approval to subdivide. It may consist of more than one piece which may not necessarily be adjoining. A parcel defines the area of land that is owned and the accompanying land title (not part of CadLite) defines who the owner is and the conditions of ownership.

- *Property*: The property theme contains the representation of land defined by Local Government (or equivalent municipal authority) as a single rateable entity. It may comprise one or more parcels or part of a parcel. Where the property is comprised of multiple parcels, the parcels do not have to be contiguous.

CadLite provides an identifier compatible with jurisdictional land titles and can be used to reference other available geographic and land administration data.

Additional Datasets

Service providers or jurisdictions may also upload or link to additional data sets owned by themselves or other service providers. Updates to additional datasets are not centrally controlled and service providers can refresh data as and when it suits their requirements.

Functions

PSMA Cloud provides a range of functions with capabilities for searching and verifying addresses and providing other geospatial information.

In addition, new functions can also be added by Service Providers for their use or shared with other organisations. Service Providers can control access and set subscriber time and transaction limits to their functions.

Each Function is defined by a unique Function ID, and belongs to a Function Type (NWS, WFS or WMS). The input for a function call is determined by the Function Type it belongs to.

The following section provides a brief description of each function type. For a detailed description of function types, inputs, parameters and outputs see [Annex A – Function Parameters and Attributes](#).

Custom Functions developed by Service Providers are not covered in this document. For information on these functions please refer to the relevant Service Provider's documentation.

NWS Function Types

NWS functions are functions that are delivered using web services complying with the NAMF Web Service standard. These functions primarily deal with searching, verifying, and parsing addresses.

verifyUnparsedAddress

This function type takes an unstructured address as input, compares it against an address dataset or file and returns matching structured addresses with geocode information.

The input to this function is an address string and the result is a set of matching addresses, optionally with information about the quality of the address match. Typically the function verifies the address against G-NAF, G-NAF Live, Australia Post PAF or a jurisdiction's own address file; however, other datasets can be referenced by Service Providers as required.

The number of matching addresses and the quality of the matches is controlled by the Service Provider's web service and can be customised to suit a user's purposes.

A *ParseAddress* function is also available to simply parse unstructured addresses without performing address verification.

verifyParsedAddress

This function type takes a NAMF compliant structured address as input, compares it against an address database or file and returns matching structured addresses with geocode information.

The input to this function is an address in a NAMF structured format and the result is a set of matching addresses, optionally with information about the quality of the address match. As with *verifyParsedAddress* this function will typically use G-NAF, G-NAF Live, Australia Post PAF or a jurisdiction's own address file to verify the address.

The number of matching addresses and the quality of the matches is controlled by the Service Provider's web service and can be customised to suit a user's purposes.

findAddressByAttribute

This function is a PSMA Cloud extension to NWS. It provides a capability to search for addresses using attributes (such as jurisdiction lot and plan number).

The input to this function is a set of search terms and the result is a set of matching addresses. The search is typically not applied to an address dataset or file, but instead against directories of features. Multiple attributes can be defined in the search criteria and functions may support wildcard matching.

processBatch

This function allows batches of addresses (or geocode information) contained in a CSV file to be processed using NWS functions. A CSV file is returned containing the results of the batch.

WFS Function Types

WFS functions are delivered using web services complying with the OpenGIS Web Feature Service 2.0 Interface Standard. These functions primarily deal with providing geographical features associated with a location.

findContaining

This function takes a location (specified as geocode) as input and returns geographical features information about the area that the location falls in. For example, a *findContaining* function could return the population of a local government region that encompasses the specified location.

findByAttribute

This function provides for the searching of geospatial features using any search attribute.

Search criteria are provided as an input to this function and the result is a matching set of geospatial features.

Multiple attributes can be defined in the search criteria and wildcard matching is supported.

WMS Function Types

WMS functions are delivered in accordance with the OpenGIS Web Map Service (WMS)1.1.1 standard.

mapSnap

This function type takes a location (defined by geocode) as input and returns a map image based on that location.

Workflows

PSMA Cloud workflows encapsulate a set of functions, including parameter settings, so that they can be used (and re-used) in a simple manner in application programs. Typically, a workflow will preset all parameters for each function so that any application using the workflow will get consistent results.

Workflows may also define fallback positions for address matching if a match is not found in a preferred dataset (eg. If no result is found in G-NAF then search for the address in Australia Post PAF).

A workflow may contain one or more of the following components:

Address Verification

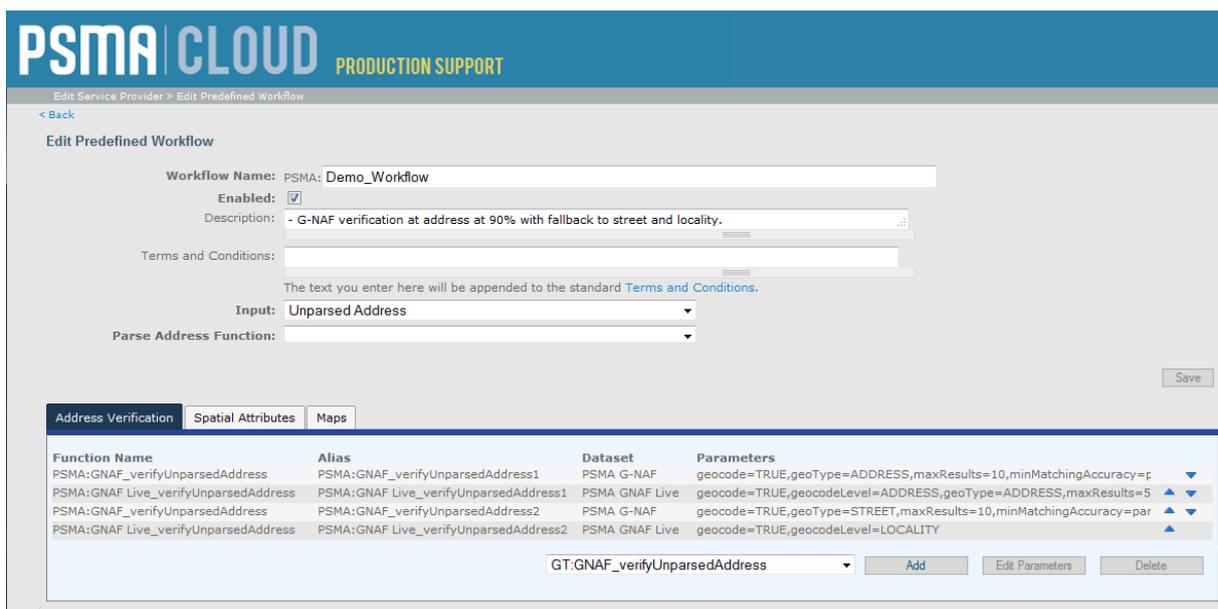
Address Verification function verifies an address against G-NAF, Australia Post PAF or a jurisdictional address data set (eg. Vicmap Address). One or more Address Verification functions, including parameters, may be added to a workflow. The functions will be used by PSMA Cloud in the order that they are listed in the workflow (“fallback”) to verify an address.

Spatial Attributes

Spatial Attribute functions (such as *findContaining*) may be added to a workflow to return information/characteristics of the related geospatial features. For example, the name of the Local Government Area (LGA) which contains the address location (geocode) could be returned.

Maps

Map functions are used in the workflow to generate map snapshots. The function is defined in the workflow with its parameters.



Function Name	Alias	Dataset	Parameters
PSMA:GNAF_verifyUnparsedAddress	PSMA:GNAF_verifyUnparsedAddress1	PSMA G-NAF	geocode=TRUE,geoType=ADDRESS,maxResults=10,minMatchingAccuracy=f
PSMA:GNAF_Live_verifyUnparsedAddress	PSMA:GNAF_Live_verifyUnparsedAddress1	PSMA GNAF Live	geocode=TRUE,geocodeLevel=ADDRESS,geoType=ADDRESS,maxResults=5
PSMA:GNAF_verifyUnparsedAddress	PSMA:GNAF_verifyUnparsedAddress2	PSMA G-NAF	geocode=TRUE,geoType=STREET,maxResults=10,minMatchingAccuracy=par
PSMA:GNAF_Live_verifyUnparsedAddress	PSMA:GNAF_Live_verifyUnparsedAddress2	PSMA GNAF Live	geocode=TRUE,geocodeLevel=LOCALITY

Figure 2 - Edit Workflow

Batch Function

The batch function provides address verification as a batch using PSMA Cloud Framework workflows. Addresses are provided in a CSV file uploaded to a FTP/SFTP server. A web service request is sent to initiate the batch processing. Subsequent requests can then be sent to receive status information on the progress of the initiated batch process. A customised workflow is established and defined to process the address data provided in the CSV file.

The processed results are returned in a separate CSV file that can be retrieved from the FTP/SFTP server.

For more details on the configuration of batch functions see [Annex C – Batch Workflow](#).

