

Requirements/Transactions for

Number Portability (Phase 2)

Fixed to Fixed
Fixed to Mobile
Mobile to Fixed
Mobile to Mobile
Machine to Machine

Version 2.5

17th of December 2014

Approval information

The Project Leader Group (NPA) has approved the baseline document on xxxxxx.
The Samtrafik Group has approved the baseline document on XXXXXXXXXXXX.

Change control specification

The Project Leader Group (NPA) has approved the baseline document (without revisions).

This document will be amended (clarifications, corrections and improvements) by the Administrative Process Group (NPP)

The NPA will be asked to approve a specific revision of the document, which then will receive the next higher version number, and will contain change marks back to the previous version. The approved version will become the new baseline document.

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**Telecommunication Industries Association in Denmark / Working Group APG
Transactions for Number Portability / Administrative & IT Processes**

This document has been produced in accordance with the TI directive of November 14th, 1999, based on Rules & Procedures APG26. [There are references to Rules & Procedures, but these references are of an informative nature.]

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Revision history

Revision	Description	Date
1.6	1.5B has been lifted to 1.6 approved by NPA	26. September 2002
1.6A	<p>In 5.3.8. CurrentRangeHolder removed.</p> <p>In 5.3.9. CurrentRangeHolder added.</p> <p>In 5.3.23. In DirectoryInfo is the value of Secure defined.</p> <p>In 5.3.30. NumberPorted, small change.</p> <p>In 7.5.1. NP Create, reference to "Bilag 6" is changed. ICC is marked as mandatory for PrePaid mobile numbers.</p> <p>In 7.5.3. NP Reject, comment changed.</p> <p>In 7.5.9. NP Change, error code 316 replaced by 314.</p> <p>In 7.5.12. NP Porting Request, ICC is marked as mandatory for PrePaid mobile numbers.</p> <p>In 7.6. Error Code, 5 codes has been deleted. And "addendum 6" changed to "section 7.6".</p> <p>In 10.2. Scenarios, NP Range Update message field updated due to T/R version 1.6. "Mobilix" changed to "Orange". And NP RangeUpdate added to "Telia". OtherOperator is changed for Telenor.</p> <p>In 11. Unresolved issues, How to report new ChargingInfo & RoutingInfo</p> <p>In general, references to error & reject codes added to field and transactions descriptions.</p> <p>In 5.3.32 OriginatingOrderNumber: Validation comments by Carsten Hviid.</p> <p>Inconsistence between 3.4 Number Database and 4.1.11 NP Change regarding update of Service Operator. C. Hviid</p>	<p>27. November 2002</p> <p>14. Februar 2003</p> <p>29. april 2003</p>

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1.6B	<p>In section 3.4 it is removed that only network operator may send NP_Change transaction when reselling a single telephone number. Either operator (service or network) can do this.</p> <p>In section 4.1.10 (NP_Return transaction), the description is enhanced.</p> <p>In section 4.1.11 (NP_Change transaction) the description of usage is enhanced.</p> <p>In section 5.3.27 (ICC) it is described how to use the ICC number information.</p> <p>Section 11. Unresolved Issues is updated.</p>	22. October 2003
1.6C	<p>Definition of ICC number changed. Added entry under Unresolved Issues regarding the use of ICC number. Added references to the Industry agreements in section 7.6.</p> <p>Text from NPA from 30.10.2003:</p> <p><i>"How to report new ChargingInfo & RoutingInfo" er blevet slettet i version 1.6b. Colt Telecom insisterede på at det fortsat, som minimum, står under Unresolved issues. Dette blev accepteret af NPA.</i></p> <p>This issue is included and described in the Rules & Procedures (section 4.4.7 – 4.4.9). Therefore it is no longer unresolved.</p>	24. November 2003
1.6D	<p>Description of Municipality in section 5.3.28 is enhanced.</p> <p>Section 7.6 is enhanced in order to describe Error Codes and Reject Codes.</p>	22. April 2004
1.6E	Error code 381 (Mobile type II) is a valid rejection cause	14. May 2004
1.7	1.6E has been lifted to 1.7 approved by NPA	13. September 2004
1.7.A	4.1.12 Range Update, Range Holder responsibilities has been clarified	15. April 2005
1.7.B	<p>Description of ICC usage enhanced in the following sections.</p> <p>3.2.1 Steps in Operator Porting</p> <p>3.3 Transaction Files</p> <p>5.3.27 ICC</p> <p>7.5.1 NP Create (no. 28 and 30)</p> <p>7.6 Error and Reject Codes</p> <p>11.1 Additions and Enhancements under consideration</p>	8. March 2006
1.7.C	Updated according to paper from NPA (NPA meeting 30 th Marts 2006).	21 April 2006
1.7.D	Updated according to paper from NPA (NPA meeting 21 st of April 2006)	17. May 2006
1.7.E	Example removed from section 4.1.12	20. June 2006

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1.7.F	29/8-2006 C. Hviid Change in 4.1.10	6. Sep. 2006
1.7.G	Updates to reflect the September 2006 release 'Correct updating the Service Operator field' (LUBO) Changes in 1, 1.1, 2.1, 2.4.1, 3.4, 7.5.9 item 12, 7.5.10, 9.5.1	10. Dec. 2006
1.7.H	Further updates to reflect the September 2006 release 'Correct updating the Service Operator field' (LUBO): <ul style="list-style-type: none"> • Changes in 2.1, 4.1.1, 4.1.11, 4.1.12, 7.5.10 • Added 5.3.28 Minor revisions of 1, 3.4, 7.5.1, 7.5.9 Spellcheck and ensuing corrections executed on sections 1-9 Examples in section 10 revised: CI and RI defaulted Unresolved issues in section 11 revised	17. Jan 2007
1.8	1.7H has been lifted to 1.8 approved by NPA	3. May 2007
1.8A	<ul style="list-style-type: none"> • 2.5.5, 4.1.8 regarding forced closing of flows. • 4.1.7 multiple NP Updates for certain Type II • Validations added for NPCompletion, NPChange and NPRangeUpdate. 	13. June 2007
1.8B	Changes in order to clarify the usage of NumberType as decided by NPA (jf. ActionPoint 120 på Actionliste20070927): <ul style="list-style-type: none"> • 5.3.8. CurrentNumberType • 5.3.30. NewNumberType • 5.3.36. PortingCase 	27. February 2008
1.9	Gennemgået og godkendt på NPA	24. april 2008
1.9	NPUpdateInfo introduced in 4.1.7 NPRangeUpdateInfo introduced in 4.1.12 Reject Codes in 7.6 updated	24. marts 2010
1.9	Reject Code 354 is disabled Reject Code 383 has changed meaning The passive operators transactions (NP Update and NP Range Update has been updated in 4.1 and 4.2 NP OCH Order Number Response priority change from P2 to P5 The document is ready for NPA approval and lift to 2.0	5. maj 2010
2.0	Review and approved on NPA meeting	27. maj 2010
2.2	2.5.1 Load of customer_id, 3.2.1-5 validation of customer_id 4.1.8 Fake Flow Description: LUBO Reject 377 is not in use Reject 354 is not in use Reject 380 wrong name and CVR Reject 383 wrong CVR Inserted due to new customer id validation in OCH <ul style="list-style-type: none"> • Error 397 • Error 398 • Error 399 	Jan-dec 2012
2.3	12-digits numbers New errorcodes regarding 12 digits numbers	Feb. 2013

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2.4	2.5.1 and 3.2.1-5 updated and New fields in Customer_id validation 4.1.16 CC- transactions - new 10.3 deleted	Aug. 2013
2.5	Error codes 614-620 added through out the . Changes made in 4.1.7, 4.1.11, 4.1.13, 4.2 and 5.1.8 3.1, 3.3, 4.1.3, 5, 6.3, 7.1.1, 7.3, 7.6 was updated to reflect the SOAP transport protocol. Section 3.2 was added to document the legacy transport method with the SOAP Adapter 348 Internal porting in progress to [MO], due date [DDMMYYYY].	Approved 17.12-.2014

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1. Scope

This document describes the transactions and their field contents that are required to exchange information with the OCH System.

Number Portability shall in accordance with Act No. 392 of 10.06.1997 (The Act) be implemented for the entire telephone network including mobile services.

This document shall be read in conjunction with the Rules and Procedures (APG 26 latest version). In case of discrepancies between this document and APG26, the latter has precedence.

Only numbers that are in use can be ported

The OCH System shall be used to exchange the necessary ordering data between the Donor Operator and the Recipient Operator when establishing or changing Number Portability data for a specific Customer.

OCH A/S has (also as a consequence of the Anti Terror Act (L219 § 15a) in progress) decided to enforce the principle about ensuring correct update of the field Service Operator.

To avoid a forced direct connection of all Service Operators a new functionality has been implemented by September 2006. This makes it possible for a Network Operator or an OCH direct connected Service Operator to update the Service Operator field on behalf of a Service Operator who is not directly connected to OCH.

As of May 2013 it will be possible to use 12-digits numbers in Denmark. The rules and procedures and this documents also supports 12-digits numbers.

The chapters 3, 4, 5, 6 and 7 describes the SOAP communication protocol. The chapters 3.2 and 8 describes the old file base protocol. For new operators only the new SOAP based protocol will be supported.

1.1. Assumptions

For the work in this document the following assumptions is made:

- Network Operators has connection to the OCH System.
- Service Providers can have connection to the OCH System. If that is not the case, then the Service Provider has to route information through the Network Operator or through the direct connected Service Operator. How this is done and under which conditions fall outside the scope of this document.

2. Abbreviations and Definitions

2.1. Abbreviations

OCH	Operators Clearing House
NO	Network Operator
SO	Service Operator
SP	Service Provider
DO	Donor Operator
RO	Recipient Operator
RH	Range Holder
NTA	National Telecom Agency (Telestyrelsen).
PONS	Point Of No Stop
PONR	Point Of No Return
DDI	Direct Dial In
ICH	Internal Clearing House (at the Operator)
RNO	Recipient Network Operator
RSO	Recipient Service Operator
LUBO	Last Updated By Operator (The field is sometime called DSO (Direct Service Operator))
M2M	Machine-to-Machine

2.2. Definitions

Please refer to Figure 1 - Reference Model on page 16.

Term	Definition
Portability	The number or service is now active at a different physical location or operator.
Service Portability	The service is now active at a different physical location or operator. Service portability is outside the scope of this document, and will most likely never be implemented because it requires that operators are producing the same services (products).
Number Portability	Number Portability currently consists of the terms Operator Portability, Geographic Portability and Function Portability.
Operator Portability	The number is now active at a different operator, and has, in case of fixed numbers, not moved geographically. From an administrative perspective Operator Portability is a termination of a subscription with the current Operator and a new subscription with a new Operator.
Geographic Portability	The fixed number is now active at the same operator, but has moved geographically, either to another Municipality or switch or both.
Function Portability	The number is now active at the same operator, but has a different Charging Info and/or different Network Type.
Operator Fixed to Fixed	Defines the porting of one or more numbers between the donor operator fixed network and the recipient operator fixed network.

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Term	Definition
Operator Fixed to Mobile	Defines the porting of one or more numbers between the donor operators fixed network and the recipient operator mobile network.
Operator Mobile to Fixed	Defines the porting of one or more numbers between the donor operator mobile network and the recipient operator fixed network.
Operator Mobile to Mobile	Defines the porting of one or more numbers between the donor operator mobile network and the recipient operator mobile network.
Geographic Fixed to Fixed	The fixed number is now active at the same operator, but has moved geographically, either to another Municipality or switch.
Function Fixed to Mobile	The number is being ported from Fixed Network to Mobile Network within the same operator.
Function Mobile to Fixed	The number is being ported from Mobile Network to Fixed Network within the same operator.
Function Charging	The number is now active at the same operator, but has a different Charging Info.
Donor Operator	The operator from which one or more numbers are in the process of being ported out of the network.
Recipient Operator	The operator to which one or more numbers are in the process of being ported into the network.
Network Operator	The operator who operates a physical network and/or switch. A Network Operator can act as a Service Operator.
Service Operator	The operator, who provides services to its customers.
Other Operator	Any operator (Service or Network) connected to the OCH System.
Service Provider	A company whose business is to provide telecommunication services produced on other operator's physical network.
Range Holder	The operator who has been assigned the number in the physical network by the NTA.
Ported Number	One 8-digit number which is either ported from one operator to another operator, or ported from one geographical location to another geographical location, or ported from one function to another function
Number Act	"Lov om tildeling og anvendelse af nummerressourcer m.v." Lov nr. 392 af 10/6/1997.
Order Time	The time between the <NP Create> is received through the OCH System by the Donor Operator and the <NP Confirmation> is received through the OCH System by the Recipient Operator.

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Term	Definition
Retention Period	The time frame after a telephone number has been disconnected, but while an answering service might be active. During this period the Customer can request that 'his' telephone number be reconnected. This timeframe is defined by the NTA.
Number Type I	Any single connection with one telephone number. This number type may be part of a hunt group.
Number Type II	More than one interdependent number or more than one interdependent connection or technically bundled groups (e.g. Direct Dial In (DDI), ISDN with MSN, Distinctive Ringing).
Point of Connection	When the Recipient Operator sends a <NP Create> order to the Donor Operator, the Recipient Operator must – in the order – inform the Donor Operator about who is doing the actual work of establishing the access.
In Use	A telephone number is In Use as long as the subscription fee is paid.
Point of No Stop	<p>This is the threshold, when passed, that a porting cannot be stopped when the Donor, Recipient Operator or OCH System sends an erroneous message. The cause of the error has to be found, corrected and the flow resumed.</p> <p>Point of No Stop occurs when OCH System has received the initial transaction (e.g. <NP Create>), accepted it and has sent the responding transactions (e.g. <NP OCH Order Number Response> and <NP Create> to donor).</p>
Point of No Return	<p>This is the threshold, when passed, that a porting cannot be cancelled, but has to be completed. Point of No Return only has relevance in an Operator Porting Flow.</p> <p>Point of No Return occurs when the OCH System has received and accepted the <NP Completion>.</p>
GSM	This term covers all mobile networks..
Termination Period	<p>This is period that shall pass before the number can be ported. The Termination Period consist of two parts:</p> <ol style="list-style-type: none">1) Time between notice to terminate and release from contract. (Opsigelsesperiode)2) Minimum subscription period (Bindingsperiode) <p>The two parts runs simultaneously (in parallel). Both 1) and 2) can be disregarded by the end-customer if he accepts to pay the remaining fees to the donor operator.</p>
Operator Identification	The operator identification ['0' + prefix] (for network operators) or ['00' + sequence number] (for service operators).

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Term	Definition
Task Force	The group responsible for the planning and execution of the testing and pilot production.
Machine-to-Machine	Porting of one or more 12-digits mobil (GSM) networknumbers. These numbers are typically used for dataconnections between to units. These 12-digits mobile (GSM) network numbers are implementede with own RI/CI numbers. A 12-digits mobil number can not be portede to a 8-digits mobil (GSM) networknumbers with a RI/CI connected to a 8-digtis mobile networknumbers.

2.3. Reference Model

This figure is meant to describe the references between the terms used in Number Portability. Please refer to 2.2. Definitions on page 11.

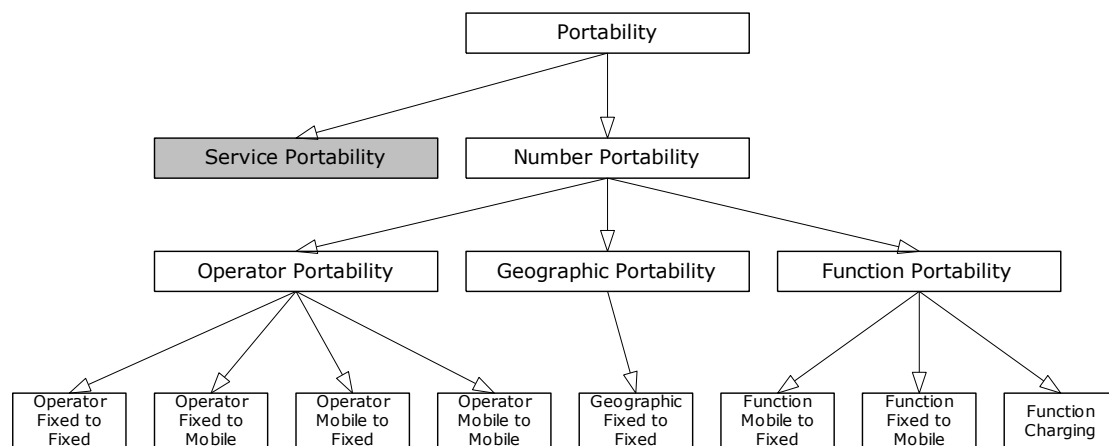


Figure 1 - Reference Model

Service Portability is not part of the scope of this document.

