CPR BROKER

Method description

MAGENTA ApS

CONTENTS

1 OVERALL DESCRIPTION

All CPR broker web service calls return an object that contains two parts. The first part is an element of type StandardReturType. The second object will contain the actual returned value of the operation (in case of success) or null (in case of failure).

1.1 StandardReturType

This object contains human readable information about the status of the returned result. It is defined like this:

```
public partial class StandardReturType
{
	public string StatusKode;
	public string FejlbeskedTekst;
}
```

The StatusKode element will contain a string with a numeric code. The codes have been derived from standard HTTP status codes.

The FejlbeskedTekst element will contain extra information, basically about the source of the error.

2 RETURN CODES

This section describes the various return codes and text. These will be contained in the StandardReturType part of any method response.

Any text surrounded with <> will be replaced with an actual value at runtime. For example : <name> can actually be 1234

2.1 200 (OK)

FejlbeskedTekst	Comment
OK	The operation has succeeded without problems.

2.2 206 (partial success)

FejlbeskedTekst	Comment
Partial success. Failed = <Error reason 1>: <uuid1,uuid1,…>;<Error reason 2> : <uuid3,uuid4,…>	The operation has succeeded only partially. This applies only to List operation at the moment. Possible error reasons are “Unknown UUID” and “Data provider failed”.

2.3 400 (Bad request)

FejlbeskedTekst	Comment
Input cannot be null	The main input element was null.
Input cannot be null:<elementName>	The element <elementName> was null
Unknown: <objectName>	Typically used when a channel type passed to Subscribe or SubscribeOnBirthdate is unknown.
	The type specified for a data provider (in SetDataProviderList) is unknown
Unknown AppToken: <token>	When the target application token passed to UnRegisterApp or ApproveAppRegistration is unknown
Value "<value>" is out of valid range	Value out of range. Used only in internal methods used for communication with event broker(GetPersonBirthdates and DequeueDataChangeEvents)
Value "<value>" for "<paramName>" is out of valid range	Used in Search method validation of parameters MaksimalAntalKvantitet and FoersteResultatReference
Invalid application token: <token>	The application token passed in the ApplicationHeader is invalid
<uuid1,uuid2,uuid3,…>	Malformed UUIDs passed to List.
Invalid UUID: <uuid>	Malformed UUID passed to Read, RefreshRead or Search
Invalid CPR number: <cprNumber>	Malformed CPR number passed to GetUuid
Invalid <name>: <value>	Invalid value specified for element <name>. Used with

FejlbeskedTekst	Comment
	MaksimalAntalKvantitet and FoersteResultatReference in Search
Malformed XML	The input XML is not well formed
<exceptionMessage>	The input XML was unreadable
ApplicationName '<appName>' already exists	Attempted to call RequestAppRegistration with a name that already exists.
Unreachable channel	The channel passed to Subscribe or SubscribeOnBirthdate could not be reached

2.4 500 (Unspecified)

FejlbeskedTekst	Comment
UNSPECIFIED	Unexpected exception occurred in the overall logic
Validation failed	Unexpected exception occurred while validating the result
Aggregation failed	Unexpected exception occurred while aggregating the final result of the operation from its sub components

2.5 503 (data source unavailable)

FejlbeskedTekst	Comment
DATASOURCE_UNAVAILABLE	No suitable data providers were found to implement the request
	All available data providers have failed to implement the request
	For List operation: All input UUIDs were either unmapped to Cpr numbers or no data found for all of them

2.6 501 (Not implemented)

FejlbeskedTekst	Comment
<name>	The named object is not implemented. Typically means that calling Search() for the field named <name> is not implemented

2.7 404 (Not found)

FejlbeskedTekst	Comment
NotificationChannel unreachable	The notification channel given to create a subscription (using Subscribe or SubscribeOnBirthdate) was unreachable

3 PART SERVICE

This is the main service of CPR Broker. It allows access to CPR data through a standard PART interface. Methods of this service are executed via local data provider whenever possible (except RefreshRead). Otherwise, an external data provider is used to implement the request.

3.1 General notes

3.1.1 Local data update

If any data is obtained from an external data source, it is saved into the broker's local database. New data will be added or merged with existing data depending on some criteria, but in general, new data is added when it has new information about a person that the broker does not already know.

