



**Digital
Business
Council**

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1 Audience

 BUSINESS ANALYSTS		 APPLICATION DEVELOPERS	
<p>Business Analysts:</p> <ul style="list-style-type: none"> • Those who analyse and document business or processes or systems, assessing the business model or its integration with technology; or • Those involved in the identification of business requirements for solutions to support accounts receivable, accounts payable and the electronic transmission of the associated documents between businesses. 		<p>Application Developers:</p> <ul style="list-style-type: none"> • Those involved in the design, operation and implementation of software and services for the exchange of electronic documents or messages; or • Those involved in the design, integration and operation of business applications dealing with invoicing. 	
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Primary Audience 
 Secondary Audience 

2 Overview

The Council provides a framework for interoperability in digital business, expressed as a set of technical specifications ('Profiles') and usage guidelines ('Implementation Guidance'). Profiles and Implementation Guidance are designed to facilitate effective business based on a modular approach for implementation, with a focus on global interoperability.

Council Profiles can be seen as 'agreements' on standards for message contents and business processes. The profile descriptions focus on the core information elements that typically cater to the majority of user requirements applicable across Australia and lower the need for detailed bilateral agreements between the trading partners.

The Council Metadata Service Location Profile describes a technical specification for the automated lookup of digital address information for a participant's capability data.

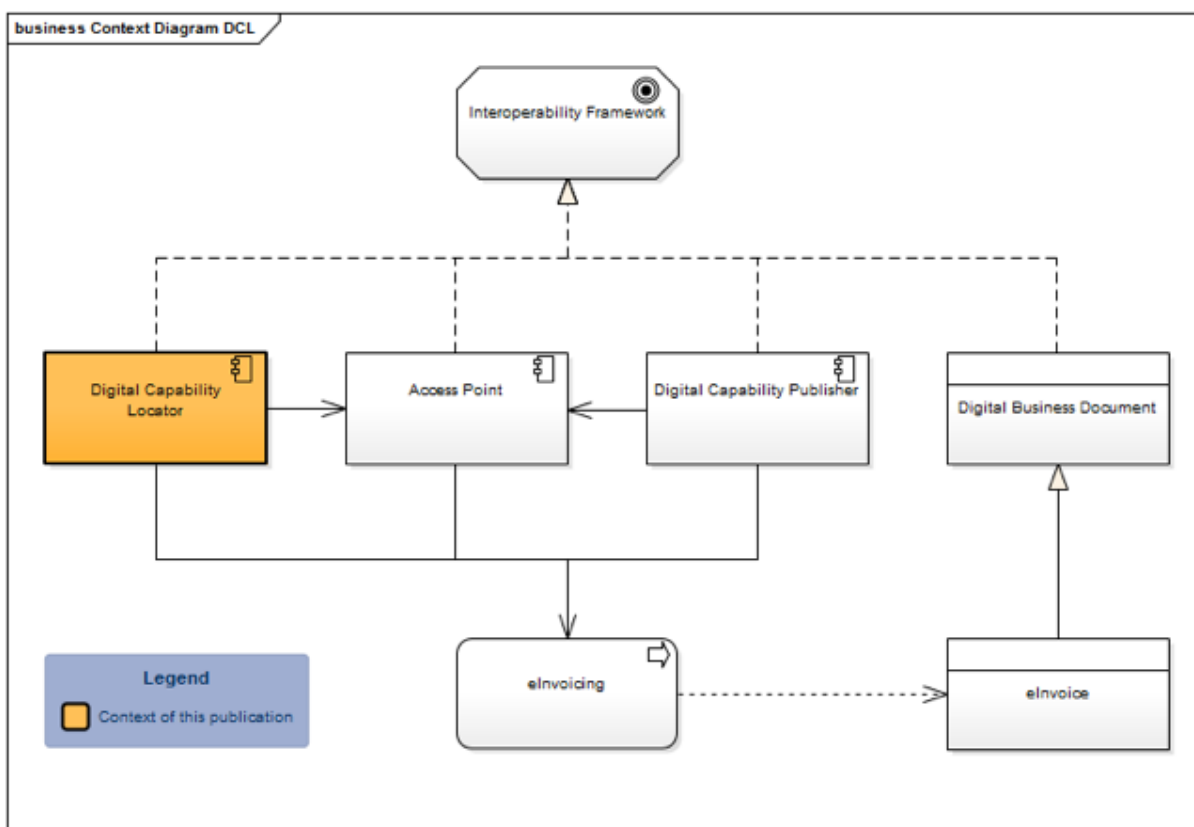


Figure 1: Context of Digital Capability Locator within the Interoperability Framework

The context diagram Figure 1 shows the components included in the Interoperability Framework and where the Digital Capability Locator sits. The Digital Capability Locator is used by Access Points to enable the eInvoicing process.

The scope of this implementation guide is to:

- Provide a high-level overview of the operating model for maintaining a Participant's Digital Capability Address;

- Provide an overview of the key use cases that are supported by the Digital Capability Locator;
- Describe how the Council Service Metadata Location Profile is applied within the Interoperability Framework; and
- Provide implementation guidance for consumers of services provided by the Digital Capability Locator.

This Implementation Guide incorporates the Council Metadata Service Location Profile (Section 8) which describes a technical specification for the automated lookup of digital address information for a participant's capability data. This profile is based on the OASIS Business Document Metadata Service Location Committee Specification Version 01 (OASIS, 2014) that was issued by OASIS on the 10th June 2014. The specification is also based on the successful implementation within the PEPOL program.

Section 10 provides further guidance for service consumers, specifically in relation to the management of participant and Digital Capability Publisher information stored in the Digital Capability Locator.

Figure 2 highlights the role of the Digital Capability Locator within the standard 4-corner model.

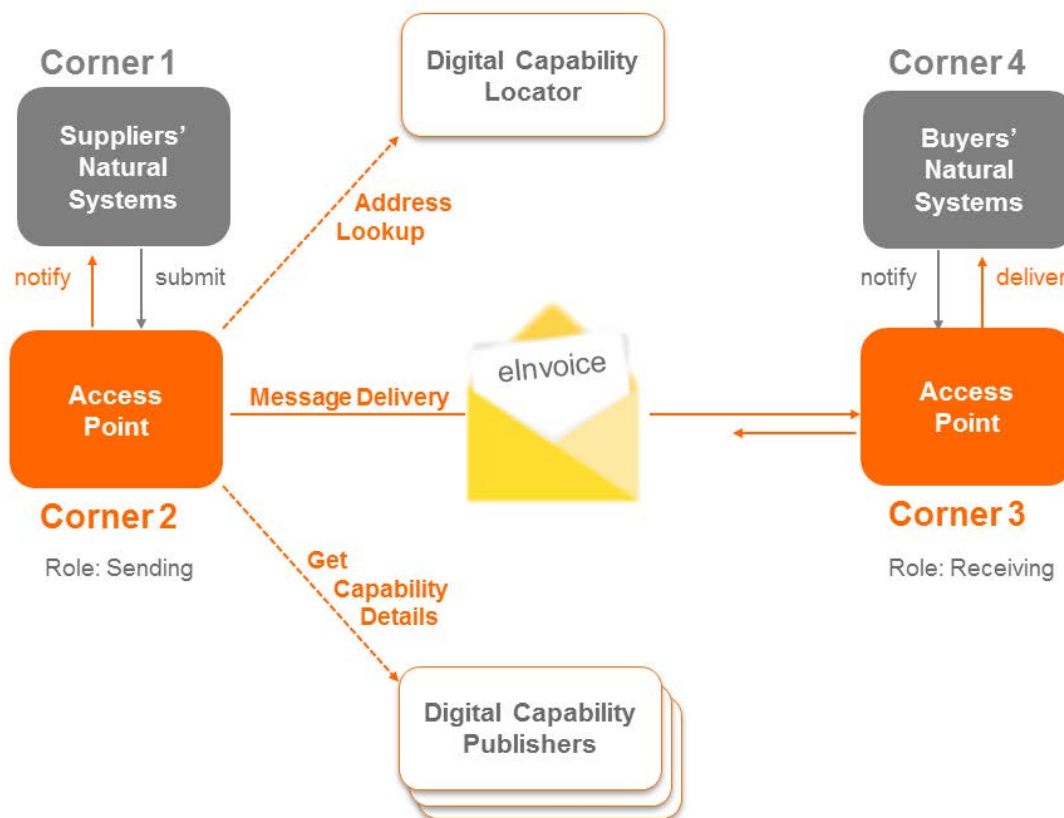


Figure 2: Four Corner Model

Business Document Metadata Service Location (OASIS, 2014) standardises retrieval of information about a participant's digital address. A single Digital Capability Locator will exist in a four-corner model community and MUST implement this profile.

The Digital Capability Locator and Digital Capability Publisher are needed for an Access Point to determine the destination of a message in a dynamic environment. The Digital Capability Locator is a mapping of participant identifiers to the address of the Digital Capability Publisher.

After retrieving this address, the Access Point accesses the capability of the recipient. Capabilities (i.e. the document types and business processes that a business can participate in, and information how to interact electronically with a business) of a business is stored in the Digital Capability Publisher and retrieved by the Access Points. Digital Capability Publishers expose an interface that can be used by Access Points to retrieve this information based on the business identifier, the document type and the business process being invoked.

Details about the Digital Capability Publisher are described in a separate document published by the Council.

3 Conformance

Conformance to the Digital Capability Locator Implementation Guide means conformance with the sections marked as 'Normative' in this Implementation Guide.

The Council's eInvoicing Interoperability Framework specifies that dynamic discovery of a participant's Digital Capability Publisher must conform to this Business Document Metadata Service Location Profile. Access Points are required to send conformant DNS queries to the Digital Capability Locator.

Conformance to the Business Document Metadata Service Location Profile does not require conformance to Section 9 'Services provided by the Digital Capability Locator'.

The keywords 'MUST', 'MUST NOT', 'REQUIRED', 'SHALL', 'SHALL NOT', 'SHOULD', 'SHOULD NOT', 'RECOMMENDED', 'MAY', and 'OPTIONAL' in this specification are to be interpreted as described in RFC2119 (Bradner, 1997).

4 Distribution Package

The Digital Capability Locator Implementation Guide and associated artefacts are published at: <http://resources.digitalbusinesscouncil.com.au/dbc/services/discovery/dcl/implementationguide/current>

This directory contains the following sub-directories:

- testsets – containing example XML fragment instances (used in this document);
- val – test assertions and outcomes for validation testing.

5 Terms and Definitions (Normative)

The terms listed in Table 1 are used as defined throughout this specification.

Table 1: Terms and Definitions

Term	Definition
Business Identifier	See participant identifier.
Data Format	A machine-readable language, syntax or dialect used to present the Information Elements contained in an electronic Document (for example, an eInvoice).
Digital Capability Locator	The Digital Capability Locator holds the electronic address of the digital capability of a Participant.
Digital Capability Publisher	Digital Capability Publisher is a register that stores information regarding the capabilities of a business entity including information such as the type of business documents it is equipped to send and receive. It also stores the electronic address of the business entity's Access Point.
Digital Capability Publisher Provider	Digital Capability Publisher Provider means the service provider of the Digital Capability Publisher services to a Client.
Distribution Package	A packaged file that contains the technical artefacts to support conformant implementation of the eInvoicing Profile.
eInvoice	An Invoice, RCTI, Credit Note or Adjustment Note that has been created, transmitted and received in the Council's Data Format.
eInvoicing	The set of processes required to exchange eInvoices.
Identification Scheme	The collection of Identifiers applicable for a given type of Information Element governed under a common set of rules.
Identifier	A character string used to establish the identity of, and distinguish uniquely, one instance of an object within an Identification Scheme from all other objects within the same scheme. An Identifier may be a word, number, letter, symbol, or any combination of those.
Information Element	A semantic concept that can be defined independent of any particular data format.

