

## **Interface Specification for MidtEPJ Order and Report**

Prepared for:  
RegionMidt

**Interface Specification**

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## 1 Introduction

The MidtEPJ Order and Report integration consists of two separate API's:

- **Order and Report Web service API:**  
A SOAP Web service which enables external systems to notify MidtEPJ about the creation, updates and deletions of orders and reports in that system.
- **Order and Report client integration API:**  
A Java API which defines plugin interfaces for extending the MidtEPJ client. The API enables the development of plugins that enable the MidtEPJ client to display the user interface of external systems with context-specific information shown.

The integration is applicable in all of the following three cases:

1. An external system is used to create and maintain order. Reports are generated based on these orders.
2. An external system is used to create and maintain orders, but no reports are ever generated.
3. An external system is used to create and maintain reports that are not based on orders.

## 2 Web service standards

The MidtEPJ Order and Report API is a SOAP 1.1 Web service secured by SSL. Client authentication is based on SSL client certificates. The Web service conforms to the WS-I Basic Profile 1.1.

The technical Web service specification is available as a separate WSDL file [WSDL-Spec].

## 3 Web service security

All API operations require authentication and authorization. Authentication and authorization is achieved by using SSL with client certificates. The Web service endpoint requires clients to present an acceptable certificate. Otherwise transport-level access to the Web service will be denied. All clients that are accepted are also authorized to call any of the service operations.

All communication between the service endpoint and the client endpoint should use a direct point-to-point connection between the client and server on the transport layer. This ensures the confidentiality and integrity of the communication.

## 4 Web service operations

This section describes each of the operations supported by the MidtEPJ Order and Report Web service. For each operation an example request and response is given.

All orders and reports must specify an ID. This ID needs only to be unique within the system instance from which the item originates. MidtEPJ identifies orders and reports uniquely by a combined key consisting of:

- Item type (Order or Report)
- System ID
- Instance ID
- Item ID

All operations may result in a SOAP Fault. In general, the Web service will accept all requests that conform to the WSDL specification.

#### 4.1 UpdateOrder

##### 4.1.1 Usage

The `UpdateOrder` operation is used to notify MidtEPJ about the existence of an order which has been created or updated in another system. If MidtEPJ has not previously been notified about the existence of the order, a representation of the order is created in MidtEPJ. If MidtEPJ already knows about the order that order will be updated in MidtEPJ with the new information.

Each `UpdateOrder` request must among other details include an order version. The version is used to determine whether a newly received order represents a newer version than that already known to MidtEPJ. The version check is needed in order to protect the Web service against out-of-order messages.

An `UpdateOrder` request is accepted if it conforms to the WSDL specification of the `UpdateOrderRequest` message. Out-of-date requests, i.e. requests specifying an order version that is not newer than the version already known to MidtEPJ, are simply ignored.

If the `UpdateOrder` request is accepted the Web service responds with the `UpdateOrderResponse` message which contains no data but simply acknowledges a successful request.

##### 4.1.2 Data model

Each `UpdateOrder` request transfers a single `Order` element to the service provider. Each field of the `Order` element is described in the following table:

<b>Table 1 – Description of Order fields</b>		
M = Mandatory O = Optional		
<b>Field</b>	<b>M/O</b>	<b>Description and recommendations</b>
systemId	M	The ID assigned to the system that is the source of the message. This ID is assigned by Region Midtjylland during the process of establishing the integration.  In MidtEPJ this value will be converted into a string describing the system before displaying it to users. The mapping from system ID to display string is part of the MidtEPJ configuration.