2.4. Responsibilities

2.4.1. OCH A/S Responsibilities

The OCH A/S shall inform in writing when operators (network and service) are added to or removed from the OCH System to all the existing operators connected to the OCH System.

Operator information consists of:

- Operator ID – this information is distributed by letter, email or fax with a receipt. In the case of creating, the Operator ID cannot be accepted before the individual operators have responded.
- Range Information – this information is updated using <NP Range Update> through the OCH System, when the operator is known by the OCH System, provided that the operator has numbers in the network.

It is in the above assumed that physical connection to the OCH System exists, that software is operational etc. Operator Number (Prefix code) is issued by the NTA for Network Operators, or is issued by the OCH A/S for Service Operators.

Before a new operator is connected to the OCH, the OCH must inform the operator about:

- A bilateral agreement must be made with each of the other operators connected to the OCH.
- A list of contact persons at the new operator, which the existing operators may contact regarding number portability issues, must be sent to each operator connected to the OCH.
- A list of fax numbers and email addresses (if any) for receipt of written terminations used for outportings must be sent to each operator connected to the OCH.

This must be updated in Operator information in OCH Online at least 14 days before the operator is actually connected to the OCH.

When a new operator is connected to the OCH, the OCH must supply the following information at least 14 days before connection date to the existing operators using OCH:

- Operator ID
- Operator Name

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If the new operator has numbers in the OCH, then the operator immediately must inform the other operators by sending relevant NP Range Update transactions. The NP Range Update must contain at least the following information:

- Operator ID
- Routing Info
- Charging Info
- SPC
- NumberType

2.5. Daily Operation

2.5.1. Load of Customer_ID for 'not connected' fixed Service Operator

Every not connected service operator must have access to OCH Online to do a manual upload of validation data. Access to OCH online, should be ordered from OCH A/S.

On OCH Online it is possible to do a manual upload, view error list from the upload and get an overview of the SO validations list. After upload it is the responsibility of the SO, to verify that the file has been uploaded correctly and to check the error list.

A full file contains 4 field's telephone number, customer id, Binding Expiration Date and Termination warning. When uploading a full file the existing list will be deleted and the new numbers will added. An example of a line in a fill file is "12345678;customer1;22-12-2013;24;" or "12345678;customer1;;;" if Binding expiration date and termination warning is empty.

A delta file contains 5 field's telephone number, customer id, type, Binding Expiration Date and Termination warning. Type can be A for adding a new number, U for updating an existing number or D for deleting the number. Binding Expiration Date should be in DD-MM-YYYY format. An example of a delta file line is "12345678;customer1;U;22-12-2013;24;" or "12345678;customer1;U;;;" if Binding expiration date and termination warning is empty. See customer ID, user guide for further information.

2.5.2. Email based terminations

To facilitate handling of written termination using emails, the following solution is proposed:

The written termination can be sent using an Email. This Email can be sent before, at the same time as or after the <NP Create> has been sent. Therefore the contents of the fields <OCHOrderNumber> and <OriginatingOrderNumber> may be omitted.

The Email has the following contents:

To: Donor Operator mailbox.
From: Recipient Operator mailbox.
Subject: "NP Termination", <TelephoneNumber>, <OCHOrderNumber>, <OriginatingOrderNumber>
Attachment: The written termination scanned in TIF, JPG or PDF format.

All operators that support this method shall publish their mailbox address.

The contents of
<TelephoneNumber> shall be formatted as specified in **Fejl! Henvisningskilde ikke fundet. Fejl! Henvisningskilde ikke fundet..**
<OCHOrderNumber> shall be formatted as specified in **Fejl! Henvisningskilde ikke fundet.Fejl! Henvisningskilde ikke fundet..**
<OriginatingOrderNumber> shall be formatted as specified in **Fejl! Henvisningskilde ikke fundet.Fejl! Henvisningskilde ikke fundet..**

2.5.3. Day-to-day Fault Procedures

The day-to-day fault procedures address the fault situation(s) that might occur after all administrative and physical Number Portability transactions, i.e. the porting has been completed and both the OCH System database and all Operators' databases have been updated with correct information. Besides those listed here other instructions for the OCH A/S may list fault cases and possible solutions.

- If one or more Operators experience mismatch in own database, a possible solution is to obtain the OCH System data and compare it with own Customer care system.
- In case of data mismatch, the information stored in the OCH System database shall be considered the correct data if the Operators do not agree otherwise in the relevant situation.

Each Operator shall assign a point of contact staffed with qualified personnel ready for mutual troubleshooting. These points of contact shall be specified in the Interconnect Agreement. The OCH A/S shall be involved in locating and correcting faults.

2.5.4. Back-up Procedure

Back-up procedures must be included in the OCH System.

2.5.5. Fall Back Procedures

As a fallback for a failed operator porting (detected within 24 hours after the recipient has sent <NP Completion>), an operator porting back to donor will be performed, where the donor will disable timing checks.

In case of failure in Recipient operators switching systems or the physical connection, the Recipient on behalf of the Customer can agree with Donor to initiate a rollback of the porting. Depending on OCH System status of the porting, one or two scenarios can be used:

OCH-status: Porting Completed

Upon request from recipient operator, the Donor operator will now initiate a <NP Create> with immediate execution date. The Donor (who was recipient previously) will not validate date, but confirm. The recipient (who was donor previously) receives confirmation and can now send <NP Completion> to the OCH System when ready. This generates <NP Update> to all other operators

OCH-status: Porting Active

The Recipient operator contacts the OCH and asks to close the porting order that is still pending due to outstanding <NP Update Complete>. Subsequent incoming <NP Update Complete> will result in a <NP Error> to be returned. [There is a wish about on-line functionality such that the operator can perform this function without intervention.]

Upon request from recipient operator, the Donor operator will now initiate a <NP Create> with immediate execution date. The Donor (who was recipient previously) will not validate date, but confirm. The recipient (who was donor previously) receives confirmation and can now send <NP Completion> to the OCH System when ready. This generates <NP Update> to all other operators.

2.5.6. Forced closing of flows before PONR

The normal procedure is that the Donor operator sends an NP Reject or the Recipient operator sends an NP Cancel.

If this is not possible, a porting flow can be forced closed by contacting the OCH A/S helpdesk. It is only to be done after mutual agreement between Donor operator, Recipient operator and possible a cc-operator (recipient of cc-transactions).

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2.5.7. Forced closing of flows after PONR

Flows which remains open after Point Of No Return for a long period of time often causes problems because the numbers involved can not be included in new flows as numbers only can be active in one flow at a time.

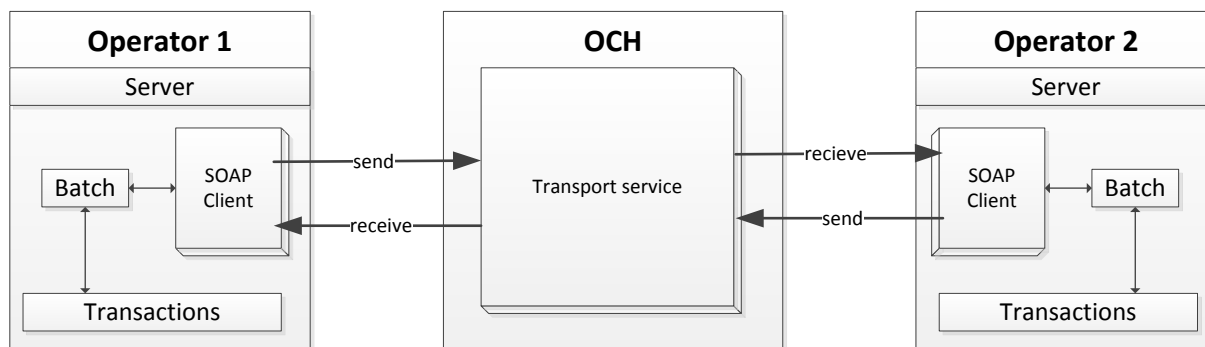
Therefore all flows will automatically be forced closed by OCH after a configurable amount of time dependent on the type of flow.

I.e. open NP Range Updates will be forced closed after a configurable amount of time, and operator porting flows will be forced closed after another configurable amount of time.

OCH will create and send the missing NPUpdateCompletes on behalf of the operators who did not send NPUpdateComplete in time. Then OCH closes the flow.

3. General Information

3.1. Model for communication



As can be seen on the figure above, the OCH System exposes a Transport SOAP service, every operator has on this own server a SOAP Client which can send and receive batches containing up to 1000 transactions.

When an operator will send a transaction to the OCH System, the transaction is added to a Batch, and the batch is sent to OCH with the "send" method.

When an operator will receive transactions from the OCH System, the SOAP method "receive" is called. This will return a Batch containing transactions with both P2 and P5 priority.

It is the responsibility of the operator to send transactions to the OCH System, and to receive transactions from the OCH System using polling.

One Batch can contain up to 1000 transactions. The OCH System shall optimise the Batch usage, such that the OCH System shall send batches containing multiple transactions (e.g. 1000) wherever possible. [The OCH System shall create output batches with an interval of maximum 1 minute (ref. Rules & Procedures section 3.2.4), where all pending P2 and P5 transactions are collected into the same batch.]

If one or more of the sent transactions causes one or more NP Errors, those NPError transaction will be returned, upon the next "receive" call.

3.2. Legacy communication with OCH

Some existing operators are using an old legacy filebased communication model. For the use of this transport model, a software package, called the SOAP Adapter is installed at the operators site.

Since the SOAP Adaptor is a legacy solution, new operators must be implemented using the SOAP communication protocol. To read about legacy transactions, their format and special fields, please refer to 8.1. Old legacy communication **Fejl! Henvisningskilde ikke fundet.**

3.3. Transaction Usage

3.3.1. Steps in Operator Porting

1. The Customer contacts the Recipient Operator.
2. Written contract about Number Porting is made between Customer and Recipient Operator.
3. The Customer terminates his contract with the existing operator according to the existing agreement between the Customer and the Donor Operator. This does not apply for numbers attached to Pre Paid subscriptions, because the customer may not be known.
4. The Recipient Operator writes an <NP Create> and sends it to the Donor Operator via the OCH System. The order must contain a Point of Connection. The OCH System verifies the order and rejects invalid orders. An invalid order is an order with syntax errors, semantic errors, pending violation or date¹ violation. For all valid orders the OCH System returns an <NP OCH Order Number Response> message.

¹ The OC System can only validate the obvious date errors (Requested execution date = yesterday).

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5. The Donor Operator matches the <NP Create> with the termination of the customer's contract. During a period of up to 10 working days (see Rules & Procedures) a match is attempted between the <NP Create> and the written termination order with short intervals (< 1 day). If no match is possible within the timeframe, the <NP Create> is cancelled using a <NP Reject>.

This does not apply for numbers attached to Pre Paid SIM cards or a porting where an ICC-number/Customer_ID validation has been agreed. In this case the ICC-number/Customer_ID is used for validation.

If the Donor SO is a SO that are not directly connected to OCH and the <NP_Create> contains a CustomerID the validations below is made, if validation is passed, then the <NP_Create> is forwarded as a regular request. Failed validations will result in an NP_Error.

- CustomerID is validated against the internal list of CustomerID's. For Type2 portings, only the main number is validated against the customerID.
- CustomerID is specified in the NP Create, NP error is returned.
 - If the CustomerID in the NP Create does not match the associated CustomerID on SO's list. NP Error 397 is returned to MO.
 - If the CustomerID is specified in the NP Create and the CustomerID is not in the SO's list, then NP Error 398 is returned to MO.
 - If the CustomerID is specified in the NP Create and the phone number is not in the SO's list, then NP Error 399 is returned to MO.
- CustomerID is specified in the NP Create, NP Create is forwarded.
 - If the CustomerID in the NP Create matches the associated CustomerID in AO's list, the NP Create is forwarded to AO.
- CustomerID is not specified in the NP Create, NP Create is forwarded.
 - If CustomerID is not specified in the NP Create, it is forwarded like normally.
- NPComplete, NPReturn, NPChange
 - When OCH recives an NPComplete, NPReturn or NPChange on a phone number it should be removed from the validation list of the SO in question.

If the flow is initiated because Donor Operator, Recipient Operator and Customer has agreed that the previous porting of the number(s) was a mistake, then the Donor Operator must confirm without checking neither ICC nor the written termination in order to recover the situation within a maximum of 24 hours (see Rules & Procedures).

6. The Donor Operator validates the order and returns either an <NP Reject> message or an <NP Confirmation> to the Recipient Operator. An alternative order execution date shall be stated on the <NP Confirmation> message if the Donor Operator cannot comply with the requested porting date.
- In case the Recipient Operator receives a <NP Reject> or <NP Error> message, a new <NP Create> may be issued and sent to the Donor Operator.
7. The Recipient Operator starts working on implementing the access, that being through copper, fibre or by issuing a SIM card.

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8. On the agreed date, the Recipient Operator activates the customer in the administrative systems, and opens up the access connection (copper, fibre or SIM card). The recipient operator updates his databases (STP/IN) and the number database.
9. An <NP Completion> message is sent to the OCH System, thereby informing the other operators that the Customer is activated.
 - The OCH System updates its databases and sends the <NP Update> message within one minute to the other Operators including the Donor Operator.
10. Donor Operator terminates the customer relation in the administrative systems, ensures that the access connection is taken out of service, and marks the number as being ported in the switching systems (STP/IN) and the number database and send a <NP Update Complete> to the OCH System.
11. Other operators update the switching information in their systems (STP/IN) and the number database and send a <NP Update Complete> to the OCH System.

3.3.2. Operator Porting – Recipient and Donor is Network Operator

Refer to section 3.3.1. Steps in Operator Porting on page 21 for textual information.

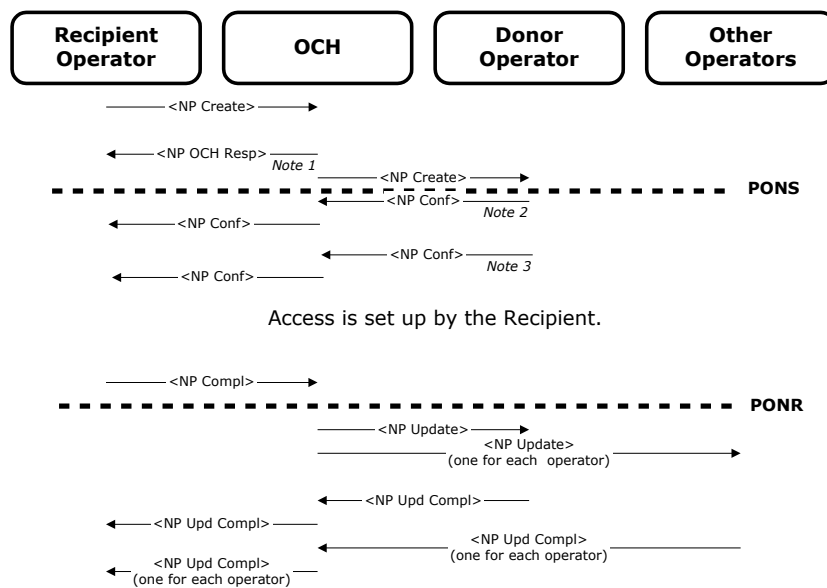


Figure 2 – Operator Porting

- Note 1: If the OCH System detects any errors in the <NP Create> transaction, the OCH System will return a <NP Error> transaction and will terminate the porting.*
- Note 2: If the Donor Operator detects a cause for rejection based on the information in the <NP Create> transaction, the Donor will return a <NP Reject> transaction, causing the OCH System to terminate the porting after the <NP Reject> has been forwarded to the Recipient Operator.*
- Note 3: If the Donor Operator, in agreement with the Recipient Operator wants to change ConfirmedExecutionDate the <NP Confirmation> is sent again.*

The flow shown above covers all variants of Operator Porting (i.e. 1st time porting, subsequent porting, etc.) for Fixed-Fixed (Types I and II), Mobile-Fixed (Types I and II), Fixed-Mobile (Types I and II) and Mobile-Mobile (Types I and II).

3.3.3. Operator Porting with Cancel

This flow describes an Operator Porting where the Recipient Operator cancels the flow. [The <NP Cancel> can occur at any time between PONS and PONR.]