Term	Definition
Normative	Sections of a document conveying criteria to be fulfilled if compliance with the document is to be claimed and from which no deviation is permitted.
Participant	Means Council Accredited Access Point Providers, Digital Capability Publisher and Digital Capability Locator services and the businesses, organisations and other entities who have adopted the Framework.
Participant Identifier	An identifier for a participant.
Profile	A conformant subset of a standard specification.
Schema	A World Wide Web Consortium (W3C) recommendation that specifies how to formally describe the XML Elements in an XML Document.
Service	An application able to process specific document types for specific business transactions.
Service Interface	A software interface to support a Service.

6 Use Cases

The Digital Capability Locator supports several capabilities. The following sub-sections include a summary of the Use Cases and Model that are referred to throughout this implementation guide.

The Use Cases are divided into two logical groups which represent the separation between normal execution of eDelivery activities and the management of the eDelivery network, specifically the maintenance of Dynamic Discovery information.

The following Use Case Models show the relationship between Actors and Use Cases involved in these activities.

6.1 Sending a Business Document (including Dynamic Discovery)

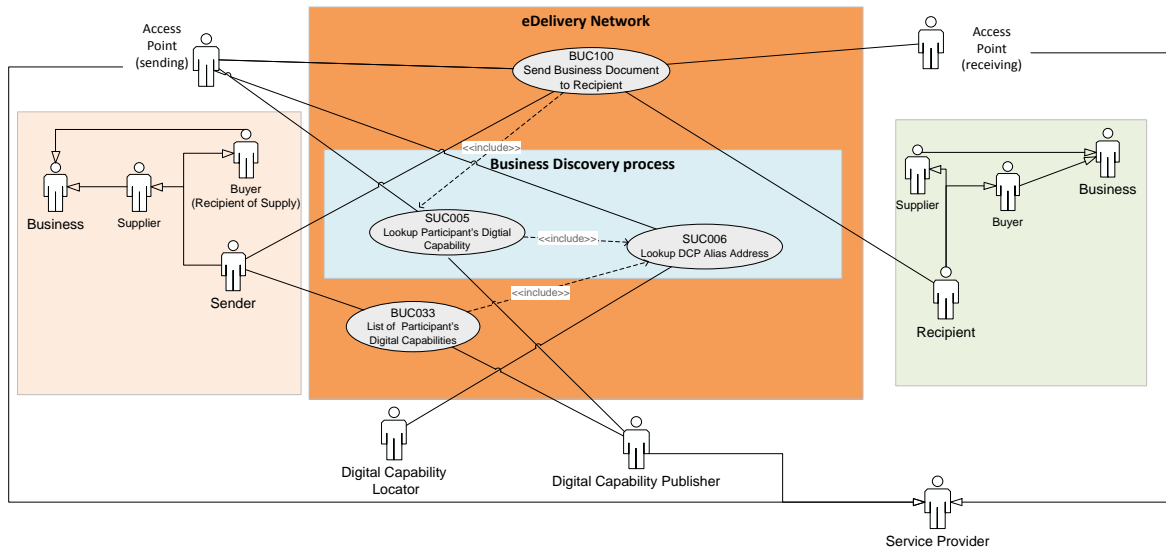


Figure 3: Sending a Business Document (including Dynamic Discovery) Use Case Diagram

6.2 Maintenance of Dynamic Discovery Information

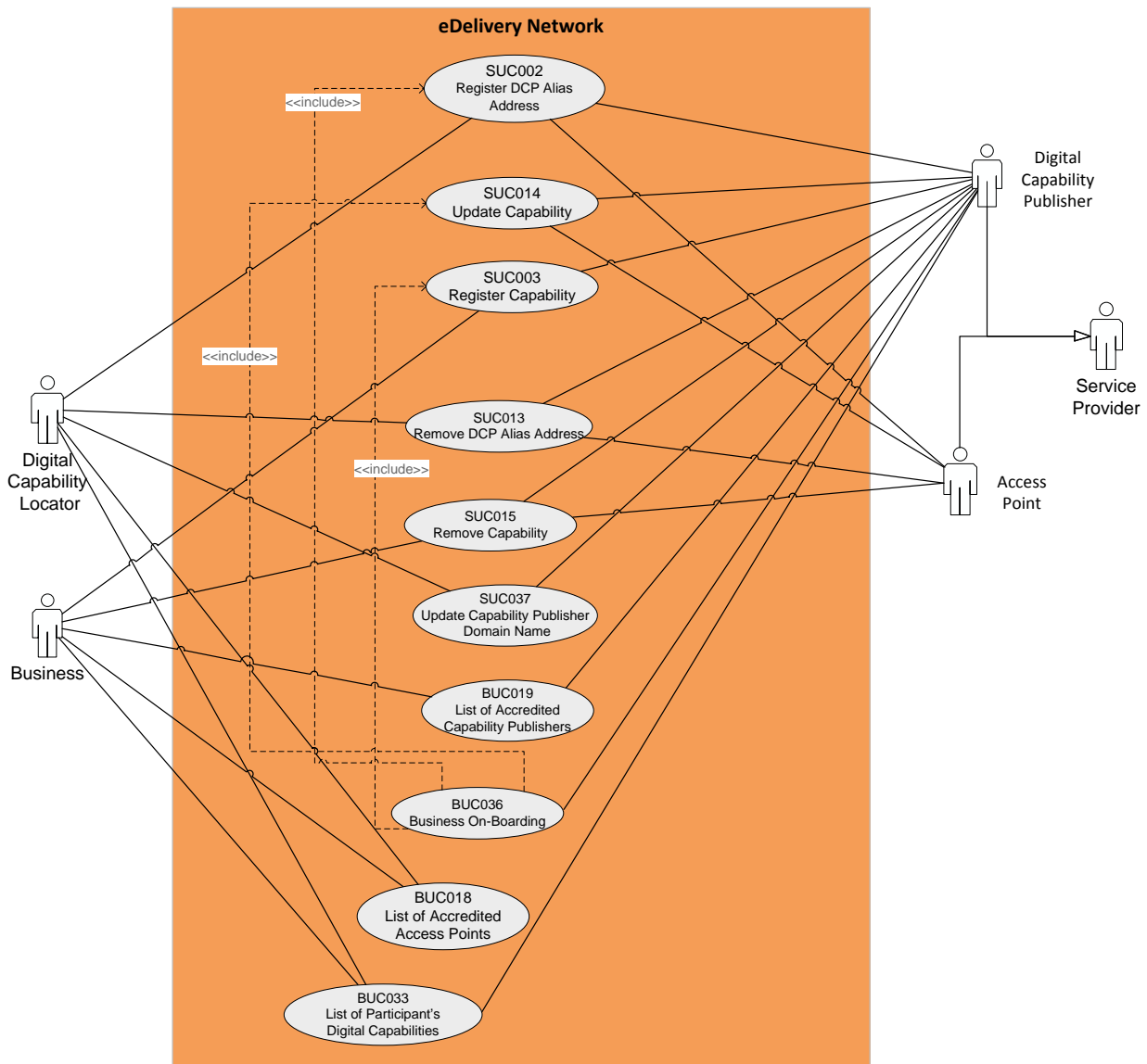


Figure 4: Maintenance of Dynamic Discovery Information Use Case Diagram

6.3 Use Case Descriptions

The table below provides a list of business and system use cases that represent the functionality required to support the eDelivery solution.

Note: These use cases are a subset of those described in the *eDelivery and Invoicing Use Cases* document relating only to those involving the Digital Capability Locator and Digital Capability Publisher, so the entire set of use cases is not shown here.

Table 2: Relevant Use Cases

Use Case ID	Actors	Description	High Level Process	Present In
SUC002	Digital Capability Publisher Access Point Digital Capability Locator	Register Digital Capability Publisher Alias Address	Maintenance	Implementation guides for: Access Point, Digital Capability Publisher and Digital Capability Locator
SUC005	Access Point Digital Capability Publisher Digital Capability Locator	Lookup Participant's Digital Capabilities (this includes SUC006)	Sending a business document	Implementation guides for: Digital Capability Locator, Digital Capability Publisher and Access Point
SUC006	Access Point Digital Capability Locator	Lookup Digital Capability Publisher Alias Address	Sending a business document	Implementation guides for: Access Point and Digital Capability Locator
SUC013	Access Point Digital Capability Publisher Digital Capability Locator	Remove Digital Capability Publisher Alias Address	Maintenance	Implementation guides for: Access Point, Digital Capability Publisher and Digital Capability Locator
SUC018	Access Point Business/Sender Digital Capability Locator	List accredited Access Points	eDelivery on boarding / Maintenance	Implementation guides for: Digital Capability Locator and Access Point

Use Case ID	Actors	Description	High Level Process	Present In
SUC019	Access Point Business/Sender Digital Capability Locator	List accredited Digital Capability Publishers (Note: looking up all a participant's capabilities is optional, and could be used by the sender to determine a trading partner's ability to receive business documents) (this includes SUC006)	eDelivery on boarding / Maintenance	Implementation guides for: Digital Capability Locator and Digital Capability Publisher
BUC033	Access Point (receiving) Digital Capability Publisher Digital Capability Locator	List of Participant's Digital Capabilities (Note: looking up all a participant's capabilities is optional, and could be used by the sender to determine a trading partner's ability to receive business documents) (this includes SUC006)	Maintenance/ Sending a business document	Implementation guides for: Digital Capability Locator, Digital Capability Publisher and Access Point
BUC036	Access Point Digital Capability Publisher Digital Capability Locator	Business On-boarding (note: this includes a business new to eInvoicing or a business changing provider) Includes SUC002, SUC003, SUC014	eDelivery On-boarding / Maintenance	Implementation guides for: Access Point, Digital Capability Publisher and Digital Capability Locator
BUC100	Access Point (sending) Access Point (receiving) Digital Capability Publisher Digital Capability Locator	Send Business Document to Recipient (includes SUC005 – Lookup Participant's Digital Capability)	Sending a business document	Implementation guides for: Access Point, Digital Capability Publisher and Digital Capability Locator

7 Business Document Metadata Service Location Profile (Normative)

Business Document Metadata Service Location (OASIS, 2014) defines a mechanism to determine the location of a metadata service using the well adopted Domain Name System (DNS). The specification provides mandatory and optional guidance that enables the use of DNS' Dynamic Delegation Discovery System (DDDS) (Mealling, 2002) to support resolution of DNS query strings, which identify a unique individual or organisation. The use of the NAPTR RR (Daigle, 2007) record is specified to support this lookup service.

The use of DNS as the base technology provides a scalable, robust and proven platform for address resolution. However, it is subject to all the security threats and attack vectors inherit in any DNS-based solution.

Business Document Metadata Service Location (OASIS, 2014) also provides additional guidance on 'Special Use Cases', which outline the application of participant identifiers in the context of the PEPOL and GS1 initiatives. These implementations and their associated guidance have a clear parallel to the Australian context.

Most of the Business Document Metadata Service Location (OASIS, 2014) standard applies verbatim. The following sub-sections explain how Business Document Metadata Service Location (OASIS, 2014) is used within the Interoperability Framework.

7.1 Conformance

The eDelivery implementation **MUST** meet the requirements for Core Implementation Conformance as defined in section 4 of Business Document Metadata Service Location. (OASIS, 2014)

7.2 Non-DNS Participant Identifiers

Business Document Metadata Service Location (OASIS, 2014) supports the resolution of party specific metadata endpoint through the use of a MD5 (see below) hashed IETF/IANA Registered NID format identifiers.

