



# Minimal Management Interface Version 1.0

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- *Classification of Everyday Living Version 1.0*. Edited by Joss Langford. Latest version: <http://docs.oasis-open.org/coel/COEL/v1.0/COEL-v1.0.html>.
- *Roles, Principles, and Ecosystem Version 1.0*. Edited by Matthew Reed. Latest version: <http://docs.oasis-open.org/coel/RPE/v1.0/RPE-v1.0.html>.
- *Behavioural Atom Protocol Version 1.0*. Edited by Joss Langford. Latest version: <http://docs.oasis-open.org/coel/BAP/v1.0/BAP-v1.0.html>.
- *Identity Authority Interface Version 1.0*. Edited by Paul Bruton. Latest version: <http://docs.oasis-open.org/coel/IDA/v1.0/IDA-v1.0.html>.
- *Public Query Interface Version 1.0*. Edited by David Snelling. Latest version: <http://docs.oasis-open.org/coel/PQI/v1.0/PQI-v1.0.html>.

#### Abstract:

This document defines a minimal interface between the Data Engine and other actors in the ecosystem, namely the Service Provider and the Operator. The interface provides for registering and managing Operators, Devices, and Consumers within a Data Engine. This interface represents the minimal requirements of a Data Engine's management interface, but does not limit this interface to these capabilities.

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# Table of Contents

1	Introduction .....	5
1.1	Terminology .....	5
1.2	Normative References .....	5
1.3	Non-Normative References .....	5
2	Interface Specification .....	6
2.1	Authentication and Authorisation .....	6
2.2	Service Provider: Create New Operator .....	6
2.2.1	Request .....	7
2.2.2	Response .....	7
2.3	Service Provider: Retrieve Operator List .....	8
2.3.1	Request .....	8
2.3.2	Response .....	8
2.4	Service Provider: Retrieve Consumer List.....	8
2.4.1	Request .....	9
2.4.2	Response .....	9
2.5	Service Provider: Forget Consumer .....	10
2.5.1	Request .....	10
2.5.2	Response .....	10
2.6	Operator: Create New Consumer .....	11
2.6.1	Request .....	11
2.6.2	Response .....	13
2.7	Operator: Assign a Device to a Consumer .....	13
2.7.1	Request .....	13
2.7.2	Response .....	14
3	Conformance .....	16
	Appendix A. Acknowledgments .....	17
	Appendix B. Revision History.....	18

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# 1 Introduction

This document defines the Minimal Management Interface (MMI) between the Data Engine and other actors in the ecosystem. It provides operation definitions on the Data Engine for use by a Service Provider to register a new Operator, to retrieve a list of existing Operators, to retrieve a list of Consumers associated with a given Operator, and to forget a consumer. It also provides operations definitions on the Data Engine for use by an Operator to register a Consumer and to associate a device with a consumer..

This interface represents the minimal requirements of a Data Engine's management interface, but does not limit this interface to these capabilities. High quality Data Engines may offer more comprehensive management services.

## 1.1 Terminology

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC2119].

## 1.2 Normative References

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997. <http://www.ietf.org/rfc/rfc2119.txt>.
- [COEL\_RPE-1.0] *Roles, Principles, and Ecosystem Version 1.0*. Latest version: <http://docs.oasis-open.org/coel/RPE/v1.0/RPE-v1.0.docx>.
- [COEL\_IDA-1.0] *Identity Authority Interface Version 1.0*. Latest version: <http://docs.oasis-open.org/coel/IDA/v1.0/IDA-v1.0.docx>

## 1.3 Non-Normative References

- [Coelition] <http://www.coelition.org>
- [Data to Life] Reed, M. & Langford, J. (2013). *Data to Life*. Coelition, London. ISBN 978-0957609402

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## 2 Interface Specification

The Minimal Management Interface on the Data Engine is divided into sections depending on which actor and function in a COEL ecosystem is communicating with the Data Engine. The following sub-sections define these interfaces.