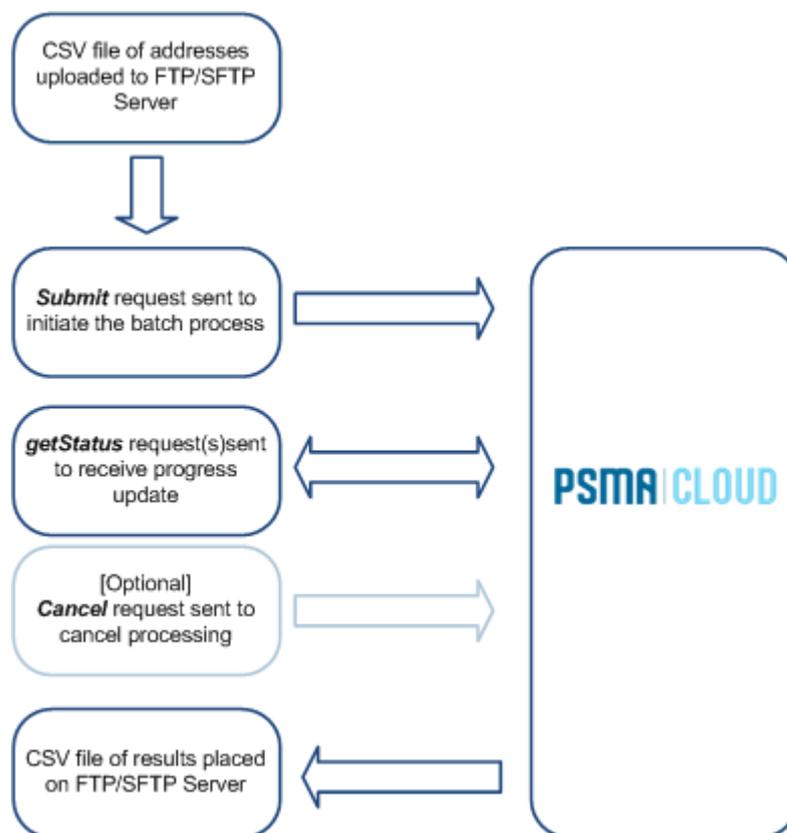


Figure 3 - Batch Process

Administration

Access to PSMA Cloud

PSMA Cloud provides a web portal interface to allow administrators and service providers to manage services to clients. PSMA Cloud users can be classified into four different groups:

1. Systems administrators
2. Service providers
3. Consumer organisations, and
4. Users

System Administrators

PSMA Australia administrators are provided with System Administrator access to:

- view, add, edit and delete functions and workflows for any organisation
- view, add, edit and delete Service Providers, Consumer Organisations and users
- test functions and workflows
- change global PSMA Cloud parameters.

Service Providers

Service providers in PSMA Cloud represent organisations that provide Web Services through the portal to Consumer Organisations and users.

A Service Provider may provide their own Web Services (defined as functions and workflows) or Web Services issued from other Service Providers.

Service Providers can:

- create and maintain clients as PSMA Cloud Consumer Organisations
- create and publish PSMA Cloud functions and workflows to clients and other Service Providers
- enable functions and workflows from other Service Providers to their clients
- monitor and manage their functions and workflows using PSMA Cloud reporting
- provide support to their clients using PSMA Cloud reporting, testing and user maintenance (eg. password reset) functions
- control the application of functions to other Service Providers and Consumer Organisations including
 - Limiting the duration of access to a function
 - Limiting the number of transactions performed against a function
 - Limiting how many consumers another Service Provider can enable a function for
 - Controlling what parameter values are available to clients and which values may be changed.
- apply a theme or branding to their account.

Edit Service Provider

Name: [Edit Organisation Details](#)

Function/Workflow Prefix:

Theme:

Visible to Other Service Providers?:

[Save Settings](#)

Users | Service Catalogue Functions | Service Catalogue Workflows | Service Catalogue Other | Theme Management | Consumer Organisation

Username	Full Name	Groups	Enabled
psmaTest1	Neil Boyes	Basic User Group PSF Service Provider Administrator PSF Web Service Consumer	<input checked="" type="checkbox"/>
psmaTest2	PSMA Test2	Basic User Group PSF Service Provider Administrator PSF Web Service Consumer	<input checked="" type="checkbox"/>
psmaTest3	Sarah Klein	Basic User Group PSF Web Service Consumer	<input checked="" type="checkbox"/>
TestMach1	Machine User	Basic User Group PSF Web Service Consumer	<input checked="" type="checkbox"/>

[Add](#) [Edit](#) [Delete](#)

Figure 4 - Edit Service Provider

Consumer Organisations

Consumer Organisations are created by Service Providers and represent a portal between a user group or organisation and their provider. The Service Provider can publish workflows and functions to the consumer organisation and report on how the consumer organisation is using these functions and workflows.

Organisations that deal with multiple service providers will have a separate entry against each Service Provider.

Consumer Organisations in PSMA Cloud can:

- maintain users (including machine users) for the organisation
- use functions and workflows published to the organisation by their Service Provider
- create custom workflows for use in applications.

Edit Consumer Organisation

Service Provider: PSMA Australia

Name: [Edit Organisation Details](#)

Enabled: [Save Enabled Setting](#)

Users | Service Provider Functions & Workflows | Custom Predefined Workflows

Endpoint Name	Type	Name	Alias	Current Transaction Count*	Transaction Limit	Available From	Available To	Restrictions Enforced?
PSMA:PSMA G-NAF Processor Address Match	Function	PSMA:GNAF_verifyParsedAddress	PSMA:GNAF_verifyPar	0				N
PSMA:PSMA G-NAF Processor Address Match	Function	PSMA:GNAF_verifyUnparsedAddress	PSMA:GNAF_verifyUnp	0				N Accept
	Workflow	PSMA:Address Verification Demonstration	PSMA:Address Verifica					N

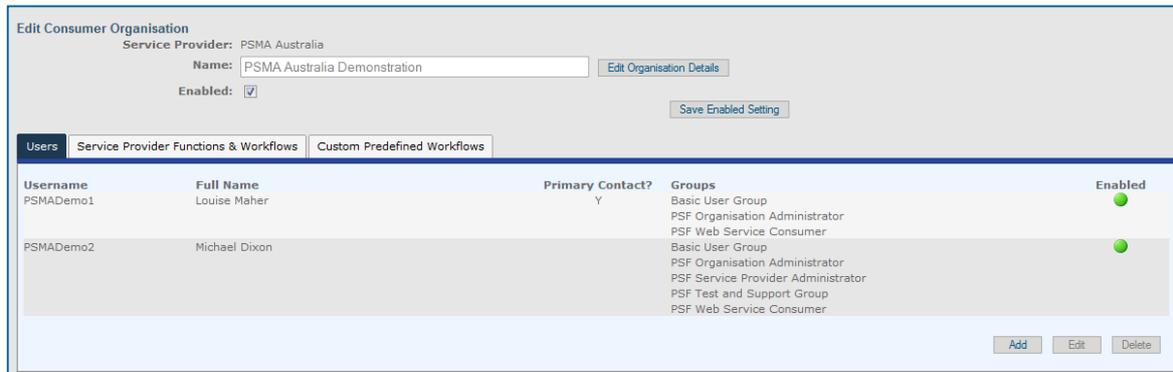
* The Current Transaction Count values are updated every minute.

[Update Alias Names](#)

Figure 5 - Edit Consumer Organisation

Users

Users may be a person or machine. The Users tab displays a list of the PSMA Cloud users and the access rights they have to the system.



Edit Consumer Organisation
 Service Provider: PSMA Australia
 Name: PSMA Australia Demonstration
 Enabled:

Users | Service Provider Functions & Workflows | Custom Predefined Workflows

Username	Full Name	Primary Contact?	Groups	Enabled
PSMADemo1	Louise Maher	Y	Basic User Group PSF Organisation Administrator PSF Web Service Consumer	<input checked="" type="checkbox"/>
PSMADemo2	Michael Dixon		Basic User Group PSF Organisation Administrator PSF Service Provider Administrator PSF Test and Support Group PSF Web Service Consumer	<input checked="" type="checkbox"/>

Figure 6 - Users Tab

Testing Web Services

A *Test Web Service* option lets users test PSMA Cloud functions and workflows. Testing can be used to:

- test the availability of the web service
- confirm a function or workflow operates correctly with expected results
- assess the effectiveness of a function or workflow when applied to client application software
- fine tune function parameters
- perform one-off checks of business data (eg. address verification).
- test functions and workflows as another user eg. to replicate reported errors.

When testing, the user can see the XML request provided to the PSMA Cloud web service and the XML response returned by the service. A structured tree output of the results is also provided to assist with analysis. When testing a service the user may apply the function or workflow using their own username or impersonate the credentials of an alternative user or machine.

PSMA CLOUD PRODUCTION SUPPORT

Test Web Service

Test Web Service

Username:

Password:

Impersonate User: (Optional)

[Refresh Functions/Workflows Below](#)

Test: Get Capabilities Function(s) Predefined Workflow

Function: [Add Function](#)

Order	Type	Function
100		verifyUnparsedAddressPSMA:GNAF_verifyUnparsedAddress edit parameters remove

* Note that the Web Service may take up to 5 minutes to pick up changes made to functions and workflows.