Use of the Australian Business Number (ABN) would result in the following:

Pre-Hash Example:

urn:oasis:names:tc:ebcore:partyid-type:iso6523:0151::51083392303

Post-Hash Example:

c7f212ba7dbfb056def2189b8b4ed408

The eDelivery implementation of Business Document Metadata Service Location applies the following pre-processing business rules to ensure interoperability:

1. The client solution **MUST** use MD5 hashed IETF/IANA Registered NID format identifiers to identify all participants
2. The client solution **MUST** ensure the pre-hash URN is UTF-8 encoded.
3. The client solution **MUST** ensure the pre-hash URN is converted to lower-case.

Further information on the use of IETF/IANA Registered NID format identifiers is contained in the Council's Policies and recommendations for the use of Business Identifiers. (Digital Business Council, 2016a)

7.3 DNS Query String

For use within the Interoperability Framework, the DNS query string **MUST** adhere to the following structure:

```
b-<hash over participantID>.[scheme].<Digital Capability Locator Domain Name>
```

This query string will ensure that all IETF/IANA Registered NID format identifiers can be encoded, stored and retrieved from a compliant DNS solution. This structure overcomes the naming restrictions imposed on the hostname portion of a Domain Name, specifically the 63 character maximum length and various interoperability issues with host names that do not contain an alphabetical character.

7.4 Use of Regular Expressions in U-NAPTR Record

Business Document Metadata Service Location (OASIS, 2014) provides guidance on the structure of the U-NAPTR including the use of Regular Expressions to transform address structures. This feature **SHALL NOT** be used by this profile.

The implementation of this profile as part of the Digital Capability Locator **MUST** only return base URI of the Digital Capability Register. All additional URI path information required for a query to the Capability Register **SHOULD** be constructed by the Access Point.

7.5 Security Consideration

The Business Document Metadata Service Location (OASIS, 2014) specification recommends the use of Domain Name System Security Extensions (DNSSEC) to improve the overall security of an implementation. DNSSEC can help to mitigate common DNS attack vectors such as DNS Spoofing. DNSSEC is able to provide origin authority, data integrity and authenticated denial of existence through the use of zone signing and trust anchors.

The implementation of this profile as part of the Digital Capability Locator **SHALL NOT** use DNSSEC until it is fully supported in the .AU zone.

8 Services provided by the Digital Capability Locator

8.1 Discovery API

8.1.1 Lookup Participant Capability Address

8.1.1.1 Purpose of API

This Application Programming Interface is used to lookup the Digital Address of the Digital Capability Publisher for a specified Participant Identifier.

8.1.1.2 Behaviour of API

This API will result in the following behaviours:

- Search the DNS and return all U-NAPTR Records that match the provided DNS query.
- The NAPTR records will return the CNAME record for the Digital Capability Publisher. This CNAME record will resolve to the actual Digital Capability Publisher URL as per normal DNS name resolution.

See the Business Document Metadata Service Location Profile (Section 8) for further information.

8.1.1.3 Sequence Diagram

The following sequence diagram demonstrates the flow of control between each solution component for System Use Case 006 [SUC-006] (Digital Business Council, 2016b):

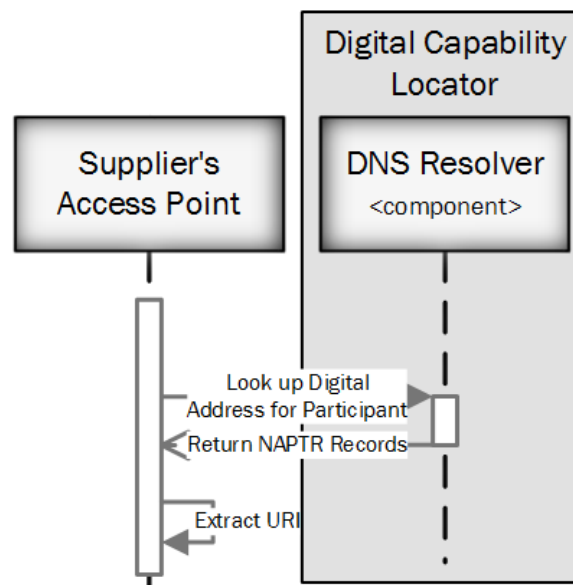


Figure 5: Lookup for Participant's DCP

DNS Name Structure	b-<Hash over participantID>.[scheme].<DCL-Domain> <i>Note:[scheme] has not been used in the initial implementation of the DCL.</i>	
DNS Name Example	b-ef1067ff41f0b4885eea42ab0548659e.digitalbusinesscouncil.com.au	
Protocol	DNSSEC	Authentication Mechanism
DNS	No	None

8.1.1.4 Status Codes & Error Conditions

Response Code	Additional Information
NoError	This response code is provided when the DNS query has been successfully resolved.
Refused	This response code is provided when the DNS DCL-Domain value is incorrect.
NXDomain	This response code is provided when the ParticipantID cannot be found.

8.2 API Security

The management APIs must only be made available over HTTPS using TLS1.2 as a minimum. Fallback to earlier versions of TLS or SSL must not be used. TLS versions with known vulnerabilities must not be used.

The management APIs are protected and requires clients to authenticate using a client certificate. The client as well as server certificates for both Access Points and Digital Capability Publishers are published in the Digital Capability Locator and should be used to verify peer certificates.

8.3 Management API - Mandatory Services

8.3.1 Register Participant Capability Address

8.3.1.1 Purpose of API

This Application Programming Interface is used to register a relationship between a Participant Identifier and a Digital Capability Publisher.

8.3.1.2 Behaviour of API

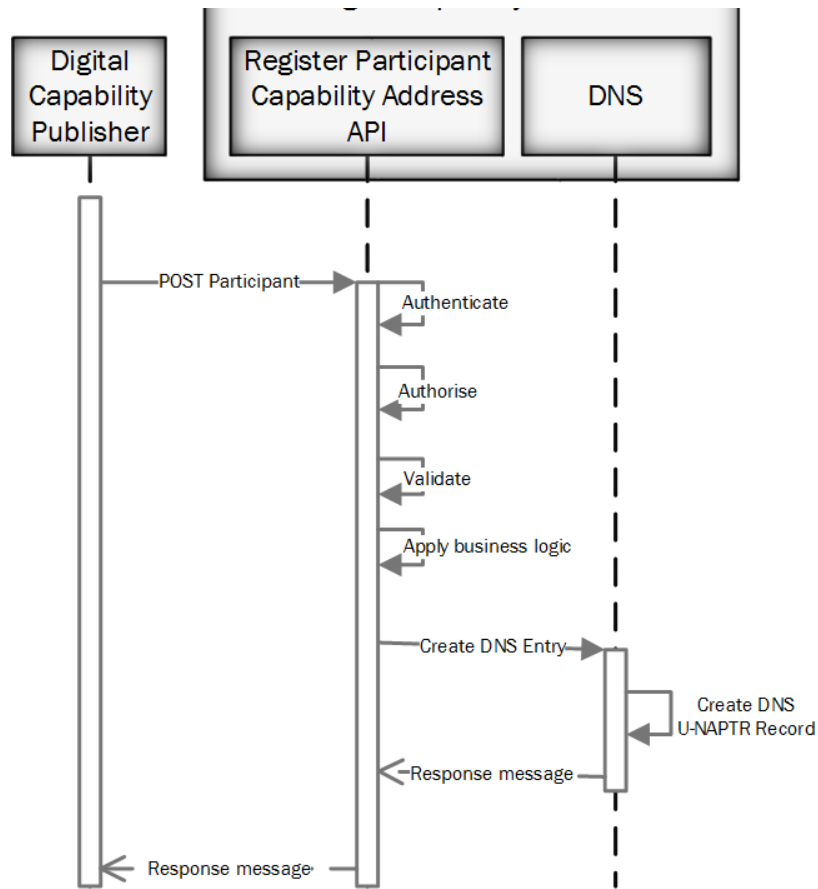
This API will result in the following behaviours:

- Create a DNS U-NAPTR Record using a hash of the Participant's Unique Identifier and Issuer, prefixed by 'b-' and suffixed by the Digital Capability Locator's Domain Name.

8.3.1.3 Sequence Diagram

The following sequence diagram demonstrates the flow of control between each solution component for System Use Case 002 [SUC-002] (Digital Business Council, 2016b):

Figure 6: Sequence Diagram for Components



Request URL	https://<Digital Capability Locator Domain Name>/api/ /capabilityPublishers/{capabilityPublisherID}/participants			
HTTP Method	SSL/TLS	Authentication Mechanism	JSON Support	XML Support
POST	Yes	Client Certificate	Yes	Yes

8.3.1.4 Request Headers

Header	Optional	Type	Description
Content-Type	Mandatory	String	The MIME type of the body sent to the API.
Accept	Optional	String	application/json, application/xml

8.3.1.5 Example Request Body - application/json

```

{
  "participantIdentifier": "51824753556",
  "participantIdentifierScheme": "urn:oasis:names:tx:ebcore:partyid-type:iso6523:0151",
  "capabilityPublisherID": "1"
}

```

8.3.1.6 Example Request Body - application/xml

```

<!--
This sample assumes that the Digital Capability Publisher has an ID of "1" and the Business's Unique Identifier is
"51824753556".
-->
<RegisterCapabilityAddressForParticipant
xmlns="http://busdox.org/serviceMetadata/locator/1.0/"
xmlns:ids="http://busdox.org/transport/identifiers/1.0/">
  <CapabilityPublisherID>1</CapabilityPublisherID >
  <ids:ParticipantIdentifier scheme="urn:oasis:names:tx:ebcore:partyid-type:iso6523:0151">
    51824753556
  </ids:ParticipantIdentifier>
</RegisterCapabilityAddressForParticipant >

```

8.3.1.7 Request Field Reference

Element Name	Description	Optional / Mandatory	Type
participantIdentifier	The unique identifier for the Participant.	Mandatory	String
participantIdentifierScheme or XML representation: ParticipantIdentifier/@scheme	The Identifier Scheme which applied to the participantIdentifier.	Mandatory	String
capabilityPublisherID	The unique ID assigned to the Digital Capability Publisher during the accreditation process.	Mandatory	String

8.3.1.8 HTTP Status Codes & Error Conditions

HTTP Status Code	Message	Category	Additional Info
201	Created	Success	The request has been fulfilled and has resulted in one or more new resources being created.
400	Bad Request	Error	The server cannot or will not process the request due to something that is perceived to be a client error.
403	Forbidden	Error	The server understood the request, but is refusing to fulfill it. Return this if there is a problem with the client certificate.
404	Not Found	Error	The origin server did not find a current representation for the target resource or is not willing to disclose that one exists.
422	Unprocessable Entity	Error	The server understands the content type of the request entity, and the syntax of the request entity is correct but was unable to process the contained instructions (see error code reference).
5xx	Server Error	Error	Any appropriate HTTP server error.

8.3.1.9 Example Responses

HTTP RESPONSE CODE: 201 (Created)

8.3.1.10 Response Headers

Header	Optional	Type	Description
Content-Type	Mandatory	String	Depending on request: <ul style="list-style-type: none"> • application/json (default) • application/xml
Date	Mandatory	String	The date and time that the message was originated.