### 2.1 Authentication and Authorisation

To access all Service Provider functions of the Data Engine MMI API, Service Providers need access credentials with two components:

- A userid to identify the caller.
- A password for authentication.

HTTP basic authentication SHALL be used to authenticate calls to the API. Passwords SHOULD be 64 bytes in length and MUST be supplied as an ASCII string. This MUST be prefixed with the userid followed by a colon to form the token passed in the HTTP Authorisation Header.

Note that while Operators need to secure their connection to the Data Engine with TLS, they do not need to Authenticate or Authorise.

Example:

```
"9abf5386-2ac6-4e61-abc4-6b809a85d6cb:J1dOeWJJ0kd3akhnSn4ma007M  
DtUMVAXISgyOn9jI2U9NHNdRi4hfiw9c2I8PURcVltNMWQkamsrfGR4T24vKA=="
```

If the userid is unrecognized, or the wrong password is supplied a HTTP status code *401 Invalid username or password* SHALL be returned.

If a request is made with a userid that is assigned a role that is not authorized to perform that action then the HTTP status code *403 Unauthorised* SHALL be returned.

Note: All Operator functions do not require authentication or authorisation.

### 2.2 Service Provider: Create New Operator

Create a new Operator within the Data Engine and associate it with the requesting Service Provider. Completion of this operation allows the Operator to register new Consumers.

---

API	Description
POST service-provider/operator	Create an Operator identity within the Data Engine permitting that operator to create and register Consumers.

---

### 2.2.1 Request

Parameter Name	Description	Type
OperatorID	A Pseudonymous Key generated by an IDA and associated with the Operator being registered.	<b>String:</b> Format defined in [COEL_IDA-1.0].
TimeStamp	Time stamp of the OperatorID indicating when the IDA created this Pseudonymous Key.	<b>DateTimeString:</b> Format defined in [COEL_IDA-1.0].
Signature	Signature proving that an IDA created this OperatorID.	<b>String:</b> Format defined in [COEL_IDA-1.0].

**Media type:**

```
application/json, text/json
```

**Sample:**

```
{ "OperatorID": "00000000-0000-0000-0000-000000000000",  
  "TimeStamp": "2011-02-14T00:00:00",  
  "Signature":  
    "AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA  
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA=" }
```

### 2.2.2 Response

Returns true if the Operator is successfully registered and false otherwise.

Parameter Name	Description	Type
Result	Boolean value representing success or otherwise of the operation.	Boolean:

**Media type:**

```
application/json, text/json
```

**Sample:**

```
{"Result":true}
```

## 2.3 Service Provider: Retrieve Operator List

A Service Provider uses this operation to retrieve a list of all registered Operators registered to the requesting Service Provider.

API	Description
GET service-provider/operators	Retrieve a list of all Operators associated with the requesting Service Provider.

### 2.3.1 Request

The request is empty.

### 2.3.2 Response

An array of Pseudonymous Keys each associated with an Operator associated with the requesting Service Provider.

Parameter Name	Description	Type
OperatorIDs	An array of Pseudonymous Keys one for each of the Operators associated with the requesting Service Provider.	<b>Array of String:</b> Format defined in [COEL_IDA-1.0].

#### Media type:

application/json, text/json

#### Sample:

```
{ "OperatorIDs": [
  "00000000-0000-0000-0000-000000000000",
  "00000000-0000-0000-0000-000000000001",
  "00000000-0000-0000-0000-000000000002"]
}
```

## 2.4 Service Provider: Retrieve Consumer List

A Service Provider uses this operation to retrieve a list of all Consumers registered to a given Operator, which is in turn registered to the requesting Service Provider.



API	Description
POST service-provider/consumers	Retrieve a list of all Consumers associated with a given Operator, which is in turn associated with the requesting Service Provider.

