

Electricity Central Online Enquiry Service

Application Programming Interface (API)

Technical Specification

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1.1	Amend	28/06/2019	ECC260 changes
1.2	Amend	22/07/2019	Update summary of available web service methods

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1. Introduction

This document outlines the web service methods and data items that are exposed by the ECOES Application Programming Interface (API) web service. This document should be used in conjunction with the (API) section (section 16) of the ECOES URS which explains the business rules.

This service incorporates the following:

- Provision of access to the electricity industry data within ECOES.
- Provision of a RESTful interface, with both XML and JSON messages, in addition to the SOAP/XML interface.
- The use of Key Value Pairs throughout the Request and Response objects allows for methods to easily be updated with new key value pairs, without the need for updating the WSDL.
- Use of the same Access Matrix restrictions as the manual ECOES lookup.

2. Service Overview

The ECOES API service provides access to the ECOES data set.

Access to service is granted via Industry Role specific subscriptions which can have one or many licenses associated with them. Each subscription **can** have the following restrictions put in place:

- Access to WebMethods can be restricted either completely or by calls per month.
- Access to Data Items can be restricted completely by Industry Role.
- Access to Data Items can be restricted by Access Matrix rules set out in the ECOES Access Matrix.

Any subscription whose industry role is a Supplier or Distributor must have a corresponding ECOES Company Group associated with them.

The ECOES API service will be accessed by any of the following endpoints

	URL	Type
Main	https://www.ecoes.co.uk/WebServices/Service/ECOESAPI.svc	WCF
	https://www.ecoes.co.uk/WebServices/Service/ECOESAPI.svc/RESTful/JSON/	Restful JSON
	https://www.ecoes.co.uk/WebServices/Service/ECOESAPI.svc/RESTful/XML/	Restful XML

The service also provides a help document to show the Restful endpoints can be used.

<https://www.ecoes.co.uk/WebServices/Service/ECOESAPI.svc/RESTful/JSON/Help>

3. Domain Values

There are a number of web methods that return an explicit set of valid values. The table below provides a full list of these domains and the possible valid values returned. Where the domain is defined in the MRA Data Transfer Catalogue (DTC) AND the valid set of values is deemed as likely to change at some point in the future, a link will be provided to the relevant page of the MRA DTC on-line portal.

Domain	Value	Meaning
DCC Service Flag	A	Active – The MPAN has been adopted by the Data Communications Company
	S	Suspended – The Data Communications Company has suspended control of the MPAN.
	W	Withdrawn - The Data Communications Company has withdrawn the MPAN from its control.
Energisation Status	D	De-energised
	E	Energised
Green Deal Status	None	There are no expired, active or pending green deals for the MPAN.
	Expired	There are one or more Green Deals assigned to the MPAN, with an end date in the past.
	Active	There are currently one or more active Green Deals assigned to the MPAN.
	Pending	There is one or more Green Deal that is due to come into effect for the MPAN at a future date.
In Home Display Install Status	D	Declined – the customer has declined the offer to install an In Home Display by the Supplier.
	E	Existing – the customer already has an In Home Display when changing supplier
	I	Installed – the customer has accepted the offer, by the Supplier, for an In Home Display and it has been installed.
LLF Class Indicator	As defined by the MRA Data Transfer Catalogue http://dct.mrasco.com/DataItem.aspx?ItemCounter=0775&searchMockItems=False	
Measurement Class	A	Non Half Hourly Metered
	B	Non Half Hourly Unmetered
	C	HH metered in 100kW premises
	D	Half Hourly Unmetered
	E	HH metered sub 100kW CT
	F	Half Hourly Metering Equipment at sub 100kW premises with current transformer or whole current and at Domestic Premises
	G	Half Hourly Metering Equipment at sub 100kW premises with whole current and not at Domestic Premises
Meter Type	As defined by the MRA Data Transfer Catalogue http://dct.mrasco.com/DataItem.aspx?ItemCounter=0483&searchMockItems=False	
MPAN Trading Status	N	New – The MPAN is a new MPAN created by a distributor and has no Supplier in place as yet.
	R	Registered – The MPAN has been registered to a Supplier, but the Supplier has not provided sufficient data to enable trading.
	T	Traded – The Supplier has provided all the required data to enable the MPAN to be set as trading.
	X	Disconnected – The MPAN has been recorded as disconnected.

4. Summary of Available Web Service Methods

This section summarises the web service methods that are exposed through the ECOES API service.

Web Service Method	Purpose
GetTechnicalDetailsByMpan	Retrieves the technical details for a given MPAN.
SearchUtilityAddress	Retrieves the Metering Point Address data matching the specified criteria.
GetErrorCodes	Request a list of error codes used by the web service.
GetSubscriberMethodLimits	Request the list of method limits and current usage for a particular subscriber.
GetRelatedMPANs	Returns relationship data for a given MPAN

5. Service Limitations

The ECOES API service can be provided to subscribers with certain usage restrictions. The usage limitations currently in force can be obtained using the `GetSubscriberMethodLimits` method as defined in section 10. This method also returns the number of requests that have been made to date during this calendar month.

Request Limitations

The ECOES API web service can have limitations imposed upon the number of requests that can be made per calendar month, for each service subscriber. The maximum number of requests that can be made for a given web service method, per calendar month, is determined by the service plan associated with the subscription licence key.

A hard stop limit is defaulted per subscription, based upon the service plan. Each subscription can define their own hard stop limit which will stop the service from returning results once the limit is reached each month.

Request Counting

The ECOES API web service counts all requests made to each accessible web service method, per calendar month, for each service subscriber.

Where a web service method allows multiple requests to be made through a single request transaction, the web service will count each individually requested item as a request.

Response Limitations

The ECOES API web service imposes limitations upon the number of responses that are returned by each web service method for each service subscriber. In the event that the maximum number of responses is exceeded (200), the web service will return error code "DAT1003" that indicates this; the web service will not return any of the requested data

6. Web Service Security

Both the RESTful and SOAP endpoints of the ECOES API web service are available over HTTPS only, thereby ensuring that all communication between the web service and the client is secured at the transport level.