3.2 Read

Finds and returns a single person object. It will return the latest registration within the specified range. It first looks in the local database, and attempts external data providers if no data is found locally.

3.2.1 Signature

LaesOutputType Read(LaesInputType input)

3.2.2 Parameters

Parameter	Description
Input	Contains the person UUID and (optionally) requested registration & effect date ranges.

3.2.3 Return value components

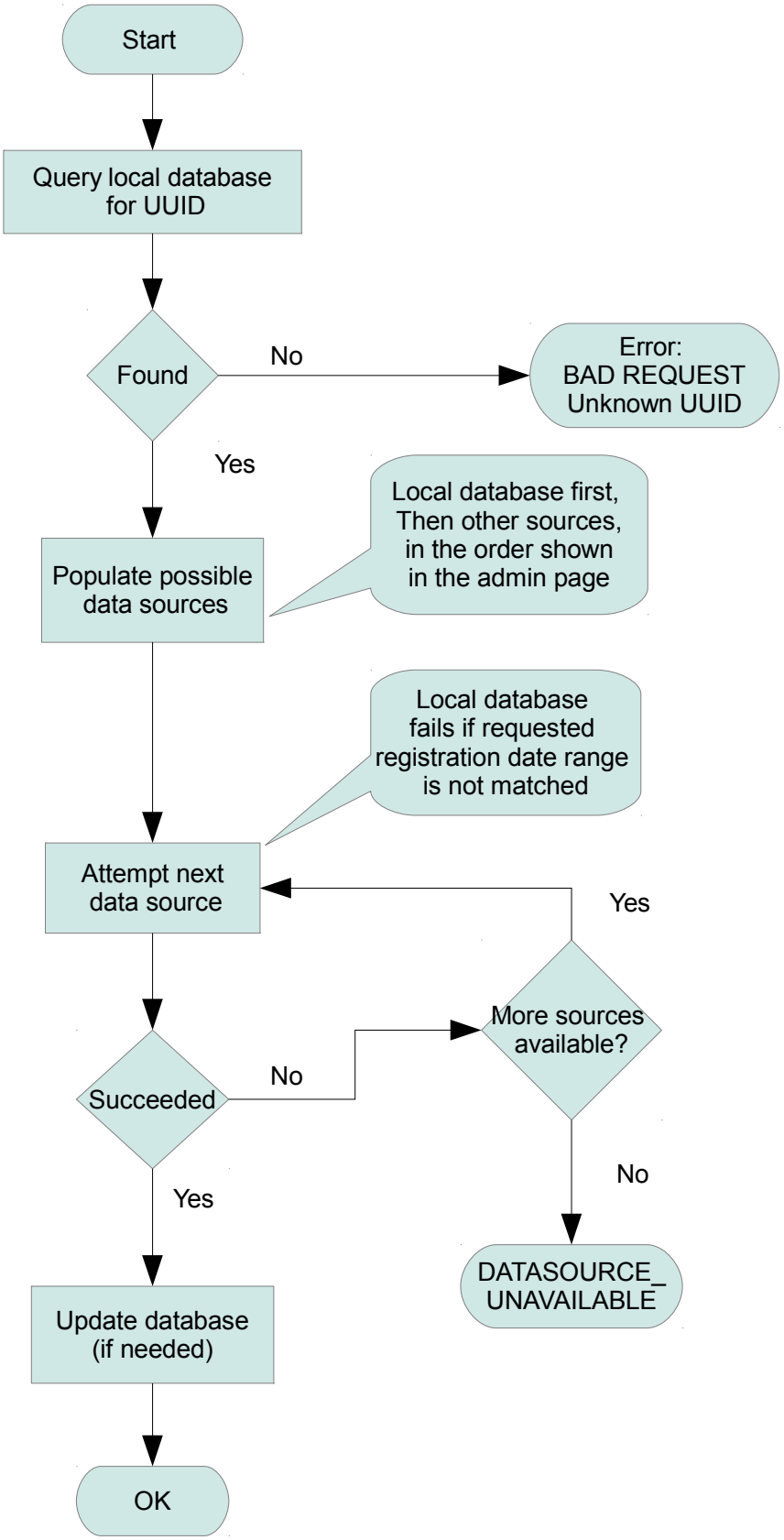
Name	Description
LaesResultat	If succeeded, its Item property will be a Registrering object with the found person registration. If failed, contains null.