Input

Unparsed Address Input

Pre-populate:

Line 1:

Line 2:

Line 3:

Line 4:

[Invoke](#)

Request Sent

XML Web Service Request:

<https://services-test.psmasystems.com.au/PSF-PS-WS/PSF/services/EngineService>

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:ns1="http://namf09.anzlic.org.au" xmlns:ns2="http://ws.namf09.anzlic.org.au">
  <SOAP-ENV:Body>
    <ns2:execute>
      <ns1:requests id="200" version="1.0">
        <ns1:authentication>
          <ns1:username>DGibson</ns1:username>
          <ns1:password>*****</ns1:password>
        </ns1:authentication>
        <ns1:features/>
      </ns1:requests>
    </ns2:execute>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

[Resubmit XML Request](#)

Response Received

Web Service Response Summary: ✔ 1 matches

Time Taken: 611 msec

Addresses (1)

```
78 SPOWERS CCT, HOLDER ACT 2611
  addressIdentifier: GAACT716723222
  streetNumber: 78
  streetName: SPOWERS
  streetType: CCT
  localityName: HOLDER
  stateTerritory: ACT
  postcode: 2611
  geoFeature: STREET LOCALITY CENTROID
  geoDatumCode: GDA94
  geoNorthSouthCoordinate: -35.33657638
  geoEastWestCoordinate: 149.04021803
  Attributes (7)
  matchQualityPercentage: 97
  matchCode: SE:Y;UT:Y;UI:Y;LT:Y;CL:Y;LI:Y;NR:Y;SN:Y;ST:N;SS:Y;LN:Y;PC:N;SA:Y;
  dataset: GNAF
  formattedAddressString: 78 SPOWERS CCT, HOLDER ACT 2611
  geoType: ADDRESS
  matchCertainty: partial
  mesh_block: 80021650000
```

XML Web Service Response:

```
<?xml version="1.0" encoding="utf-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">
  <soapenv:Body>
    <ns2:executeResponse xmlns:ns2="http://ws.namf09.anzlic.org.au">
      <responses xmlns="http://namf09.anzlic.org.au" id="200">
        <result status="OK" completed="true" hasErrorsInResponseElements="false" />
        <response id="200.1">
          <responseResult>
            <address>
              <addressIdentifier>GAACT716723222</addressIdentifier>
            </address>
          </responseResult>
        </response>
      </responses>
    </ns2:executeResponse>
  </soapenv:Body>
</soapenv:Envelope>
```

Figure 7 - Test Web Service

Reporting

Service Providers and Consumer Organisations can get reports to monitor the usage of functions and workflows. The reports can be customised and are produced in HTML or PDF format.

 Summary Report Date Range: 01/Jul/2012 - 30/Nov/2012											
Service Provider: ACT Government											
Service Owner: PSMA											
Consumer Organisation: ACT Government											
Calling User's Organisation: ACT Government											
Function: PSMA:AdminBoundariesDatasets											
Date	Service Provider	Service Owner	Consumer Organisation	Function Type	Function Name	Dataset(s)	Number of Calls	Number of Successful Calls	Number of Successful Address Matches	Number of Unsuccessful Address Matches	
Month: July											
16 Jul 2012	ACT Government	PSMA	ACT Government	findContaining	PSMA:AdminBoundari		4	4			
24 Jul 2012	ACT Government	PSMA	ACT Government	findContaining	PSMA:AdminBoundari		2	2			
Month: August											
02 Aug 2012	ACT Government	PSMA	ACT Government	findContaining	PSMA:AdminBoundari		4	4			
14 Aug 2012	ACT Government	PSMA	ACT Government	findContaining	PSMA:AdminBoundari		16	6			
21 Aug 2012	ACT Government	PSMA	ACT Government	findContaining	PSMA:AdminBoundari		8	1			
Month: September											
19 Sep 2012	ACT Government	PSMA	ACT Government	findContaining	PSMA:AdminBoundari		56	46			
25 Sep 2012	ACT Government	PSMA	ACT Government	findContaining	PSMA:AdminBoundari		30	30			
PSMA:AdminBoundariesDatasets Total							120	93			
Function: PSMA:GNAF Live_verifyUnparsedAddress											
Date	Service Provider	Service Owner	Consumer Organisation	Function Type	Function Name	Dataset(s)	Number of Calls	Number of Successful Calls	Number of Successful Address Matches	Number of Unsuccessful Address Matches	
Month: July											
16 Jul 2012	ACT Government	PSMA	ACT Government	verifyUnparsedAddress	PSMA:GNAF Live_verifyUnparsedA	PSMA GNAF Live	4	4	0	4	
24 Jul 2012	ACT Government	PSMA	ACT Government	verifyUnparsedAddress	PSMA:GNAF Live_verifyUnparsedA	PSMA GNAF Live	1	1	0	1	
Month: August											
02 Aug 2012	ACT Government	PSMA	ACT Government	verifyUnparsedAddress	PSMA:GNAF Live_verifyUnparsedA	PSMA GNAF Live	3	3	3	0	
14 Aug 2012	ACT Government	PSMA	ACT Government	verifyUnparsedAddress	PSMA:GNAF Live_verifyUnparsedA	PSMA GNAF Live	12	8	5	3	
21 Aug 2012	ACT Government	PSMA	ACT Government	verifyUnparsedAddress	PSMA:GNAF Live_verifyUnparsedA	PSMA GNAF Live	8	8	0	8	
Month: September											
19 Sep 2012	ACT Government	PSMA	ACT Government	verifyUnparsedAddress	PSMA:GNAF Live_verifyUnparsedA	PSMA GNAF Live	43	43	19	24	
25 Sep 2012	ACT Government	PSMA	ACT Government	verifyUnparsedAddress	PSMA:GNAF Live_verifyUnparsedA	PSMA GNAF Live	17	17	3	14	
PSMA:GNAF Live_verifyUnparsedAddress Total							88	84	30	54	

Figure 8 - Summary Report

Annex A – Function Parameters and Attributes

Note: The information below is a summary of typical parameters for each of the function types. Actual parameters for specific functions may vary, therefore, for detailed information refer to the PSMA Cloud Developer Reference.

(NWS) verifyUnparsedAddress

Datasets: PSMA GNAF, PSMA GNAF Live, PAF

These functions verify if an input unstructured address exists in a dataset or address file and returns a list of candidate matching addresses. The address matching is done using the PSMA Address Verification (AV) engine. If an exact match is not found request parameters may be used to ensure the AV engine limits results of nearby addresses or applies fallback to a street or locality match with corresponding geocode.

REQUEST

Input	
When an unparsed address is provided to PSMA Cloud, the address is provided in four NAMF unstructured address line fields. An unparsed address can be provided as a single string or spread across the four unstructured fields. The maximum length of an unparsed address field is not limited; however, when the address is parsed the length of text fields is limited to the lengths defined in AS/NZS 4590. If all four unstructured address lines are used then a typical way to populate these would be as follows:	
<i>unstructuredAddressLine1</i>	If the address is being provided as a single string, it should be contained in <i>unstructuredAddressLine1</i> .
<i>unstructuredAddressLine2</i>	Otherwise, these fields should contain building unit and street information
<i>unstructuredAddressLine3</i>	This should contain the suburb name
<i>unstructuredAddressLine4</i>	This should contain state and postcode information
Parameters	
<i>abbreviateComplexLevelType</i>	This is a NAMF extension parameter only available to PSMA functions. The parameter specifies whether the <i>complexLevelType</i> field in the address response contains the AS/NZS 4590 abbreviation for the Level Type or the full description. Note that the <i>complexLevelType</i> field is always in uppercase. The NAMF 1.0 standard is to use the full description.
	FALSE (default) Specifies that the <i>complexLevelType</i> field, if provided, is to contain the AS/NZS 4590 description. This matches the NAMF specification for the <i>complexLevelType</i> field and this setting is required for NAMF 1.0 compliance.
	TRUE Specifies that the <i>complexLevelType</i> field, if provided, is to contain the AS/NZS 4590 abbreviation.
<i>abbreviateComplexUnitType</i>	This is a NAMF extension parameter only available to PSMA functions. The parameter specifies whether the <i>complexUnitType</i> field in the address response contains the AS/NZS 4590 abbreviation for the Unit Type, or the full description. Note that the <i>complexUnitType</i> field is always in uppercase. The NAMF standard is to use the full description.
	FALSE (default) Specifies that the <i>complexUnitType</i> field, if provided, is to contain the AS/NZS 4590 description. This matches the NAMF