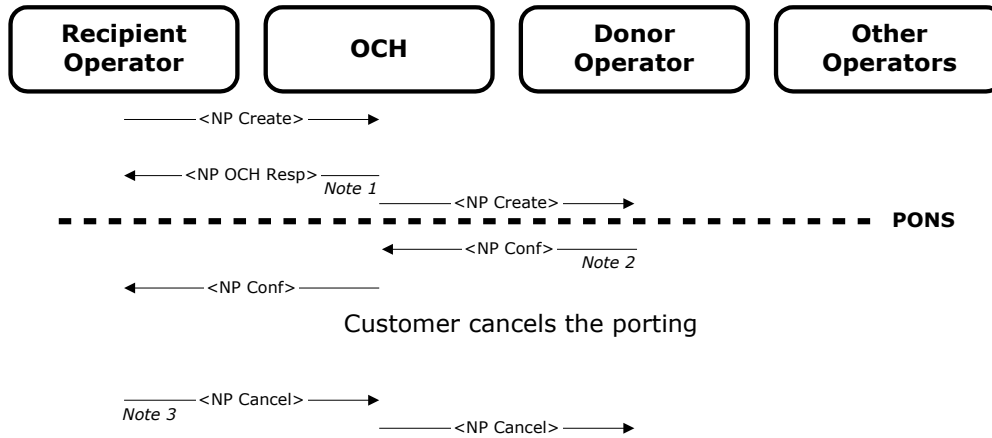


Figure 3 - Operator Porting with Cancel

- Note 1: If the OCH System detects any errors in the <NP Create> transaction, the OCH System will return a <NP Error> transaction and will terminate the porting.
- Note 2: If the Donor Operator detects a cause for rejection based on the information in the <NP Create> transaction, the Donor will return a <NP Reject> transaction, causing the OCH System to terminate the porting after the <NP Reject> has been forwarded to the Recipient Operator.
- Note 3: <NP Cancel> takes effect after any number of <NP Confirmation>.

3.3.4. Operator Porting – Service Operator as Donor

The Donor Service Operator shall respond to the <NP Create> with a <NP Confirmation>. The OCH System shall send a copy of the <NP Confirmation> to the Donor Network Operator for information.

If the porting is cancelled, the OCH System shall send a copy of the <NP Cancel> to the Donor Network Operator for information. Please refer to section **Fejl! Henvisningskilde ikke fundet.Fejl! Henvisningskilde ikke fundet.** on page **Fejl! Bogmærke er ikke defineret.** for information on how the Internal Clearing House can detect whether a transaction is a cc transaction or not.

The Donor Network Operator is also informed when the <NP Update> is sent from the OCH System to all operators. The actual termination of the service is done when the <NP Update> is received.

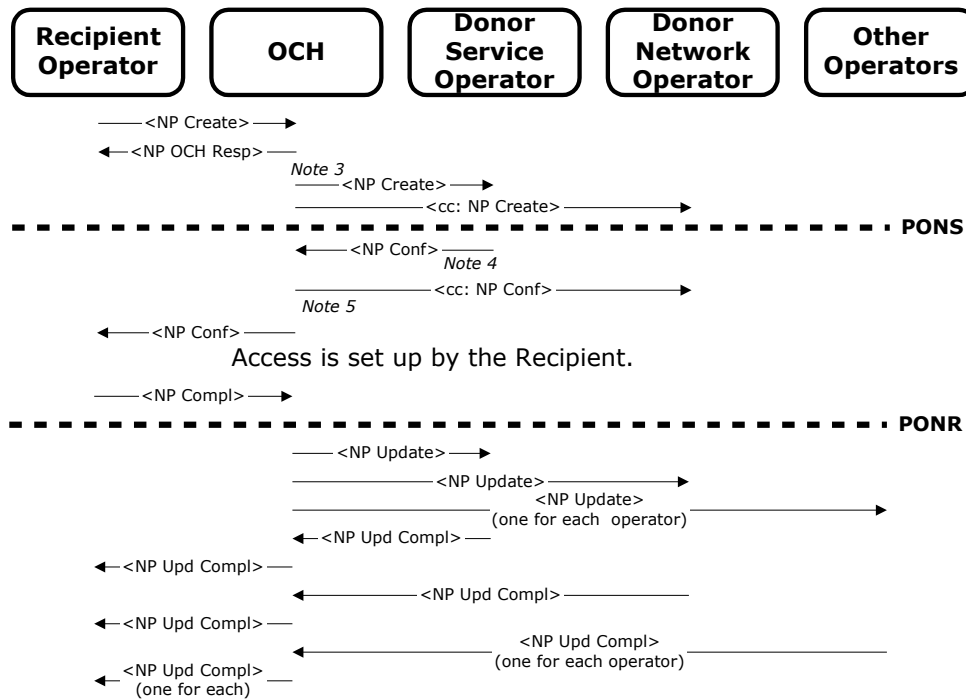


Figure 4 - Operator Porting - Service Operator as Donor

- Note 3: If the OCH System detects any errors in the <NP Create> transaction, the OCH System will return a <NP Error> transaction and will terminate the porting otherwise the OCH System will send a copy of the <NP Create> to the Donor Network Operator.*
- Note 4: If the Donor Service Operator detects a cause for rejection based on the information in the <NP Create> transaction, the Donor will return a <NP Reject> transaction, causing the OCH System to terminate the porting after the <NP Reject> has been forwarded to the Recipient Operator with copy to Donor Network Operator.*
- Note 5: The Donor Network Operator is informed by the OCH System using a copy of the <NP Confirmation> message from the Donor Service Operator.*

3.3.5. Operator Porting – Service Operator as Recipient

Before starting an operator porting where the customer relationship is with the Service Operator, it is imperative that the network operator can and will supply the access connection to the customer.

To handle this situation, the Service Operator sends a <NP Porting Request> to the selected Network operator, which after validating the contents of the <NP Porting Request>, takes over the remaining part of the operator porting.

The Service Operator cannot cancel the first part of the flow. The Network Operator can stop the first part by sending a <NP Reject>.

If the Service Operator wants to cancel the second part of the flow he shall contact the Network Operator and request that the Network Operator issues a <NP Cancel>.

It is recommended that a Service Operator use this flow for both Fixed and Mobile telephone numbers, to ensure that the Network Operator is correctly informed.

When the fields RecipientServiceOperator and RecipientNetworkOperator have different values, then the OCH System shall enter into Copy Mode, where copies of <NP Create>, <NP Confirmation>, <NP Cancel> and <NP Update Complete> are sent to the Recipient Service Operator.

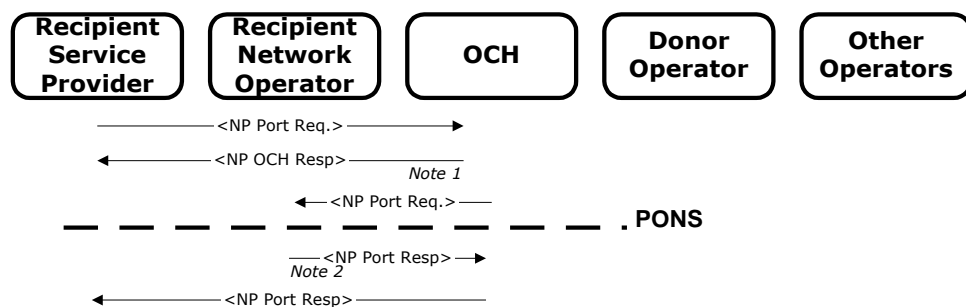


Figure 5 - Porting Request flow

- Note 1: If the OCH System detects any errors in the <NP Port Req> transaction, the OCH System will return a <NP Error> transaction and will terminate the porting request.
- Note 2: If the Recipient Network Operator is not able to comply with the <NP Port Req> transaction, the Network Operator will return a <NP Reject> transaction, causing the OCH System to forward the <NP Reject> to the Service Operator and the Network Operator will terminate the porting request.

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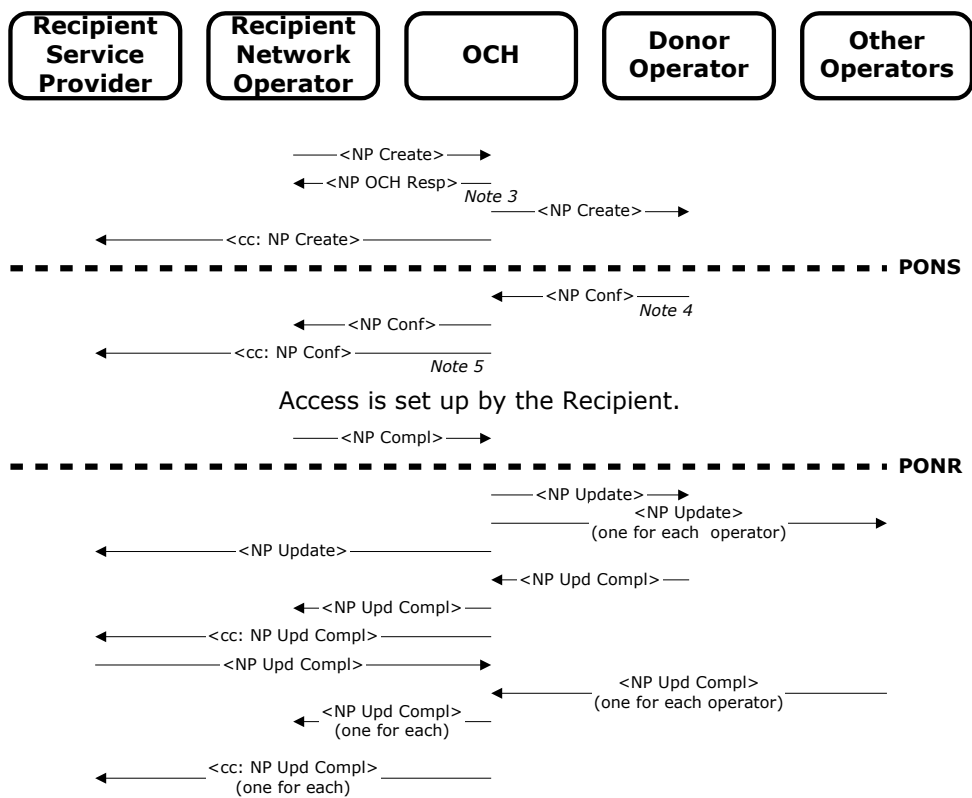


Figure 6 - Operator Porting with Service Operator as Recipient

- Note 3:** If the OCH System detects any errors in the <NP Create> transaction, the OCH System will return a <NP Error> transaction and will terminate the porting otherwise the OCH System will send a copy of the <NP Create> to the Service Operator.
- Note 4:** If the Donor Operator detects a cause for rejection based on the information in the <NP Create> transaction, the Donor will return a <NP Reject> transaction, causing the OCH System to terminate the porting after the <NP Reject> has been forwarded to the Recipient Service Operator and the Recipient Network Operator.
- Note 5:** The Service Operator is informed by the OCH System using a copy of the <NP Confirmation> message from the Donor Operator.

3.3.6. Operator Porting with Service Operator as Donor and Recipient

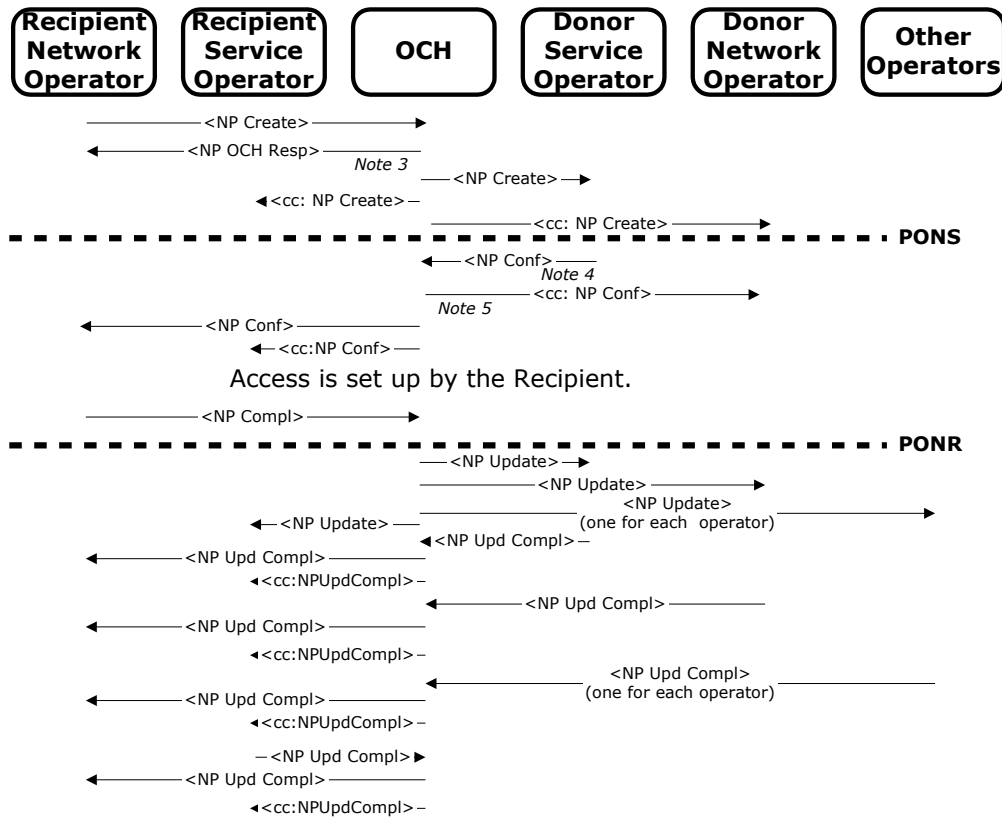
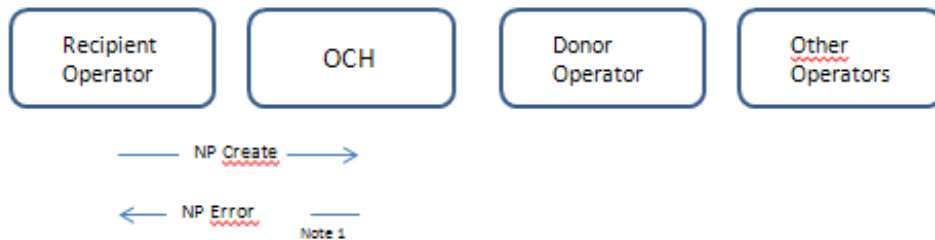


Figure 7 - Operator Porting with Service Operator as Donor and Recipient

- Note 3: If the OCH System detects any errors in the <NP Create> transaction, the OCH System will return a <NP Error> transaction and will terminate the porting. Otherwise the OCH System will forward the <NP Create> to the Donor Service Operator and send a copy of the <NP Create> to the Recipient Service Operator.
- Note 4: If the Donor Service Operator detects a cause for rejection based on the information in the <NP Create> transaction, the Donor Service Operator will return a <NP Reject> transaction, causing the OCH System to terminate the porting. The OCH System will forward the <NP Reject> to the Recipient Network Operator, Recipient Service Operator and Donor Network Operator.
- Note 5: The Donor Network Operator is informed by the OCH System using a copy of the <NP Confirmation> message from the Donor Service Operator.

3.3.7. Operator porting for not-connect operators to the OCH system

This flows illustrated a case where the OCH systems detected an error in the Customer_ID and submit a NP_error (and not a NP_Reject)



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Note 1: If the Donor Service Operator does not have a direct connection to the OCH system, but has loaded a table of corresponding TelephoneNumbers and CustomerID's, the OCH System will validate the TelephoneNumber against the table and submit an NP Error if the validation fails.

3.3.8. Termination

In the following flow Point of No Return has no meaning, because the work has been done and current operator is informing the other operators through the OCH System about the changes. Therefore <NP Cancel> has no relevance.

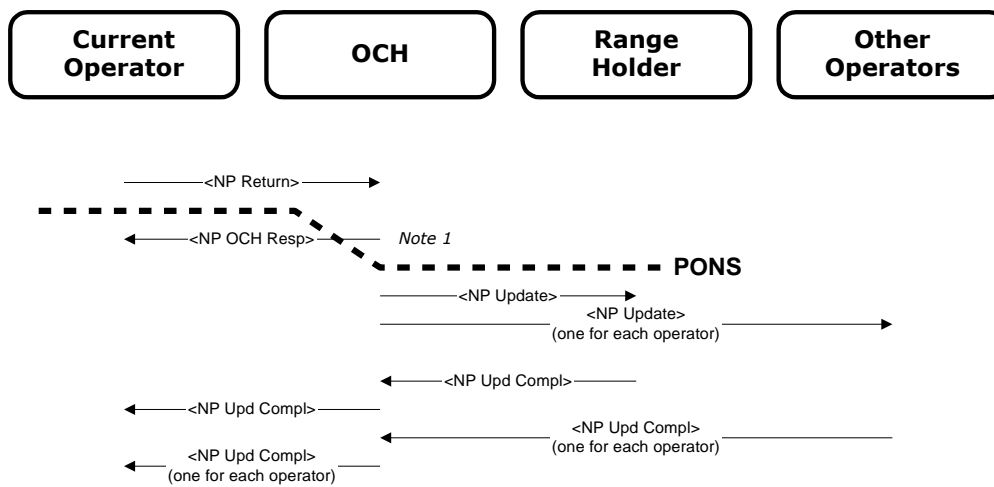


Figure 8 - Termination

Note 1: If the OCH System detects any errors in the <NP Return> transaction, the OCH System will return a <NP Error> transaction and no operators will be advised and the flow terminates.