The SSL certificate issued for this service is 2048bit SHA2 256 encrypted and as such any server communicating with the ECOES API must be capable of understanding this higher-level type of certificate. In order to support this level of certificate you may need to patch the server making the request, or any intermediary proxy, to include any relevant hot fixes.

Also, within the certificate the web service URL, suds-ws.candc-uk.com, is referenced as a “Subject Alternate Name”, rather than the “Subject” of the certificate.

To enable users of the ECOES API service interface to authenticate themselves, with the service, the request for all web service methods must contain a service subscription licence key.

The service subscription licence key is provided by Gemserv and is used by the web service to determine:

- the web service methods that are available to the caller.
- the request limits of the web service and web service methods for the caller.
- the response limits of the web service and web service methods for the caller; and
- the data items that are available to the web service caller.

Figure 1 below shows the composition of the “Authentication” structure used to pass the subscription licence key to the web service.



Figure 1

Level	Field	Description
1	Authentication	Mandatory. For all web service methods the “Authentication” structure must be supplied.
2	Key	Mandatory. Holds the web service subscription licence key, as supplied by Gemserv.

7. SearchUtilityAddress

Method Purpose

The “SearchUtilityAddress” method allows the caller of the web service to retrieve a set of Metering Point Addresses data that match the specified criteria.

Method Inputs

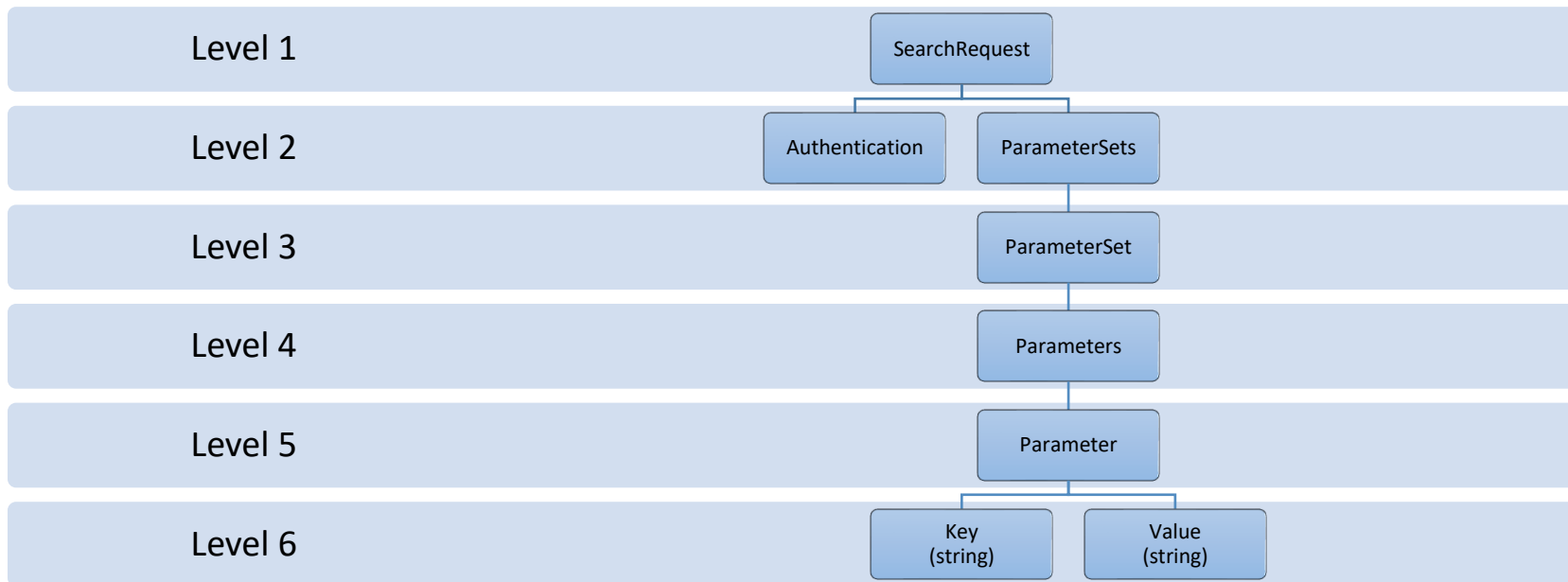


Figure 2

Level	Field	Description
1	SearchRequest	Mandatory. Encapsulates a request sent to the "SearchUtilityAddress" web service method.
2	Authentication	Mandatory. Encapsulates those details required in order that the web service caller authenticates themselves to the web service.
2	ParameterSets	Mandatory. A collection of "ParameterSet" objects; one for each address search to be performed by the web service.
3	ParameterSet	Encapsulates the set of parameters for an individual address search.
4	Parameters	A collection of "Parameter" objects; one for each address search parameter.
5	Parameter	Encapsulates the name and value of an individual address search parameter.
6	Key	Holds the name of the address search parameter.
6	Value	Holds the value of the address search parameter.

Supported Parameters

Parameter Name	Description
Postcode	Optional. This parameter must contain a minimum of three characters, which are assumed to form the out-code part of the postcode. At least one other address search parameter must be provided if a partial postcode is supplied.
BuildingNumber	Optional; at least one other address search parameter must be provided.
SubBuilding	Optional; at least one other address search parameter must be provided.
BuildingName	Optional; at least one other address search parameter must be provided.
DependentThoroughfare	Optional; at least one other address search parameter must be provided.
ThoroughfareName	Optional; at least one other address search parameter must be provided.
DoubleDependentLocality	Optional; at least one other address search parameter must be provided.
DependentLocality	Optional; at least one other address search parameter must be provided.
PostTown	Optional; at least one other address search parameter must be provided.

MeterSerialNumber	Optional; Meter Serial Number, can be used instead of any address parameter.
ReturnDataForSingleResult	Optional. Returns the full details for a given address if only one address is returned and this parameter is set to true. The default value for this parameter is "false".
Permission	Optional. Holds a Boolean value that indicates whether the process calling the web service has permission to view the market sensitive data items for a given utility key. If this field holds a value of "false", then there is a possibility that some data items returned will contain the value "WITHHELD BY SUPPLIER", subject to the status of the "ReturnWithHeld" parameter. The default value for this parameter is "false".