8.3.1.11 Response Body- application/json

```
{
  "hash": "b-ef1067ff41f0b4885eea42ab0548659e"
}
```

8.3.1.12 Response Field Reference

Element Name	Description	Type
hash	The hash generated for the Participant Identifier and participantIDScheme combination. Prefixed with 'b-'.	String
errors	The error codes and descriptions related to the action attempted.	Array
code	The code associated with the error.	String
name	The name category for the error.	String
userMessage	The human readable error message.	String

8.3.1.13 Example Error Response - application/json

HTTP RESPONSE CODE: 422

```
{
  "errors": [
    {
      "code": "DCL-0001",
      "name": "Digital Capability Publisher Accreditation Not Valid.",
      "userMessage": "The accreditation for the nominated Digital Capability Publisher is not valid."
    }
  ]
}
```

8.3.1.14 Error Code Reference

Code	Name	User Message	More Info
DCL-0001	Digital Capability Publisher Accreditation Not	The accreditation for the nominated Digital Capability Publisher is not valid.	The accreditation of the Digital Capability Publisher may still be in underway, or the accreditation may have

Code	Name	User Message	More Info
	Valid.		been revoked.

8.3.2 Delete Participant Capability Address

8.3.2.1 Purpose of API

This Application Programming Interface is used to delete a relationship between an Australian Business and a Digital Capability Publisher.

8.3.2.2 Behaviour of API

This API will result in the following behaviours:

- Confirmation that the Digital Capability Publisher ID is valid.
- Search for a DNS U-NAPTR Record using a hash of the Participant's Unique Identifier and Issuer, suffixed by the Digital Capability Locator's Domain Name.
- The Participant's Digital Address history will be updated to flag the relationship as 'Cancelled'.

8.3.2.3 Sequence Diagram

The following sequence diagram demonstrates the flow of control between each solution component for System Use Case 013 [SUC-013]:

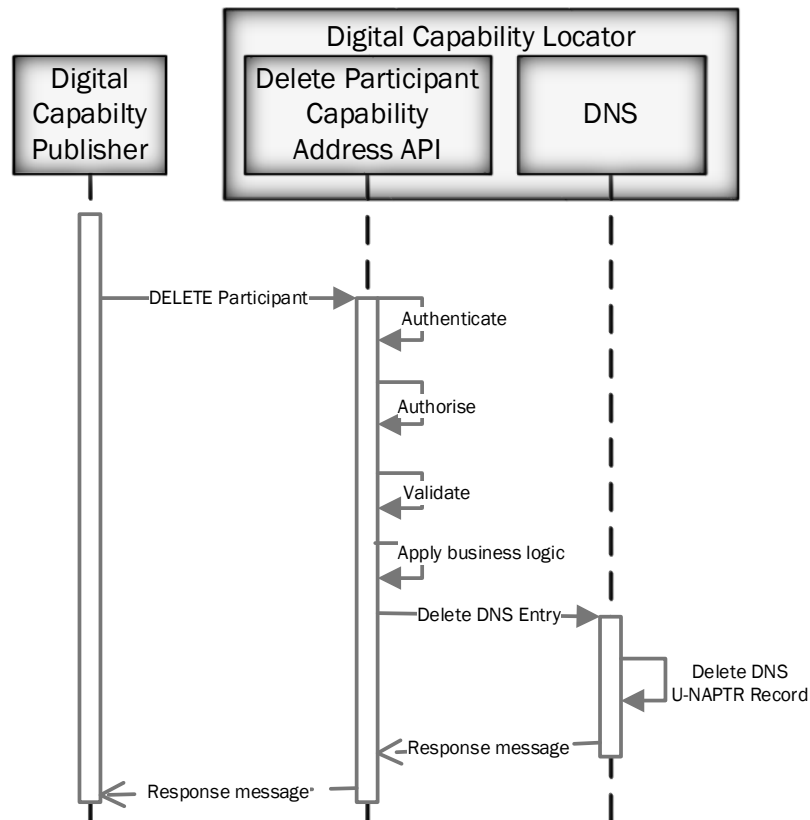


Figure 7: Flow of Control Diagram

Request URL	https://<Digital Capability Locator Domain Name>/api/capabilityPublisher/{capabilityPublisherID}/participants/{participantId}			
HTTP Method	SSL/TLS	Authentication Mechanism	JSON Support	XML Support
DELETE	Yes	Client Certificate	Yes	Yes

8.3.2.4 Request Headers

Header	Optional	Type	Description
Content-Type	Mandatory	String	The MIME type of the body sent to the API.
Accept	Optional	String	application/json, application/xml

8.3.2.5 Example Request Body - application/json

```

{
  "participantIdentifier": "51824753556",
  "participantIdentifierScheme": "urn:oasis:names:tx:ebcore:partyid-type:iso6523:0151",
  "capabilityPublisherID": "1"
}
  
```

8.3.2.6 Example Request Body - application/xml

```

<DeleteCapabilityAddressForParticipant xmlns="http://busdox.org/serviceMetadata/locator/1.0/"
xmlns:ids="http://busdox.org/transport/identifiers/1.0/">
  <ids:ParticipantIdentifier scheme="urn:oasis:names:tx:ebcore:partyid-
type:iso6523:0151">51824753556</ids:ParticipantIdentifier>
  <CapabilityPublisherID>1</CapabilityPublisherID >
</DeleteCapabilityAddressForParticipant >
  
```

8.3.2.7 Request Field Reference

Element Name	Description	Optional / Mandatory	Type
participantIdentifier	The Unique Identifier for the Participant.	Mandatory	String
participantIdentifierScheme or XML representation: ParticipantIdentifier/@scheme	The Identifier Scheme which applied to the participantIdentifier.	Mandatory	String
capabilityPublisherID	The Unique Identifier assigned to the Digital Capability Publisher during the accreditation process.	Mandatory	String

8.3.2.8 HTTP Status Codes & Error Conditions

HTTP Status Code	Message	Category	Additional Info
204	No Content	Success	The resource has been removed.

400	Bad Request	Error	The server cannot or will not process the request due to something that is perceived to be a client error.
403	Forbidden	Error	The server understood the request, but is refusing to fulfill it. Return this if there is a problem with the client certificate
404	Not Found	Error	The origin server did not find a current representation for the target resource or is not willing to disclose that one exists.
409	Conflict	Error	The request could not be completed due to a conflict with the current state of the target resource (see error code reference).
5xx	Server Error	Error	Any appropriate HTTP server error.

8.3.2.9 Example Response

HTTP RESPONSE CODE: 204 (No Content)

8.3.2.10 Response Headers

Header	Optional	Type	Description
Content-Type	Mandatory	String	Depending on request: <ul style="list-style-type: none"> • application/json (default) • application/xml
Date	Mandatory	String	The date and time that the message was originated.

8.3.2.11 Response Field Reference

Element Name	Description	Type
errors	The error codes and descriptions related to the action attempted.	Array
code	The code associated with the error.	String
Name	The name category for the error.	String
userMessage	The human readable error message.	String

8.3.2.12 Example Error Response - application/json

HTTP RESPONSE CODE: 409

```

{
  "errors": [
    {
      "code": "DCL-0002",
      "name": "Resource Mismatch.",
      "userMessage": "A resource already exists for the participant's unique identifier but contains an alternative Digital Capability Publisher ID."
    }
  ]
}

```

8.3.2.13 Error Code Reference

Code	Name	User Message	More Info
DCL-0002	Resource Mismatch	A resource already exists for the participant's unique identifier but contains an alternative Digital Capability Publisher ID.	Please follow the migration procedure described in the Digital Capability Publisher Implementation Guide.

8.4 Management API - Optional Services

8.4.1 Update Digital Capability Publisher End-Point

8.4.1.1 Purpose of API

This Application Programming Interface is used to update the DNS Alias for a Digital Capability Publisher.

8.4.1.2 Behaviour of API

This API will result in the following behaviours:

- Update the DNS Alias record for the Digital Capability Publisher.
- A successful API call will overwrite any existing DNS CNAME Record for the Digital Capability Publisher.

8.4.1.3 Sequence Diagram

The following sequence diagram demonstrates the flow of control between each solution component for System Use Case 037 [SUC-037]:

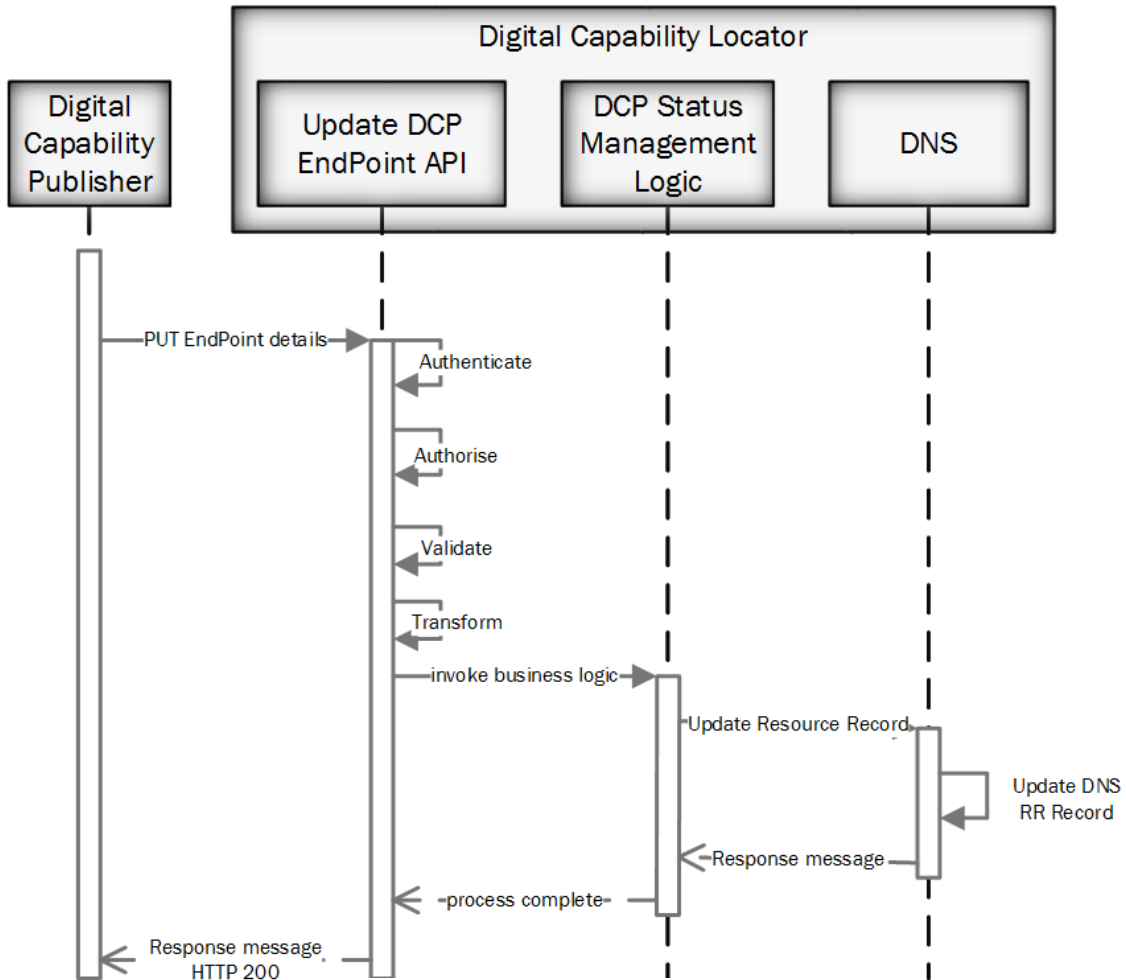


Figure 9: Flow of Control Diagram

Request URL	https://<DCL Domain Name>/api/capabilityPublishers/{capabilityPublisherID}			
HTTP Method	SSL/TLS	Authentication Mechanism	JSON Support	XML Support
PUT	Yes	Client Certificate	Yes	Yes

8.4.1.4 Request Headers

Header	Optional	Type	Description
Content-Type	Mandatory	String	The MIME type of the body sent to the API.
Accept	Optional	String	application/json, application/xml

8.4.1.5 Example Request Body - application/json

```

{
  "capabilityPublisherID": "1",
  "domainName": "www.mysmp.com.au"
}
  
```

8.4.1.6 Example Request Body - application/xml

```

<UpdateCapabilityPublisherEndpoint>
  <CapabilityPublisherID>1</CapabilityPublisherID>
  <DomainName>www.mysmp.com.au</DomainName>
</UpdateCapabilityPublisherEndpoint>
  
```

8.4.1.7 Request Field Reference

Element Name	Description	Optional / Mandatory	Type
capabilityPublisherID	The unique ID assigned to the Digital Capability Publisher during the accreditation process.	Mandatory	String
domainName	The DNS Domain Name for the Digital Capability Publisher.	Mandatory	String

8.4.1.8 HTTP Status Codes & Error Conditions

HTTP Status Code	Message	Category	Additional Info
200	OK	Success	
400	Bad Request	Error	The server cannot or will not process the request due to something that is perceived to be a client error.
403	Forbidden	Error	The server understood the request, but is refusing to fulfill it. Return this if there is a problem with the client certificate.