3.3.9. Geographic Porting

In the following flow Point of No Return has no meaning, because the work has been done and current operator is informing the other operators through the OCH System about the changes. Therefore <NP Cancel> has no relevance. [There is no copy mode in this flow, and the Current Operator is always a Network Operator.]

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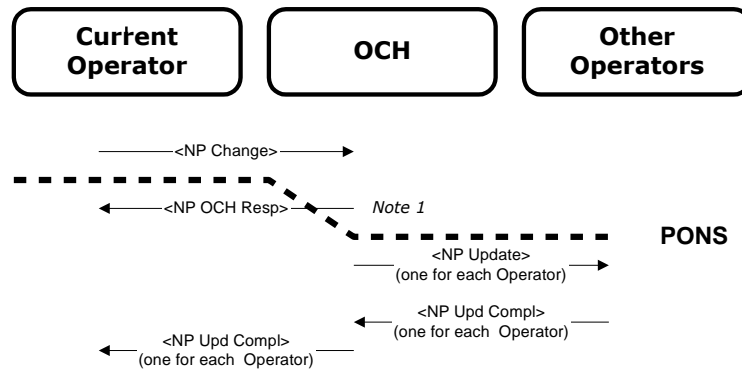


Figure 9 - Geographic Porting

Note 1: If the OCH System detects any errors in the <NP Change> transaction, the OCH System will return a <NP Error> transaction and no operators will be advised and the flow terminates.

3.3.10. Function Porting

In the following flow Point of No Return has no meaning, because the work has been done and current operator is informing the other operators through the OCH System about the changes. Therefore <NP Cancel> has no relevance.

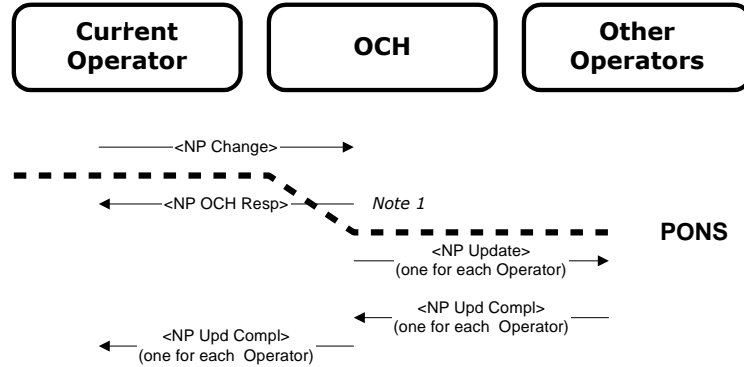


Figure 10 - Function Porting

Note 1: If the OCH System detects any errors in the <NP Change> transaction, the OCH System will return a <NP Error> transaction and no operators will be advised and the flow terminates.

3.3.11. Range Update

In the following flow Point of No Return has no meaning, because the work has been done and current operator is informing the other operators through the OCH System about the changes. Therefore <NP Cancel> has no relevance. Only Range Holder can use this transaction.

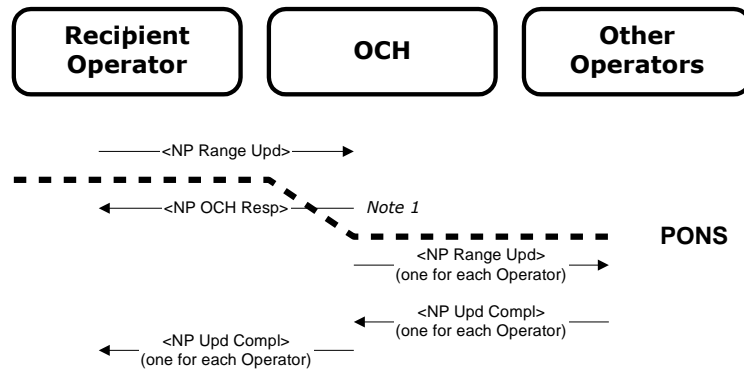


Figure 11 - Range Update

Note 1: If the OCH System detects any errors in the <NP Range Update> transaction, the OCH System will return a <NP Error> transaction and no operators will be advised and the flow terminates.

3.5. Transactions

The transaction files that are sent to and from the OCH System is transferred using the SOAP protocol, for details, please refer to the OCH SOAP Services documentation [name of document]

There are 10 priorities defined in the model, but only two are used. The two that are used are P2 and P5.

The OCH System use Round Robin tournament to handle incoming transactions. The Round Robin tournament ensure that transactions from each operator are handled in a fair way. If one operator sends a large number of transactions (10.000, say), the OCH System must become “unresponsive” for other operators who send just a few transactions each. To accomplish this, the ‘Round Robin’ will, for each work iteration, forward a certain number of transactions “up”, for each operator in the system. This way each operator are offered the same transaction capacity for each work iteration.

(ICH relevant only) P2 Transactions in a batch shall be processed in less than 10 minutes, whereas P5 transactions in a batch shall be processed before 16.00 on the next business day. The exception to the rule is the answer on a <NP Create> without ICC validation where the Donor must answer according to the agreement for reception of the written termination specified in Rules & Procedure.

The following transaction types are P2 transactions:

- NP Completion
- NP Change
- NP Update
- NP Range Update
- NP Update Complete
- NP Error (only when reporting errors found in the above transaction types, otherwise NP Error as P5 is used)

All other transaction types are P5 transactions. [If P5 transactions are being sent with P2 priority and the other way around, the OCH System shall respond with a <NP Error> transaction.]

There is an upper limit on 1000 messages in one transaction batch.

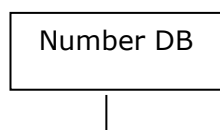
3.6. Number database

The number database shall contain the entire Danish number and routing plan. By using this database one can route and charge traffic correctly in Denmark. In addition to the current status the number database shall contain the required history information.

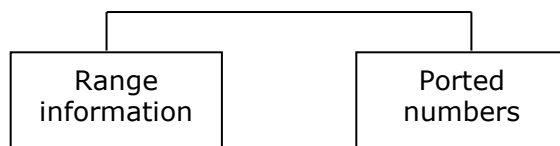
The number database can logically be understood as two sets of information. Both sets of information will hold actual information, and shall hold historical information.

Range information part. This part contains information about where the numbers are installed. This is routing and charging information about all numbers within the range. This part is only updated using <NP Range Update>.

Ported numbers part. This part contains information about ported numbers. This part is only updated using <NP Completion>, <NP Change> or <NP Return>.



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There can only be one active row of information per number in each of the parts.

When a range of telephone numbers is resold to a Service Operator, the Range Information part of the number database has to be updated (ServiceOperator field). The range holder updates the Range Information part of the number database by sending a <NP Range Update> transaction.

If a number from this range is ported and afterwards terminated this number shall be returned to the Range Holder and Service Operator as indicated in the range information part of the number database. This Return will terminate the portability occurrence of the telephone number.

When a single telephone number is resold to a Service Operator the Ported Numbers part of the number database has to be updated using a <NP Change> transaction.

The number is then registered in the ported numbers part of the number database.

If a number is resold and afterwards terminated, this number shall be returned to the Range Holder. This operation will terminate the portability occurrence of the telephone number.

Number series can be broken into smaller segments as a result of a porting.

The following information shall be present in the number database for the entire Danish Number plan:

Name	Description
Range Holder	Identification of the operator that has the number issued by the NTA. The field can only be initialised in a <NP Range Update> transaction, where it is initialised from the message field CurrentRangeHolder.
Current Network Operator	Identification of the operator who is currently providing network for the telephone number. The field can be initialised by the following transactions: <NP Range Update>, <NP Completion> and <NP Return>
Current Service Operator	Identification of the operator who is currently servicing the telephone number. The field can be initialised by the following transactions: <NP Range Update>, <NP Completion>, <NP Change> and <NP Return>
First Telephone Number	The first telephone number in a series. The field can be initialised by the following transactions: <NP Range Update>, <NP Completion>, <NP Change> and <NP Return>
Last Telephone Number	The last telephone number in a series. The field can be initialised by the following transactions: <NP Range Update>, <NP Completion>, <NP Change> and <NP Return>

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Name	Description
PortingCase	Indicates which information is required when porting the number. The field can be initialised by the following transactions: <NP Completion>, <NP Change>, <NP Return> and <NP Range Update>
Municipality	The municipality where the telephone numbers is physically located, if applicable. The field can be initialised by the following transactions: <NP Range Update>, <NP Completion>, <NP Change> and <NP Return>
SPC	The Signalling Point Code of the switch that services the telephone number. The field can be initialised by the following transactions: <NP Range Update>, <NP Completion>, <NP Change> and <NP Return>
Number Type	Indicates whether the number is at a fixed or GSM network. The field can be initialised by the following transactions: <NP Range Update>, <NP Completion>, <NP Change> and <NP Return>
RoutingInfo	The equivalent number range (e.g. 4347 for numbers 43470000 to 43479999) to which the Telephone Number belongs. This information is used to route the call. The field can be initialised by the following transactions: <NP Range Update>, <NP Completion>, <NP Change> and <NP Return>
ChargingInfo	The equivalent number range (e.g. 4347 for numbers 43470000 to 43479999) to which the Telephone Number belongs. This information is used to charge the call. The field can be initialised by the following transactions: <NP Range Update>, <NP Completion>, <NP Change> and <NP Return>

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Name

LUBO

Description

The internal OCH System field 'Last Updated By Operator' representing the OCH System direct connected Network Operator or Service Operator who is acting on behalf of the not connected Service Operator, is present in both the Range and the Ported Numbers part of the OCH database. (The field is sometime called DSO (Direct Service Operator))

Rules for setting of LUBO: These rules are relevant for both Number Plan as well as Portability.

- 1) LUBO field will be updated only when Service Operator is updated.
- 2) LUBO will be updated to be the new Service Operator, unless it is an Indirect SO.

If the new Service Operator has no direct connection (ISO), LUBO is set to be the sender operator.

Examples:

- 1) Telenor creates a range with CBB as SO.
Result: RH:Telenor; NO:Telenor; SO: CBB; LUBO: CBB.
 - a. Telenor changes RI/CI details (via range update) for that range.
Result (no change made to LUBO): RH:Telenor;
NO:Telenor; SO: CBB; LUBO: CBB.
 - b. Telenor changes RH for that range to CBB.
Result(no change made to LUBO): RH: CBB; NO:Telenor;
SO: CBB; LUBO: CBB.
- 2) CBB creates a range with CBB as SO as well as RH.
Result: RH:CBB; NO:Telenor; SO: CBB; LUBO: CBB.
- 3) TDC creates a range with IPnordic (ISO) as SO as well as RH.
Result: RH: IPnordic; NO: TDC; SO: IPnordic; LUBO: TDC.
- 4) Telenor imports a number for CBB.
Result: NO: Telenor; SO: CBB; LUBO: CBB.
 - a. Telenor sends an NP Change for the number, updating RI/CI (or anything but not the SO)
Result: NO: Telenor; SO: CBB; LUBO: CBB. No change compared to before.
- 5) Telenor imports a number for Telenor_LSO (ISO)
Result: NO: Telenor; SO: Telenor_LSO; LUBO: Telenor.

What does LUBO mean:

Number plan: Send NP Create to this Operator (if the number is not in portability).

Portability: Send NP Create to this Operator.

Start Date & Time

This is the time when the information about the number was activated.
The OCH System will enter the date and time stamp in this row.
The field can be initialised by the following transactions: <NP Range Update>, <NP Completion>, <NP Change> and <NP Return>

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Name	Description
End Date & Time	This is the time when the information about the number was deactivated. At the time another update of the number base takes place this column is updated with the start date of that inserted row. All active rows will therefore have a null value in this field. The field can be initialised by the following transactions: <NP Range Update>, <NP Completion>, <NP Change> and <NP Return>.

In the database dump created by the OCH System the above information shall be present.

4. Transactions

4.1. Message types and Fields

If the comment field is present from the Operator, the OCH System shall forward the contents of the field.

If a field is marked as optional '(O)' this means that the field only may be present, if the content is valid (non-null value).

If a field is marked as mandatory '(M)' this means that field must be present, and the content shall be present and valid.

If a field is marked as not applicable 'N/A' this means that field must not be present in the current context. If the field is present (this is an error) the message shall be flagged with error 374.

Fields that can be present more than once have an index value (e.g. Comment[1]).

4.1.1. NP Create

Abbreviation: NP Create

NP Create is used to initiate an operator porting for one telephone number type I, or for one or more series of telephone numbers type II, or a function porting within one operator (e.g. Fixed – Mobile).

NP Create	To OCH	From OCH	
TelephoneNumber	(M)	(M)	
OCHOrderNumber	N/A	(M)	
UniqueID	N/A	(M)	
OriginatingOrderNumber	(M)	(M)	
CurrentServiceOperator	(O)	(M)	
RecipientServiceOperator	(M)	(M)	
RecipientNetworkOperator	(M)	(M)	
CurrentNumberType	(O)	(M)	
RequestedExecutionDate	(O)	(O)	
RequestedExecutionTime	(O)	(O)	
CustomerID	(O)	(O)	
ICC	(O)	(O)	
PointOfConnection	(M)	(M)	
SeriesCount	(M)	(M)	(not relevant in SOAP communication)
Series (1 – n Times)	(O)	(O)	
Comment (1 – n Times)	(O)	(O)	

If the RecipientServiceOperator has a link to OCH, then OCH will set LUBO equal to RecipientServiceOperator

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```

NPCreate ::= `TransactionType=001' fe
    TelephoneNumber
    { OCHOrderNumber | empty }
    { UniqueID | empty }
    OriginatingOrderNumber
    { CurrentServiceOperator | empty }
    RecipientServiceOperator
    RecipientNetworkOperator
    { CurrentNumberType | empty }
    { RequestedExecutionDate | empty }
    { RequestedExecutionTime | empty }
    { CustomerID | empty }
    { ICC | empty }
    PointOfConnection
    SeriesCount
    Series*
    Comment*
    
```

4.1.2. NP OCH Order Number Response

Abbreviation: NP OCH Resp

This transaction type is used by the OCH System to return the unique order number assigned by the OCH System in the field OCHOrderNumber.

From OCH

TelephoneNumber	(M)
OCHOrderNumber	(M)
UniqueID	(M)
OriginatingOrderNumber	(M)
Comment (1 - n Times)	(O)

When NP OCH Order Number is used to respond to:

- NP Range Update, the field TelephoneNumber shall have the first telephone number in the field Range.

```

NPOCHResp ::= `TransactionType=002' fe
    TelephoneNumber
    OCHOrderNumber
    UniqueID
    OriginatingOrderNumber
    Comment*
    
```

4.1.3. NP Error

Abbreviation: NP Error

This transaction is used to report errors in a transaction and can only be sent by the OCH System.

From OCH

TelephoneNumber	(M)	Note 1
OCHOrderNumber	(M)	Note 1
UniqueID	(M)	Note 1
OriginatingOrderNumber	(M)	Note 1
ErrorCode (1 - n Times)	(M)	

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From OCH

ErrorText (1 - n Times)	(M)
ErrorField (1 - n Times)	(M)
Comment (1 - n Times)	(O)

```

NPError ::= `TransactionType=005' fe
          { TelephoneNumber | empty }
          { OCHOrderNumber | empty }
          { UniqueID | empty }
          { OriginatingOrderNumber | empty }
          ErrorCode+
          ErrorText+
          ErrorField+
          Comment*
    
```

When NP Error is used to respond to

- NP Range Update the field TelephoneNumber shall have the first telephone number in the field Range.

Note 1: In the case of transaction errors (see Error and Reject Codes 7.5. the fields TelephoneNumber, OCHOrderNumber, UniqueID and OriginatingOrderNumber are not present. The field shall only be present if the field value does not violate the syntax rules (the field value has been accepted by the OCH System).

4.1.4. NP Reject

Abbreviation: NP Reject

This transaction is used by the Donor Service Operator to reject an Operator Porting due to Rejection Causes as defined in Rules and Procedures.

	To OCH	From OCH	
TelephoneNumber	(M)	(M)	
OCHOrderNumber	(M)	(M)	
UniqueID	(M)	(M)	
OriginatingOrderNumber	(M)	(M)	
OtherOperator	(M)	(M)	Identifies the Donor Service Operator
RejectCode (1 - n Times)	(M)	(M)	
RejectText (1 - n Times)	(M)	(M)	
Comment (1 - n Times)	(O)	(O)	

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```

NPReject ::= `TransactionType=006' fe
    TelephoneNumber
    OCHOrderNumber
    UniqueID
    OriginatingOrderNumber
    OtherOperator
    RejectCode+
    RejectText+
    Comment*
    
```

4.1.5. NP Confirmation

Abbreviation: NP Conf

This transaction is used to confirm an operator porting. This transaction can also be used by the Donor Operator to change the execution date by sending another NP Confirmation. This may only be done after agreement with the Recipient Operator.