Method Outputs

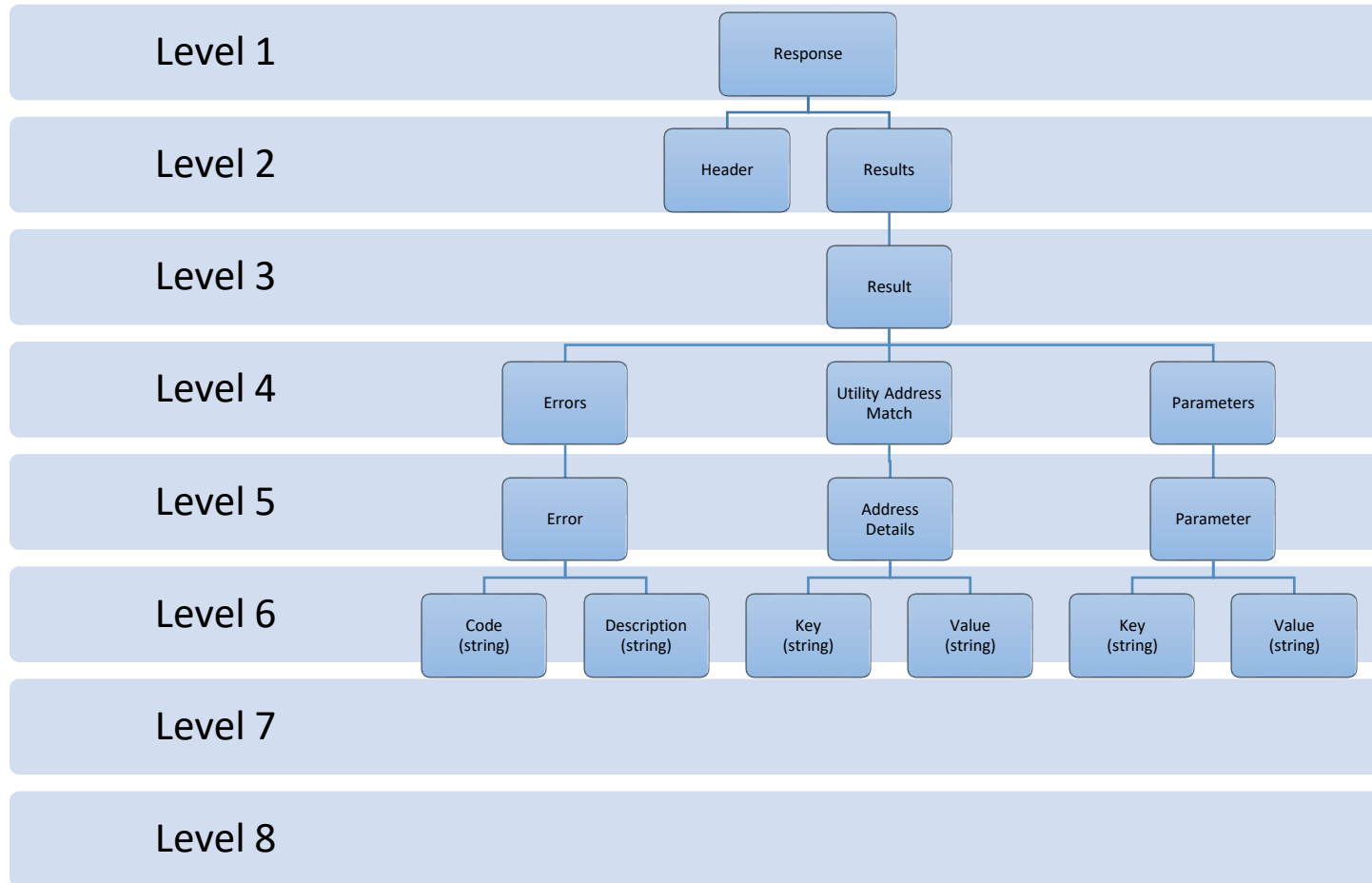


Figure 3

Level	Field	Description
1	Response	Encapsulates the response returned by the "SearchUtilityAddress" web service method.
2	Header	Holds the following web service processing details related to the request: RequestId. A unique integer value generated for the request. RequestDate. The date / time that the request was received by the web service. ResponseTime. The time taken for the web service to process the request. VersionNumber. Web service version number.
2	Results	A collection of "Result" objects; one for each MPAN.
3	Result	Encapsulates the address search results, parameters and any errors that may have occurred for a requested address search.
4	Errors	A collection of "Error" objects; one for each error identified while processing a requested address search.
5	Error	Encapsulates details of an individual address search error. See Appendix A for the list of possible error codes.
6	Code	Holds the error code.
6	Description	Holds the description of the error.
4	Utility Address Details	Encapsulates the set of data items and matched addresses for an individual address search result.
5	Utility Address Detail	A key-value pair object that encapsulates the name and value of an address search result data item.
6	Key	Holds the name of an address search result data item. See section 7.5 for a list of utility address data items. If ReturnDataForSingleAddress is true, and a single address is returned, then the data items returned match section 8.5
6	Value	Holds the value of an address search result data item.
4	Parameters	A collection of "Parameter" objects that are representative of the key-value pairs submitted when an address search was requested through the "SearchUtilityAddress" web service method.
5	Parameter	A key-value pair that encapsulates the name and value of a requested address search parameter.
6	Key	Holds the name of a requested address search parameter.
6	Value	Holds the value of a requested address search parameter.

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Returned Address Details

Data Item	Description
mpan_core	MPAN core.
address_line_1	Metering Point Address Line 1
address_line_2	Metering Point Address Line 2
address_line_3	Metering Point Address Line 3
address_line_4	Metering Point Address Line 4
address_line_5	Metering Point Address Line 5
address_line_6	Metering Point Address Line 6
address_line_7	Metering Point Address Line 7
address_line_8	Metering Point Address Line 8
address_line_9	Metering Point Address Line 9
postcode	Metering Point Postcode
distributor_mpid	Distributor MPID
trading_status	MPAN trading status
gsp_group_id	Grid Supply Point Group Id

8. GetTechnicalDetailsByMpan

Method Purpose

The “GetTechnicalDetailsByMpan” method allows the web service caller to retrieve the utility technical details for a given MPAN. Multiple MPANs can be specified in a single request, which allows the technical details for each MPAN to be retrieved in a single call.