instanceId	M	<p>The ID assigned to the instance of the system that is the source of the message. This ID is assigned together with the system ID.</p> <p>In MidtEPJ this value will be converted into a string describing the instance before displaying it to users. The mapping from instance ID to display string is part of the MidtEPJ configuration.</p>
patientId	M	<p>The civil registration number the patient to whom the order is related. Official civil registration numbers are preferred. Temporary civil registration numbers are valid as long as they are known to MidtEPJ.</p> <p>In MidtEPJ the order will be visible when viewing the health record of the patient identified by this patient ID.</p>
orderId	M	<p>An ID for this order. The ID is owned by the source instance and needs only to be unique within the scope of that instance.</p> <p>This value will not be visible in MidtEPJ.</p>
orderVersion	M	<p>A version number for the order. Higher value means newer version.</p> <p>This value will not be visible in MidtEPJ.</p>
orderUnit	M	<p>Identification of the department which owns the order, i.e. the ordering department. The identifier must reference a 7-digit SKS code such as "7009031". Other levels in the classification system hierarchy are not supported. The value must reference a department within the organizational area of MidtEPJ.</p> <p>The value will be mapped to a string containing the name of the department, before displaying it to users.</p>
orderTimestamp	M	<p>A timestamp specifying the time at which the order was created in the source system instance. The timestamp is used by MidtEPJ to determine whether the order should be included within a time search window, in cases where no sample timestamp is specified and when no reports have been received for the order.</p>
statusId	M	<p>An identifier for the status of the order. The possible values of this field are determined in the process of establishing the integration.</p> <p>In MidtEPJ this value will be converted into a string describing the status before displaying it to users. The mapping from status ID to display string is part of the MidtEPJ configuration.</p>
sampleTimestamp	O	<p>An optional timestamp specifying the time at which the order will be or has been executed. The exact definition of order execution may differ between systems and specialities. An agreement about how and when this field should get its value must be made with the service provider in the process of establishing the integration.</p>
note	O	<p>An optional note regarding the order. The value of this field will be displayed in MidtEPJ as long as no reports have been received for the order.</p> <p>As part of the process of establishing the integration the use of this field must be agreed upon with the service provider. The value will be displayed in its exact form to end users. It is not possible to convey notes as formatted text. The</p>

		note should be a single line of text with limited length, as it will be displayed in a table cell.
analysisSummary	O	An optional summary text describing one or more analyses for the order. All orders should contain at least an analysis summary or a list of structured analyses. It is allowed to specify both. If both are specified, the analysis summary will appear before the list of structured analyses in MidtEPJ.
analyses	O	An optional list of structured analyses elements. Specifying analyses in this structured form is preferred instead of simply specifying an analysis summary. When using the structured form it is possible for MidtEPJ to determine whether an analysis must be approved by an end user. Structured analyses are displayed as a list of analyses to end users. Only the analysis text is shown. The analysis IDs are not visible in MidtEPJ.
analyses/id	M	Each structured analysis element must specify an ID. The ID is not displayed to end users in MidtEPJ. The ID is used to determine whether the analysis requires approval by an end user.
analyses/text	M	Each structured analysis element must specify a text. The text is displayed to end users.

#### 4.1.3 Example

In this example MidtEPJ is notified about the existence of an order. All available fields of the order are specified.

#### Request:

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:ors="http://dk.rm.epj/2011/11/21/OrderReportService">
  <soapenv:Header/>
  <soapenv:Body>
    <ors:UpdateOrder>
      <order>
        <systemId>Patologi</systemId>
        <instanceId>Patologi-AUH</instanceId>
        <patientId>1211659999</patientId>
        <orderId>1256039954</orderId>
        <orderVersion>3</orderVersion>
        <orderUnit>7009031</orderUnit>
        <orderTimestamp>2011-10-25T13:59:56.054Z</orderTimestamp>
        <statusId>3</statusId>
        <sampleTimestamp>2011-10-26T14:02:00.000Z</sampleTimestamp>
        <note>Relevant information</note>
        <analysisSummary>Cytologi, histologi</analysisSummary>
        <analyses>
          <analysis>
            <id>PAT00001</id>
            <text>Cytologi</text>
          </analysis>
          <analysis>
            <id>PAT00002</id>
            <text>Histologi</text>
          </analysis>
        </analyses>
      </order>
    </ors:UpdateOrder>
  </soapenv:Body>
</soapenv:Envelope>
```

**Response:**

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:ors="http://dk.rm.epj/2011/11/21/OrderReportService">
  <soapenv:Header/>
  <soapenv:Body>
    <ors:UpdateOrderResponse/>
  </soapenv:Body>
</soapenv:Envelope>
```

**4.2 UpdateReport**

**4.2.1 Usage**

The `UpdateReport` operation is used to notify MidtEPJ about the existence of a report which has been created or updated in another system. If MidtEPJ has not previously been notified about the existence of the report, a representation of the report is created in MidtEPJ. If MidtEPJ already knows about the report that report will be updated in MidtEPJ with the new information.