	To OCH	From OCH	
TelephoneNumber	(M)	(M)	
OCHOrderNumber	(M)	(M)	
UniqueID	(M)	(M)	
OriginatingOrderNumber	(M)	(M)	
CurrentServiceOperator	N/A	(M)	
CurrentNetworkOperator	N/A	(M)	
CurrentNumberType	N/A	(M)	
ConfirmedExecutionDate	(M)	(M)	
ConfirmedExecutionTime	(O)	(O)	
ConfirmationStatus	(O)	(O)	
DirectoryInfo	(O)	(O)	
SeriesCount	(M)	(M)	(not relevant for SOAP communication)
Series (1 - n Times)	(O)	(O)	
Comment (1 - n Times)	(O)	(O)	

```

NPConf ::= `TransactionType=004' fe
    TelephoneNumber
    OCHOrderNumber
    UniqueID
    OriginatingOrderNumber
    { CurrentServiceOperator | empty }
    { CurrentNetworkOperator | empty }
    { CurrentNumberType | empty }
    ConfirmedExecutionDate
    { ConfirmedExecutionTime | empty }
    { ConfirmationStatus | empty }
    { DirectoryInfo | empty }
    SeriesCount
    Series*
    Comment*
    
```

4.1.6. NP Completion

Abbreviation: NP Compl

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This transaction type is used by the Recipient Operator to indicate that the access connection has been established and that the databases at the Recipient Operator have been updated.

	To OCH	
TelephoneNumber	(M)	
OCHOrderNumber	(M)	
UniqueID	(M)	
OriginatingOrderNumber	(M)	
RecipientServiceOperator	(M)	
RecipientNetworkOperator	(M)	
PortingCase	(M)	
SPC	(M)	
Municipality	(M)	
RoutingInfo	(M)	
ChargingInfo	(M)	
NewNumberType	(M)	
NumberPorted	(M)	
SeriesCount	(M)	Not relevant for SOAP communication
Series (1 - n Times)	(O)	
Comment (1 - n Times)	(O)	

```

NPComp1 ::= `TransactionType=008' fe
          TelephoneNumber
          OCHOrderNumber
          UniqueID
          OriginatingOrderNumber
          RecipientServiceOperator
          RecipientNetworkOperator
          PortingCase
          SPC
          Municipality
          RoutingInfo
          ChargingInfo
          NewNumberType
          NumberPorted
          SeriesCount
          Series*
          Comment*
    
```

4.1.7. NP Update

Abbreviation: NP Update

This transaction type is used by the OCH System to indicate that changes are required in the operator's databases for a telephone number, so that the operator's databases are synchronised with the OCH database. This transaction is sent to all operators, except the operator that created the NP Completion, NP Change or NP Return.

When the OCH System creates the NP Update, it is assumed that the Number Database located at the OCH System has been updated, and that information then is taken from that Number Database.

Operators with a passive connection to the OCH system will receive a NPUpdateInfo, with the same content as a NPUpdate, but TransactionType is 11 instead of 09.

If the NPUpdate is Type II then OCH must perform the following validations on the TelephoneNumber (main number) and each number series according to the following rules:

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- If SPC and/or Municipality differs from range then the TelephoneNumber/series must be attributed PortedWithGeo and NumberPorted Y.
- If RI and/or CI differs from range then the TelephoneNumber/series must be attributed PortedNonGeo and NumberPorted Y.

If the TelephoneNumber and all series are attributed the same PortingCase, then one NP Update is generated.

If this is not the case, then two or more NP Updates are generated:

- One NP Update with the TelephoneNumber and the series which are attributed the same PortingCase as the TelephoneNumber. This NP Update must have the same OCHOrderNumber and OriginatingOrderNumber as the NPCompletion/NPChange/NPReturn initiating the flow.
- Other NP Update(s) concerning the series which have PortingCase(s) different from the TelephoneNumber. The transaction(s) is for purposes of reference called "fake-transaction(s)".
A fake-transaction is constructed like this:
 - The TelephoneNumber is set equal to the lowest number in the first series in the fake-transaction.
 - OCHOrderNumber is the next available.
 - OriginatingOrderNumber is created with operator-id equal to the operator who sent the original transaction. The sequence number (the last 15 ciphers) must be set to 1000000<TelephoneNumber>.

NPUpdateComplete for the fake-transaction(s) must not be sent to the operator who started the flow.

	From OCH	Number Database field
TelephoneNumber	(M)	
OCHOrderNumber	(M)	
UniqueID	(M)	
OriginatingOrderNumber	(M)	
CurrentServiceOperator	(M)	Current Service Operator
CurrentNetworkOperator	(M)	Current Network Operator
PortingCase	(M)	PortingCase
SPC	(M)	SPC
Municipality	(M)	Municipality
RoutingInfo	(M)	RoutingInfo
ChargingInfo	(M)	ChargingInfo
CurrentNumberType	(M)	Number Type
NumberPorted	(M)	
SeriesCount	(M)	(Not relevant for SOAP communication)
Series (1 - n Times)	(O)	
Comment (1 - n Times)	(O)	

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```
NPUpdate ::= `TransactionType=009' fe
          TelephoneNumber
          OCHOrderNumber
          UniqueID
          OriginatingOrderNumber
          CurrentServiceOperator
          CurrentNetworkOperator
          CurrentNumberType
          PortingCase
          SPC
          Municipality
          RoutingInfo
          ChargingInfo
          NumberPorted
          SeriesCount
          Series*
          Comment*
```

4.1.8. NP Update – Fake flow

4.1.8.1. Definition:

A Fake flow has been invented to compensate for the fact that the fields Municipality/SPC/Routing/Charging only occurs once in a Type II transaction and relates to the TelephoneNumber (main number), and no such fields exist for each of the series in the Type II transaction.

4.1.8.2. Characteristics:

The Fake flow is generated by the OCH system, when the originating operator submits a Type II transaction, where one or more series in the transaction has a different PortingCase (i.e. belongs to different Ranges) than the TelephoneNumber (main number) in the transaction.

A Fake flow may occur when the originating operator submits one of the following transactions:

- NP Completion
- NP Change
- NP Return

4.1.8.3. Example of a Fake flow generated by a NP Create:

OCH will make a Fake porting flow in the following case:

- 1) A company has a number range (98000000-98000010) in SPC 111 (Aalborg) and another range (98000011-98000020) in SPC 222 (Århus). Net and service operator is TDC.
- 2) The company wishes to unite the two departments and therefore makes a GeoPorting of the numbers from SPC 111 to SPC 222.
- 3) In OCH, there will be a portability line for numbers 98000000-98000010, where the SPC has changed and the PortingCase is *PortedWithGeo*.
- 4) The two number ranges get the same main telephone number/TelephoneNumber (common to both).
- 5) The company changes operator and moves to Telenor. Telenor imports the two ranges.
- 6) OCH shows new information in the portability, showing that the NO and SO have changed.
- 7) The customer wishes to go back to TDC.
- 8) TDC issues an NP Create/NP Completion porting both ranges 98000000-98000020 to SPC 222.

The "problem" is, that the range 98000000-98000010 does not "belong to" SPC 222 and actually needs to be ported (geographically) to that location.

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9) OCH identifies that not all the numbers in the request have the same range information (PortingCase) and therefore makes two transactions:

- a. One that will port 98000011-98000020 back to where it was originally. This means not having a portability record in OCH.
- b. One that will change the number setup in OCH so it will reflect Geographical porting.

This flow is the fake one.

4.1.8.4. Example of a Fake flow generated by a NP Change:

A business customer has a branch in Copenhagen with a Telephonenumber and a Serie. The customer also has a branch in Roskilde with a Telephonenumber and a Serie. Now the customer moves all activities to Roskilde, and therefore sends a NP Change for the Copenhagen Telephonenumber and a Serie, making them Geographic ported.

Then the customer decides to move all activities to Copenhagen, maintaining the Roskilde TelephoneNumber as his main telephone number.

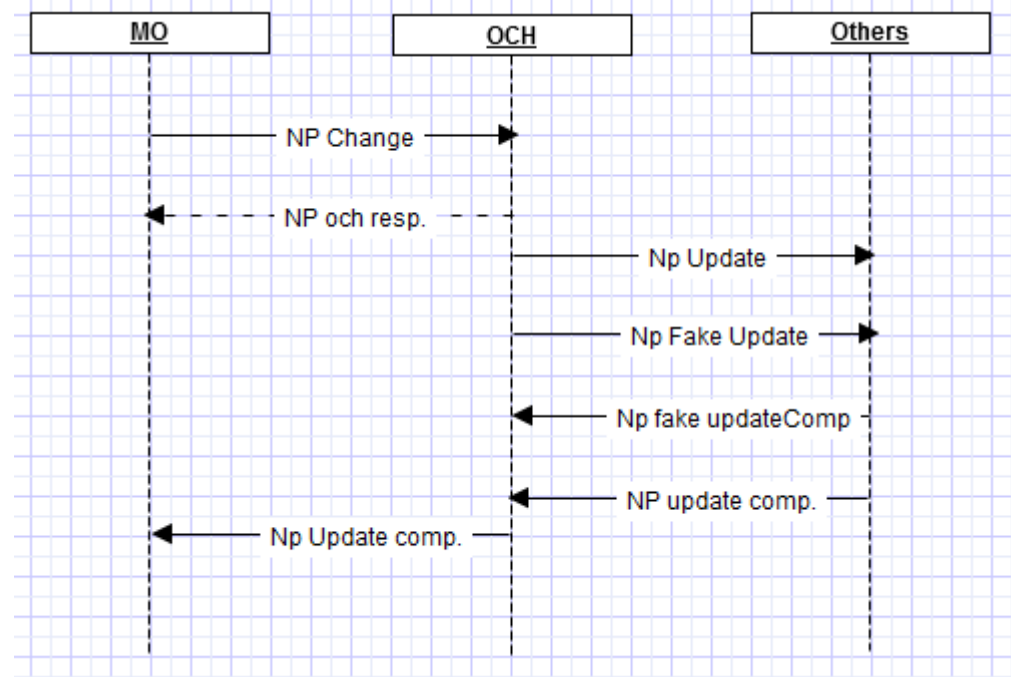
He sends a NP Change with the Roskilde main telephone number af TelephoneNumber and two series (the Copenhagen one and the Roskilde one).

Now the OCH system detects that the Copenhagen serie does not belong to the same Range (has a different PortingCase) as the TelephoneNumber (and the other serie).

The OCH System therefore generates two NP Updates for all other operators,

- one with the Roskilde (main) TelephoneNumber and the Roskilde serie with PortingCase 'Ported with Geo', and
- one with TelephoneNumber equal the lowest number in the Copenhagen serie and the Copenhagen serie with PortingCase 'Non ported'. **This flow is the fake one.**

Transactions:



4.1.9. NP Update Complete

Abbreviation: NP Upd Compl

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This transaction type is used by the Operator to indicate that the databases and systems have been updated in accordance with the information in the preceding NP Update or NP Range Update. This transaction type may also be used by OCH in situations where OCH performs forced closing of flows (refer to section 2.5.7.).

	To OCH	From OCH	
TelephoneNumber	(M)	(M)	
OCHOrderNumber	(M)	(M)	
UniqueID	(M)	(M)	
OriginatingOrderNumber	(M)	(M)	
OtherOperator	(M)	(M)	Identifies the creator of the original message.
Comment (1 - n Times)	(O)	(O)	

```

NPUpdCompl ::= `TransactionType=010' fe
             TelephoneNumber
             OCHOrderNumber
             UniqueID
             OriginatingOrderNumber
             OtherOperator
             Comment*
    
```

When NP Update Complete is used to respond to

- NP Range Update the field TelephoneNumber shall have the first telephone number in the field Range.

When NP Update Complete is used to force close a flow the comment field must reflect the forced closure with the text "Forced Closed by OCH".

4.1.10. NP Cancel

Abbreviation: NP Cancel

This transaction type is used by the Recipient Operator to cancel an existing porting order.

The Operators may not send a NP Cancel before a NP OCH Resp has been received from the OCH System.

	To OCH	From OCH
TelephoneNumber	(M)	(M)
OCHOrderNumber	(M)	(M)
UniqueID	(M)	(M)
OriginatingOrderNumber	(M)	(M)
Comment (1 - n Times)	(O)	(O)

```

NPCancel ::= `TransactionType=007' fe
           TelephoneNumber
           OCHOrderNumber
           UniqueID
           OriginatingOrderNumber
           Comment*
    
```

4.1.11. NP Return

Abbreviation: NP Return

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This transaction type is used by the current service operator or current network operator when imported numbers becomes vacant after any retention period. The numbers are then returned to the RangeHolder/ServiceOperator/NetworkOperator as specified in the range part of the OCH Number Database.

	To OCH	
TelephoneNumber	(M)	
OriginatingOrderNumber	(M)	
SeriesCount	(M)	(Not relevant for SOAP communication)
Series (1 - n Times)	(O)	
Comment (1 - n Times)	(O)	

```
NPReturn ::= 'TransactionType=012' fe
          TelephoneNumber
          OriginatingOrderNumber
          SeriesCount
          Series*
          Comment*
```

4.1.12. NP Change

Abbreviation: NP Change

This transactions type is used by the Current Network Operator to change the following information about one or more telephone numbers:

- Current Service Operator
- Signalling Point Code (SPC)
- Number Type
- Municipality
- Charging Information
- Routing Information
- Number Ported Indicator

This transactions type is used by a Service Operator (either Current or a new, defined by bilateral agreements) to change the following information about one or more telephone numbers:

- Current Service Operator
- Number Ported Indicator

The Current Network Operator is the only Operator who can change information that impacts on the routing and charging of calls to the specified telephone number.

The change that a Service Operator can perform is done only to inform the other Operators that the Customer relation has moved to the Current Service Operator. This way other Operators know where a later NP Create shall be sent. When the value of the Current Service Operator is changed the number has been ported.

Example:

TDC, as Range Holder and Network Operator, is performing a resell to DLG on a single fixed number. Debitel then issues a NP Change where the field Recipient Operator code is set to DLG.

	To OCH
TelephoneNumber	(M)

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To OCH

OriginatingOrderNumber	(M)	
CurrentServiceOperator	(O)	
CurrentNetworkOperator	(O)	
RecipientServiceOperator	(O)	
PortingCase	(O)	
SPC	(O)	
Municipality	(O)	
RoutingInfo	(O)	
ChargingInfo	(O)	
NewNumberType	(O)	
NumberPorted	(M)	
SeriesCount	(M)	(Not relevant for SOAP communication)
Series (1 - n Times)	(O)	
Comment (1 - n Times)	(O)	

RecipientServiceOperator is here used to indicate the new Service Operator if a change is taking place for one or more numbers. The range information is not modified. The content is forwarded in the <NP Update> in the field CurrentServiceOperator.

If (a) record(s) exist for the number(s) concerned in the portability part of the OCH database, then LUBO will be changed only if RecipientServiceOperator is supplied.

If the RecipientServiceOperator has a link to OCH, then OCH will set LUBO equal to RecipientServiceOperator.