404	Not Found	Error	The origin server did not find a current representation for the target resource or is not willing to disclose that one exists.
422	Unprocessable Entity	Error	The server understands the content type of the request entity, and the syntax of the request entity is correct but was unable to process the contained instructions (see error code reference).
5xx	Server Error	Error	Any appropriate HTTP server error.

8.4.1.9 Example Response

HTTP RESPONSE CODE: 200 (OK)

8.4.1.10 Response Headers

Header	Optional	Type	Description
Content-Type	Mandatory	String	Depending on request: <ul style="list-style-type: none"> • application/json (default) • application/xml
Date	Mandatory	String	The date and time that the message was originated.

8.4.1.11 Response Body - application/json

```
{
  "capabilityPublisherID": "1",
  "domainName": "www.mysmp.com.au"
}
```

8.4.1.12 Response Body - application/xml

```
<UpdateCapabilityPublisherEndpoint>
  <CapabilityPublisherID>1</CapabilityPublisherID>
  <DomainName>www.mysmp.com.au</DomainName>
</UpdateCapabilityPublisherEndpoint>
```

8.4.1.13 Response Field Reference

Element Name	Description	Type
capabilityPublisherID	The unique ID assigned to the Digital Capability Publisher during the accreditation process.	String
domainName	The DNS Domain Name for the Digital Capability Publisher.	String
Errors	The error codes and descriptions related to the action attempted.	Array
code	The code associated with the error.	String
name	The name category for the error.	String
userMessage	The human readable error message.	String

8.4.1.14 Example Error Response - application/json

HTTP RESPONSE CODE: 422

```

{
  "errors": [
    {
      "code": "DCL-0001",
      "name": "Digital Capability Publisher Accreditation Not Valid.",
      "userMessage": "The accreditation for the nominated Digital Capability Publisher is not valid."
    }
  ]
}

```

8.4.1.15 Error Code Reference

Code	Name	User Message	More Info
DCL-0001	Digital Capability Publisher Accreditation Not Valid.	The accreditation for the nominated Digital Capability Publisher is not valid.	The accreditation of the Digital Capability Publisher may still be in underway, or the accreditation may have been revoked.

8.4.2 List Accredited Digital Capability Publishers

8.4.2.1 Purpose of API

This Application Programming Interface is used to a list of eDelivery Digital Capability Publishers that hold a current accreditation from the Digital Business Council.

8.4.2.2 Behaviour of API

This API will result in the following behaviours:

- A look up of all currently accredited Digital Capability Publishers.
- A return list up to the maximum number of specified results or the default limit of 50 records.

8.4.2.3 Sequence Diagram

The following sequence diagram demonstrates the flow of control between each solution component for System Use Cases 019 [SUC-019]:

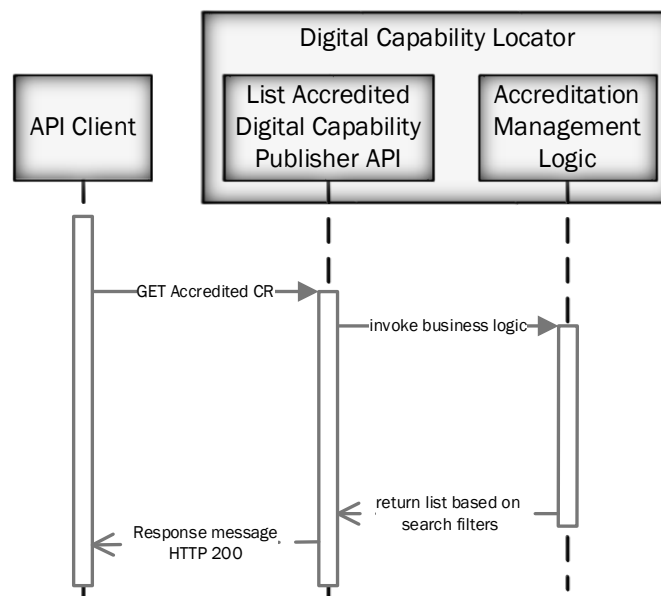


Figure 10: Flow of Control Diagram

Request URL	https://<DCL Domain>/api/v1/capabilityPublisher?limit=25&offset=50			
HTTP Method	SSL/TLS	Authentication Mechanism	JSON Support	XML Support

GET	Yes	None	Yes	Yes
-----	-----	------	-----	-----

8.4.2.4 Example Request Headers

Header	Optional	Type	Description
Accept	Optional	String	application/json, application/xml

8.4.2.5 HTTP Status Codes & Error Conditions

HTTP Status Code	Message	Category	Additional Info
200	OK	Success	
400	Bad Request	Error	The server cannot or will not process the request due to something that is perceived to be a client error.
5xx	Server Error	Error	Any appropriate HTTP server error.

8.4.2.6 Example Response

HTTP RESPONSE CODE: 200 (OK)

8.4.2.7 Response Headers

Header	Optional	Type	Description
Content-Type	Mandatory	String	Depending on request: <ul style="list-style-type: none"> • application/json (default) • application/xml

8.4.2.8 Response Body - application/json

```

{
  "metadata": {
    "resultset": {
      "count": 227,
      "offset": 50,
      "limit": 25
    }
  },
  "results": [
    {
      "capabilityPublisherID": "",
      "name": "",
      "contactEmail": "",
      "URL": "",
      "ClientCertificates": ["", ""],
      "ServerCertificates": ["", ""],
    },
    {
      "capabilityPublisherID": "",
      "name": "",
      "contactEmail": "",
      "URL": "",
      "ClientCertificates": ["", ""],
      "ServerCertificates": ["", ""],
    }
  ]
}

```

8.4.2.9 Response Body - application/xml

```

<AccreditedProviders>
  <Metadata>
    <ResultSet>
      <Count>227</Count>
      <Offset>50</Offset>
      <Limit>25</Limit>
    </ResultSet>
  </Metadata>
  <Results>
    <Provider>
      <CapabilityPublisherID>1</CapabilityPublisherID>
      <Name>Provider 1</Name>
      <ContactEmail>sales@provider1.com.au</ContactEmail>
      <Url>www.provider1.com.au</Url>
      <ClientCertificates>
        <ClientCertificate></ClientCertificate>
        <ClientCertificate></ClientCertificate>
      </ClientCertificates>
      <ServerCertificates>
        <ServerCertificate></ServerCertificate>
      </ServerCertificates>
    </Provider>
  </Results>
</AccreditedProviders>

```

```

        <ServerCertificate></ServerCertificate>
      </ServerCertificates>
    </Provider>
  <Provider>
    <CapabilityPublisherID>2</CapabilityPublisherID>
    <Name>Provider 2</Name>
    <ContactEmail>sales@provider2.com.au</ContactEmail>
    <Url>www.provider2.com.au</Url>
    <ClientCertificates>
      <ClientCertificate></ClientCertificate>
      <ClientCertificate></ClientCertificate>
    </ClientCertificates>
    <ServerCertificates>
      <ServerCertificate></ServerCertificate>
      <ServerCertificate></ServerCertificate>
    </ServerCertificates>
  </Provider>
</Results>
</AccreditedProviders>

```

8.4.2.10 Response Field Reference

Element Name	Description	Type
Metadata	An array containing ResultSet metadata.	Array
ResultSet	An array containing information on the result set returned by the API.	Array
Count	Total number of records matching the request criteria.	Int
Offset	The offset of the first record contained in the result set within the total number of records matching the request criteria.	Int
Limit	The maximum number of records returned in the result set.	Int
CapabilityPublisherID	The unique id for the Digital Capability Publisher issued by the accreditation authority.	String
Name	The trading name of the provider listed on the accreditation record.	String
ContactEmail	A contact email for the provider.	String
Url	The URL for the provider's registration website.	String

Element Name	Description	Type
Client Certificates	A list of PEM base 64 encoded DER formatted X509 client certificates. One or two client's certificates may be returned to support rollover of certificates.	Array
Server Certificates	A list of PEM base 64 encoded DER formatted X509 server certificates. One or two server certificates may be returned to support rollover of certificates.	Array
errors	The error codes and descriptions related to the action attempted.	Array
code	The code associated with the error.	String
name	The name category for the error.	String
userMessage	The human readable error message.	String

8.4.3 List Accredited Access Points

8.4.3.1 Purpose of API

This Application Programming Interface is used to a list of eDelivery Access Points that hold a current accreditation from the Digital Business Council.

8.4.3.2 Behaviour of API

This API will result in the following behaviours:

- A look up of all currently accredited Access Points.
- A return list up to the maximum number of specified results or the default limit of 50 records.

8.4.3.3 Sequence Diagram

The following sequence diagram demonstrates the flow of control between each solution component for System Use Cases 018 [SUC-018]:

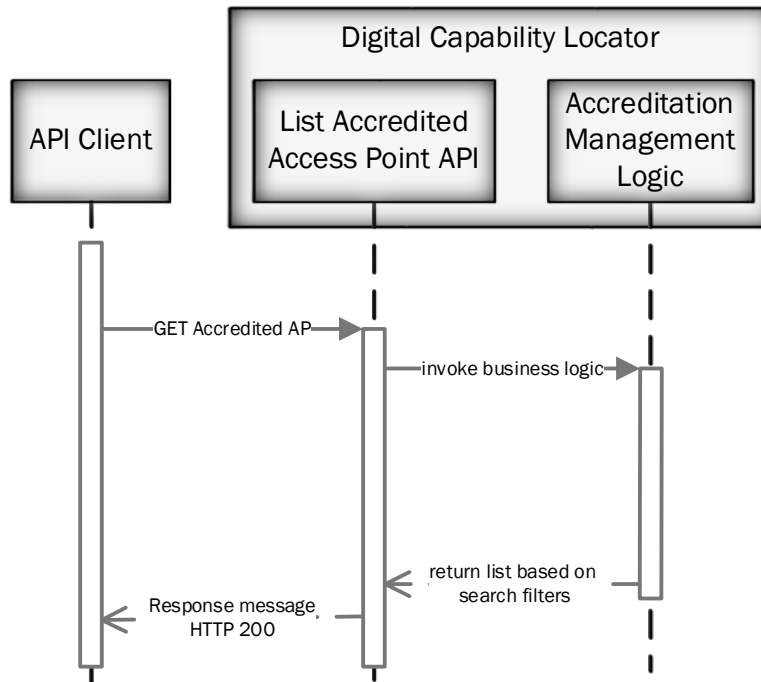


Figure 11: Flow of Control Diagram

Request URL	https://<DCL Domain>/api/v1/accessPoint?limit=25&offset=50			
HTTP Method	SSL/TLS	Authentication Mechanism	JSON Support	XML Support
GET	Yes	None	Yes	Yes

8.4.3.4 Example Request Headers

Header	Optional	Type	Description
Accept	Optional	String	application/json, application/xml

8.4.3.5 HTTP Status Codes & Error Conditions

HTTP Status Code	Message	Category	Additional Info
------------------	---------	----------	-----------------

200	OK	Success	
400	Bad Request	Error	The server cannot or will not process the request due to something that is perceived to be a client error.
5xx	Server Error	Error	Any appropriate HTTP server error.