Each `UpdateReport` request must among other details include a report version. The version is used to determine whether a newly received report represents a newer version than that already known to MidtEPJ. The version check is needed in order to protect the Web service against out-of-order messages.

An `UpdateReport` request is accepted if it conforms to the WSDL specification of the `UpdateReportRequest` message. Out-of-date requests, i.e. requests specifying a report version that is not newer than the version already known to MidtEPJ, are simply ignored.

If the `UpdateReport` request is accepted the Web service responds with the `UpdateReportResponse` message which contains no data but simply acknowledges a successful request.

**4.2.2 Data model**

Each `UpdateReport` request transfers a single `Report` element to the service provider. Each field of the `Report` element is described in the following table:

<b>Table 2 – Description of Report fields</b>		
M = Mandatory O = Optional		
<b>Field</b>	<b>M/O</b>	<b>Description and recommendations</b>
systemId	M	The ID assigned to the system that is the source of the message. This ID is assigned by Region Midtjylland during the process of establishing the integration.  In MidtEPJ this value will be converted into a string describing the system before displaying it to users. The mapping from system ID to display string is part of the MidtEPJ configuration.
instanceId	M	The ID assigned to the instance of the system that is the source of the message. This ID is

		<p>assigned together with the system ID.</p> <p>In MidtEPJ this value will be converted into a string describing the instance before displaying it to users. The mapping from instance ID to display string is part of the MidtEPJ configuration.</p>
patientId	M	<p>The civil registration number the patient to whom the report is related. Official civil registration numbers are preferred. Temporary civil registration numbers are valid as long as they are known to MidtEPJ.</p> <p>In MidtEPJ the report will be visible when viewing the health record of the patient identified by this patient ID.</p>
reportId	M	<p>An ID for this report. The ID is owned by the source instance and needs only to be unique within the scope of that instance.</p> <p>This value will not be visible in MidtEPJ.</p>
reportVersion	M	<p>A version number for the report. Higher value means newer version.</p> <p>This value will not be visible in MidtEPJ.</p>
reportTimestamp	M	<p>A timestamp specifying the time at which the report was published by the source system instance. The timestamp is displayed in MidtEPJ and is used to determine whether the report should be included within a time search window.</p>
orderUnit	M	<p>Identification of the department which should receive the report, i.e. the ordering department. The identifier must reference a 7-digit SKS code such as "7009031". Other levels in the classification system hierarchy are not supported. The value must reference a department within the organizational area of MidtEPJ.</p> <p>The value will be mapped to a string containing the name of the department, before displaying it to users.</p>
statusId	M	<p>An identifier for the status of the report. The possible values of this field are determined during the process of establishing the integration.</p> <p>In MidtEPJ this value will be converted into a string describing the status before displaying it to users. The mapping from status ID to display string is part of the MidtEPJ configuration.</p>
sampleTimestamp	O	<p>An optional timestamp specifying the time at which the sample on which the report is based has been taken. The exact definition of the sample time may differ between systems and specialities. An agreement about how and when this field should get its value must be made with the service provider in the process of establishing the integration.</p> <p>If the report is tied to an order which also specifies a sample timestamp, the timestamp given by the report has precedence.</p>
orderId	O	<p>An optional identifier referencing an order that the report is tied to. The value is optional to support external systems that do not use a concept of orders. It is important to understand that if the initial version of the report does not specify and orderId, no subsequent versions may specify and orderId either. If the initial version of the report specifies an orderId, all subsequent</p>