		specification for the <i>complexUnitType</i> field and this setting is required for NAMF 1.0 compliance.
	TRUE	Specifies that the <i>complexUnitType</i> field, if provided, is to contain the AS/NZS 4590 abbreviation.
<i>abbreviateStreetSuffix</i>		This is a NAMF extension parameter only available to PSMA functions. The parameter specifies whether the <i>streetSuffix</i> field in the address response contains the AS/NZS 4590 abbreviation for the Street Suffix (eg. N), or the full description (eg. NORTH). Note that the <i>streetSuffix</i> field is always in uppercase. The NAMF 1.0 standard is to use the full description.
	FALSE (default)	Specifies that the <i>streetSuffix</i> field, if provided, is to contain the AS/NZS 4590 description. <input type="checkbox"/> This matches the specification for the <i>streetSuffix</i> field and this setting is required for NAMF 1.0 compliance.
	TRUE	Specifies that the <i>streetSuffix</i> field, if provided, is to contain the AS/NZS 4590 abbreviation.
<i>abbreviateStreetType</i>		This is a NAMF extension parameter only available to PSMA functions. The parameter specifies whether the <i>streetType</i> field in the address response contains the AS/NZS 4590 abbreviation for the Street Type (eg. RD), or the full description (eg. ROAD). Note that the <i>streetType</i> field is always in uppercase. The NAMF standard is to use the abbreviation.
	TRUE (default)	Specifies that the <i>streetType</i> field, if provided, is to contain the AS/NZS 4590 abbreviation. This matches the NAMF specification for the <i>streetType</i> field and this setting is required for NAMF 1.0 compliance.
	FALSE	Specifies that the <i>streetType</i> field, if provided, is to contain the AS/NZS 4590 description.
<i>geocode</i>		This is a standard NAMF parameter. It specifies whether geocode information is to be included with addresses in the response.
	FALSE (default)	Does not return the geocode with each address in the result.
	TRUE	Includes the geocode with each address in the result.
<i>geocodeLevel</i>		This is a NAMF extension parameter only available to PSMA functions. This parameter specifies the precision of geocode information required for an address for it to be included in the results.
	NONE (default)	Specifies that an address can be accepted as a match regardless of whether any geocode information can be generated for the address.
	LOCALITY CENTROID	Specifies that an address can be accepted as a match if it is geocoded to at least the Locality level.
	STREET LOCALITY CENTROID	Specifies that an address can be accepted as a match if it is geocoded to at least the centre of the street.
	ADDRESS	Specifies that an address can be accepted as a match only if it has geocoded information at the address level.
<i>geoType</i>		This is a NAMF extension parameter only available to PSMA functions. This parameter controls the fallback rules of address matching. If candidate addresses are required then ADDRESS should be used. If a full address cannot be matched and a fallback to street or locality is acceptable (rather than a near address) then STREET or LOCALITY should be used.
	ADDRESS (default)	Specifies that all results should be complete NAMF addresses.
	STREET	Specifies that if a NAMF address can't be identified then the AV engine can return a street centroid as a match.

	LOCALITY	Specifies that if a NAMF address and a street centroid can't be identified then the AV engine may return a Locality centroid as a match.
<i>maxResults</i>		This is a standard NAMF parameter. This parameter sets the maximum number of addresses to be included in the result set. Any address matches beyond the <i>maxResults</i> will be ignored. The default value is '50'.
<i>minMatchingAccuracy</i>		This is a standard NAMF parameter. This parameter specifies whether the address verification process returns results with partial matches against the input address, or only returns results if there is a full match.
	PARTIAL (default)	This option specifies that the address verification engine can give 'best match' results that may not be exactly the same as the input address. The result will be identified as a partial match and a 'MatchQualityPercentage' (see below) will indicate the quality of the returned addresses to the input address.
	FULL	This option specifies that the AV engine is only to return an address that is a full match for the input address. The AV engine will search the specified address dataset or file for an address that exactly matches the input address.
<i>minMatchQualityPercentage</i>		This is a NAMF extension parameter only available to PSMA functions. This parameter specifies a minimum <i>matchQualityPercentage</i> value for candidate addresses in the results. The default value is zero (any level of match quality will be returned). For an explanation of matchQualityPercentage ranges see Annex B.
<i>omitAddress</i>		This is a standard NAMF parameter. This parameter specifies if address details are to be included in results.
	FALSE (default)	This option specifies that the details of the matched address will be returned in the results.
	TRUE	This option specifies that details of the matched address will not be returned in the address verification response.
<i>primaryFlag</i>		This is a NAMF extension parameter only available to PSMA functions. This field specifies whether Primary addresses are returned or not.
	TRUE (default)	Specifies that Primary addresses are to be returned in the address verification response
	FALSE	Specifies that Primary addresses are not to be returned in the address verification response
<i>restrictStateTerritory</i>		This is a NAMF extension parameter only available to PSMA functions. This parameter restricts search results to states and territories specified in a comma-separated list.
	NULL (default)	Results from all states and territories will be returned.
	ACT, NSW, VIC, QLD, WA, SA, NT, TAS, OT	Results will be restricted to the specified state/territory. eg. 'VIC' specifies that the results will be restricted to addresses within Victoria. 'VIC,NSW,ACT' specifies that the results will be restricted to addresses within Victoria, New South Wales and the Australian Capital Territory.
<i>secondaryFlag</i>		This is a NAMF extension parameter only available to PSMA functions. This field specifies whether Secondary addresses are returned or not.
	TRUE (default)	Specifies that Secondary addresses are to be returned in the address verification response
	FALSE	Specifies that Secondary addresses are not to be returned in the address verification response.

RESPONSE

The response from the function Request will contain details of each address that matched the address verification criteria and attributes for each address. If an 'exact match' is found then only one address is returned. If no matching address is found then the NAMF message returned by PSMA Cloud will not contain a response result.

Format	
<i>addressIdentifier</i>	A unique identifier (within an address dataset or file) for an address.
<i>cadastralIdentifier</i>	Cadastral identifier (eg "1/34/123456")
<i>complexLevelNumber</i>	Complex level identifier (including any prefix and/or suffix)
<i>complexLevelType</i>	Complex level type (eg "Level", "Floor")
<i>complexStreetName</i>	Complex street name
<i>complexStreetNumber1</i>	Complex first street number (including any prefix and/or suffix)
<i>complexStreetNumber2</i>	Complex second street number (including any prefix and/or suffix)
<i>complexStreetSuffix</i>	Street suffix (eg Smith St "West")
<i>complexStreetType</i>	Complex street type (eg "AV", "RD", "ST")
<i>complexUnitIdentifier</i>	Complex unit identifier (including any prefix and/or suffix)
<i>complexUnitType</i>	Complex unit type (eg "Unit", "Flat")
<i>countryNameCode</i>	Country Name (ISO 3166)
<i>deliveryPointIdentifier</i>	Australia Post's Delivery Point Identifier or DPID
<i>geoDatumCode</i>	Geographic datum and/or coordinate reference system (eg "GDA94", "MGA50", "EPSG:4326")
<i>geoEastWestCoordinate</i>	Coordinate value (eg longitude or easting)
<i>geoFeature</i>	The physical or virtual reference of the geocode. Physical features associated with the address point may include mailbox, driveway, water meter, building. Virtual features are mathematically or geometrically derived spatial reference points such as the centroid of a lot or property.
<i>geoHeight</i>	Height of address in metres
<i>geoNorthSouthCoordinate</i>	Coordinate value (eg latitude or northing)
<i>geoPositionalUncertainty</i>	Whether the coordinate is inside the address boundary
<i>geoVerticalDatumCode</i>	Reference system for height (eg "AHD71")
<i>localityName</i>	Locality name (eg Suburb)
<i>locationDescriptor</i>	A description of the position of the address relative to another physical site. eg. 3KM PAST THE BLACK STUMP SIGN
<i>lotIdentifier</i>	Lot identifier
<i>postalDeliveryIdentifier</i>	Postal delivery number (eg PO BOX "123")
<i>postalDeliveryTypeCode</i>	Postal delivery type (eg "PO BOX" 123)
<i>postcode</i>	postcode
<i>siteName</i>	Site name (eg building name)
<i>stateTerritory</i>	State or Territory
<i>streetName</i>	Street name
<i>streetNumber1</i>	First street number (including any prefix and/or suffix)