8.4.3.6 Example Response

HTTP RESPONSE CODE: 200 (OK)

8.4.3.7 Response Headers

Header	Optional	Type	Description
Content-Type	Mandatory	String	Depending on request: <ul style="list-style-type: none"> • application/json (default) • application/xml

8.4.3.8 Response Body - application/json

```
{
  "metadata": {
    "resultset": {
      "count": 227,
      "offset": 50,
      "limit": 25
    }
  },
  "results": [
    {
      "accessPointID": "",
      "name": "",
      "contactEmail": "",
      "URL": "",
      "ClientCertificates": ["", ""],
      "ServerCertificates": ["", ""],
    },
    {
      "accessPointID": "",
      "name": "",
      "contactEmail": "",
      "URL": "",
      "ClientCertificates": ["", ""],
      "ServerCertificates": ["", ""],
    }
  ]
}
```

8.4.3.9 Response Body - application/xml

```
<AccreditedProviders>
  <Metadata>
    <ResultSet>
      <Count>227</Count>
      <Offset>50</Offset>
      <Limit>25</Limit>
    </ResultSet>
  </Metadata>
  <Results>
    <Provider>
      <AccessPointID>1</AccessPointID>
      <Name>Provider 1</Name>
      <ContactEmail>sales@provider1.com.au</ContactEmail>
      <Url>www.provider1.com.au</Url>
      <ClientCertificates>
        <ClientCertificate></ClientCertificate>
        <ClientCertificate></ClientCertificate>
      </ClientCertificates>
      <ServerCertificates>
        <ServerCertificate></ServerCertificate>
      </ServerCertificates>
    </Provider>
  </Results>
</AccreditedProviders>
```

```

        <ServerCertificate></ServerCertificate>
      </ServerCertificates>
    </Provider>
  <Provider>
    <AccessPointID>2</AccessPointID>
    <Name>Provider 2</Name>
    <ContactEmail>sales@provider2.com.au</ContactEmail>
    <Url> www.provider2.com.au</Url>
    <ClientCertificates>
      <ClientCertificate></ClientCertificate>
      <ClientCertificate></ClientCertificate>
    </ClientCertificates>
    <ServerCertificates>
      <ServerCertificate></ServerCertificate>
      <ServerCertificate></ServerCertificate>
    </ServerCertificates>
  </Provider>
</Results>
</AccreditedProviders>

```

8.4.3.10 Response Field Reference

Element Name	Description	Type
Metadata	An array containing ResultSet metadata.	Array
ResultSet	An array containing information on the result set returned by the API.	Array
Count	Total number of records matching the request criteria.	Int
Offset	The offset of the first record contained in the result set within the total number of records matching the request criteria.	Int
Limit	The maximum number of records returned in the result set.	Int
AccessPointID	The unique id for the Access Point issued by the accreditation authority.	String
Name	The trading name of the provider listed on the accreditation record.	String
ContactEmail	A contact email for the provider.	String
Url	The URL for the provider's registration website.	String

Element Name	Description	Type
Client Certificates	A list of PEM base 64 encoded DER formatted X509 client certificates. One or two client certificates may be returned to support rollover of certificates.	Array
Server Certificates	A list of PEM base 64 encoded DER formatted X509 server certificates. One or two server certificates may be returned to support rollover of certificates.	Array
errors	The error codes and descriptions related to the action attempted.	Array
code	The code associated with the error.	String
name	The name category for the error.	String
userMessage	The human readable error message.	String

APPENDIX A: Use Cases

BUC100 Send Business Document to Recipient

Purpose

This high level use case describes the end to end process of sending a business document to a recipient.

Assumptions

N/A

Preconditions

1. The Sender, Recipient, Capability Publisher and the Access Points are participants in eDelivery.

Post conditions

1. The recipient receives the Sender's business document successfully.

Basic Flow

1. The Sender populates the business document with the required information (identifier and scheme, document type and process);
2. The Sender sends the business document to their Access Point;
3. The sending Access Point performs the business discovery process to obtain the capability of the recipient (which includes obtaining the service endpoint of the receiving Access Point)
 - a. <<include>> SUC005 – Lookup Participant's Digital Capability;
4. The sending Access Point sends the business document to the recipient's nominated Access Point for the business document type;
5. The receiving Access Point receives the business document successfully;
6. The receiving Access Point sends the business document to the recipient;
7. The recipient receives the business document from their nominated Access Point successfully;
8. End flow.

BUC033 List Participant's Capabilities

Purpose

This use case describes the steps required for a party, possibly a sender, to discover the entire capabilities (i.e. every process) supported by a participant.

This use case is optional as it would only be useful if there were more than one process supported by a participant. It is not necessary for a Sender to discover all capabilities of a Recipient to send a business document from corners 1 to 4.

Assumptions

1. Any party, even those not participating in eDelivery, can view a Participant's Capabilities.

2. No authentication or authorisation checks are required.

Pre-conditions

1. The requester needs to know the identifier of the participant they are looking up.

Post-conditions

1. The recipient's digital capabilities have been determined by a participant.

Basic Flow

1. The requester establishes the location of the recipient's digital capabilities
 - a. <<include>> SUC006 - Lookup Participant's DCP Alias Address;
2. The requester constructs the request to retrieve a recipient's capability list;
3. The requester sends the request to the recipient's Digital Capability Publisher;
4. The Digital Capability Publisher creates the response including the capabilities for each process the participant has in their capability record;
5. The requester receives the response;
6. End flow.

BUC036 Business On-boarding

Purpose

This use case describes the process to on-board a business to a single Digital Capability Publisher and/or one or more Access Point services for eDelivery. This does not include Access Point (AP) and Digital Capability Publisher (DCP) service providers themselves, who are covered by the process described in BUC010 – Service Provider On-Boarding.

There are a number of scenarios covered by this use case:

1. A business is entering the eDelivery framework for the first time (new participant); and
2. A business changes their service provider(s) to a single or multiple service provider (noting a business can only have one and only one Digital Capability Publisher service provider):
 - a. The business moves both services from one service provider to one or more service providers.
 - b. The business moves only their Access Point service for a particular process to a new service provider.
 - c. The business moves only the Digital Capability Publisher service to a new service provider.
 - d. The business has Access Point and Digital Capability Publisher services with separate providers and consolidates the services in one provider.
 - e. The business has different Service Providers for Digital Capability Publisher and Access Point services, and moves each service to two new Service Providers.

Assumptions

1. A Service Provider can operate an Access Point and/or a Digital Capability Register but it is not mandatory to provide both.

2. Where a Service Provider can provide both services, whether a business chooses to use both services of that one service provider is completely at their discretion.

Constraints

1. The Service Provider, when providing both services, must create and maintain the business' Digital Capability Locator entry and Digital Capability Publisher capability record.
2. When the business enters into agreements with a Digital Capability Publisher service provider and one or more Access Point service providers, the Digital Capability Publisher Service provider is responsible for coordinating, creating and maintaining the Digital Capability Locator entry and Digital Capability Publisher record on behalf of the business for the duration of this arrangement as it will need all Access Point details to create the business' Capability record in their nominated Digital Capability Publisher.
3. When the business has its own Access Point, the Service Provider for Digital Capability Publisher services is responsible for creating and maintaining the Digital Capability Locator entry, creating the capability record and responding to requests by the business to update the Access Point details the business uses as required.
4. In Access Point service provider change events, The Service Provider holding the business' capability record must comply with Access Point Service Provider request to update the capability record with the new Access Point details.
5. As defined in the Council provider agreements, the losing Service Provider must cooperate with the gaining (New) Service Provider during portability/change of service events.
6. Only one capability record can exist in the eDelivery framework for a participant; this record contains all the capabilities of the business.

Pre-conditions

1. The business has obtained an Australian Business Number (ABN) from the Australian Business Register (ABR) or a GLN, DUNS or other Council approved identifier.
2. The business is required to receive business documents supported by the Council and framework.
3. The New Service Provider is accredited by the Council.

Post-conditions

1. The business has agreements with one or more Service Providers for receiving Council supported business processes and documents through one or more Access Point providers and only one Digital Capability Publisher provider, having either become a new participant or changed service providers.
2. The business has only one capability record in any accredited Digital Capability Publisher.
3. The business is discoverable in the Digital Capability Locator and, if the new Digital Capability Publisher is listed in the Digital Capability Locator entry.

Basic Flow – New Participant in eInvoicing; Business chooses to use a single Service Provider for both Access Point and Digital Capability Publisher services.

1. The business determines their requirements;
2. The business investigates the services offered and pricing of various service providers;

3. The business determines the Service Provider(s) that meets their requirements;
4. The business enters an agreement with the New Service Provider;
5. The New Service Provider determines if the business' capability is already registered in a capability register (this also determines if the client has an Access Point service in the framework also);
6. The business does not have an existing capability record registered and requires it to be created in the New Service Provider's Digital Capability Publisher;
7. The New Service Provider determines the client does not have an Access Point service and will use the New Service Provider's AP;
8. The New Service Provider adds its own supported Access Point address, transport profiles, document types and processes to the business' capability record in its own Digital Capability Publisher;
 - a. <<include>> SUC003 – Register Capability.
9. The New Service Provider requests the capability address (Digital Capability Locator entry) be added to the Digital Capability Locator;
 - a. <<include>> SUC002 – Register Capability Address.
10. The New Service Provider informs the business the on-boarding activities have been completed;
11. End flow.

Alternate Flows

1. **New Participant; Business is signing up to DCP service only (participant may have an AP of its own or is signing a separate agreement with a different AP Service Provider).**
 - a. At step 6, the New Service Provider determines the Business is entering into an agreement with a different Access Point service provider or is using its own Access Point;
 - b. The New Service Provider obtains the Access Point endpoint address and transport profile it supports for each document and process, from either the Business (if using its own AP) or the Business' Access Point Service Provider(s);
 - c. The New Service Provider creates a capability record including Access Point endpoint address, transport profile, document and process types;
 - i. <<include>> SUC003 – Register Capability.
 - d. Resume at step 9.
2. **Existing Participant; Business has an existing Digital Capability Publisher service and is changing only this service to the New Service Provider**

At step 6, the New Service Provider discovers the business has an existing Digital Capability Publisher service that needs to be changed to the New Service Provider's Digital Capability Publisher service.

 - a. The New Service Provider informs the Losing Digital Capability Publisher Provider they are now providing the business' Digital Capability Publisher service;
 - b. The Losing Digital Capability Publisher Provider deprecates the business' capability record in their Digital Capability Publisher;
 - c. The New Service Provider contacts the business' existing Access Point Provider(s) to confirm the Access Point endpoint address and supported transport profile for each

document type and process (the New Service Provider would have obtained this information when looking up the business' capability record in step 5 of the basic flow);

- d. The New Service Provider creates a capability record including Access Point endpoint address, transport profile, document types and process types;
 - i. <<include>> SUC003 – Register Capability.
- e. Resume at step 9.

3. Existing Participant; the business is moving both services to the New Service Provider.

At step 6, the New Service Provider discovers the business has an existing Digital Capability Publisher service that needs to be changed to the New Service Provider's Digital Capability Publisher service.