## 2.4.1 Request

Parameter Name	Description	Type
OperatorID	A Pseudonymous Key generated by an IDA and associated with an Operator registered with the Data Engine.	<b>String:</b> Format defined in [COEL_IDA-1.0].

### Media type:

application/json, text/json

### Sample:

```
{"OperatorID": "00000000-0000-0000-0000-000000000000"}
```

## 2.4.2 Response

An array of Pseudonymous Keys each associated with a Consumer registered with the given Operator which is in turn associated with the requesting Service Provider.

Parameter Name	Description	Type
ConsumerIDs	An array of Pseudonymous Keys one for each of the Consumers associated with given Operator.	<b>Array of String:</b> Format defined in [COEL_IDA-1.0].

### Media type:

application/json, text/json

### Sample:

```
{"ConsumerIDs": [
  "00000000-0000-0000-0000-000000000000",
```

```
    "00000000-0000-0000-0000-000000000001",  
    "00000000-0000-0000-0000-000000000002"]  
}
```

## 2.5 Service Provider: Forget Consumer

Delete a Consumer associated with the calling Service Provider. The Data Engine MAY either delete all data associated with the Consumer or render that data non-personal.

The Data Engine SHOULD keep a record of which consumers have been forgotten (for audit purposes).

API	Description
POST operator/forget	Delete or render non-personal all data associated with the given Consumer.

### 2.5.1 Request

Parameter Name	Description	Type
ConsumerID	A Pseudonymous Key associated with the Consumer and generated by an IDA.	<b>String:</b> Format defined in [COEL_IDA-1.0].

#### Media type:

application/json, text/json

#### Sample:

```
{"ConsumerID": "00000000-0000-0000-0000-000000000000"}
```

### 2.5.2 Response

Returns true if the Consumer's data has been successfully deleted or rendered non-personal and false otherwise.

Parameter Name	Description	Type
Result	Boolean value representing success or otherwise of the operation.	<b>Boolean:</b>

**Media type:**

application/json, text/json

**Sample:**

```
{"Result":true}
```

## 2.6 Operator: Create New Consumer

Create a new Consumer within the Data Engine and associate it with the given Operator. Completion of this operation allows Behavioural Atoms to be posted anonymously to the Data Engine and be associated with the given Consumer. This function does not require authentication or authorization.

API	Description
POST operator/consumer	Create a Consumer identity within the Data Engine associated with the given Operator.

### 2.6.1 Request

Parameter Name	Description	Type
<b>OperatorID</b>	A Pseudonymous Key associated with the Operator and generated by an IDA.	<b>String:</b> Format defined in [COEL_IDA-1.0].
<b>ConsumerID</b>	A Pseudonymous Key associated with the Consumer and generated by an IDA.	<b>String:</b> Format defined in [COEL_IDA-1.0].
<b>TimeStamp</b>	Time stamp of the ConsumerID indicating when the IDA created this Pseudonymous Key.	<b>DateTimeString:</b> Format defined in [COEL_IDA-1.0].
<b>Signature</b>	Signature proving that an IDA created this ConsumerID.	<b>String:</b> Format defined in [COEL_IDA-1.0].

**Integer:** Representing year of birth.

03 December 2015  
Page 12 of 18

}

## 2.6.2 Response

Returns true if the Consumer is successfully registered and false otherwise.

Parameter Name	Description	Type
Result	Boolean value representing success or otherwise of the operation.	Boolean:

### Media type:

application/json, text/json

### Sample:

```
{"Result":true}
```

## 2.7 Operator: Assign a Device to a Consumer

Assign a Pseudonymous Key representing a device to a Consumer associated with the requesting Operator. All Atoms posted with this Pseudonymous Key will be associated with the corresponding Consumer. Once assigned to a Consumer, a Device MUST not be reassigned to another Consumer. This function does not require authentication or 13authorization.

API	Description
POST operator/device	Associate a device, identified by a Pseudonymous Key, to a registered Consumer associated with the requesting Operator.