3.2.4 Review

Date	Description
2011-03-06	CPR Broker PART release

3.2.5 Flow chart

The following chart summarizes how this method works.


Start
Query local database for UUID
Found
No
Error: BAD REQUEST Unknown UUID
Yes
Local database first, Then other sources, in the order shown in the admin page
Populate possible data sources
Local database fails if requested registration date range is not matched
Attempt next data source
Yes
More sources available?
Succeeded
No
No
Yes
DATASOURCE_ UNAVAILABLE
Update database (if needed)
OK

3.3 RefreshRead

This method is the same as Read, except that it does not look in the broker's local database to load the data. Instead, it queries external data providers directly for the data.

3.4 List

Finds and returns several person objects that match the ID List supplied. Just like Read, every person is first attempted locally, and if not found, an external data provider is attempted.

3.4.1 Signature

ListOutputType1 List(ListInputType input)

3.4.2 Parameters

Parameter	Description
Input	Contains the UUIDs of the person objects to be retrieved.

3.4.3 Return value components

Name	Description
LaesResultat	Array of Read operation results. In case of full or partial success, each element at index i in the array corresponds to the UUID at index i in the input array. Contains null in case of failure.

3.4.4 Review

Date	Description
2011-03-06	CPR Broker PART release
2011-11-29	Allowed partial success.

3.4.5 Flow description

The general flow is very much like Read(). The differences are:

- If more than one person is requested, a separate thread is created for each person. This thread executes all the the steps for the read. The return of each thread is temporarily kept in memory instead of returned directly to the client
- After all the threads have finished (or timed out), the broker gathers all the output

from all threads and creates an overall return status code and text

3.4.6 Return codes

The following table describes the most important error codes specific to List().

Code	Text	Description
200	OK	All persons succeeded
206	Partial success. Failed = <reason1> : <uuid1>,<uuid2>; <reason2> : <uuid3>,<uuid4>;	Some persons have failed. Possible reasons are "Unknown UUID" and "Data provider failed"
500	Aggregation failed	Error occurred while creating the final return
503	DATASOURCE_UNAVAILABLE	All persons have failed

3.4.7 Timeout

If the method is called with more than one UUID, the broker creates a separate thread for each person. The threads are only allowed to run for a certain number of milliseconds, after which the threads are forced to terminate. The corresponding persons of terminated threads will have a failed status in the return value.

Tip: The time out amount is specified in milliseconds and its default value is 30000. It can be changed in the website configuration file(element 'DataProviderMillisecondsTimeout' in 'CprBroker.Config.Properties.Settings')

3.5 Search

Searches the local database for matching persons. The current implementation can only search by UUID, CPR number, first name, middle name or last name. Search is performed for whole words only..

3.5.1 Signature

SoegOutputType Search(SoegInputType1 searchCriteria)

3.5.2 Parameters

Parameter	Description
searchCriteria	The search criteria.

3.5.3 Return value components

Name	Description
LaesResultat	List of UUID's of the found persons. You can then call Read or List to get detailed data.

3.5.4 Review

Date	Description
2011-03-06	CPR Broker PART release

3.6 GetUuid

Gets the person's UUID from his CPR number. If no mapping is found locally, it calls the UUID assignment authority (PersonMaster service).

3.6.1 Signature

GetUuidOutputType GetUuid(string cprNumber)

3.6.2 Parameters

Parameter	Description
cprNumber	CPR number of person needed.

3.6.3 Return value components

Name	Description
UUID	The person's UUID.

3.6.4 Review

Date	Description
2011-03-06	CPR Broker PART release

4 ADMIN SERVICE

This service contains methods related to administrative functions of CPR Broker. Basically it is used to manage applications, data providers and query system capabilities.

4.1 RequestAppRegistration

Creates a new un-approved application in the system.

4.1.1 Signature

BasicOutputTypeOfApplicationType RequestAppRegisteration(string ApplicationName)

4.1.2 Parameters

Parameter	Description
ApplicationName	Name of the application that is wanted to be registered. This name should be different from all application names registered in CPR Broker.