<i>streetNumber2</i>	Second street number (including any prefix and/or suffix)																																																								
<i>streetSuffix</i>	Street suffix (eg Smith St "West")																																																								
<i>streetType</i>	Street type (eg "AV", "RD", "ST")																																																								
Attributes																																																									
<i>matchCode</i>	<p>This field is intended for diagnostic use only. This is a NAMF extension attribute only available in PSMA functions that contains information on the quality of the address match returned by the address search process. It is only relevant to GNAF or GNAF Live. The string in the <i>matchCode</i> field contains match results for each NAMF Field in the format of Field Code followed by Match Type. eg. SE:Y;UT:Y;UI:Y;LT:Y;CL:Y;LI:Y;NR:Y;SN:Y; etc.</p> <table border="1"> <thead> <tr> <th colspan="2">Field Codes</th> <th colspan="2">Match Types</th> </tr> </thead> <tbody> <tr> <td>SE</td> <td>siteName</td> <td>Y</td> <td>Yes, NAMF field was matched in the returned address</td> </tr> <tr> <td>UT</td> <td>complexUnitType</td> <td>N</td> <td>No, NAMF field was not matched in the returned address</td> </tr> <tr> <td>UI</td> <td>complexUnitIdentifier</td> <td>F</td> <td>Only streetNumber1 field was matched</td> </tr> <tr> <td>LT</td> <td>complexLeveltype</td> <td>L</td> <td>Only streetNumber2 was matched.</td> </tr> <tr> <td>CL</td> <td>complexLevelNumber</td> <td>A</td> <td>An alias match for the field was identified.</td> </tr> <tr> <td>LI</td> <td>lotIdentifier</td> <td>P</td> <td>A phonetic match for the field was identified.</td> </tr> <tr> <td>NR</td> <td>streetNumber1, streetNumber2</td> <td>S</td> <td>A phonetic match for an alias was identified</td> </tr> <tr> <td>SN</td> <td>streetName</td> <td>G</td> <td>A neighbouring locality was matched.</td> </tr> <tr> <td>ST</td> <td>streetType</td> <td>B</td> <td>A phonetic match for a neighbouring locality was matched</td> </tr> <tr> <td>SS</td> <td>streetSuffix</td> <td></td> <td></td> </tr> <tr> <td>LN</td> <td>localityName</td> <td></td> <td></td> </tr> <tr> <td>PC</td> <td>postcode</td> <td></td> <td></td> </tr> <tr> <td>SA</td> <td>stateTerritory</td> <td></td> <td></td> </tr> </tbody> </table>	Field Codes		Match Types		SE	siteName	Y	Yes, NAMF field was matched in the returned address	UT	complexUnitType	N	No, NAMF field was not matched in the returned address	UI	complexUnitIdentifier	F	Only streetNumber1 field was matched	LT	complexLeveltype	L	Only streetNumber2 was matched.	CL	complexLevelNumber	A	An alias match for the field was identified.	LI	lotIdentifier	P	A phonetic match for the field was identified.	NR	streetNumber1, streetNumber2	S	A phonetic match for an alias was identified	SN	streetName	G	A neighbouring locality was matched.	ST	streetType	B	A phonetic match for a neighbouring locality was matched	SS	streetSuffix			LN	localityName			PC	postcode			SA	stateTerritory		
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<i>matchQualityPercentage</i>	<p>This is a NAMF extension parameter only available to PSMA functions. This field contains a numeric value that indicates the quality of match found for the address. See Annex B for a description of match quality percentages.</p> <p>As a general rule:</p> <ul style="list-style-type: none"> > 95 indicates a real match or simple changes (such as locality/postcode mismatch or minor spelling errors), 90-95 indicates a likely match but may need to be confirmed, < 90 typically require intervention to decide which candidate is correct <p>Whether to automatically accept matches or select options from a list depends on the business application.</p>																																																								
<i>primarySecondary</i>	<p>This is a NAMF extension parameter only available to PSMA functions. This field specifies weather the address returned is a Primary or Secondary address.</p> <table border="1"> <tr> <td>Primary</td> <td>The address returned is a Primary address.</td> </tr> <tr> <td>Secondary</td> <td>The address returned is a Secondary address.</td> </tr> </table>	Primary	The address returned is a Primary address.	Secondary	The address returned is a Secondary address.																																																				
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<i>mesh_block</i>	A NAMF extension attribute applicable to PSMA functions only. The current Australian Bureau of Statistics Mesh block that the address is contained in.	
<i>dataset</i>	A NAMF extension attribute applicable to PSMA functions only. The name of the dataset used to obtain a result.	
<i>formattedAddressString</i>	This is a NAMF extension parameter only available to PSMA functions. A string containing the address formatted with the following NAMF fields: <i>complexUnitType</i> "/" <i>streetNumber1</i>	
<i>matchCertainty</i>	Returns the level of match between the input address and the address matched by the address verification service. Possible values are:	
	PARTIAL	The address returned partially matched the input address.
	FULL	The address returned fully matched the input address.
<i>geoType</i>	This attribute contains the level of the address match found.	
	ADDRESS	The result represents an address match at the Address level.
	STREET	The result represents an address match at the Street level.
	LOCALITY	The result represents an address match at the Locality

(NWS) verifyParsedAddress

Datasets: PSMA G-NAF, PSMA G-NAF Live, PAF

These functions verify if an input address structured in NAMF format exists in a dataset or address file and returns a list of candidate matching addresses. The address matching is done using the Address Verification (AV) engine. If an exact address match is not found, the Request parameters may be used to ensure the AV engine limits results of nearby addresses or applies fallback to a street or locality match with corresponding geocode.

REQUEST

Input	
When a parsed address is provided to PSMA Cloud the address is provided as a parsed address in NAMF format.	
<i>complexUnitType</i>	Complex unit type (eg "Unit", "Flat")
<i>complexUnitIdentifier</i>	Complex unit identifier (including any prefix and/or suffix)
<i>complexLevelType</i>	Complex level type (eg "Level", "Floor")
<i>complexLevelNumber</i>	Complex level identifier (including any prefix and/or suffix)
<i>complexStreetNumber1</i>	Complex first street number (including any prefix and/or suffix)
<i>complexStreetNumber2</i>	Complex second street number (including any prefix and/or suffix)
<i>complexStreetName</i>	Complex street name
<i>complexStreetType</i>	Complex street type (eg "AV", "RD", "ST")
<i>complexStreetSuffix</i>	Street suffix (eg Smith St "West")
<i>streetNumber1</i>	First street number (including any prefix and/or suffix)
<i>streetNumber2</i>	Second street number (including any prefix and/or suffix)
<i>streetName</i>	Street name
<i>streetType</i>	Street type (eg. "AV", "RD", "ST")
<i>streetSuffix</i>	Street suffix (eg Smith St "West")
<i>postalDeliveryTypeCode</i>	Postal delivery type (eg "PO BOX" 123)
<i>postalDeliveryIdentifier</i>	Postal delivery number (eg PO BOX "123")
<i>deliveryPointIdentifier</i>	Australia Post's Delivery Point Identifier or DPID
<i>siteName</i>	Site name (eg building name)
<i>lotIdentifier</i>	Lot identifier
<i>localityName</i>	Locality name (eg. Suburb)
<i>stateTerritory</i>	State or Territory
<i>postcode</i>	Postcode
<i>countryNameCode</i>	Country Name (ISO 3166)
Parameters	
<i>abbreviateComplexLevelType</i>	This is a NAMF extension parameter only available to PSMA functions. The parameter specifies whether the <i>complexLevelType</i> field in the address response contains the AS/NZS 4590 abbreviation for the Level Type or the full description. Note that the <i>complexLevelType</i> field is always in uppercase. The NAMF 1.0 standard is to use the full description.
FALSE (default)	Specifies that the <i>complexLevelType</i> field, if provided, is to contain the AS/NZS 4590 description. This matches the NAMF specification

		for the <i>complexLevelType</i> field and this setting is required for NAMF 1.0 compliance.
	TRUE	Specifies that the <i>complexLevelType</i> field, if provided, is to contain the AS/NZS 4590 abbreviation.
<i>abbreviateComplexUnitType</i>		This is a NAMF extension parameter only available to PSMA functions. The parameter specifies whether the <i>complexUnitType</i> field in the address response contains the AS/NZS 4590 abbreviation for the Unit Type, or the full description. Note that the <i>complexUnitType</i> field is always in uppercase. The NAMF standard is to use the full description.
	FALSE (default)	Specifies that the <i>complexUnitType</i> field, if provided, is to contain the AS/NZS 4590 description. This matches the NAMF specification for the <i>complexUnitType</i> field and this setting is required for NAMF 1.0 compliance.
	TRUE	Specifies that the <i>complexUnitType</i> field, if provided, is to contain the AS/NZS 4590 abbreviation.
<i>abbreviateStreetSuffix</i>		This is a NAMF extension parameter only available to PSMA functions. The parameter specifies whether the <i>streetSuffix</i> field in the address response contains the AS/NZS 4590 abbreviation for the Street Suffix (eg. N), or the full description (eg. NORTH). Note that the <i>streetSuffix</i> field is always in uppercase. The NAMF 1.0 standard is to use the full description.
	FALSE (default)	Specifies that the <i>streetSuffix</i> field, if provided, is to contain the AS/NZS 4590 description. the <i>streetSuffix</i> field and this setting is required for NAMF 1.0 compliance.
	TRUE	Specifies that the <i>streetSuffix</i> field, if provided, is to contain the AS/NZS 4590 abbreviation.
<i>abbreviateStreetType</i>		This is a NAMF extension parameter only available to PSMA functions. The parameter specifies whether the <i>streetType</i> field in the address response contains the AS/NZS 4590 abbreviation for the Street Type (eg. RD), or the full description (eg. ROAD). Note that the <i>streetType</i> field is always in uppercase. The NAMF standard is to use the abbreviation.
	TRUE (default)	Specifies that the <i>streetType</i> field, if provided, is to contain the AS/NZS 4590 abbreviation. This matches the NAMF specification for the <i>streetType</i> field and this setting is required for NAMF 1.0 compliance.
	FALSE	Specifies that the <i>streetType</i> field, if provided, is to contain the AS/NZS 4590 description.
<i>geocode</i>		This is a standard NAMF parameter. It specifies whether geocode information is to be included with addresses in the response.
	FALSE (default)	Does not return the geocode with each address in the result.
	TRUE	Includes the geocode with each address in the result.
<i>geocodeLevel</i>		This is a NAMF extension parameter only available to PSMA functions. This parameter specifies the precision of geocode information required for an address for it to be included in the results.
	NONE (default)	Specifies that an address can be accepted as a match regardless of whether any geocode information can be generated for the address.
	LOCALITY CENTROID	Specifies that an address can be accepted as a match if it is geocoded to at least the Locality level.
	STREET LOCALITY CENTROID	Specifies that an address can be accepted as a match if it is geocoded to at least the centre of the street.
	ADDRESS	Specifies that an address can be accepted as a match only if it has geocoded information at the address level.