- a. The New Service Provider informs the Losing Digital Capability Publisher Provider they are now providing the business' Digital Capability Publisher service.
- b. The Losing Digital Capability Publisher Provider deprecates the business' capability record in their Digital Capability Publisher.
- c. The New Service Provider informs the previous Access Point Provider they are the business' nominated Access Point Provider.
- d. The New Service Provider creates a capability record including the Access Point endpoint address(es), transport profile(s), document and process types.
 - i. <<include>> SUC003 – Register Capability
- e. Resume at step 9.

Exception flows

1. New Participant; Business is signing up to Access Point service with the New Service Provider, it will use another Service Provider for Digital Capability Publisher services.

At step 6, the New Service Provider determines the business will use a different service provider for a Digital Capability Publisher service.

 - a. The Digital Capability Publisher service provide requests the New Service Provider's Access Point details
 - b. The New Service Provider provides their Access Point endpoint address and transport profile, to enable the Digital Capability Publisher Service Provider to successfully create the business' capability record.
 - c. The Digital Capability Publisher Service Provider creates the capability record
 - i. <<include>> SUC003 – Register Capability
 - d. The Digital Capability Publisher Provider requests addition of the business' Digital Capability Locator entry in the Digital Capability Locator.
 - i. <<include>> SUC002 – Register Capability Address
 - e. The Digital Capability Publisher Provider informs the business that all access points have been added to the capability record for each document/process and the Digital Capability Locator entry has been created.
 - f. End flow.
2. Existing Participant; The Business is changing only to a new Access Point Service Provider for a particular document type and process

At step 9, the service provider discovers the participant has an existing Access Point provider and will be providing this service for the business instead, however the business is retaining its current Digital Capability Publisher Service provider.

- a. The New Service Provider informs the previous Access Point service provider they are the business' new Access Point provider for the particular document type and process
- b. The New Service Provider looks up the holder of the business' capability record.
- c. The New Service Provider provides their Access Point endpoint address and accepted transport protocol for the process and document type to the Digital Capability Publisher Provider to successfully create the business' capability record.
- d. The Digital Capability Publisher Provider updates the capability record
 - i. <<includes>> SUC014 – Update Capability
- e. The Digital Capability Publisher Provider informs the business their change in Access Point service has been updated and they are able to receive documents through the new Access Point.
- f. End flow.

SUC002 Register Digital Capability Publisher Alias Address

Purpose

This use case describes the interaction required for the Identifier to be mapped to the Digital Capability Publisher Alias Address of a participant's Digital Capability Publisher and this mapping added to the Digital Capability Locator, enabling the Participant to be discovered.

Assumptions

N/A

Pre-conditions

1. The participant's capability record has been added to an accredited Digital Capability Publisher.
2. The participant does not have a Digital Capability Publisher Alias Address already registered.
3. The Digital Capability Publisher has been accredited by the council and added to the Digital Capability Locator.
4. The Digital Capability Publisher has obtained the identifier and the identifier scheme of the participant.

Post-conditions

1. The Digital Capability Publisher Alias Address of the participant's Digital Capability Publisher has been added to the Digital Capability Locator, with the Participant's identifier mapped to the Digital Capability Publisher endpoint address.
2. The participant's Digital Capability Publisher address is discoverable on the Digital Capability Locator.

Basic Flow

1. The requester constructs the Digital Capability Publisher Alias Address record addition request

2. The requester sends the Digital Capability Publisher Alias Address record addition request to the Digital Capability Locator;
3. The Digital Capability Locator receives the Digital Capability Publisher Alias Address record addition request;
4. The Digital Capability Locator checks the requester is authorised to request a record addition;
5. The Digital Capability Locator verifies the Digital Capability Publisher Alias Address record addition request is in the correct format;
6. The Digital Capability Locator determines no record exists for this participant;
7. The Digital Capability Locator locates the accredited Digital Capability Publisher specified in the request for inclusion in the participant's record;
8. The Digital Capability Locator checks the Digital Capability Publisher in the request is accredited;
9. The Digital Capability Locator publishes the participant's Digital Capability Publisher Alias Address record;
10. The Digital Capability Locator responds, informing the requester that the Digital Capability Publisher Alias Address has been published successfully;
11. End flow.

Exception Flows

1. At step 4, the Digital Capability Locator determines the requester is not authorised and sends an error response indicating this;
2. At step 5, the Digital Capability Locator is unable to add the Digital Capability Publisher Alias Address record successfully because the request format is invalid;
 - a. The Digital Capability Locator sends an error message response to the requester.
 - b. End flow.
3. At step 6, the Digital Capability Locator is unable to add the Digital Capability Publisher Alias Address record successfully to the Digital Capability Locator because the participant already has a record;
 - a. The Digital Capability Locator sends an error message response to the requester.
 - b. End flow.
4. At step 7, the Digital Capability Locator is unable to add the Digital Capability Publisher Alias Address record successfully because the Digital Capability Publisher identifier provided cannot be found;
 - a. The Digital Capability Locator sends an error message response to the requester.
 - b. End flow.
5. At step 8, the Digital Capability Locator is unable to add the Digital Capability Publisher Alias Address record successfully because the Digital Capability Publisher is not accredited;
 - a. The Digital Capability Locator sends an error message response to the requester.
 - b. End flow.

SUC006 Lookup Digital Capability Publisher Alias Address

Purpose

This use case describes the steps required for a party to discover the Digital Capability Publisher Alias Address of a participant.

Assumptions

1. The Digital Capability Locator does not supply the URL to the capability record in the Digital Capability Publisher, but only the URL of the Digital Capability Publisher, it is up to the requester to construct the location of the capability record URL in the subsequent request.
2. The business document may have been generated by the sender and sent to the access point as part of sending a business document. The Access Point may be trying to discover the location of the capability record in order to send the business document to the recipient's access point.
3. Any participant can look up the Digital Capability Publisher Alias Address of another participant.

Pre-conditions

1. The requester and Digital Capability Publisher are participants in eDelivery.
2. The requester is aware of the identifier and the identifier scheme of the participant in order to lookup the Digital Capability Publisher Alias Address.

Post-conditions

1. The location of the recipient's Digital Capability Publisher endpoint address has been determined by the requester.

Basic Flow

1. The requester forms a query to locate the capability record of the recipient;
2. The requester sends the query to their Domain Name System (DNS) server;
3. The Digital Capability Locator receives the query;
4. The Digital Capability Locator locates the Digital Capability Publisher Alias Address for the recipient;
5. The Digital Capability Locator sends the query response to the requester;
6. The requester successfully receives the query response;
7. End flow.

Alternate Flows

1. At step 3, the Digital Capability Locator is unavailable at the time of the query;
 - a. The requester retries a specified amount of attempts;
 - b. The Digital Capability Locator is available during one of the attempts;
 - c. Resume at step 3.
2. At step 2, the Digital Capability Publisher Alias Address of a recipient's capability has been previously looked up by the requester, stored locally and is still valid (the Time-To-Life has not expired). The capability location is then determined by the requester based on this cached record and the Digital Capability Locator does not need to be queried.

Exception Flows

1. At step 4 the Digital Capability Locator cannot locate the recipient's Digital Capability Publisher Alias Address record and responds with an error message indicating this outcome;
2. At step 2 the Digital Capability Locator domain is incorrect;
 - a. The DNS server responds with an error;
 - b. End flow.
3. At step 6 the Digital Capability Publisher Alias Address is not present in the Digital Capability Publisher Alias Address record;
 - a. The Digital Capability Locator responds to the query;
 - b. The requester receives the response but cannot discover the location of the Participant's Digital Capability Publisher;
 - c. End flow.

SUC013 Remove Digital Capability Publisher Alias Address

Purpose

This use case describes the steps to remove a Digital Capability Publisher Alias Address record from the Digital Capability Locator.

Assumptions

1. The participant no longer trades or decides not to participate in eDelivery.
2. The Digital Capability Publisher or the participant can request removal the participant's Digital Capability Publisher Alias Address, so long as they can be authenticated and their permissions allow this.
3. The requester could be removing the record before adding a new one.

Pre-conditions

1. The participant has an existing Digital Capability Publisher Alias Address record.

Post-conditions

1. The participant's Digital Capability Publisher Alias Address record is no longer discoverable on the Digital Capability Locator.

Basic Flow

1. The Digital Capability Publisher or participant itself sends a request to the Digital Capability Locator to remove the participant's Digital Capability Publisher Alias Address record;
2. The Digital Capability Locator receives the request;
3. The Digital Capability Locator checks the requester is authorised to request the record to be removed;
4. The Digital Capability Locator checks the request format is correct;
5. The Digital Capability Locator locates the participant's record;
6. The Digital Capability Locator removes the participant's Digital Capability Publisher Alias Address record;

7. The Digital Capability Locator sends a response to the requester confirming the location has been removed;
8. End flow.

Exception Flows

1. At step 3, the Digital Capability Locator determines the requester is not authorised to perform a removal of the Digital Address;
2. At step 4, the Digital Capability Locator is unable to remove the Digital Capability Publisher Alias Address record successfully because the request format is not valid;
 - a. The Digital Capability Locator sends an error message response to the requester;
 - b. End flow.
3. At step 5, the Digital Capability Locator cannot find a Digital Capability Publisher Alias Address Record for the participant;
 - a. The Digital Capability Locator sends an error message response to the requester;
 - b. End flow.

SUC018 List of Accredited Access Points

Purpose

This may be performed when a requester wants to discover all accredited Access Points accredited or determine the accreditation status of a particular Access Point.

Assumptions

1. This list will be readily available and not require authentication and authorisation checks for requesters.

Pre-conditions

1. The Access Points on the list have been accredited by the accreditation body.

Post-conditions

1. The requester has obtained the list of accredited access points.

Basic Flow

1. The requester sends a request to the Digital Capability Locator for a list of accredited access points;
2. The Digital Capability Locator receives the request;
3. The Digital Capability Locator compiles the list of accredited access points;
4. The Digital Capability Locator sends the response with the list to the requester;
5. End flow.

SUC005 Lookup Participant's Digital Capability

Purpose

This use case describes the steps required for a party to discover a specific capability for a particular document and process. The party would discover in the capability the service endpoint and transport Profile for a recipient's Access Point for the specified document and process.

For example, an Access Point could be trying to determine if the Recipient actually accepts eInvoicing process documents such as Tax Invoices, where to send them and in what format.

Assumptions

1. Capability records should not be cached or stored outside of a Digital Capability Publisher, but the capability looked up in the Digital Capability Publisher each time needs to be discovered.
2. Any party can determine the business processes and capability of a participant in eDelivery without being authenticated or authorised.

Pre-conditions

1. The requester has obtained the Participant's identifier and its scheme, the document type, and the business process.

Post-conditions

1. The recipient's digital capability for the document type and business process has been confirmed by a requester.
2. The requester has determined the recipient's Access Point endpoint address and transport Profile needed to send the business document.

Basic Flow

1. The requester establishes the location of the recipient's Digital Capability Publisher;
 - a. <<include>> SUC006 - Lookup Participant's DCP Alias Address.
2. The requester constructs the request to retrieve recipient's capability record including participant identifier, document type and process type;
3. The requester sends the request to the Digital Capability Publisher endpoint;
4. The Digital Capability Publisher receives the request and verifies the format is correct;
5. The Digital Capability Publisher finds the appropriate capability record;
6. The Digital Capability Publisher creates the response including the capability record of the Participant, containing the Access Point service endpoint and transport Profile for the specified process;
7. The Digital Capability Publisher sends the response to the requester;
8. The requester receives the response successfully;
9. End flow.