```

NPChange ::= `TransactionType=017' fe
           TelephoneNumber
           OriginatingOrderNumber
           { CurrentServiceOperator | empty }
           { CurrentNetworkOperator | empty }
           { RecipientServiceOperator | empty }
           { PortingCase | empty }
           { SPC | empty }
           { Municipality | empty }
           { RoutingInfo | empty }
           { ChargingInfo | empty }
           { NewNumberType | empty }
           NumberPorted
           SeriesCount
           Series*
           Comment*
    
```

4.1.13. NP Range Update

Abbreviation: NP Range Upd

This transaction type is used to create, delete or change the range information about a range of telephone numbers.

This transaction type is the first transaction used by a new network operator. When a network operator resells a large number of telephone numbers on a permanent basis to a Service Operator, a NP Range Update is used by the Network Operator to reflect that sale in the Number Database. This will result in that numbers that have been ported and are being returned, will be returned to the Service Operator and NumberPorted will be 'N'.

Operators with a passive connection to the OCH system will receive a NPRangeUpdateInfo, with the same content as a NPRangeUpdate, but TransactionType is 15 instead of 14.

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Only the Range Holder or the Network Operator can use this transaction type.

The OCH database consists of 2 parts – a range part and a portability part. There is no link and no automatic update between these 2 parts so any changes to the range part doesn't affect the portability part.

Therefore an update to a range can make entries in the portability part invalid. See 3.4 Number Database for more information. It is the Rangeholder responsibility to make these invalid entries valid according to the situations/examples below.

When a Range Update is executed, the Range Holder shall check if there is any occurrences in the Portability part that becomes 'Invalid' as the result of the Range Update.

'Invalid' applies to a situation where a number is ported to a SPC, Municipality, RoutingInfo, ChargingInfo that no longer exists due to the Range Update.

'Invalid' also applies to a situation where a number is no longer ported due to the Range Update, meaning that SPC, Municipality, RoutingInfo, ChargingInfo (and S.O and N.O.) all are equal to the Range information.

If there is any such ported numbers, it is expected that the Range Holder send NP Change for each of these numbers in order clean up the Portability part of the Number Database.

Example:

A geographic ported number may as a result of the NP Range Update no longer be geographically ported. A NP Change is subsequently necessary to bring the number back to a non-ported status.

Example:

A resold or geographic ported number may as a result of the NP Range Update no longer have a valid SPC, Municipality, RoutingInfo or ChargingInfo. A NP Change is subsequently necessary to change one of the above fields to a valid value.

	To OCH	From OCH	
OCHOrderNumber	N/A	(M)	
UniqueID	N/A	(M)	
OriginatingOrderNumber	(M)	(M)	
RangeUpdateType	(M)	(M)	
RangeStart	(M)	(M)	
RangeEnd	(M)	(M)	
OtherOperator	(M)	(M)	The originator of the transaction.
CurrentRangeHolder	(M)	(M)	The new Range Holder.
CurrentServiceOperator	(M)	(M)	
CurrentNetworkOperator	(M)	(M)	
PortingCase	(M)	(M)	
SPC	(M)	(M)	
Municipality	(M)	(M)	
RoutingInfo	(M)	(M)	
ChargingInfo	(M)	(M)	
NewNumberType	(M)	(M)	
Comment (1 – n Times)	(O)	(O)	

4.1.14. NP Porting Request

Abbreviation: NP Port Req

This transaction type is used by a Service Operator to ask a Network Operator, if the Network Operator will start a porting flow.

If the Network Operator cannot start a porting flow, a NP Reject will be returned.

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	To OCH	From OCH	
TelephoneNumber	(M)	(M)	
OCHOrderNumber	N/A	(M)	
UniqueID	N/A	(M)	
OriginatingOrderNumber	(M)	(M)	
PortingType	(M)	(M)	Operator, Geographic or Function
CurrentServiceOperator	(O)	(M)	
CurrentNetworkOperator	(O)	(M)	
RecipientServiceOperator	(M)	(M)	
RecipientNetworkOperator	(M)	(M)	
CurrentNumberType	(O)	(M)	
RequestedExecutionDate	(O)	(O)	
RequestedExecutionTime	(O)	(O)	
RoutingInfo	(O)	(O)	
ChargingInfo	(O)	(O)	
NewNumberType	(M)	(M)	
ICC	(O)	(O)	
CustomerID	(O)	(O)	
CustomerFirstName	(O)	(O)	Note 1
CustomerLastName	(O)	(O)	Note 1
CustomerStreetName	(O)	(O)	Note 1
CustomerStreetNumber	(O)	(O)	Note 1
CustomerStaircase	(O)	(O)	Note 1
CustomerFloor	(O)	(O)	Note 1
CustomerRightLeftDoor	(O)	(O)	Note 1
CustomerLocationName	(O)	(O)	Note 1
CustomerHouseName	(O)	(O)	Note 1
CustomerPostalCode	(O)	(O)	Note 1
CustomerCity	(O)	(O)	Note 1
SeriesCount	(M)	(M)	(Not relevant for SOAP Communication)
Series (1 - n Times)	(O)	(O)	
Comment (1 - n Times)	(O)	(O)	

Note 1 The information is required if the number is being ported to the fixed network.

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```
NPPortReq ::= `TransactionType=018' fe
    TelephoneNumber
    { OCHOrderNumber | empty }
    { UniqueID | empty }
    OriginatingOrderNumber
    PortingType
    { CurrentServiceOperator | empty }
    { CurrentNetworkOperator | empty }
    RecipientServiceOperator
    RecipientNetworkOperator
    { CurrentNumberType | empty }
    { RequestedExecutionDate | empty }
    { RequestedExecutionTime | empty }
    { RoutingInfo | empty }
    { ChargingInfo | empty }
    NewNumberType
    { ICC | empty }
    { CustomerID | empty }
    { CustomerFirstName | empty }
    { CustomerLastName | empty }
    { CustomerStreetName | empty }
    { CustomerStreetNumber | empty }
    { CustomerStairCase | empty }
    { CustomerFloor | empty }
    { CustomerRightLeftDoor | empty }
    { CustomerLocationName | empty }
    { CustomerHouseName | empty }
    { CustomerPostalCode | empty }
    { CustomerCity | empty }
    SeriesCount
    Series*
    Comment*
```

4.1.15. NP Porting Response

Abbreviation: NP Port Resp

This transaction type is used by a Network Operator to confirm to a Service Operator, that the Network Operator will start a porting flow.

	To OCH	From OCH
TelephoneNumber	(M)	(M)
OCHOrderNumber	(M)	(M)
UniqueID	(M)	(M)
OriginatingOrderNumber	(M)	(M)
Comment (1 - n Times)	(O)	(O)

```
NPPortResp ::= `TransactionType=019' fe
    TelephoneNumber
    OCHOrderNumber
    UniqueID
    OriginationOrderNumber
    Comment*
```

4.1.16. CC transactions

A CC transaction is a copy of the primary transaction send to somebody who also need the information (the secondary receiver). The CC transaction is marked with CC in the flows you see in OCH Online, and the transaction have `CC:NP `Transaction name'' in the Comment (1) field.

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CC transactions are used in several transactions in the NP Create flows.

When a Recipient Network Operator starts an import flow on behalf of a Recipient Service Operator different from himself, this SO gets a copy of the NP Create. If the Donor Service Operator and the Donor Network Operator are two different operators, then the primary NP Create goes to the Donor Service Operator, since he is the one to confirm or reject the porting. A secondary NP Create (the CC transaction) goes to the Donor Network Operator, since he has to disconnect the service once the porting has been completed.

Likewise CC transactions occurs for the transaction types NP Confirm, NP Reject, NP Cancel, NP Update Complete in a NP Create flow.

4.2. Field mapping to Messages Transactions

Since all transaction are passed through the OCH System the notation X/Y is used. X is the status of the field to the OCH System and Y is the status from the OCH System. Example: O/M means that the field is optional from the operator to the OCH System, but is mandatory from the OCH System to the operator.

	NP Create	NP OCH Resp	NP Error	NP Reject	NP Conf	NP Compl	NP Update	NP Upd Compl	NP Cancel	NP Return	NP Change	NP Range Upd	NP Port Req	NP Port Resp
TransactionType	001	002	005	006	004	008	009/ 011	010	007	012	017	014/ 015	018	019
ChargingInfo						M/ /M					O/ /M	M/M	O/O	
Comment (1 – n Times)	O/O	/O	/O	O/O	O/O	O/ /O	O/O	O/O	O/O	O/ /O	O/ /M	O/O	O/O	O/O
ConfirmedExecutionDate					M/M									
ConfirmedExecutionTime					O/O									
ConfirmationStatus					O/O									
CurrentNetworkOperator					/M		/M				O/ /M	M/M	O/M	
CurrentNumberType	O/M				/M		/M						O/M	
CurrentRangeHolder												M/M		
CurrentServiceOperator	O/M				/M		/M				O/ /M	M/M	O/M	
CustomerCity													O/O	
CustomerFirstName													O/O	
CustomerFloor													O/O	
CustomerHouseName													O/O	
CustomerID	O/O												O/O	
CustomerLastName													O/O	
CustomerLocationName													O/O	
CustomerPostalCode													O/O	
CustomerRightLeftDoor													O/O	
CustomerStaircase													O/O	
CustomerStreetName													O/O	
CustomerStreetNumber													O/O	
DirectoryInfo					O/O									
Error (1 – n Times)			/M											
ICC	O/O												O/O	
FileComment (1 – n Times)	O/ /M			O/ /M	O/ /M	O/ /M	O/ /M	O/ /M	O/ /M	O/ /M	O/ /M	O/ /M	O/ /M	O/ /M
Municipality					M/ /M		/M				O/ /M	M/M		
NewNumberType					M/ /M						O/ /M	M/M	M/M	
NumberPorted					M/ /M		/M				M/ /M			
OCHOrderNumber	/M	/M	/M	M/M	M/M	M/ /M	/M	M/M	M/M			/M	/M	M/M
OriginatingOrderNumber	M/M	/M	/M	M/M	M/M	M/ /M	/M	M/M	M/M	M/ /M	M/ /M	M/M	M/M	M/M
OtherOperator				M/M				M/M				M/M		
PointOfConnection	M/M													
PortingCase						M/ /M					O/ /M	M/M		
PortingType													M/M	
RangeStart												M/M		
RangeEnd												M/M		
RangeUpdateType												M/M		
RecipientNetworkOperator	M/M					M/ /M							M/M	
RecipientServiceOperator	M/M					M/ /M					O/ /M		M/M	
Reject (1 – n Times)				M/M										

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RequestedExecutionDate	o/o													o/o
RequestedExecutionTime	o/o													o/o
RoutingInfo						M/	/M				o/	M/M		o/o
Series (1 - n Times)	o/o				o/o	o/	/o				o/	o/		o/o
SPC						M/	/M				o/	M/M		
TelephoneNumber	M/M	/M	/M	M/M	M/M	M/	/M	M/M	M/M	M/	M/	M/M	M/M	M/M
TransactionType	M/M	/M	/M	M/M	M/M	M/	/M	M/M	M/M	M/M	M/	M/M	M/M	M/M
UniqueID	/M	/M	/M	M/M	M/M	M/	/M	M/M	M/M			/M	/M	M/M

4.3. State / Event Diagram

The following table describes the states that the OCH System must comply to.

	IDLE State (S0)	Wait for Conf. (S1) PONS	Wait for Compl. (S2) PONS	Wait for first Update Complete (S3) PONR	Wait for last Update Complete (S4) PONR	Wait for Porting Response (S5) PONS
E00: NP Create	S1 / A2	S1 / A3	S2 / A3	S3 / A3	S4 / A3	S5 / A3
E01: NP OCH Response	S0 / A3	S1 / A3	S2 / A3	S3 / A3	S4 / A3	S5 / A3
E02a: NP Error	S0 / A3	S1 / A3	S2 / A3	S3 / A3	S4 / A3	S5 / A3
E02b: NP Reject	S0 / A3	S0 / A14	S2 / A3	S3 / A3	S4 / A3	S0 / A14
E03: NP Confirmation	S0 / A3	S2 / A4	S2 / A4	S3 / A3	S4 / A3	S5 / A3
E04: NP Completion	S0 / A3	S1 / A3	S3 / A5	S3 / A3	S4 / A3	S5 / A3
E05: NP Update	S0 / A3	S1 / A3	S2 / A3	S3 / A3	S4 / A3	S5 / A3
E06: NP Update Complete	S0 / A3	S1 / A3	S2 / A3	S4 / A6	S4 (S0) / A6	S5 / A3
E07: NP Cancel	S0 / A3	S0 / A8	S0 / A8	S3 / A3	S4 / A3	S5 / A3
E08: NP Return	S3 / A10	S1 / A3	S2 / A3	S3 / A3	S4 / A3	S5 / A3
E09: NP Change	S3 / A10	S1 / A3	S2 / A3	S3 / A3	S4 / A3	S5 / A3
E10: NP Range Update	S3 / A10	S1 / A3	S2 / A3	S3 / A3	S4 / A3	S5 / A3
E11: NP Porting Request	S5 / A11	S1 / A3	S2 / A3	S3 / A3	S4 / A3	S5 / A3
E12: NP Porting Response	S0 / A3	S1 / A3	S2 / A3	S3 / A3	S4 / A3	S0 / A12
E13: Syntax Error Header	S0 / A3	S1 / A3	S2 / A3	S3 / A3	S4 / A3	S5 / A3
E14: Syntax Error Trailer	S0 / A3	S1 / A3	S2 / A3	S3 / A3	S4 / A3	S5 / A3
E15: Syntax Error Message	S0 / A3	S1 / A3	S2 / A3	S3 / A3	S4 / A3	S5 / A3
E16: Semantic Error	S0 / A3	S1 / A3	S2 / A3	S3 / A3	S4 / A3	S5 / A3
E17: DB-Lookup Error	S0 / A3	S1 / A3	S2 / A3	S3 / A3	S4 / A3	S5 / A3
E18: Fileformat Error	S0 / A3	S1 / A3	S2 / A3	S3 / A3	S4 / A3	S5 / A3

E13 to E18 is included for completeness, and will result in a NP Error being sent from the OCH System to the Operator, but the state is not changed.

Actions:

Action Name	Description
A2	Send <NP OCH Resp>, <NP Create> and optional cc:<NP Create>. PONS := TRUE.
A3	Send NP Error
A4	Send <NP Confirmation> and optional cc:<NP Confirmation>
A5	Send <NP Update> to all operator after Number Database is updated. PONR := TRUE.
A6	Send <NP Update Complete> onwards to Operator and optional cc:<NP Update Complete>
A8	Send <NP Cancel> and optional cc:<NP Cancel> onwards
A10	Send <NP OCH Resp> and <NP Update>

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Action Name	Description
A11	Send <NP OCH Resp> and <NP Porting Request>. PONS := TRUE.
A12	Send <NP Porting Response> onwards
A14	Send <NP Reject> onwards and optional cc:<NP Reject>. PONS := FALSE.

5. Fields

Strings in 'Value(s)' in this chapter is during syntax checking evaluated without regard to case. That is 'FIXED' evaluates equal to 'fixed'. Fields are properties of the SOAP transaction object.

5.1. Fields in Transaction

5.1.1. Priority

Usage: Indicates the priority for the transaction.
Example: Priority=2
Type: Integer
Length: 2
Value(s): 2 | 5
Validation: Field missing → the transaction is rejected with error code 301.
Field present more than once → the transaction is rejected with error code 302.
Field contents is illegal → the transaction is rejected with error code 303.
Field contents is missing → the transaction is rejected with error code 304.

Comments:

5.1.2. SenderID

Usage: Informs about the identification of the sender.
Example: SenderID=01011 (Network Operator)
SenderID=00123 (Service Operator)
SenderID=00000 (OCH System)
Type: String
Length: 5 characters
Value(s): Agreed prefix code with leading zeroes.
Validation: Field content is illegal → the transaction is rejected with error code 303.
Field content is missing → the transaction is rejected with error code 304.
SenderID is illegal → the file is rejected with error code 336.
Comments: When a transaction is generated by the OCH System, the content of this field is '00000'.
When a transaction is generated by an Operator. OCH will automatically set this field. This pseudoprefix is an agreed 5 digit unique number where the first two digits are '00'.
SenderID shall be equal to the CPS code given by OCH.

5.1.3. SentDate

Usage: Information when the transaction was created.
Example: SentDate=20000125
Type: String (CCYYMMDD)
Length: 8 characters
Value(s):
Validation: Field content is illegal → the transaction is rejected with error code 303.
Field content is missing → the transaction is rejected with error code 304.
Comments: This field is automatically set by OCH and cannot be changed.

5.1.4. SentTime

Usage: Information when the transaction file was created in Central European Time.
Example: SentTime=1234

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Type: Text (HHMM)
Length: 4 characters
Value(s):
Validation: Field content is illegal → the transaction is rejected with error code 303.
Field content is missing → the transaction is rejected with error code 304.
Comments: This field is automatically set by OCH and cannot be changed.

5.1.5. ChargingInfo

Usage: Information required for charging a call to this number.
Example: ChargingInfo=4347/371213
Type: String
Length: Maximum 12 characters
Value(s):
Validation: Field missing → transaction rejected with error code 301.
Field content is missing → transaction rejected with error code 304.
Field contents are illegal → transaction rejected with error code 303.
Comments: When a number is ported, it will be placed at a given switch, which holds a different number range. The contents of this field will hold the charging information for the number range normally placed at the switch.
A written agreement about the interpretation of the field value shall exist between the operators, before the value is used.

The default value is '00000000/000000000000'.

For 8 digit ranges the RI/CI code must be at least 4 digits and for 12 digit ranges the RI/CI code must be at least 6 digits.