<i>geoType</i>	This is a NAMF extension parameter only available to PSMA functions. This parameter controls the fallback rules of address matching. If candidate addresses are required then ADDRESS should be used. If a full address cannot be matched and a fallback to street or locality is acceptable (rather than a near address) then STREET or LOCALITY should be used.	
	ADDRESS (default)	Specifies that all results should be complete NAMF addresses.
	STREET	Specifies that if a NAMF address can't be identified then the AV engine can return a street centroid as a match.
	LOCALITY	Specifies that if a NAMF address and a street centroid can't be identified then the AV engine may return a Locality centroid as a match.
<i>maxResults</i>	This is a standard NAMF parameter. This parameter sets the maximum number of addresses to be included in the result set. Any address matches beyond the <i>maxResults</i> will be ignored. The default value is '50'.	
<i>minMatchingAccuracy</i>	This is a standard NAMF parameter. This parameter specifies whether the address verification process returns results with partial matches against the input address, or only returns results if there is a full match.	
	PARTIAL (default)	This option specifies that the address verification engine can give 'best match' results that may not be exactly the same as the input address. The result will be identified as a partial match and a 'MatchQualityPercentage' (see below) will indicate the quality of the returned addresses to the input address.
	FULL	This option specifies that the AV engine is only to return an address that is a full match for the input address. The AV engine will search the specified address dataset or file for an address that exactly matches the input address.
<i>minMatchQualityPercentage</i>	This is a NAMF extension parameter only available to PSMA functions. This parameter specifies a minimum <i>matchQualityPercentage</i> value for candidate addresses in the results. The default value is zero (any level of match quality will be returned). For an explanation of matchQualityPercentage ranges see Annex B.	
<i>omitAddress</i>	This is a standard NAMF parameter. This parameter specifies if address details are to be included in results.	
	FALSE (default)	This option specifies that the details of the matched address will be returned in the results.
	TRUE	This option specifies that details of the matched address will not be returned in the address verification response.
<i>primaryFlag</i>	This is a NAMF extension parameter only available to PSMA functions. This field specifies whether Primary addresses are returned or not.	
	TRUE (default)	Specifies that Primary addresses are to be returned in address verification response
	FALSE	Specifies that Primary addresses are not to be returned in address verification response
<i>restrictStateTerritory</i>	This is a NAMF extension parameter only available to PSMA functions. This parameter restricts search results to states and territories specified in a comma-separated list.	
	NULL (default)	Results from all states and territories will be returned.
	ACT, NSW, VIC, QLD, WA, SA, NT, TAS, OT	Results will be restricted to the specified state/territory. eg. 'VIC' specifies that the results will be restricted to addresses within Victoria. 'VIC,NSW,ACT' specifies that the results will be restricted to addresses within Victoria, New South Wales and the Australian Capital Territory.

<i>secondaryFlag</i>	This is a NAMF extension parameter only available to PSMA functions. This field specifies whether Secondary addresses are returned or not.	
	TRUE (default)	Specifies that Secondary addresses are to be returned in address verification response.
	FALSE	Specifies that Secondary addresses are not to be returned in address verification response.

RESPONSE

The response from the function Request will contain details of each address that matched the address verification criteria and attributes for each address. If an 'exact match' is found then only one address is returned. If no matching address is found then the NAMF message returned by PSMA Cloud will not contain a response result.

Format	
<i>addressIdentifier</i>	A unique identifier (within an address dataset or file) for an address.
<i>cadastralIdentifier</i>	Cadastral identifier (eg "1/34/123456")
<i>complexLevelNumber</i>	Complex level identifier (including any prefix and/or suffix)
<i>complexLevelType</i>	Complex level type (eg "Level", "Floor")
<i>complexStreetName</i>	Complex street name
<i>complexStreetNumber1</i>	Complex first street number (including any prefix and/or suffix)
<i>complexStreetNumber2</i>	Complex second street number (including any prefix and/or suffix)
<i>complexStreetSuffix</i>	Street suffix (eg Smith St "West")
<i>complexStreetType</i>	Complex street type (eg "AV", "RD", "ST")
<i>complexUnitIdentifier</i>	Complex unit identifier (including any prefix and/or suffix)
<i>complexUnitType</i>	Complex unit type (eg "Unit", "Flat")
<i>countryNameCode</i>	Country Name (ISO 3166)
<i>deliveryPointIdentifier</i>	Australia Post's Delivery Point Identifier or DPID
<i>geoDatumCode</i>	Geographic datum and/or coordinate reference system (eg "GDA94", "MGA50", "EPSG:4326")
<i>geoEastWestCoordinate</i>	Coordinate value (eg longitude or easting)
<i>geoFeature</i>	<p>The physical or virtual reference of the geocode. Physical features associated with the address point may include mailbox, driveway, water meter, building.</p> <p>Virtual features are mathematically or geometrically derived spatial reference points such as the centroid of a lot or property.</p>
<i>geoHeight</i>	Height of address in metres
<i>geoNorthSouthCoordinate</i>	Coordinate value (eg latitude or northing)
<i>geoPositionalUncertainty</i>	Whether the coordinate is inside the address boundary
<i>geoVerticalDatumCode</i>	Reference system for height (eg "AHD71")
<i>localityName</i>	Locality name (eg Suburb)
<i>locationDescriptor</i>	A description of the position of the address relative to another physical site. eg. 3KM PAST THE BLACK STUMP SIGN
<i>lotIdentifier</i>	Lot identifier

<i>postalDeliveryIdentifier</i>	Postal delivery number (eg PO BOX "123")																																																								
<i>postalDeliveryTypeCode</i>	Postal delivery type (eg "PO BOX" 123)																																																								
<i>postcode</i>	Postcode																																																								
<i>siteName</i>	Site name (eg building name)																																																								
<i>stateTerritory</i>	State or Territory																																																								
<i>streetName</i>	Street name																																																								
<i>streetNumber1</i>	First street number (including any prefix and/or suffix)																																																								
<i>streetNumber2</i>	Second street number (including any prefix and/or suffix)																																																								
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Attributes																																																									
<i>matchCode</i>	<p>This is a PSMA Australia NAMF extension attribute that contains diagnostic information on the quality of the address match returned by the address search process. The string in the <i>matchCode</i> field contains match results for each NAMF Field in the format of Field Code followed by Match Type.</p> <table border="1"> <thead> <tr> <th colspan="2">Field Codes</th> <th colspan="2">Match Types</th> </tr> </thead> <tbody> <tr> <td>SE</td> <td>siteName</td> <td>Y</td> <td>Yes, NAMF field was matched in the returned address</td> </tr> <tr> <td>UT</td> <td>complexUnitType</td> <td>N</td> <td>No, NAMF field was not matched in the returned address</td> </tr> <tr> <td>UI</td> <td>complexUnitIdentifier</td> <td>F</td> <td>Only streetNumber1 field was matched</td> </tr> <tr> <td>LT</td> <td>complexLeveltype</td> <td>L</td> <td>Only streetNumber2 was matched.</td> </tr> <tr> <td>CL</td> <td>complexLevelNumber</td> <td>A</td> <td>An alias match for the field was identified.</td> </tr> <tr> <td>LI</td> <td>lotIdentifier</td> <td>P</td> <td>A phonetic match for the field was identified.</td> </tr> <tr> <td>NR</td> <td>streetNumber1, streetNumber2</td> <td>S</td> <td>A phonetic match for an alias was identified</td> </tr> <tr> <td>SN</td> <td>streetName</td> <td>G</td> <td>A neighbouring locality was matched.</td> </tr> <tr> <td>ST</td> <td>streetType</td> <td>B</td> <td>A phonetic match for a neighbouring locality was matched</td> </tr> <tr> <td>SS</td> <td>streetSuffix</td> <td></td> <td></td> </tr> <tr> <td>LN</td> <td>localityName</td> <td></td> <td></td> </tr> <tr> <td>PC</td> <td>postcode</td> <td></td> <td></td> </tr> <tr> <td>SA</td> <td>stateTerritory</td> <td></td> <td></td> </tr> </tbody> </table>	Field Codes		Match Types		SE	siteName	Y	Yes, NAMF field was matched in the returned address	UT	complexUnitType	N	No, NAMF field was not matched in the returned address	UI	complexUnitIdentifier	F	Only streetNumber1 field was matched	LT	complexLeveltype	L	Only streetNumber2 was matched.	CL	complexLevelNumber	A	An alias match for the field was identified.	LI	lotIdentifier	P	A phonetic match for the field was identified.	NR	streetNumber1, streetNumber2	S	A phonetic match for an alias was identified	SN	streetName	G	A neighbouring locality was matched.	ST	streetType	B	A phonetic match for a neighbouring locality was matched	SS	streetSuffix			LN	localityName			PC	postcode			SA	stateTerritory		
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<i>matchQualityPercentage</i>	<p>This is a NAMF extension parameter only available to PSMA functions. This field contains a numeric value that indicates the quality of match found for the address. See Annex B for a description of match quality percentages.</p> <p>As a general rule:</p> <ul style="list-style-type: none"> > 95 indicates a real match or simple changes (such as locality/postcode mismatch or minor spelling errors), 90-95 indicates a likely match but may need to be confirmed, < 90 typically require intervention to decide which candidate is correct <p>Whether to automatically accept matches or select options from a list depends on the business application.</p>	
<i>primarySecondary</i>	This is a NAMF extension parameter only available to PSMA functions. This field specifies whether the address returned is a Primary or Secondary address.	
	Primary	The address returned is a Primary address.
	Secondary	The address returned is a Secondary address.
<i>mesh_block</i>	This is a NAMF extension parameter only available to PSMA functions. The current Australian Bureau of Statistics mesh block that the address is contained in.	
<i>dataset</i>	A NAMF extension attribute applicable to PSMA functions only. The name of the dataset used to obtain a result ie. GNAF, GNAF Live or PAF	
<i>formattedAddressString</i>	This is a NAMF extension parameter only available to PSMA functions. A string containing the address formatted with the following NAMF fields: <i>complexUnitType "1" streetNumber1</i>	
<i>matchCertainty</i>	Returns the level of match between the input address and the address matched by the address verification service.	
	FULL	The address returned fully matched the input address
	PARTIAL	The address returned partially matched the input address.
<i>geoType</i>	This attribute contains the level of the address match found.	
	ADDRESS	The result represents an address match at the Address level.
	STREET	The result represents an address match at the Street level.
	LOCALITY	The result represents an address match at the Locality

(NWS) findAddressByAttribute

Dataset: Various

A *findAddressByAttribute* function uses a PSMA Australia extension *searchAddress* to determine addresses that correspond to given search criteria.