### 2.7.1 Request

Parameter Name	Description	Type
DeviceID	A Pseudonymous Key associated with the Device and generated by an IDA.	<b>String:</b> Format defined in [COEL_IDA-1.0].

Parameter Name	Description	Type
<b>TimeStamp</b>	Time stamp of the DeviceID indicating when the IDA created this Pseudonymous Key.	<b>DateTimeString</b> : Format defined in [COEL_IDA-1.0].
<b>Signature</b>	Signature proving that an IDA created this DeviceID.	<b>String</b> : Format defined in [COEL_IDA-1.0].
<b>OperatorID</b>	A Pseudonymous Key of the Operator to which the Consumer is associated.	<b>String</b> : Format defined in [COEL_IDA-1.0].
<b>ConsumerID</b>	A Pseudonymous Key of the user to which the device is to be associated. The user MUST already be associated with the requesting Operator.	<b>String</b> : Format defined in [COEL_IDA-1.0].

#### Media type:

application/json, text/json

#### Sample:

```
{ "DeviceID": "00000000-0000-0000-0000-000000000000",
  "TimeStamp": "2011-02-14T00:00:00",
  "Signature":
    "AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
    AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
    AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA=",
  "OperatorID": "00000000-0000-0000-0000-000000000001",
  "ConsumerID": "00000000-0000-0000-0000-000000000002"
}
```

## 2.7.2 Response

Returns true if the Device and Consumer association is successfully established and false otherwise.

Parameter Name	Description	Type
<b>Result</b>	Boolean value representing success or otherwise of the	<b>Boolean</b> :

---

Parameter Name	Description	Type
----------------	-------------	------

---

|  | operation. |  |

---

**Media type:**

application/json, text/json

**Sample:**

```
{"Result":true}
```

---

## 3 Conformance

An implementation is a conforming Minimal Management Interface if the implementation meets the conditions set out in in Section 2 of this document AND the conformance criteria in **[COEL\_RPE-1.0]**



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## Appendix A. Acknowledgments

The following individuals have participated in the creation of this specification and are gratefully acknowledged:

**Participants:**

Paul Bruton, Individual Member  
Joss Langford, Activinsights  
Matthew Reed, Coelition  
David Snelling, Fujitsu

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## Appendix B. Revision History

Revision	Date	Editor	Changes Made
1	21/08/2015	David Snelling	A few minor changes to test the revision process in Kavi.
2	21/09/2015	David Snelling	First complete version, based on submitted material.
3	25/09/2015	Paul Bruton	Added review comments
4	25/09/2015	Joss Langford	Review, spell correction and change of 'sex' to 'gender' in section 2.4
5	11/10/2015	David Snelling	Edits for issues: COEL-10 (Segment data), COEL-17 (Location of security), COEL-23 (Forget operation)
6	11/10/2015	David Snelling	Removed tracking
7	13/10/2015	Paul Bruton	Conformance includes reference to RPE document.
8	19/10/2015	David Snelling	COEL-13 and a few style and consistence issues.
9	23/10/2015	David Snelling	Adding OperatorID to New Consumer request.
10	30/10/2015	David Snelling	Removed text allowing reassignment of Devices by Operator.
11	31/10/2015	Joss Langford	Accept all changes, track changes off, check references and style consistency.
12	02/11/2015	David Snelling	Final date change
13	03/11/2015	Paul Bruton	Corrected authorization and authentication description; Spelling correction; Corrected description of TimeStamp and Signature parameters in operator/device, also added OperatorID parameter since there will be no authorization header in this request.
14	03/11/2015	Paul Bruton	Minor spelling correction.
15	25/11/2015	David Snelling	Fixed 45, 47, & 52.
16	25/11/2015	David Snelling	Fixed Revision History.
17	25/11/2015	Joss Langford	Changes accepted and track changes switched off.
18	25/11/2015	David Snelling	Set date for final publication.