If an operator wants to use 12 digits number ranges, then the operator must apply for a new RI/CI code. A RI/CI code for 8 digits number range can not be used for at 12 digits number range.
When this field is used in a <NP Update> from the OCH System as a result of a <NP Return>, the contents of the field shall be the value of the Range Holder from the Range Record.

See PortingCase section for information about 70/80 and 90 numbers.

5.1.6. Comments

Usage: Comment object used for testing and tracking purposes. A Comment object is contained in list "comments" in Transaction
Example: Transactions.comments[index 0] = Comment(text = message 1)
Transactions.comments[index 1] = Comment(text = message 2)
Type: Comment object type
Length: Maximum 255
Value(s): None
Validation: Field contents are too long → transaction rejected with error code 307.
Comments: Comments are carried across the OCH System also when transactions change name across the OCH System (e.g. NP Completion to NP Update), but is not retained when the OCH System is answering e.g. <NP OCH Resp>

5.1.7. ConfirmedExecutionDate

Usage: Information about the confirmed date that the porting will take place.
Example: ConfirmedExecutionDate=20000612

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Type: String(CCYMMDD)
Length: 8 characters
Value(s):
Validation: Field missing → transaction rejected with error code 301.
Field contents is missing → transaction rejected with error code 304.
Field contents not a valid date → transaction rejected with error code 303.
Comments: The field shall contain the execution date that the donor operator confirms to recipient operator. Be advised that the date can deviate from RequestedExecutionDate.

5.1.8. ConfirmedExecutionTime

Usage: Information about the confirmed execution time.
Example: ConfirmedExecutionTime=1234
Type: String(HHMM)
Length: 4 characters
Value(s):
Validation: Field content is illegal → transaction rejected with error code 303.
Field content is missing → transaction rejected with error code 304.
Comments: This field is relevant when porting fixed numbers due to planning and execution of the physical porting. The field is optional and can ONLY be used if the NP Create contained a RequestedExecutionTime different from null (Zero)

5.1.9. ConfirmationStatus

Usage: Explanation why RequestedExecutionDate cannot be kept.
Example: ConfirmationStatus=2
Type: Integer
Length: 3 characters
Value(s): '1' .. '999'
Validation: Field missing → transaction rejected with error code 301.
Field contents not valid → transaction rejected with error code 303.
Comments: The field shall contain the reason why the ConfirmedExecutionDate is not equal to the RequestedExecutionDate.

Possible values:

- 1 - Too early according to Rules & Procedures.
- 2 - Termination period is violated.
- 3 - Contract period is violated.
- 4 - Date moved due to excessive load.

5.1.10. CurrentNetworkOperator

Usage: Identification of the operator, which is current network operator on the number.
Example: CurrentNetworkOperator=01011
Type: String
Length: 5 characters
Value(s): Operator prefix with leading '0'.
Validation: Field missing → transaction message rejected with error code 301.
Field content is missing → transaction rejected with error code 304.
Comments: If the field is empty in a <NP Porting Request> then the OCH System shall insert the operator prefix of the current network operator (donor network

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operator).

When this field is used in a <NP Update> from the OCH System as a result of a <NP Return>, the contents of the field shall be the value of the Range Holder from the Range Record.

5.1.11. CurrentNumberType

Usage:	Indicates the current use of the TelephoneNumber.
Example:	CurrentNumberType=GSM
Type:	String
Length:	Maximum 60 characters
Value(s):	'FIXED' | 'GSM'
Validation:	Field missing → transaction message rejected with error code 301. Field content not valid → transaction message rejected with error code 303.
Comments:	<p>The field indicates the current use of the TelephoneNumber.</p> <p>If the TelephoneNumber is charged as a mobile number then CurrentNumberType is GSM. In all other cases CurrentNumberType is FIXED. A number is charged as a mobile number if the value of ChargingInfo belongs to a number range mainly used for mobile communications. The use of a number range is defined by IT & Telestyrelsen (www.telestyrelsen.dk).</p> <p>The reason why the field CurrentNumberType is present in a NP Create sent from the OCH is that the donor operator can immediately route the NP Create messages to one of two Customer Care Systems (one for fixed and one for mobile).</p> <p>When this field is used in a <NP Update> from the OCH System as a result of a <NP Return>, the content of the field shall be the value of the Number Type from the Range Record.</p> <p><u>Note</u> The intention of this field is not to prevent routing for any service, e.g. SMS to number type FIXED.</p>

5.1.12. CurrentRangeHolder

Usage: Specifies the operator, which takes over the Range Holder for the range.
 Example: CurrentRangeHolder=01011
 Type: String
 Length: 5 characters
 Value(s): Operator prefix with leading '0'.
 Validation: Field missing → transaction rejected with error code 301.
 Field content is missing → transaction rejected with error code 304.
 Comments:

5.1.13. CurrentServiceOperator

Usage: Identification of the operator, which is current service operator on the number.
 Example: CurrentServiceOperator=01011
 Type: String
 Length: 5 characters
 Value(s): Operator prefix with leading '0'.

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Validation: Field missing → transaction rejected with error code 301.
Field content is missing → transaction rejected with error code 304.
Comments: If the field is empty in a <NP Create> or <NP Porting Request> then the OCH System shall insert the operator prefix of the current service operator (donor service operator).

When this field is used in a <NP Update> from the OCH System as a result of a <NP Return>, the contents of the field shall be the value of the Current Service Operator from the Range Record.

5.1.14. CustomerCity

Usage: The name of the city the customer lives in.
Example: CustomerCity=Virum
Type: String
Length: Maximum 60 characters
Value(s):
Validation: Field contents too long → transaction rejected with error code 307.
Comments:

5.1.15. CustomerFirstName

Usage: The first name of the customer
Example: CustomerFirstName=Søren
Type: String
Length: Maximum 60 characters
Value(s):
Validation: Field contents too long → transaction rejected with error code 307.
Comments:

5.1.16. CustomerLastName

Usage: The last name of the customer.
Example: CustomerLastName=Brun
Type: String
Length: Maximum 60 characters
Value(s):
Validation: Field contents too long → transaction rejected with error code 307.
Comments:

5.1.17. CustomerFloor

Usage: The floor where the customer lives.
Example: CustomerFloor=st
Type: String
Length: Maximum 60 characters
Value(s):
Validation: Field contents too long → transaction rejected with error code 307.
Comments:

5.1.18. CustomerHouseName

Usage: The name of the house where the customer lives.
Example: CustomerHouseName=Maglebo

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Type: String
Length: Maximum 60 characters
Value(s):
Validation: Field contents too long → transaction rejected with error code 307.
Comments:

5.1.19. CustomerID

Usage: The customer identification at the donor operator.
Example: CustomerID=P39664111
Type: String
Length: Maximum 60 characters
Value(s):
Validation: Field contents too long → transaction message with error code 307.
Comments:

5.1.20. CustomerLocationName

Usage: The location inside a postal district where the customer
Example: CustomerLocationName=Øvre Jensslev
Type: String
Length: Maximum 60 characters
Value(s):
Validation: Field contents too long → transaction rejected with error code 307.
Comments:

5.1.21. CustomerPostalCode

Usage: The code for the postal district, where the customer resides.
Example: CustomerPostalCode=4000
Type: String
Length: Maximum 60 characters
Value(s):
Validation: Field contents too long → transaction rejected with error code 307.
Comments:

5.1.22. CustomerRightLeftDoor

Usage: The door indicator for the address, where the customer resides.
Example: CustomerRightLeftDoor=mf
Type: String
Length: Maximum 60 characters
Value(s):
Validation: Field contents too long → transaction rejected with error code 307.
Comments:

5.1.23. CustomerStaircase

Usage: The staircase where the customer resides.
Example: CustomerStaircase=A
Type: String
Length: Maximum 60 characters
Value(s):
Validation: Field contents too long → transaction rejected with error code 307.

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Comments:

5.1.24. CustomerStreetName

Usage: The name of the street in which the customer
Example: CustomerStreetName=Dronningmøllevej
Type: String
Length: Maximum 60 characters
Value(s):
Validation: Field contents too long → transaction rejected with error code 307.
Comments:

5.1.25. CustomerStreetNumber

Usage: The number of the building in the street where the customer resides.
Example: CustomerStreetNumber=123
Type: String
Length: Maximum 60 characters
Value(s):
Validation: Field contents too long → transaction rejected with error code 307.
Comments:

5.1.26. DirectoryInfo

Usage: Indicates how the number was represented at the donor for directory purposes.
Example: DirectoryInfo=1
Type: Integer
Length: maximum 3.
Value(s):
1 = 'Unlisted'
2 = 'Withheld'
4 = 'Blind Address'
32 = 'Secured'
Validation: Field content is illegal → transaction rejected with error code 303.
Comments: The values can be added together, so that a combination can be expressed (i.e. a number can be Unlisted and Secure).
Unlisted: the telephone number is not present in the directory, but the customer information is present in the directory.
Withheld: Neither the telephone number or customer information is present in the directory.
Blind address: The customer name is present in the directory, but the address is not.
Secured: covers only fixed numbers covered by "bekendtgørelse 1056".

5.1.27. Error

Usage: The field is used by OCH to inform the senderOperator of any error in the a SOAPTransaction.
Example: Error(Code=306,Text=Field content is too long,field=ICC);
Type: Error
Length: N/A
Value(s): 300..999

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Validation: Is not validated
Comments: Returns information about the errors that have been found. More errors can occur in the same SOAPTransaction. The Code and corresponding Text are defined in 7.6. Error Codes. The OCH A/S shall inform the users of the OCH System of any and all changes to the error codes.

5.1.28. ICC

Usage: This field is used to hold the ICC number as written on the SIM Card.
Example: ICC=123456789AF
Type: String
Length: Up to 60 characters
Value(s):
Validation: Field content is illegal → transaction rejected with error code 303.
Field content is missing → transaction rejected with error code 304.
Comments: Is mandatory for PrePaid mobile numbers.

When the ICC number uniquely identifies an active prepaid SIM card, the donor operator must comply with the porting based alone on this information without any written termination.
When the ICC number uniquely identifies an active postpaid SIM card, the donor operator has two options.
The first option is to comply with the porting without any written termination. In the vast majority of cases the donor operator must use this option.
The second option is to ask for the written termination as a random sample before complying with the porting. This request must be made within a limited time-frame (See APG26).

5.1.29. LUBO (Last Updated By Operator)

Usage: Identification of the operator, who supplied the Service Operator Information (=CurrentServiceOperator) for the number. LUBO is used internally in the OCH system only. The information is used by OCH to determine who should receive a NP Create.
Example: The LUBO field is sometimes called DSO (Direct Service Operator)
LUBO=01011
Type: String
Length: 5 characters
Value(s): Operator prefix with leading '0'.
Validation: None. No transaction will supply the field.
Comments: LUBO was created to facilitate the allocation of number ranges and porting of numbers to and from Service Operators without direct connection to the OCH.

The LUBO field is always set, and therefore always used by the OCH system to determine the receiver of the NP Create.

LUBO specifies the operator acting on behalf of the Service Operator without direct connection to the OCH. The operator specified by LUBO can act on behalf of the Service Operator in three respects:

- By supplying the identity of the Service Operator when number ranges are allocated or numbers are ported to the Service Operator. Please refer to sections 4.1.1. (NP Create), 4.1.12. (NP Change) and 4.1.13. (NP

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Range Update) for detailed descriptions of the settings of LUBO in those cases.

- By returning numbers on behalf of the Service Operator.
- By receiving NP Creates from OCH concerning numbers in use at the Service Operator.

Example 1. Reselling a range:

TDC resells a number range to Telefin (Telefin has no OCH link) and proclaims this by issuing a NP Range Update to the OCH. The result in the range part of OCH will then include:

- ServiceOperator: 08032 (Telefin)
- NetworkOperator: 01011
- LUBO: 01011

Example 2. Porting a number from Telefin to Ipvision:

Telenor imports one of the numbers concerned in Example 1 on behalf of Ipvision (Ipvision has no OCH link) by issuing a NP Create.

OCH checks LUBO for this number and sends the NP Create to TDC.

The result of the porting in the portability part of OCH will then include:

- ServiceOperator: 08066 (Ipvision)
- NetworkOperator: 01015
- LUBO: 01015

Example 3. Reselling a number:

Ipvision resells a number working in Telenors network to Marcus Mobile (Marcus Mobile has no OCH link). Telenor proclaims this by issuing a NP Change. The result in the portability part of OCH will then include:

- ServiceOperator: 08092 (Marcus Mobile)
- NetworkOperator: 01015
- LUBO: 01015

Example 4. Porting a number from Telefin to CBB:

Telenor imports one of the numbers concerned in Example 1 on behalf of CBB (CBB has a OCH link) by issuing an NP Create.

OCH checks LUBO for this number and sends the NP Create to TDC.

The result of the porting in the portability part of OCH will then include:

- ServiceOperator: 00002 (CBB)
- NetworkOperator: 01015
- LUBO: 00002 (CBB)

Example 5. Reselling a number:

Ipvision resells a number working in Telenors network to CBB (CBB has a OCH link). CBB or Telenor proclaims this by issuing a NP Change. The result ,no matter who sends the NP Change, will then in the portability part of OCH include:

- ServiceOperator: 00002 (CBB)
- NetworkOperator: 01015
- LUBO: 00002 (CBB)

5.1.30. Municipality

Usage: Municipality code that can be used for charging purposes.

If the number is active, the Municipality identifies the region where the customer is located.

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If the number is not active, the Municipality identifies the region where the SPC is located.

Example: Municipality=101
 Type: String
 Length: 3 characters
 Value(s): List of municipalities issued by the Ministry of the Interior and '000'
 Validation: Field missing → transaction rejected with error code 301.
 Field content not valid → transaction rejected with error code 303.
 Field content is missing → transaction rejected with error code 304.

Comments: Municipality code '000' indicates Denmark as a whole and is used as default.

When this field is used in a <NP Update> from the OCH System as a result of a <NP Return>, the contents of the field shall be the value of the Range Holder from the Range Record.

See PortingCase section for information about 70/80 and 90 numbers.
 Normal fixed numbers cannot have municipality code equal to '000'.

5.1.31. NewNumberType

Usage:	Indicates the new network type the number is used in.
Example:	NewNumberType=GSM;
Type:	String
Length:	Maximum 60 characters
Value(s):	'FIXED' | 'GSM'
Validation:	Field missing → transaction rejected with error code 301. Field content not valid → transaction rejected with error code 303.
Comments:	The field is used to indicate the new type of the number. The value of this field is <u>not</u> used for routing and charging, but is used to indicate whether a fixed to mobile or mobile to fixed porting has taken place. See PortingCase section for information about 70/80 and 90 numbers.

5.1.32. NumberPorted

Usage: Indicates whether a number is ported.
 Example: NumberPorted=Y
 Type: String
 Length: 1 character
 Value(s): 'Y' | 'N'
 Validation: Field missing → the transaction rejected with error code 301.
 Field content is illegal → the transaction rejected with error code 303.
 Field content is missing → the transaction rejected with error code 304.

Comments: This field is independent of the information in the field 'Porting Case', however there is the following relationship between the two fields:

PortingCase <> NonPorted means that the number has been ported when routing calls to the number, and that Nature Of Address (NOA) 112 shall be used.
 If PortingCase <> NonPorted then NumberPorted shall always be 'Y', but the reverse deduction cannot be made.
 If NumberPorted = 'Y' then at least one of the following fields have been

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changed from the Range information part: SPC, Municipality, RoutingInfo, ChargingInfo, ServiceOperator or NetworkOperator.

If NumberPorted = 'Y' then the number is Operator Ported, Function Ported, Geographic Ported or Resold (ServiceOperator is changed).

To summarize:

PortingCase = NonPorted and NumberPorted = 'Y' means that the number has been resold and call routing has not been changed.

PortingCase <> NonPorted and NumberPorted = 'Y' means that the number has been ported and that Nature Of Address shall be 112.

PortingCase <> NonPorted and NumberPorted = 'N' is an illegal situation.

5.1.33. OCHOrderNumber

Usage: Unique order number issued by the OCH System to identify a flow.
Example: OCHOrderNumber=1234
Type: String
Length: Max. 12 characters
Value(s): '1' .. '999999999999'
Validation: Field missing → transaction rejected with error code 301.
Field content is illegal → the transaction rejected with error code 303.
Field content is missing → the transaction rejected with error code 304.
Comments: The OCHOrderNumber is never reused, and shall be globally unique.