Method Inputs

The structure of the input expected for the “GetTechnicalDetailsByMpan” web service method is the same as that for the “SearchUtilityAddress” web service method. However, the parameters supported for this web service method are different.

Supported Parameters

Parameter Name	Description
MPAN	Mandatory.
Permission	Optional. Holds a Boolean value that indicates whether the process calling the web service has permission to view the market sensitive data items for a given MPAN. If this field holds a value of “false”, then there is a possibility that some data items returned will contain the value “WITHHELD BY SUPPLIER”, subject to the status of the “ReturnWithHeld” parameter. The default value for this parameter is “false”.

Method Outputs

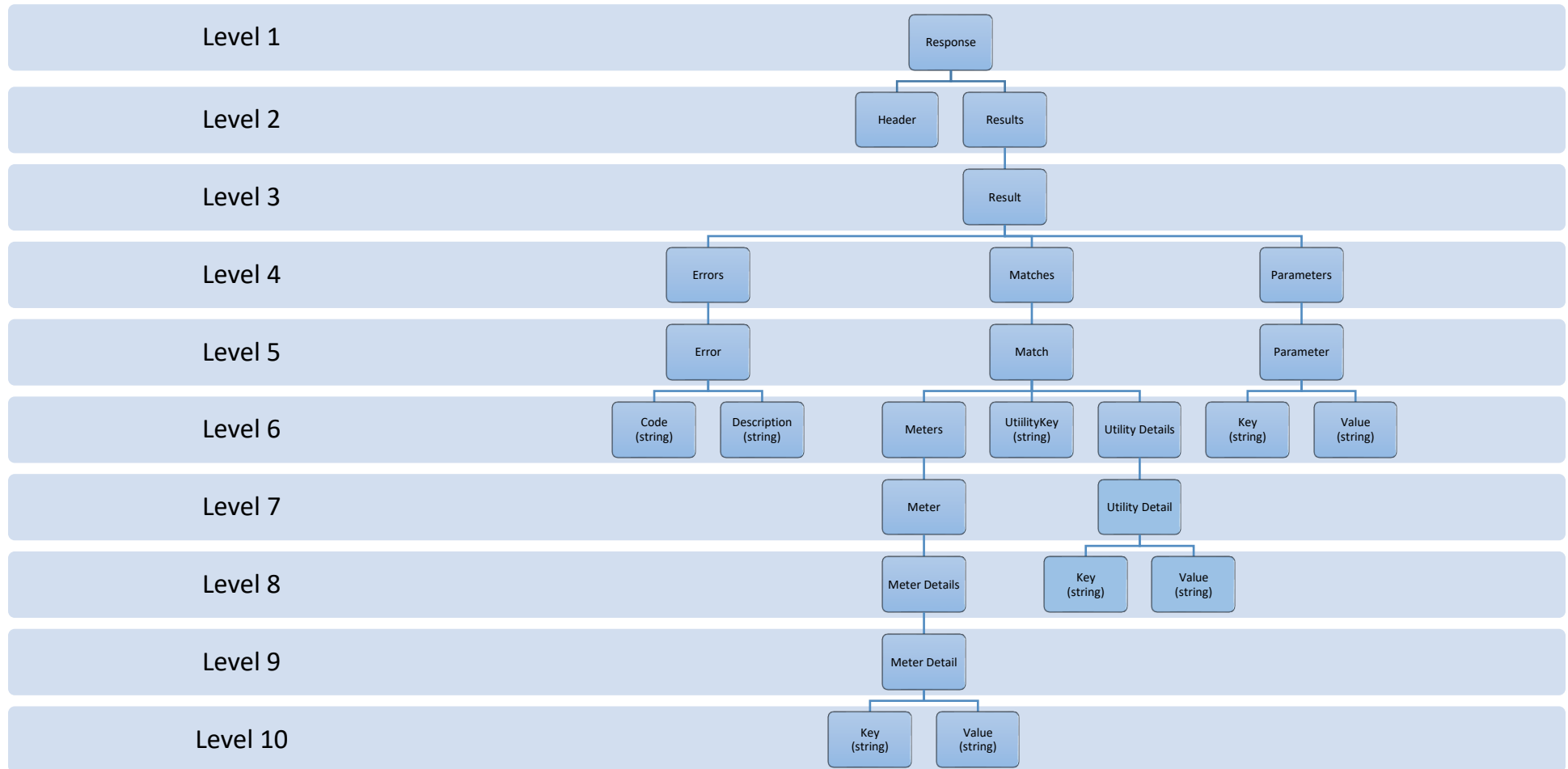


Figure 4

Level	Field	Description
1	Response	Encapsulates the response returned by the "GetTechnicalDetailsByMpan" web service method.
2	Header	<p>Holds the following web service processing details related to the request:</p> <p>RequestId. A unique integer value generated for the request.</p> <p>RequestDate. The date / time that the request was received by the web service.</p> <p>ResponseTime. The time taken for the web service to process the request.</p> <p>VersionNumber. Web service version number.</p>
2	Results	A collection of "Result" objects; one for each requested mpan.
3	Result	Encapsulates the utility technical details for a requested mpan.
4	Errors	A collection of "Error" objects; one for each error identified while processing a requested technical details search.
5	Error	Encapsulates details of an individual technical details search error. See section Appendix A for the list of possible error codes.
6	Code	Holds the error code.
6	Description	Holds the description of the error.
4	Matches	A collection of "Match" objects; one for each discovered utility key.
5	Match	Encapsulates the data items associated with a utility key, the potentially related utility keys, and where appropriate, any associated meter details.
6	Meters	A collection of "Meter" objects; one for each set of meter details found for a given utility key. The availability of metering data is subject to utility type.
7	Meter	Encapsulates meter details found for a given MPAN.
8	Meter Details	A collection of key-value pair objects; one for each data item returned for a given meter. See section 0 for the list of metering data items that are returned.
9	Meter Detail	A key-value pair that holds the details of an individual meter data item.
10	Key	Holds the key associated with a meter data item.