		versions must specify the exact same orderId. In MidtEPJ orders and reports that are related to each other are displayed together. Only the latest version of the report is displayed.
attention	O	An optional Region Midtjylland employee identifier in the form of a user ID in BrugerStamdataKataloget (BSK). This user ID identifies a Region Midtjylland employee which should be specifically notified about the existence of the report. For the notification to work, the user ID must represent a person who is also a user of MidtEPJ. Otherwise no notification functionality will be triggered.
note	O	An optional note regarding the report. The value of this field will be displayed in MidtEPJ, overriding the note that may have been received as part of the order identified by orderId.  As part of the process of establishing the integration the use of this field must be agreed upon with Region Midtjylland. The value will be displayed in its exact form to end users. It is not possible to convey notes as formatted text. The note should be a single line of text with limited length, as it will be displayed in a table cell.
analysisSummary	O	An optional summary text describing one or more analyses that the report contains results for.  All reports should contain at least an analysis summary or a list of structured analyses. It is allowed to specify both. If both are specified, the analysis summary will appear before the list of structured analyses in MidtEPJ.
analyses	O	An optional list of structured analyses elements. Specifying analyses in this structured form is preferred instead of simply specifying an analysis summary. When using the structured form it is possible for MidtEPJ to determine whether an analysis must be approved by an end user.  Structured analyses are displayed as a list of analyses to end users. Only the analysis text is shown. The analysis IDs are not visible in MidtEPJ.
analyses/id	M	Each structured analysis element must specify an ID. The ID is not displayed to end users in MidtEPJ. The ID is used to determine whether the analysis requires approval by an end user.
analyses/text	M	Each structured analysis element must specify a text. The text is displayed to end users.

### 4.2.3 Example

In this example MidtEPJ is notified about the existence of a report. The report is tied to the order given in the example shown in section 4.1.3. All available fields of the report are specified.

#### Request:

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:ors="http://dk.rm.epj/2011/11/21/OrderReportService">
  <soapenv:Header/>
  <soapenv:Body>
    <ors:UpdateReport>
      <report>
```

```

<systemId>Patologi</systemId>
<instanceId>Patologi-AUH</instanceId>
<patientId>121165999</patientId>
<reportId>1266334312</reportId>
<reportVersion>1</reportVersion>
<reportTimestamp>2011-10-26T02:21:41.254Z</reportTimestamp>
<orderUnit>7009031</orderUnit>
<statusId>2</statusId>
<sampleTimestamp>2011-10-25T19:30:00.000Z</sampleTimestamp>
<orderId>1256039954</orderId>
<attention>lehaug</attention>
<note>Profylakse + Cancer mammae sin</note>
<analysisSummary>Cytologi, histologi</analysisSummary>
<analyses>
  <analysis>
    <id>PAT00001</id>
    <text>Cytologi</text>
  </analysis>
  <analysis>
    <id>PAT00002</id>
    <text>Histologi</text>
  </analysis>
</analyses>
</report>
</ors:UpdateReport>
</soapenv:Body>
</soapenv:Envelope>

```

## Response:

```

<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:ors="http://dk.rm.epj/2011/11/21/OrderReportService">
  <soapenv:Header/>
  <soapenv:Body>
    <ors:UpdateReportResponse/>
  </soapenv:Body>
</soapenv:Envelope>

```

## 4.3 DeleteOrder

### 4.3.1 Usage

The `DeleteOrder` operation is used to notify MidtEPJ about the deletion of an order in another system.

Each `DeleteOrder` request identifies the order that has been deleted by its combined ID (`systemId`, `instanceId`, `orderId`) and order version. The order version is used to determine whether the `DeleteOrder` request represents an older version than the latest version known to MidtEPJ. The version check is needed in order to protect the Web service against out-of-order messages. The version number must represent the current version of the order, i.e. the version number that was current when the order was deleted.

A `DeleteOrder` request is accepted if it conforms to the WSDL specification of the `DeleteOrderRequest` message. Out-of-date requests, i.e. requests specifying an order version that is not newer than the version already known to MidtEPJ, or an order that is unknown to MidtEPJ, are ignored.

If the `DeleteOrder` request is accepted the Web service responds with the `DeleteOrderResponse` message which contains no data but simply acknowledges a successful request.

### 4.3.2 Data model

Each `DeleteOrder` request transfers four parameters to the service provider. Each parameter of the request is described in the following table:

<b>Table 3 – Description of DeleteOrder parameters</b>		
M = Mandatory O = Optional		
<b>Parameter</b>	<b>M/O</b>	<b>Description and recommendations</b>
systemId	M	The ID assigned to the system from which the order originates. This ID is assigned by Region Midtjylland during the process of establishing the integration.
instanceId	M	The ID assigned to the instance of the system from which the order originates. This ID is assigned together with the system ID.
orderId	M	The ID of the order that has been deleted.
orderVersion	M	The version number of the order at the time of deletion.

### 4.3.3 Example

In this example MidtEPJ is notified about the deletion of an order.

#### Request:

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:ors="http://dk.rm.epj/2011/11/21/OrderReportService">
  <soapenv:Header/>
  <soapenv:Body>
    <ors>DeleteOrder>
      <systemId>Patologi</systemId>
      <instanceId>Patologi-AUH</instanceId>
      <orderId>1256039954</orderId>
      <orderVersion>3</orderVersion>
    </ors>DeleteOrder>
  </soapenv:Body>
</soapenv:Envelope>
```