REQUEST

Input		
When a SQL-like search condition is provided to PSMA Cloud a list of candidate address matches are returned.		
<i>criteria</i>	A SQL-like search condition that defines a required list of addresses. The specified conditions will be dependent on the function or dataset being used.	
<i>Other</i>	The request will allow for optional vendor-specific NAMF Features that will enhance the results of a request.	
Parameters		
<i>maxFeatures</i>	This parameter sets the maximum number of WFS features to be included in the response. Any matches beyond the <i>maxFeatures</i> limit are ignored. The default value is '30'.	
<i>omitAddress</i>	This is a standard NAMF parameter. This parameter specifies if address details are to be included in results.	
	FALSE (default)	This option specifies that the details of the matched address will be returned in the results.
	TRUE	This option specifies that details of the matched address will not be returned in the address verification response.
<i>geoType</i>	This is a NAMF extension parameter only available to PSMA functions. This parameter controls the fallback rules of address matching. If candidate addresses are required then ADDRESS should be used. If a full address cannot be matched and a fallback to street or locality is acceptable (rather than a near address) then STREET or LOCALITY should be used.	
	ADDRESS (default)	Specifies that all results should be complete NAMF addresses.
	STREET	Specifies that if a NAMF address can't be identified then the AV engine can return a street centroid as a match.
	LOCALITY	Specifies that if a NAMF address and a street centroid can't be identified then the AV engine may return a Locality centroid as a match.

RESPONSE

The response will contain a list of matching addresses. If no matching addresses are found then the returned NAMF message will not contain any result elements.

(WFS) findContaining

Dataset: Various

This function type contains datasets that can be searched using a geocode (location) to obtain features and characteristics associated with the location.

REQUEST

Input	
When a geocode location is provided to PSMA Cloud the address is provided as a latitude and longitude coordinate.	
<i>geoNorthSouthCoordinate</i>	Latitude location
<i>geoEastWestCoordinate</i>	Longitude location
Parameters	
<i>maxFeatures</i>	This parameter sets the maximum number of WFS features to be included in the response. Any matches beyond the <i>maxFeatures</i> limit are ignored. The default value is '30'.

RESPONSE

The response will contain a NAMF attribute for each WFS Feature matching the spatial search. The response attributes will be dependent on the dataset being used.

(WMS) mapSnap

Dataset: Various

The mapSnap Function type represents functions that return a map image. Each *mapSnap* function uses an OGC WMS Web Service (version 1.1.1) to generate the map image. The response from the WMS Web Service is translated to a NAMF message format and returned as NAMF attributes.

The map image produced by a *mapSnap* function is centred on the geocode in the request NAMF address.

Note that all maps are generated using projection EPSG:4283.

REQUEST

Input	
When a geocode location is provided to PSMA Systems the address is provided as a parsed address in NAMF format.	
<i>geoNorthSouthCoordinate</i>	Latitude location
<i>geoEastWestCoordinate</i>	Longitude location
Parameters	
<i>layers</i>	A comma-separated list of one or more available OGC map layers.
<i>buffer-horizontal</i> <i>buffer-vertical</i>	The buffer-horizontal and buffer-vertical define the size of the bounding box to be used in the WMS request to retrieve the map. The bounding box is determined by using the geocode in the request as a centre point and offsetting this using the buffer-horizontal and buffer-vertical values. Each unit of buffer-horizontal and buffer vertical corresponds to approximately 1 metre.
<i>format</i>	The format of the image to be produced. This should be an image format and is specified as a MIME type.
<i>width, height</i>	Specifies the size in pixels of the map image to be produced. Note: The displayed map will be distorted if the width/height aspect ratio is not aligned with <i>horizontal-buffer</i> and <i>vertical-buffer</i> .
<i>transport</i>	Used to indicate if the map image is to be embedded in the response as a <i>base64</i> encoded image or a URL reference to an image.
<i>geoDatumCode</i>	If provided, should always be 'GDA94'.

RESPONSE

The map information is contained in a NAMF attribute named “resultSetMember” containing the following NAMF Attributes:

Format					
<i>resultSetMemberSourceFunctionID</i>	Contains the identifier given to the mapSnap function in the workflow.				
<i>resultSetMemberType</i>	Contains the value “mapSnap” to indicate this is the results for a mapSnap function				
<i>transport</i>	Contains the method that will be used to return the map image. Possible values are:				
	<table border="1"> <tr> <td>base64</td> <td>The map image will be returned in the message using base64 encoding. The image will be in a NAMF attribute with name base64-encoded-data.</td> </tr> <tr> <td>url</td> <td>The map image will be hosted on a PSMA Systems web server. The url for the map image will be in a NAMF attribute with name 'url'.</td> </tr> </table>	base64	The map image will be returned in the message using base64 encoding. The image will be in a NAMF attribute with name base64-encoded-data.	url	The map image will be hosted on a PSMA Systems web server. The url for the map image will be in a NAMF attribute with name 'url'.
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url	The map image will be hosted on a PSMA Systems web server. The url for the map image will be in a NAMF attribute with name 'url'.				
<i>content-type</i>	The MIME type of the map image.				
<i>base-64-encoded-data</i>	Only present if transport value is base64, this NAMF attribute contains the base64 representation of the map image.				
<i>url</i>	Only present if the transport value is url, this NAMF attribute contains a url to the map image file.				

Annex B – matchQualityPercentage

100% - Exact Matched Address	
Note, if an exact match is found then only one result is returned.	
100	<p>The returned address matches the input address with the following conditions:</p> <ul style="list-style-type: none"> • Any of the following fields were not provided in the input address but were returned in the result: <ul style="list-style-type: none"> ○ <i>complexUnitType</i> ○ <i>complexLevelType</i> ○ <i>site_name</i> ○ <i>countryNameCode</i> ○ <i>locationDescriptor</i> ○ <i>deliveryPointIdentifier</i> ○ <i>state</i> • <i>localityName</i> is an alias but <i>postcode</i> is matched • <i>streetNumber1</i> is matched • <i>streetNumber2</i> is matched (or NULL in both the Request and result) • All other fields match (or NULL in both the Request and result)
96-99% - Highly Likely Match	
99	<ul style="list-style-type: none"> • Any condition covered by an Exact Match above • <i>postcode</i> was not provided in the input • <i>complexLevelNumber</i> was not provided but <i>complexUnitIdentifier</i> matches
98	<ul style="list-style-type: none"> • Any condition covered by a 99% match • <i>complexUnitType</i> is not matched • <i>complexLevelType</i> is not matched • Input address contains an alias street or locality
97	<ul style="list-style-type: none"> • Any condition covered by 98% • <i>localityName</i> is an adjacent neighbour and result is best matched address. • <i>streetName</i> is an alias and result is best matched address. • <i>streetType</i> does not match, however, <i>streetName</i> and <i>localityName</i> is matched • A <i>streetSuffix</i> is additionally returned. No alternative <i>streetSuffix</i> for the address exist and <i>streetName</i> and <i>localityName</i> match. • Input address is an alias address.
96	<ul style="list-style-type: none"> • Any condition covered by 97% • <i>siteName</i> does not match. • <i>postcode</i> does not match, however, <i>state</i> and <i>localityName</i> match and result is best matched address. • <i>streetName</i> is a phonetic or alias match and return is best matched address. • <i>localityName</i> is a phonetic, alias or adjacent neighbour and result is best matched address. • <i>complexLevelNumber</i> is returned but not provided in input. • <i>complexLevelNumber</i> is not matched but <i>complexUnitType</i> is matched.
94-95% - Good Candidates	
95	<ul style="list-style-type: none"> • Any condition covered by 96% • <i>localityName</i> is a phonetic, alias or adjacent neighbour • <i>streetName</i> is a phonetic or alias match • Input address is an alias address.
94	<ul style="list-style-type: none"> • Any condition covered by 95%

	<ul style="list-style-type: none"> Complex information is provided in the input but not returned in the result
91-93% - Possible Candidates	
93	<ul style="list-style-type: none"> Any condition covered by 94% A <i>streetSuffix</i> is additionally returned. Alternative <i>streetSuffix</i> for the address exist, however, <i>streetName</i> and <i>localityName</i> match. <i>localityName</i> is an adjacent neighbour and result is not the best matching address. <i>streetNumber2</i> does not match.
91	<ul style="list-style-type: none"> Any condition covered by 92% <i>streetSuffix</i> does not match. <i>complexLevelNumber</i> does not match.
71%-90% - Nearby Addresses	
90	<ul style="list-style-type: none"> Any condition covered by 91% <i>complexLevelType</i> does not match.
89	<ul style="list-style-type: none"> Any condition covered by 90% <i>streetNumber1</i> falls within street number range. <i>streetNumber2</i> falls within street number range.
87	<ul style="list-style-type: none"> All address where one of: <ul style="list-style-type: none"> <i>streetName</i> <i>localityName</i> and <i>stateTerritory</i> <i>postcode</i> match without using near neighbour, alias or phonetic matching.
75	<ul style="list-style-type: none"> <i>stateTerritory</i> does not match
<70% - Speculative	
<70	<ul style="list-style-type: none"> Addresses results lower than 70% are considered a best guess only

Annex C – Batch Workflow

Dataset: Various

Batch functions are used to batch process files of addresses against a PSMA Cloud workflow. The file containing the addresses is provided in a CSV file located on an FTP or sFTP site.