10	Value	Holds the value of a meter data item.
6	UtilityKey	Hold the discovered utility key value.
6	Utility Details	A collection of "Utility Detail" objects; one for each technical detail data item for the discovered utility key.
7	Utility Detail	A key-value pair that encapsulates the details of an individual technical detail data item for a discovered utility key. See below for the list of technical detail data items that can be returned by this web service method.
8	Key	Holds the name of the technical detail data item.
8	Value	Holds the value of the technical detail data item.
4	Parameters	A collection of "Parameter" objects that are representative of the key-value pairs submitted when an mpan technical detail search was requested through the "GetTechnicalDetailsByMpan" web service method.
5	Parameter	A key-value pair that encapsulates the name and value of a requested address search parameter.
6	Key	Holds the name of a requested address search parameter.
6	Value	Holds the value of a requested address search parameter.

Returned Technical Detail Data Items

*The data that is returned to the subscriber is dependent upon their subscription.

Data Item	Description
mpan_core	MPAN core.
address_line_1	Metering Point Address Line 1
address_line_2	Metering Point Address Line 2
address_line_3	Metering Point Address Line 3
address_line_4	Metering Point Address Line 4
address_line_5	Metering Point Address Line 5
address_line_6	Metering Point Address Line 6
address_line_7	Metering Point Address Line 7
address_line_8	Metering Point Address Line 8
address_line_9	Metering Point Address Line 9
Postcode	Metering Point Postcode

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distributor_mpid	Distributor MPID	
trading_status	MPAN trading status	
trading_status_efd	MPAN trading status effective from date	
gsp_group_id	Grid Supply Point Group Id	
gsp_group_efd	Grid Supply Point Group effective from date	
line_loss_factor	Line Loss Factor Class	
line_loss_factor_efd	Line Loss Factor Class effective from date	
dcc_service_flag	Data Communications Company Service Flag	
dcc_service_flag_efd	Data Communications Company Service Flag effective from date	
green_deal_in_effect	True	A Green Deal is currently active for this MPAN
	False	A Green Deal is not currently active for this MPAN
supplier_mpid	Supplier MPID	
supplier_efd	Effective from date of the current supplier	
energisation_status	Energisation status	
energisation_status_efd	Energisation status effective from date	
profile_class	Profile Class	
profile_class_efd	Profile Class effective from date	
standard_settlement_configuration	Standard Settlement Configuration	
standard_settlement_configuration_efd	Standard Settlement Configuration effective from date	
meter_timeswitch_class	Meter Time-switch Class	
meter_timeswitch_class_efd	Meter Time-switch Class effective from date	
measurement_class	Measurement Class	
measurement_class_efd	Measurement class effective from date	
data_aggregator_mpid	Data Aggregator MPID	
data_aggregator_efd	Data Aggregator appointment effective from date	
data_collector_mpid	Data Collector MPID	
data_collector_efd	Data Collector appointment effective from date	
meter_operator_mpid	Meter Operator MPID	
meter_operator_efd	Meter Operator appointment effective from date	

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smso_mpid	Smart Metering System Operator MPID
smso_efd	Smart Metering System Operator effective from date
ihd_status	In Home Display Install status
ihd_status_efd	In Home Display Install status effective from date
smets_version	Smart Metering Equipment Technical Specification version
metered_indicator	Metered Indicator
metered_indicator_efd	Metered Indicator effective from date
metered_indicator_etd	Metered Indicator effective to date
consumer_type	Consumer Type
domestic_consumer_indicator	Domestic Consumer Indicator
relationship_status_indicator	Relationship Status Indicator
rmp_state	RMP State
rmp_state_efd	RMP State effective from date

Returned Metering Data Items

*The data that is returned to the subscriber is dependent upon their subscription.

Data Item	Description
mpancore	MPAN Core
installing_supplier_mpid	Installing Supplier MPID
meter_serial_number	Meter Serial Number
meter_type	Meter Type
meter_install_date	Meter Install Date
map_mpid	Meter Asset Provider MPID

9. GetErrorCodes

Method Purpose

The “GetErrorCodes” web service method returns a list of error codes used by the web service (see Appendix A - Error Codes).

Method Inputs



Figure 5

Level	Field	Description
1	AuthRequest	Mandatory. Encapsulates a request to the “GetErrorCodes” web service method.
2	Authentication	Mandatory. Encapsulates those details required in order that the web service caller authenticates themselves to the web service. See section 6 (Web Service Security) for more information.

Method Outputs

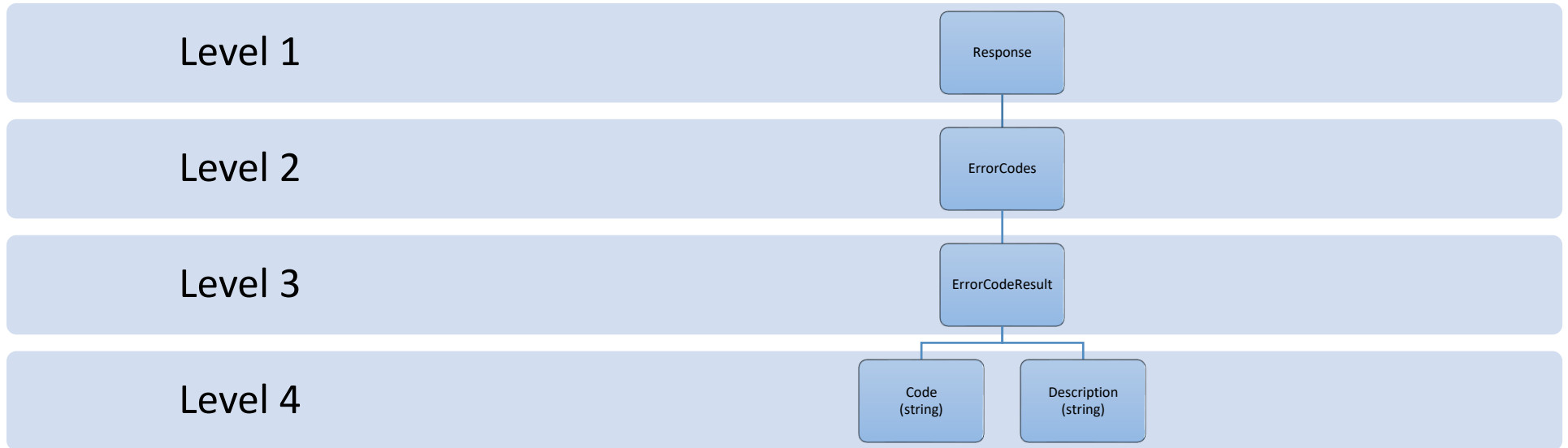


Figure 6

Level	Field	Description
1	Response	Encapsulates response returned by the “GetErrorCodes” web service method.
2	ErrorCodes	A collection of “ErrorCodeResult” objects; one for each error code defined for the web service.
3	ErrorCodeResult	Encapsulates an error code defined for the web service.
4	Code	The code for the defined error.
4	Description	The description of the defined error.