#### Response:

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:ors="http://dk.rm.epj/2011/11/21/OrderReportService">
  <soapenv:Header/>
  <soapenv:Body>
    <ors>DeleteOrderResponse/>
  </soapenv:Body>
</soapenv:Envelope>
```

## 4.4 DeleteReport

### 4.4.1 Usage

The `DeleteReport` operation is used to notify MidtEPJ about the deletion of a report in another system.

Each `DeleteReport` request identifies the report that has been deleted by its combined ID (`systemId`, `instanceId`, `reportId`) and report version. The

report version is used to determine whether the `DeleteReport` request represents an older version than the latest version known to MidtEPJ. The version check is needed in order to protect the Web service against out-of-order messages. The version number must represent the current version of the report, i.e. the version number that was current when the report was deleted.

A `DeleteReport` request is accepted if it conforms to the WSDL specification of the `DeleteReportRequest` message. Out-of-date requests, i.e. requests specifying a report version that is not newer than the version already known to MidtEPJ, or a report that is unknown to MidtEPJ, are ignored.

If the `DeleteReport` request is accepted the Web service responds with the `DeleteReportResponse` message which contains no data but simply acknowledges a successful request.

#### 4.4.2 Data model

Each `DeleteReport` request transfers four parameters to the service provider. Each parameter of the request is described in the following table:

<b>Table 4 – Description of DeleteReport parameters</b>		
M = Mandatory O = Optional		
<b>Parameter</b>	<b>M/O</b>	<b>Description and recommendations</b>
systemId	M	The ID assigned to the system from which the report originates. This ID is assigned by Region Midtjylland during the process of establishing the integration.
instanceId	M	The ID assigned to the instance of the system from which the report originates. This ID is assigned together with the system ID.
reportId	M	The ID of the report that has been deleted.
reportVersion	M	The version number of the report at the time of deletion.

#### 4.4.3 Example

In this example MidtEPJ is notified about the deletion of a report.

##### Request:

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:ors="http://dk.rm.epj/2011/11/21/OrderReportService">
  <soapenv:Header/>
  <soapenv:Body>
    <ors>DeleteReport>
      <systemId>Patologi</systemId>
      <instanceId>Patologi-AUH</instanceId>
      <reportId>1266334312</reportId>
      <reportVersion>1</reportVersion>
    </ors>DeleteReport>
  </soapenv:Body>
</soapenv:Envelope>
```

##### Response:

```
<soapenv:Envelope
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:ors="http://dk.rm.epj/2011/11/21/OrderReportService">
  <soapenv:Header/>
  <soapenv:Body>
    <ors>DeleteReportResponse/>
  </soapenv:Body>
</soapenv:Envelope>
```

## 5 Columna client integration

## 6 Definitions

BSK	BrugerStamdataKatalog
	Common user repository for all employees of Region Midtjylland.
WSDL	Web Service Definition Language

## 7 References

[WSDL-Spec]	MidtEPJOrderReportService.wsdl
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