The batch function is executed in the same way as other functions in an *executeWorkflow* request. Two special features are used for a batch request:

- *batchAction* is used to determine if the request is to *submit* a new batch job, *cancel* an initiated batch job or to get the *status* of an existing batch job
- *columnConfiguration* is used to specify the input and output file formats and content.

The addresses are processed against workflows which may use parsed or unparsed addresses and may include additional information from spatial directories, such as VICMAP references.

When the batch is finished, the results are written as a CSV file to the FTP (or sFTP) site identified in the *submit* request.

REQUEST (BATCH SUBMIT)

Input	
A PSMA Cloud batch job is submitted by executing a NAMF <i>executeWorkflow</i> request with a function feature named <i>PSMA:BatchProcessingService</i> .	
Parameters	
<i>batchAction</i>	This defines whether to submit a batch job or return the status of an existing batch job.
	submit (default) Execute a new batch job.
	cancel Cancel a batch job that has been initiated.
	getStatus Return the status of an existing batch job.
<i>batchMode</i>	This defines which batch mode to use. Its value must be 'CSV' to submit a new batch job.
	CSV (default) Execute function as a batch address verification using a CSV file as input.
	Synchronous Execute function as an interactive address verification.
<i>columnConfiguration</i>	Defines the column configuration of both the input file and the output file generated by the batch function. For the input file, the column configuration consists of an <i>inputColumnDefinition</i> feature for each column in the input file. For the output file, the column configuration consists of the index, data type and data source for each column.
<i>enforceLimit</i>	A system parameter (always set automatically) that indicates to the batch AV service whether or not user transaction limits should be strictly enforced. If this parameter is passed in the function call it will be ignored.
<i>transactionCount</i>	A system parameter (always set automatically) that indicates to the batch AV service the number of used transactions the user has already consumed on their current license. If this parameter is passed in the function call it will be overwritten with a PSMA Cloud value.

<i>transactionLimit</i>	A system parameter (always set automatically) that indicates to the batch AV service the user's transaction limit on their current license. If this parameter is passed in the function call it will be ignored.	
<i>inputFilename</i>	The path and name of the CSV file that contains the addresses to be processed.	
<i>inputHost</i>	The host name of the server where the input file resides. This can be an FTP or sFTP server.	
<i>inputUsername</i>	The username to access the input file's host server.	
<i>inputPassword</i>	The password to access the input file's host server.	
<i>inputPort</i>	The port to use when connecting to the input file's host server.	
<i>workflowName</i>	The name of the PSMA Cloud workflow to be used to process the addresses in the input file. This workflow must be available to the user that submits the batch request.	
<i>maxWorkflowErrors</i>	The maximum number of workflow errors to accept before the batch process is stopped and an error reported. The default value is zero so no errors are accepted. To allow for unlimited errors set this value to -1.	
<i>minMatchingAccuracy</i>	This is a standard NAMF parameter. This parameter specifies whether the address verification process returns results with partial matches against the input address, or only returns results if there is a full match.	
	PARTIAL (default)	This option specifies that the address verification engine can give 'best match' results that may not be exactly the same as the input address. The result will be identified as a partial match and a 'MatchQualityPercentage' (see below) will indicate the quality of the returned addresses to the input address.
	FULL	This option specifies that the AV engine is only to return an address that is a full match for the input address. The AV engine will search the specified address dataset or file for an address that exactly matches the input address.
<i>outputFilename</i>	The path and name of a CSV file that the address verification results are to be written to.	
<i>outputHost</i>	The host name of the server that the output file and status file are to be written to. This can be an FTP or sFTP server.	
<i>outputUsername</i>	The username to access the output file's host server.	
<i>outputPassword</i>	The password to access the output file's host server.	
<i>outputPort</i>	The port to use when connecting to the output file's host server.	
<i>outputStatusFilename</i>	The path and name of a CSV file that will contain the status information for the batch job.	

RESPONSE (BATCH SUBMIT)

The response to the submit request includes the batch identifier and status information. If the response status element is 'OK' then the batch has been submitted. If the response status element is not 'OK' then an error has occurred and messages in the NAMF response error element describe the error.

Attributes		
<i>jobId</i>	This NAMF attribute contains the batch identifier. This value is used as a reference for the <i>getStatus</i> request.	
<i>status</i>	The NAMF <i>status</i> element indicates whether the submit request was successful or not.	
	OK	The batch job has been successfully submitted and is now executing.
	ERROR	Indicates the job was not successfully submitted. This status is always accompanied by an <i>error</i> attribute in the response.
<i>error</i>	Contains the code and description attributes for any error message returned for the <i>submit</i> request. It is possible to get multiple error elements in a single response.	
<i>note</i>	NAMF note elements, if present, contain notes about the batch submit request. The information contained in notes is for information only. Notes also contain the attributes <i>name</i> and <i>priority</i> . Possible values for note <i>priority</i> are:	
	CRITICAL	The note contains information about an anomaly in the request that is likely to be significant (affect results). No critical notes should be returned in a production system using this service.
	WARNING	The note contains information warning about a possible anomaly in the request. No warning notes should be returned in a production system using this service.
	INFO	The note contains information about the submit request that doesn't affect the result. Production systems can ignore INFO notes but these may be useful to developers.
	DEBUG	Debugging information about the request is in the note. Production systems can ignore DEBUG notes but these may be useful to developers.
<i>Other Attributes</i>	If a batch function returns additional information then this will be in the message as attribute elements.	

REQUEST (BATCH GET STATUS)

Input	
A PSMA Cloud batch job is submitted by executing a NAMF <i>executeWorkflow</i> request with a function feature that has a name of 'PSMA:BatchProcessingService'.	
Parameters	
<i>batchAction</i>	This defines whether to submit a batch job or return the status of an existing batch job. Its value must be 'getStatus' in order to get the status of a previously submitted batch job.
	submit (default) Execute a new batch job.
	getStatus Return the status of an existing batch job.
	cancel Cancels the specified batch job.
<i>jobId</i>	This NAMF attribute contains the batch identifier. This parameter is used to reference the batch for the <i>getStatus</i> request.

RESPONSE (BATCH GET STATUS)

Attributes	
<i>jobId</i>	This NAMF attribute contains the batch identifier. This value is used as a reference for the batch.
<i>status</i>	The NAMF status element indicates whether the <i>getStatus</i> request was successful or not. This is not the status of the batch job, but rather an indicator of whether or not PSMA Cloud was able to determine the status of a batch job. The most likely cause of an ERROR return in this field is providing incorrect parameters (eg. no <i>jobId</i> in the request)
	OK The <i>getStatus</i> request has successfully polled the Batch Web Service to get the status of the batch job.
	ERROR The <i>getStatus</i> request was unable to poll the Batch Web Service to get the status of the batch job. This status is always accompanied by an <i>error</i> attribute in the response.
<i>error</i>	Contains the code and description attributes for any error message returned for the <i>getStatus</i> request. It is possible to get multiple error elements in a single response.
<i>note</i>	NAMF note elements, if present, contain notes about the batch <i>getStatus</i> request. The information contained in notes is for information only. Notes also contain the attributes <i>name</i> and <i>priority</i> . Possible values for note priority are:
	CRITICAL The note contains information about an anomaly in the request that is likely to be significant (affect results). No critical notes should be returned in a production system using this service.
	WARNING The note contains information warning about a possible anomaly in the request. No warning notes should be returned in a production system using this service.
	INFO The note contains information about the submit request that doesn't affect the result. Production systems can ignore INFO notes but these may be useful to developers.
	DEBUG Debugging information about the request is in the note. Production systems can ignore DEBUG notes but these may be useful to developers.

<i>jobStatus</i>	This NAMF attribute contains the current status of the batch job. Possible values are:	
	STARTED	The batch job has started but address processing has not commenced.
	PROCESSING	The batch job is processing address records. The response will include a <i>statusDescription</i> attribute that describes the number of records processed for the input file.
	COMPLETED	The batch job has completed successfully.
	FAILED	The batch job has failed during processing. The response will include other fields that describe the cause of the failure.
	UNKNOWN	The status of the batch job was unable to be determined. This will always be accompanied by an error code and message.
<i>statusDescription</i>	A description for a given status. For <i>jobStatus</i> of 'PROCESSING' or 'COMPLETED' this will indicate the number of records processed. In the event of a 'FAILED' status the reason for the failure is recorded in this field.	
<i>IsfReport</i>	This NAMF attribute contains the state breakdown status of the batch job. Possible values of a 'StateReport' are:	
	TOTAL	Total number of input addresses for the state
	SUCCESSFUL	Number of input addresses processed successfully for the state.
	UNSUCCESSFUL	Number of input addresses processed unsuccessfully for the state.
	FAILED	Number of input addresses that failed for the state
	STATETerritory	Lists the name of the state or Territory