10. GetSubscriberMethodLimits

Method Purpose

The “GetSubscriberMethodLimits” method returns the list of method limits, and current usage for a particular subscriber.

Method Inputs



Figure 7

Level	Field	Description
1	AuthRequest	Mandatory. Encapsulates a request to the “GetSubscriberMethodLimits” web service method.
2	Authentication	Mandatory. Encapsulates those details required in order that the web service caller authenticates themselves to the web service. See section 6 (Web Service Security) for more information.

Method Outputs

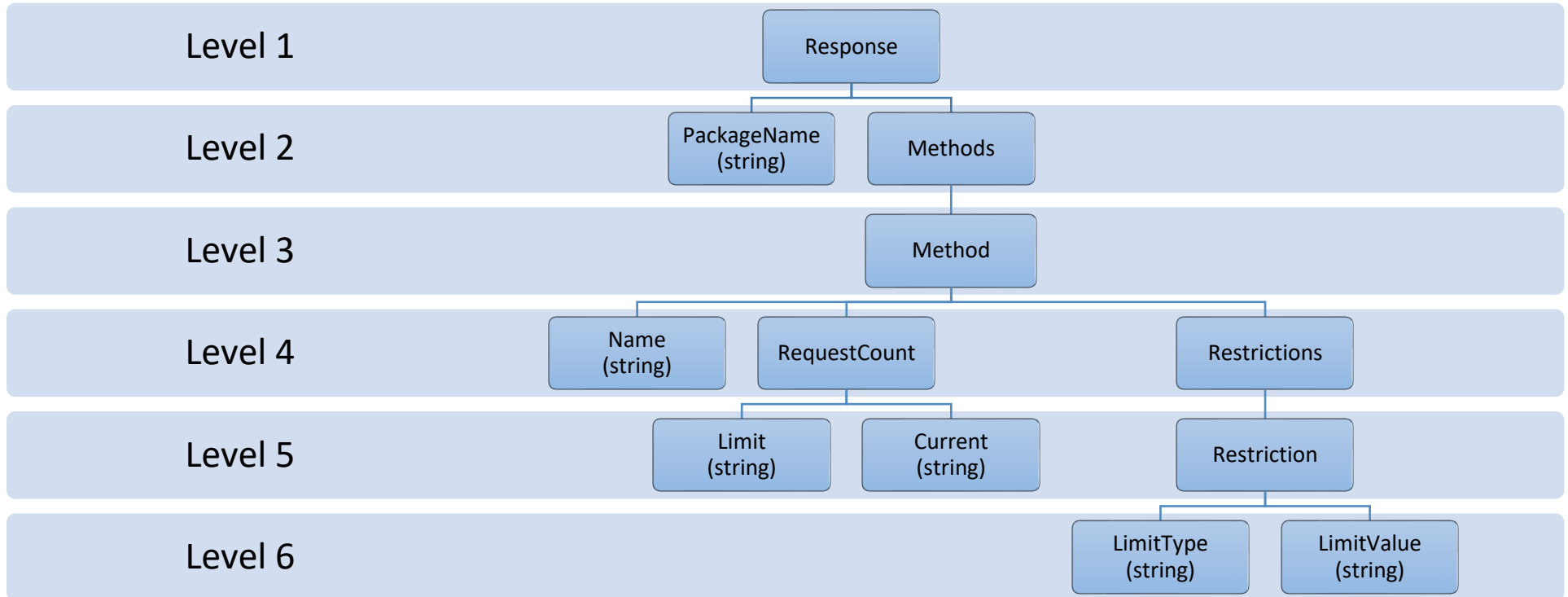


Figure 8

Level	Field	Description
1	Response	Encapsulates the response from the "GetSubscriberMethodLimits" web service method.
2	PackageName	Holds the name of the service plan for the subscription associated with the web service caller.
2	Methods	A collection of "Method" objects; one for each web service method to which the subscriber has access.
3	Method	Encapsulates the request count and limits for a web service method accessible to the subscriber.
4	Name	Name of the web service method.

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4	RequestCount	Encapsulates the limit and number of requests made for a given web service method.								
5	Limit	Holds the request limit for a given web service method, for the calling subscriber.								
5	Current	Holds the current number of requests made for a given web service method, for the calling subscriber.								
4	Restrictions	A collection of "Restriction" objects; one for each restriction defined for a given web service method, for the calling subscriber.								
5	Restriction	Encapsulates a restriction defined for a given web service method, for the calling subscriber.								
6	LimitType	<p>Holds the type name of the restriction. The type name can be one of the following values.</p> <table border="1"> <thead> <tr> <th>Limit Type</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>MAX_PARAM_INPUT</td> <td>Determines the maximum number of input parameters for a method</td> </tr> <tr> <td>MAX_RESULT_OUTPUT</td> <td>Determines the maximum number of results return from a request</td> </tr> <tr> <td>MAX_REQUEST_PER_MONTH</td> <td>Specifies the maximum number of monthly requests that can be made to this entity</td> </tr> </tbody> </table>	Limit Type	Description	MAX_PARAM_INPUT	Determines the maximum number of input parameters for a method	MAX_RESULT_OUTPUT	Determines the maximum number of results return from a request	MAX_REQUEST_PER_MONTH	Specifies the maximum number of monthly requests that can be made to this entity
Limit Type	Description									
MAX_PARAM_INPUT	Determines the maximum number of input parameters for a method									
MAX_RESULT_OUTPUT	Determines the maximum number of results return from a request									
MAX_REQUEST_PER_MONTH	Specifies the maximum number of monthly requests that can be made to this entity									
6	LimitValue	Holds the defined restriction value.								