4.1.3 Return value components

Name	Description
Item	The new ApplicationType object. A new application token will be assigned and passed in this object. Null on failure.

4.1.4 Review

Date	Description
2011-03-06	CPR Broker PART release

4.2 ApproveAppRegistration

Approves an application's registration. This makes it possible to pass the application's token in the application header of future requests.

4.2.1 Signature

BasicOutputTypeOfBoolean ApproveAppRegisteration(string ApplicationToken)

4.2.2 Parameters

Parameter	Description
ApplicationToken	Token for the business client application to be approved.

4.2.3 Return value components

Name	Description
Item	A boolean value specifying whether the operation has succeeded.

4.2.4 Review

Date	Description
2011-03-06	CPR Broker PART release

4.3 ListAppRegistrations

Lists all registered business applications.

4.3.1 Signature

BasicOutputTypeOfApplicationType ListAppRegisterations()

4.3.2 Parameters

N/A

4.3.3 Return value components

Name	Description
Item	Array of ApplicationType containing the list of applications.

4.3.4 Review

Date	Description
2011-03-06	CPR Broker PART release

4.4 UnregisterApp

Unregister an application registration. An application can unregister itself, but its token

would then be unusable until another application approves it.

4.4.1 Signature

BasicOutputTypeOfBoolean UnregisterApp(string ApplicationToken)

4.4.2 Parameters

Parameter	Description
ApplicationToken	Security Token for the application the should be unregistered.

4.4.3 Return value components

Name	Description
Item	Boolean specifying whether the operation has succeeded.

4.4.4 Review

Date	Description
2011-03-06	CPR Broker PART release

4.5 GetCapabilities

Gets a list of service operations.

4.5.1 Signature

BasicOutputTypeOfArrayOfServiceVersionType GetCapabilities()

4.5.2 Parameters

N/A

4.5.3 Return value components

Name	Description
Item	Array of ServiceVersionType with the supported service list.

4.5.4 Review

Date	Description
2011-03-06	CPR Broker PART release

4.6 IsImplementing

A direct (easier) alternative to GetCapabilities

4.6.1 Signature

BasicOutputTypeOfBoolean IsImplementing(string serviceName, string serviceVersion)

4.6.2 Parameters

Parameter	Description
serviceName	Service Name
serviceVersion	Service Version

4.6.3 Return value components

Name	Description
Item	A boolean value specifying whether the service is implemented.

4.6.4 Review

Date	Description
2011-03-06	CPR Broker PART release

4.7 GetDataProviderList

Returns a list of objects that contain information about the external data providers that are currently used by the system.

4.7.1 Signature

BasicOutputTypeOfArrayOfDataProviderType GetDataProviderList()

4.7.2 Parameters

N/A

4.7.3 Return value components

Name	Description
Item	Array of DataProviderType, sensitive information will be null.

4.7.4 Review

Date	Description
2011-03-06	CPR Broker PART release

4.8 SetDataProviderList

Sets the list of data providers that are used by the service,e.g., DPR, KMD & PersonMaster. This method will overwrite all data providers currently registered in the system.

4.8.1 Signature

BasicOutputTypeOfBoolean SetDataProviderList(DataProviderType[] dataProviders)

4.8.2 Parameters

Parameter	Description
DataProviders	Array of data providers that the system should use. Existing list will be overwritten with this new list.

4.8.3 Return value components

Name	Description
Item	Boolean specifying whether the operation has succeeded.

4.8.4 Review

Date	Description
2011-03-06	CPR Broker PART release

4.9 Log

Writes a text string to the system's log. The text will be logged as type 'Information'.

4.9.1 Signature

BasicOutputTypeOfBoolean Log(string Text)

4.9.2 Parameters

Parameter	Description
Text	The text value to be logged.

4.9.3 Return value components

Name	Description
Item	Boolean specifying whether the operation has succeeded.

4.9.4 Review

Date	Description
2011-03-06	CPR Broker PART release

5 SUBSCRIPTION SERVICE

This service is part of Event Broker. It allows client applications to subscribe to data events. Client applications send information on how they want to be notified of the event. This can be via a web service call or a new XML file placed at a certain directory.

5.1 General rules for all subscriptions

5.1.1 Isolation

- An application can only view/delete its own subscriptions.
- If a subscription is deleted, all its notification history is also deleted. This does not apply to the log written into CPR Broker.