Exception Flows

1. At step 5, the Digital Capability Publisher cannot find a Capability Record for the participant;
 - a. The Capability Record sends an error message response to the requester;
 - b. End flow.
2. At step 2, the Digital Capability Publisher is unable to find the Capability record successfully because the request format is not valid;
 - a. The Digital Capability Publisher sends an error message response to the requester;

- b. End flow.
3. At step 2, the Digital Capability Publisher is unable to find the Capability record successfully because the identifier provided does not conform to an Identifier scheme supported by the Council;
 - a. The Digital Capability Publisher sends an error message response to the requester;
 - b. End flow.
4. At step 2, the Digital Capability Publisher is unable to find the Capability successfully because the document type or process provided in the request does not conform to any in the capability record for that participant;
 - a. The Digital Capability Publisher sends an error message response to the requester;
 - b. End flow.

SUC003 Register Capability

Purpose

This use case describes the steps required for an Access Point provider or a participant to add the digital capability record for the participant on a Digital Capability Publisher.

Assumptions

1. The party adding the capability record is authenticated and authorised to perform the addition of a capability record on behalf of the Participant.

Pre-conditions

2. The Access Point endpoint address and transport Profile for each of the Participant's supported business processes is known to the party adding the capability record.
3. A participant cannot have an existing capability in any Digital Capability Publisher.

Post-conditions

1. The participant's capability record has been added to a Digital Capability Publisher, including the Access Point endpoint address for each business process and the transport Profile used for each process.
2. There is only one Digital Capability Publisher record for a participant in any Digital Capability Publisher.

Basic Flow

1. The Access Point provider or Participant sends the capability record addition request to the Digital Capability Publisher;
2. The Digital Capability Publisher checks the requester is authorised to perform the addition of a capability record;
3. The Digital Capability Publisher checks the request format is correct;
4. The Digital Capability Publisher checks the participant does not have an existing record in this Digital Capability Publisher;
5. The Digital Capability Publisher creates the capability record;

6. The Digital Capability Publisher adds the capability record successfully;
7. The Digital Capability Publisher informs the requester of the successful addition of the record;
8. The Digital Capability Publisher adds the DCP Alias Address of the participant to the Digital Capability Locator;
 - a. <<include>> SUC002 - Register DCP Alias Address.
9. End flow.

Exception Flows

1. At step 2, the Digital Capability Publisher is unable to add the Capability Record because the requester is not authorised to add a record;
 - a. The Digital Capability Publisher sends an error message response to the requester;
 - b. End flow.
2. At step 5, the Digital Capability Publisher is unable to add the Capability Record successfully because the transport Profile in the request does not conform to the supported Council transport Profiles;
 - a. The Digital Capability Publisher sends an error message response to the requester;
 - b. End flow.
3. At step 5, the Digital Capability Publisher is unable to add the Capability record successfully because the request format is not valid;
 - a. The Digital Capability Publisher sends an error message response to the requester;
 - b. End flow.
4. At step 5, the Digital Capability Publisher is unable to add the Capability record successfully because the identifier provided does not conform to an Identifier scheme supported by the Council;
 - a. The Digital Capability Publisher sends an error message response to the requester;
 - b. End flow.
5. At step 5, the Digital Capability Publisher is unable to add the Capability Record successfully because the document identifier in the request does not conform to a supported document identifier scheme;
 - a. The Digital Capability Publisher sends an error message response to the requester;
 - b. End flow.
6. At step 5, the Digital Capability Publisher is unable to add the Capability Record successfully because the process identifier in the request does not conform to a supported process identifier scheme;
 - a. The Digital Capability Publisher sends an error message response to the requester;
 - b. End flow.

SUC014 Update Capability

Purpose

This use case describes the steps to update a participant's capability. This could be, for example, to change Access Point endpoint locations for a business process in the capability record, update a transport Profile for a process, or add a capability for a new business process.

Assumptions

1. The Access Point or Participant can update the Digital Capability Publisher.
2. The requester needs to be authenticated and only authorised parties can update capability records.

Pre-conditions

1. The participant has an existing capability record in the Digital Capability Publisher.

Post-conditions

1. The participant's capability record has had the appropriate detail updated.

Basic Flow

1. The requester sends a request to the Digital Capability Publisher to update the capability record with the appropriate detail;
2. The Digital Capability Publisher checks if the requester is authorised to an update to the participant's record;
3. The Digital Capability Publisher determines the request format to be valid;
4. The Digital Capability Publisher locates the record to be updated;
5. The capability record is updated by the Digital Capability Publisher with the requested detail;
6. The Digital Capability Publisher responds with confirmation the capability record has been updated;
7. End flow.

Exception Flows

1. At step 2, the Digital Capability Publisher is unable to add the Capability Record because the requester is not authorised to add a record;
 - a. The Digital Capability Publisher sends an error message response to the requester;
 - b. End flow.
2. At step 4, the Digital Capability Publisher cannot find a record belonging to the participant;
 - a. The Digital Capability Publisher responds with an error message;
 - b. End flow.
3. At step 3, the Digital Capability Publisher is unable to update the Capability Record successfully because the transport Profile in the request does not conform to the supported Council transport Profiles;
 - a. The Digital Capability Publisher sends an error message response to the requester;
 - b. End flow.
4. At step 3, the Digital Capability Publisher is unable to update the Capability record successfully because the request format is not valid;
 - a. The Digital Capability Publisher sends an error message response to the requester;
 - b. End flow.
5. At step 3, the Digital Capability Publisher is unable to update the Capability record successfully because the participant identifier provided does not conform to an Identifier scheme supported by the Council;
 - a. The Digital Capability Publisher sends an error message response to the requester;

- b. End flow.
6. At step 3, the Digital Capability Publisher is unable to update the Capability record successfully because the Access Point endpoint address provided does not conform to the correct format;
 - a. The Digital Capability Publisher sends an error message response to the requester;
 - b. End flow.
7. At step 3, the Digital Capability Publisher is unable to update the Capability Record successfully because the document identifier in the request does not conform to a supported document identifier scheme;
 - a. The Digital Capability Publisher sends an error message response to the requester;
 - b. End flow.
8. At step 3, the Digital Capability Publisher is unable to update the Capability Record successfully because the process identifier in the request does not conform to a supported process identifier scheme;
 - a. The Digital Capability Publisher sends an error message response to the requester;
 - b. End flow.

SUC015 Remove Capability

Purpose

This use case describes the steps to remove a participant's capability. This could be to either remove a single business process from the participant's record or to remove the entire capability for all business processes for a participant.

Assumptions

1. A requester could be the Access Point or the Participant themselves.
2. The requester needs to be authenticated and only authorised parties can remove capability.

Pre-conditions

1. The participant has an existing capability record in the Digital Capability Publisher.

Post-conditions

1. The participant's capability record has had the appropriate detail(s) removed.

Basic Flow

1. The requester sends a request to the Digital Capability Publisher to remove the required capability;
2. The Digital Capability Publisher checks that the requester is authorised to remove the capability;
3. The Digital Capability Publisher determines the remove request format to be correct;
4. The Digital Capability Publisher locates the capability needing to be removed;
5. The Capability requested by the requester is removed by the Digital Capability Publisher;
6. The Digital Capability Publisher responds to the requester with confirmation the capability has been removed;

7. End flow.

Exception Flows

1. At step 2, the Digital Capability Publisher is unable to remove the capability because the requester is not authorised to add a record;
 - a. The Digital Capability Publisher sends an error message response to the requester.
 - b. End flow;
2. At step 4 the Digital Capability Publisher cannot find a record belong to the participant;
 - a. The Digital Capability Publisher responds with an error message;
 - b. End flow.
3. At step 3 the Digital Capability Publisher finds the request format to be invalid;
 - a. The Digital Capability Publisher responds with an error message;
 - b. End flow.

SUC019 List of Accredited Digital Capability Publishers

Purpose

This use case describes the steps for a requester to obtain a list of accredited Digital Capability Publishers. This may be performed when an Access Point or other participant is trying to determine a Digital Capability Publisher to use and wants to determine the accreditation status.

Assumptions

1. This list will be readily available to anyone and will not require authentication and authorisation checks for requesters.
2. The list is maintained and is up to date at the time of the participant's request.

Pre-conditions

1. The Digital Capability Publishers in the list have self-certified and been accredited by the accreditation body.

Post-conditions

1. The requester has successfully retrieved a list of accredited Digital Capability Publishers.

Basic Flow

1. The participant sends a request to the Digital Capability Locator for a list of accredited Digital Capability Publishers;
2. The Digital Capability Locator receives the request;
3. The Digital Capability Locator compiles the list of accredited Digital Capability Publishers;
4. The Digital Capability Locator sends the response containing the list to the requester;
5. End flow.

SUC037 Change of Digital Capability Publisher Domain

Purpose

This use case describes the process to update the domain of a Digital Capability Publisher and have this change flow through to all Digital Capability Publisher Alias Addresses using the affected domain in the Digital Capability Locator.

Assumptions

1. The requester needs to be authenticated and authorised to perform a domain name change.

Pre-conditions

1. The Digital Capability Publisher domain has been changed and requires one or more records on the Digital Capability Locator to be changed.

Post conditions

1. The new Digital Capability Publisher domain name in all affected Participant Digital Capability Publisher Alias Addresses reflects the change required.

Basic Flow

1. The Digital Capability Publisher provider sends a request to the Digital Capability Locator containing the new domain name;
2. The Digital Capability Locator checks the requester is authorised to change the domain name;
3. The Digital Capability Locator checks the request is valid;
4. The Digital Capability Locator responds to the Digital Capability Publisher with accepting the message;
5. The Digital Capability Locator checks the provided address is of an accredited Digital Capability Publisher;
6. The Digital Capability Locator finds the Digital Capability Publisher record;
7. The Digital Capability Locator updates the Digital Capability Publisher domain name record;
8. The Digital Capability Locator updates the participant records affected by the domain name change;
9. The Digital Capability Publisher later confirms the domain name has been changed on the participant records;
10. End flow.

Exception Flows

1. At step 2, the requester is not authorised to change the domain of the Digital Capability Publisher;
2. At step 4, the Digital Capability Locator is unable to update the domain record successfully because the request format is not valid;
 - a. The Digital Capability Locator sends an error message response to the requester;
 - b. End flow.
3. At step 5, the Digital Capability Locator cannot find the Digital Capability Publisher;
 - a. The Digital Capability Locator sends an error message response to the requester;
 - b. End flow.
4. At step 6, the Digital Capability Locator determines the Digital Capability Publisher address does not belong to an accredited provider.

- a. The Digital Capability Locator sends an error message response to the requester;
 - b. End flow.
5. At step 7, the Digital Capability Locator cannot find a Digital Capability Publisher Alias Address Record for the Digital Capability Publisher;
- a. The Digital Capability Locator sends an error message response to the requester;
 - b. End flow.

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Change Log

Version	Date	Change Description
1.0.0	27/07/2016	Initial version
2.0.0	09/01/2017	<p>This version is considered a MAJOR update as it makes corrections to the API URL definitions. This will result in a breaking change for any version 1.0.0. implementers.</p> <p>Applied typographic updates from post-release feedback.</p> <ul style="list-style-type: none"> • Section 8.1.1.3 – updated DNS Name, added not on the use of optional [scheme] element. • Sections 8.3.1.3, 8.3.2.3, 8.4.2.3 – updated URI to replace capabilityRegister with capabilityPublisher. • Section 8.3.1.11 – Updated example with correct hash value. • Section 8.4.1.6 and 8.4.1.12 – updated xml examples to include <UpdateCapabilityPublisherEndpoint> tag. <p>Applied additional business rules identified in PoC testing:</p> <ul style="list-style-type: none"> • Updated section 7.1 to add additional business rules for MD5 pre-processing of URN. <p>Applied cosmetic formatting improvements.</p>