11. GetRelatedMPANs

Method Purpose

The “GetRelatedMPANs” method returns relationship data for a given MPAN. The method will return all MPANs that are either of a secondary or primary relationship to the given MPAN. The method will act upon only one given parameter set.

Method Inputs

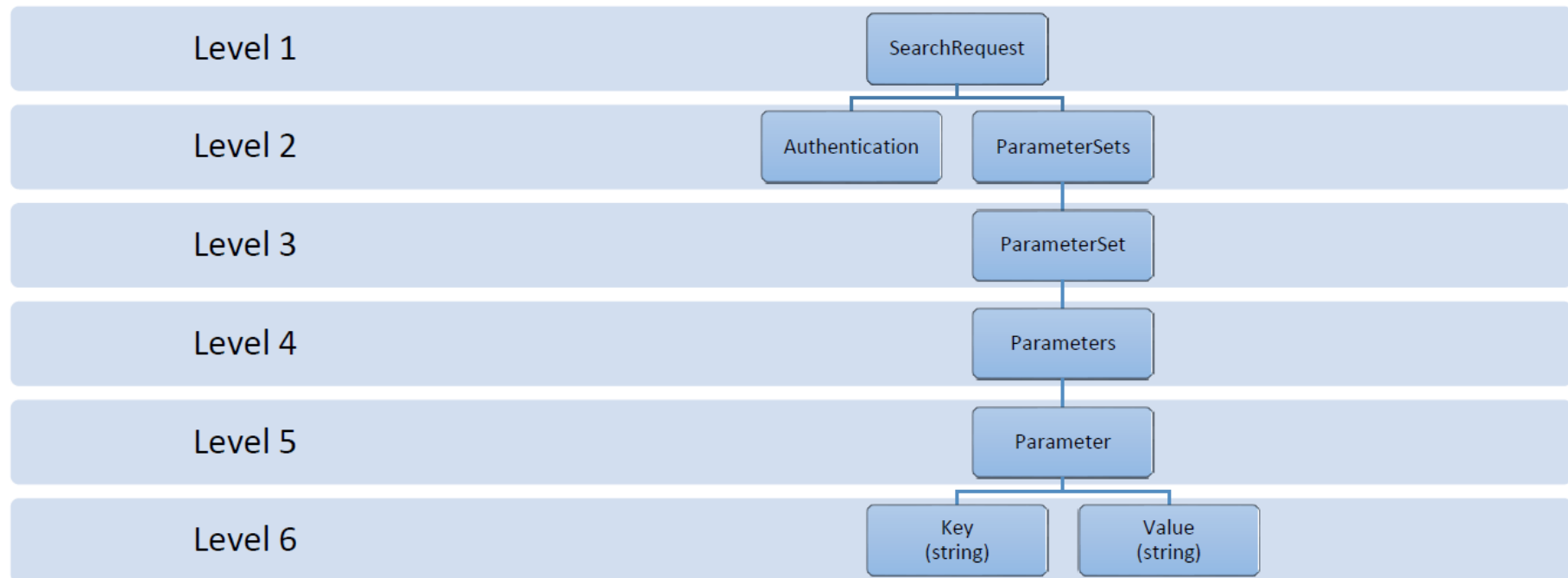


Figure 9

Supported Parameters

Parameter Name	Description
MPAN	Mandatory.
Permission	<p>Optional.</p> <p>Holds a Boolean value that indicates whether the process calling the web service has permission to view the market sensitive data items for a given utility key. If this field holds a value of “false”, then there is a possibility that some data items returned will contain the value “WITHHELD BY SUPPLIER”, subject to the status of the “ReturnWithHeld” parameter.</p> <p>The default value for this parameter is “false”.</p>