5.1.2 Notification channels

The calling application must pass a valid channel object when calling Subscribeor SubscribeOnBirthdate. The channel is first verified and an error is returned if it is unreachable.

If WebServiceChannelType is used, the property WebServiceUrl has to be filled with the URL of a web service that implements the WSDL at :

http://[eventBrokerUrl]/Templates/Notification.wsdl.

If FileShareChannelType is used, then its Path property must contain a valid UNC path to a folder at which notification files will be put. These files are simply XML files with the necessary information about the notification.

A notification is sent as an object of type CommonEventStructureType. It contains the following fields:

Name	Description
EventInfoStructure/EventIdentifier	UUID of the event, generated by EventBroker
EventInfoStructure/EventObjectStructure/EventObjectReference	UUID of the person of interest.
EventInfoStructure/EventRegistrationDateTime	Date and time at which the event was fired.
EventSubscriptionReference	UUID of the subscription object that fired the event.

5.2 Subscribe

Allows a client business application to be notified when there is a change in one or more person's data.

5.2.1 Signature

BasicOutputTypeOfChangeSubscriptionType Subscribe(ChannelBaseType NotificationChannel, Guid[] personUuids)

5.2.2 Parameters

Parameter	Description
NotificationChannel	Channel to send notification through it (Web service, FileShare...) .
personUuids	Array of persons UUIDs that you want to subscribe their events. Null for all persons.

5.2.3 Return value components

Name	Description
Item	An object of type ChangeSubscriptionType that represents the newly created subscription object.

5.2.4 Review

Date	Description
2011-03-06	CPR Broker PART release

5.3 Unsubscribe

Removes a subscription. The subscription can not be used any further, and will be deleted with all its notification history.

5.3.1 Signature

BasicOutputTypeOfBoolean Unsubscribe(Guid SubscriptionId)

5.3.2 Parameters

Parameter	Description
SubscriptionId	The UUID of the subscription to be removed.

5.3.3 Return value components

Name	Description
Item	A boolean value that represents whether the operation has succeeded.

5.3.4 Review

Date	Description
2011-03-06	CPR Broker PART release

5.4 SubscribeOnBirthdate

Subscribes to extended birthday events. In case the business application needs to send a message to a citizen 3 weeks before the 65th birthday (retirement), the user can subscribe to this event 65 birthday minus 3 weeks. This subscription can be created for all persons or for a specific list of persons.

5.4.1 Signature

BasicOutputTypeOfBirthdateSubscriptionType SubscribeOnBirthdate(ChannelBaseType NotificationChannel, Nullable<int> Years, int PriorDays, Guid[] personUuids)

5.4.2 Parameters

Parameter	Description
NotificationChannel	Channel to send notification through it (Web service, FileShare...) .
Years	Age of the person (in years) at which the notification should be fired. Null for every year.
PriorDays	The period before the actual birthdate event (in days) at which the notification should be fired.
personUuids	Array of persons uuids that you want to subscribe the their events. Null for all persons.

5.4.3 Return value components

Name	Description
Item	An object of type BirthdateSubscriptionType that represents the created subscription object.

5.4.4 Review

Date	Description
2011-03-06	CPR Broker PART release

5.5 RemoveBirthDateSubscriptions

Removes one extended subscription for a user application.

5.5.1 Signature

BasicOutputTypeOfBoolean RemoveBirthDateSubscription(Guid SubscriptionId)

5.5.2 Parameters

Parameter	Description
SubscriptionId	The UUID of the subscription to be removed.

5.5.3 Return value components

Name	Description
Item	A boolean value that represents whether the operation has succeeded.

5.5.4 Review

Date	Description
2011-03-06	CPR Broker PART release

5.6 GetActiveSubscriptionsList

Removes one extended subscription for a user application.

5.6.1 Signature

BasicOutputTypeOfArrayOfSubscriptionType GetActiveSubsciptionsList()

5.6.2 Parameters

N/A

5.6.3 Return value components

Name	Description
Item	Array of SubscriptionType that represents the current subscriptions. Only subscriptions belonging to the caller application are retrieved.

5.6.4 Review

Date	Description
2011-03-06	CPR Broker PART release