Method Outputs

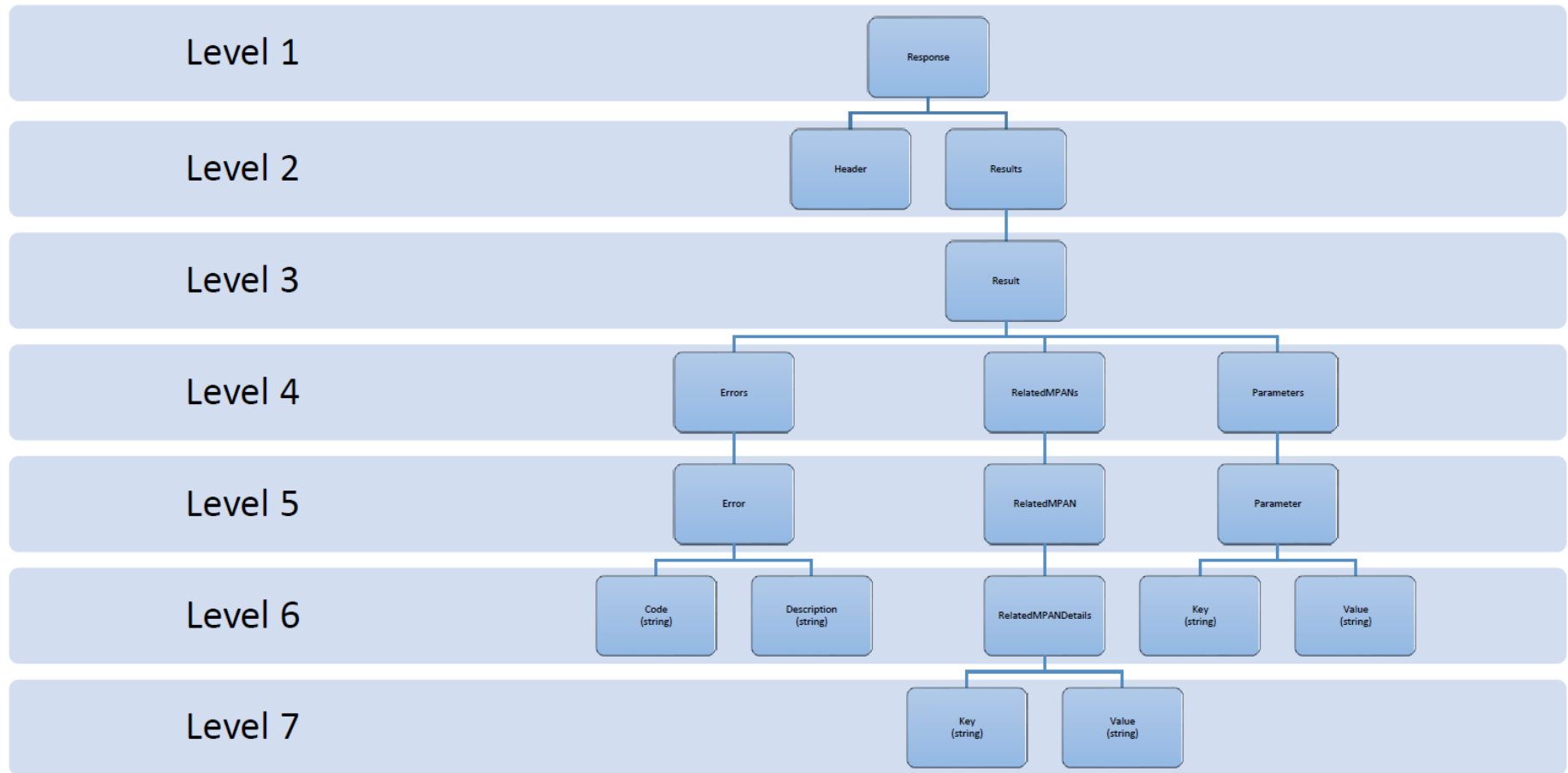


Figure 10

Level	Field	Description
1	Response	Encapsulates the response returned by the "GetTechnicalDetailsByMpan" web service method.
2	Header	<p>Holds the following web service processing details related to the request:</p> <p>RequestId. A unique integer value generated for the request.</p> <p>RequestDate. The date / time that the request was received by the web service.</p> <p>ResponseTime. The time taken for the web service to process the request.</p> <p>VersionNumber. Web service version number.</p>
2	Results	A collection of "Result" objects; one for each requested mpan.
3	Result	Encapsulates the utility technical details for a requested mpan.
4	Errors	A collection of "Error" objects; one for each error identified while processing a requested technical details search.
5	Error	Encapsulates details of an individual technical details search error. See section Appendix A for the list of possible error codes.
6	Code	Holds the error code.
6	Description	Holds the description of the error.
	RelatedMPANs	Encapsulates each of the related MPAN records found.
	RelatedMPANs	Encapsulates the details collection of each MPAN record, one for each MPAN found
	RelatedMPANDetails	A collection of details relating to the found MPAN
6	Key	Holds the name of a requested address search parameter.
6	Value	Holds the value of a requested address search parameter.

12. Web Service Exceptions

Clients accessing the service over SOAP/XML, exceptions are returned as SOAP faults. **Figure** below shows the structure of exception objects returned by the ECOES API version 1.0 web service methods.

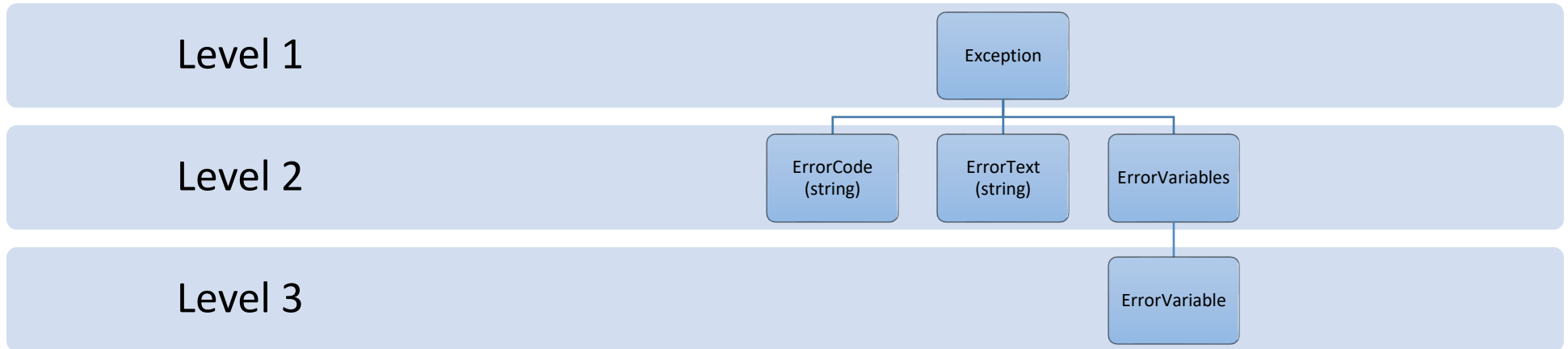


Figure 11

13. Appendix A - Error Codes

Code	Description	GetTechnicalDetailsByMpan	SearchUtilityAddress	GetRelatedMPANs
DAT1001	Metering Point for MPAN was not found.	X		
DAT1002	MPAN core was not found.	X	X	
VAL1003	Your current request count of {0} exceeds your maximum request limit of {1}	X	X	
VAL1004	Your message contains {0} requests which exceeds the maximum parameter input of {1} for message {2}	X	X	
VAL1005	You are not authorised to access method {0}	X	X	
DAT1003	Your request contains {0} results which exceeds the maximum result limit of {1}.	X		
VAL1007	Your current usage ({0} requests) of method {1} has exceeded the method's maximum usage limit of {2}	X	X	
VAL2020	Insufficient search criteria; at least two search parameters must be supplied when a full postcode is not specified.		X	
VAL2025	A minimum of three characters are required for the "PostCode" search parameter.		X	
VAL2400	A value must be supplied for the "utilityType" parameter.	X		
VAL2410	A value must be supplied for the "utilityKey" parameter.	X		
VAL2460	A value must be supplied for the "MeterSerialNumber" parameter.		X	
DAT2010	No address found for the specified criteria.		X	
DAT2060	No details found for the specified utility type and key.	X		
DAT2080	No details found for the specified utility type and meter serial number.		X	
DAT2430	Too many address records found.		X	



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VAL006	Can't search using both Address and Meter Serial Number. Must search using one or the other.		X	
VAL008	You are not permitted to search via Meter Serial Number.		X	
DAT2460	No related MPANs found.			X

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