5.1.34. OriginatingOrderNumber

Usage: The operators order number taken from a sequence combined with the operator identification.
Example: OriginatingOrderNumber=01010123
Type: String
Length: max. 20 characters
Value(s): The operator code followed by a number taken from a sequence unique for the operator.
Validation: Field missing → transaction rejected with error code 301.
Field content illegal → transaction rejected with error code 303.
Field content is missing → transaction rejected with error code 304.
Comments: Be advised that the Recipient Operator exclusively controls the OriginatingOrderNumber, but it is syntax checked by the OCH System. This means that the OriginatingOrderNumber can be reused when restarting a dropped flow. There must not exist two active flows that have the same OriginatingOrderNumber. This check is not performed by the OCH system, but is the responsibility of the initiating Operator to ensure.
The value of OriginatingOrderNumber is unchanged through an entire porting flow. This is checked by the OCH system.

5.1.35. OtherOperator

Usage: Operator code for the originating operator of the transaction message.
Example: OtherOperator=01026
Type: String
Length: 5 characters
Value(s): Operator prefix code with leading '0'.
Validation: Field missing → the transaction rejected with error code 301.
Field content is illegal → the transaction rejected with error code 303.
Field content is missing → the transaction rejected with error code 304.

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Comments: This field is used to indicate who is the originator of the transaction message.
The field is used in the NP Range Update to indicate who is the Range Holder of the data.

5.1.36. PointOfConnection

Usage: Indicates who is responsible for establishing the access connection to the customer.
Example: PointOfConnection=RECIPIENT
Type: String
Length: Max. 60 characters
Value(s): 'DONOR' | 'RECIPIENT'
Validation: Field missing → the transaction rejected with error code 301.
Field content is illegal → the transaction rejected with error code 303.
Field content is missing → the transaction rejected with error code 304.
Comments: If the text 'RECIPIENT' is used this means that the recipient operator establishes the access connection from the customer to switch.
If the text 'DONOR' is used this means that the donor operator establishes the access connection from the customer to the recipient operators switch, but the recipient operator retains the responsibility for the work carried out.

5.1.37. PortingCase

Usage:	Indicates which signalling scenario is to be used, when sending calls to the ported number.
Example:	PortingCase=PortedWithGeo
Type:	String
Length:	Max. 60 character
Value(s):	'NonPorted' | 'PortedWithGeo' | 'PortedNonGeo'
Validation:	Field missing → transaction rejected with error code 301. Field content is illegal → transaction rejected with error code 303. Field content is missing → transaction rejected with error code 304.
Comments:	'NonPorted' indicates that the number is not ported, and that signalling shall be done as for any other number is the same number range. The Technical group refers to this as PortingCase 0. 'PortedWithGeo' indicates that the number is ported with geographical information. The information stored in Municipality and SPC shall be used for charging and routing purposes. This value can only be used for NewNumberType=FIXED. The Technical group refers to this as PortingCase 1. 'PortedNonGeo' indicates that the number is ported with no geographical information. The information stored in ChargingInfo shall be used for charging purposes and RoutingInfo shall be used for routing purposes. The Technical group refers to this as PortingCase 2. Please refer to 5.3.30. NumberPorted for explanation of the possible combinations of PortingCase and NumberPorted. Numbers which are given ChargingInfos representing fixed network numbers with no direct geographic relation (e.g. 70, 72, 80 and 90 numbers) must have the following characteristics: NumberType = FIXED. PortingCase is either NonPorted or PortedNonGeo, SPC is 00,

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	Municipality is 000, RoutingInfo is not default value and ChargingInfo is not default value.
--	----------------------------------------------------------------------------------------------------

5.1.38. PortingType

Usage: Indicates which type of porting that the Service Operator wants the Network Operator to perform on his behalf.

Example: PortingType=Operator

Type: String

Length: Max. 60 character

Value(s): 'Operator' | 'Geographic' | 'Function'

Validation: Field missing → the transaction is rejected with error code 301.
Field content is illegal → the transaction is rejected with error code 303.
Field content is missing → the transaction is rejected with error code 304.

Comments: The field is used on the NP Porting Request transaction by the Service Operator.

5.1.39. RangeStart

Usage: The start of range about to be created or modified. Used in conjunction with RangeEnd field.

Example: RangeStart=39664000
Range=39664000
Range=371213000000

Type: String

Length: 17 or 25 characters

Value(s): One fully qualified telephone number. The first digit shall be in the range '2'.. '9'. The remaining digits shall be '0'.. '9'.

Validation: Field missing → transaction rejected with error code 301.
Field content is illegal → transaction rejected with error code 303.
Field content is missing → transaction rejected with error code 304.

Comments:

5.1.40. RangeEnd

Usage: The end range about to be created or modified. Used in conjunction with RangeStart.

Example: Range=39664999
Range=39664000
Range=371213999999

Type: String

Length: 17 or 25 characters

Value(s): One fully qualified telephone number. The first digit shall be in the range '2'.. '9'. The remaining digits shall be '0'.. '9'.

Validation: Field missing → transaction rejected with error code 301.
Field content is illegal → transaction rejected with error code 303.
Field content is missing → transaction rejected with error code 304.

Comments:

5.1.41. RangeUpdateType

Usage: Indicates the type of update that has to be performed.

Example: RangeUpdateType=I

Type: String

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Length: 1 character
Value(s): 'I' | 'U' | 'D' ('I' = Insert, 'U' = Update, 'D' = Delete)
Validation: Field missing → transaction rejected with error code 301.
Field content is illegal → transaction rejected with error code 303.
Field content is missing → transaction rejected with error code 304.
Comments: 'I' = Insert, 'U' = Update, 'D' = Delete.

5.1.42. RecipientNetworkOperator

Usage: Identification of the Recipient Network Operator
Example: RecipientNetworkOperator=01001
Type: String
Length: 5 characters
Value(s): Operator prefix with leading '0'
Validation: Field missing → transaction rejected with error code 301.
Field content is illegal → transaction rejected with error code 303.
Field content is missing → transaction rejected with error code 304.
Comments: This field is used to indicate who will be the network operator when the porting is completed.

5.1.43. RecipientServiceOperator

Usage: Identification of the Recipient Service Operator
Example: RecipientServiceOperator=01001
RecipientServiceOperator=00123
Type: String
Length: 5 characters
Value(s): Operator prefix with leading '0'.
Validation: Field missing → transaction rejected with error code 301.
Field content is illegal → transaction rejected with error code 303.
Field content is missing → transaction rejected with error code 304.
Comments: This field is used to indicate who will have the customer relationship when the porting is completed.

5.1.44. Reject

Usage: The returned reject from the Donor Operator.
Example: RejectCode=382
RejectText=String
Type: Integer
Length: RejectCode: 3 characters
RejectText: max 255 characters
Validation: None
Comments: Returns information about the cause of rejection of the NP Create by the Donor Operator, including the blocking Work Order Number at the Donor Operator.
Any supplementary information shall be appended to this value.
The RejectCode and corresponding RejectText are defined in 7.6. Error Codes.

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5.1.45. RequestedExecutionDate

Usage: The date that the recipient operator wants the porting to take place.
Example: RequestedExecutionDate=20000721
Type: String (CCYYMMDD)
Length: 8 characters
Value(s):
Validation: Field content is illegal → transaction rejected with error code 303.
Field content is missing → transaction rejected with error code 304.
Comments: If the field is present the number must be ported at that date or within 24 hours
If the field is absent it means as soon as possible by the ending of any commitment at donor operator. The donor operator will respond with the ConfirmedExecutionDate, which may differ from the RequestedExecutionDate.

5.1.46. RequestedExecutionTime

Usage: Information about the requested execution time.
Example: ConfirmedExecutionTime=1234
Type: String (HHMM)
Length: 4 characters
Value(s):
Validation: Field content is illegal → transaction rejected with error code 303.
Field content is missing → transaction rejected with error code 304.
Comments: This field is relevant when porting fixed numbers due to planning and execution of the physical porting.

5.1.47. RoutingInfo

Usage: Information required for routing a call to this number.
Example: RoutingInfo=4347/371213
Type: Numeric
Length: Maximum 12 characters
Value(s):
Validation: Semicolon missing → transaction rejected with error code 300.
Field missing → transaction rejected with error code 301.
Field content is missing → transaction rejected with error code 304.
Field content is too long → transaction rejected with error code 307.
Comments: When a number is ported, it will be placed at a given switch, which holds a different number range. The contents of this field will hold the routing information for the number range normally placed at the switch.
A written agreement about the interpretation of the field value shall exist between the operators, before the value is used.

The default value is '00000000/000000000000'.

For 8 digit ranges the RI/CI code must be at least 4 digits and for 12 digit ranges the RI/CI code must be at least 6 digits

When this field is used in a <NP Update> from the OCH System as a result of a <NP Return>, the contents of the field shall be the value of the Range Holder from the Range Record.

See PortingCase section for information about 70/80 and 90 numbers.

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5.1.48. Series

Usage: Is used to describe number series being ported. Series is an object type contained in the "series" list in Transaction.

Example: series[index 0]=Series(start =43539990, end=43539999)
series[index 1]=Series(start =43539990, end=43539991)

series[index 0]=Series(start=370043539990, end=370043539990)
series[index 1]=Series(start=370043539992, end=370043539992)

Type: Alphanumeric
Length: 17 or 25 characters
Value(s): Two fully qualified telephone numbers, separated by a dash i.e. the first digit shall be in the range '2' .. '9'. The remaining digits shall be '0' .. '9'.
Validation: Field missing → transaction rejected with error code 301.
Field content is illegal → transaction rejected with error code 303.
Duplicate series → transaction rejected with error code 308.
If the total amount of numbers in a series exceeds the allowed maximum (10000) → transaction rejected with error 618.
Comments: This is used when porting number type II, or sending NP Change for more than one telephone number.

5.1.49. SPC

Usage: Signalling Point Code
Example: SPC=29724
Type: String
Length: Minimum 2 characters, maximum 6 characters
Value(s): '00' .. '316383'
Validation: Field missing → transaction rejected with error code 301.
Field content is illegal → transaction rejected with error code 303.
Field content is missing → transaction rejected with error code 304.
Comments: The SPC is the Signalling Point Code issued by the NTA. The SPC is 16 bits long, divided into a 2 bit Network Identifier followed by a 14 bit Point Code. The Network Identifier is interpreted as follows:
0 – Switch in international network
1 – Reserved
2 – Switch in national network
3 – Switch in national network
The 14 bits in the Point Code is interpreted as a decimal number between 0 and 16383.
SPC code is normally written as 2-9724, but is here written without the dash ('-').
SPC '00' indicates that no SPC is available and is used as default.
When this field is used in a <NP Update> from the OCH System as a result of a <NP Return>, the contents of the field shall be the value of the Range Holder from the Range Record.
See PortingCase section for information about 70/80 and 90 numbers.

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5.1.50. TelephoneNumber

Usage: Telephone number or main number for a type II number series.
Example: TelephoneNumber=53434219/371213141516
Type: String
Length: 8 or 12 characters
Value(s): Fully qualified telephone number i.e. the first digit shall be in the range '2' .. '9'. The remaining digits shall be '0' .. '9'.
Validation: Field missing → transaction rejected with error code 301.
Field content is illegal → transaction rejected with error code 303.
Field content is missing → transaction rejected with error code 304.
Comments: The number shall either be a type I number or the main number in a type II number series.
When NP Update Complete is used to respond to

- NP Range Update the field TelephoneNumber shall have the first telephone number in the field Range.

5.1.51. TransactionType

Usage: The transaction message type.
Example: TransactionType=001
Type: Numeric with leading '0'
Length: 3 characters
Value(s): '001', '002' | '004' .. '010' | '012' | '014' | '017' .. '019'
Validation: Field missing → transaction rejected with error code 301.
Field content is illegal → transaction rejected with error code 303.
Field content is missing → transaction rejected with error code 304.
Comments:

Transaction types

'001' NP Create
'002' NP OCH Resp
'004' NP Conf
'005' NP Error
'006' NP Reject
'007' NP Cancel
'008' NP Compl
'009' NP Update
'010' NP Upd Compl
'012' NP Return
'014' NP Range Update
'017' NP Change
'018' NP Porting Request
'019' NP Porting Response

5.1.52. UniqueID

Usage: Unique identification issued by the OCH System to identify each transaction in the flow.
Example: UniqueID=1023
Type: String

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Length: Minimum 1 character, maximum 12 characters.
Value(s): '1' .. '999999999999'
Validation: Field missing → transaction rejected with error code 301.
Field content is illegal → transaction rejected with error code 303.
Field content is missing → transaction rejected with error code 304.
Comments: UniqueID is used by the OCH System to match responses to a previously sent message. Therefore the ICH shall use the UniqueID value of the message being responded to.

6. Error Handling

6.1. General Information

The OCH System is per definition un-manned and automatic. The OCH System is the only entity that can send a <NP Error> when an error is detected.

To prevent loop in an error situation a message must never be sent back, before the message is changed or the error is found.

Errors found in SOAPTransactions before PONS shall cause the flow to be terminated. If errors are found in the fields after PONS, the errors have to be corrected and the transaction sent back.

Validation shall be performed by the OCH System and by the operators.

7. Error checking

7.1. Definitions

7.1.1. Semantic errors

Errors detected when the relation between the contents of one or more fields in one transaction is violated.

7.1.2. Errors found after database lookup (afstemningskontrol)

Errors detected after the content of a field has been checked against a Customer Care and Billing database, or the contents has been checked against the number and transaction/flow database.

Errors in this category can be one of the following (not complete list):

- message out of flow sequence.
- rejection causes.
- number does not exist at the Operator

7.1.3. Error handling at the OCH System

SOAP Transaction with

Syntax Error: Send a NP Error to the Operator that sent the transaction. Rules on Point of No Stop shall be obeyed.

Semantic Error: Send a NP Error to the Operator that sent the transaction. Rules on Point of No Stop shall be obeyed.

Error found after database lookup: Send a NP Error to the Operator that sent the transaction. Rules of Point of No Stop shall be obeyed.

The recommended sequence of checking for errors is as follows:

First, all syntax checks are performed. When syntax checking is complete and any errors are found, then further checking and processing is abandoned.

Second, all semantic checks are performed in any order. When semantic checking is complete and any errors are found, then further checking and processing is abandoned.

Third, all DB-Lookup checks are performed in any order. When all DB-Lookup checking is complete and any errors are found, then further processing is abandoned.

7.1.4. Error handling at the ICH (Operator)

SOAP Transaction with

Syntax Error: No NP Error is sent to the OCH System, but the Operator shall inform the OCH A/S (via phone, fax or email) immediately that a syntax error has been detected.

Semantic Error: No NP Error is sent to the OCH System, but the Operator shall inform the OCH A/S (via phone, fax or email) immediately that a semantic error has been detected.

Error found after database lookup: If the error is created by the OCH System or forwarded due to incomplete checking by the OCH System, the Operator shall inform the OCH A/S (via phone, fax or email) immediately that a data error has been detected.

7.2. General information

When error checking the following rules applies:

1. The left side of the equal sign shall be written as stated in 4.1. Message types and Fields on page 37.
2. The right side of the equal sign is case insensitive.

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3. Numbers may be with or without leading zeroes, it is the numeric value of the number that is important.

7.3. Error checking on Fields

Please refer to the validation for each of the fields. Fields that are optional shall only be validated if the field is present.

7.4. Error checking on Messages

Syntax checking is done on all present fields in the message in the OCH System and in the ICH.

7.4.1. NP Create

NP Create	In OCH		In ICH	
	Semantic	DB Lookup	Semantic	DB Lookup
TelephoneNumber		2) 9) 15) 33) 34)		9) 18) 19) 20) 22) 24) 25) 28) 29) 30)
OCHOrderNumber				
UniqueID				
OriginatingOrderNumber		17)		
CurrentServiceOperator		3)		
RecipientServiceOperator		4)		
RecipientNetworkOperator		5) 12)		
CurrentNumberType		14)		
RequestedExecutionDate				
RequestedExecutionTime				
CustomerID				9)
ICC				30), 32)
PointOfConnection				
Series (1 - n Times)	10) 15)	33) 35)		11)
Comment (1 - n Times)				

- 2) The TelephoneNumber must be within a range in the number database. If not, then the message is flagged with error code 306.
The TelephoneNumber must be tied to the CurrentServiceOperator. If not, then the message is flagged with error code 333.
The TelephoneNumber must not be present in another active flow. If not, then the message is flagged with error code 309.
The TelephoneNumber must be of the type indicated in the CurrentNumberType. If not, then the message is flagged with error code 334.
- 3) The CurrentServiceOperator shall be the valid Operator ID registered in the Number Database. If not, then the message is flagged with error code 314.
- 4) The RecipientServiceOperator shall be a valid Operator ID. If not, then the message is flagged with error code 314.
- 5) The RecipientNetworkOperator shall be a valid Network Operator ID. If not, then the message is flagged with error code 316.

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- 9) The CustomerID shall have a reference to the TelephoneNumber. If not, then the message is flagged with a reject code 339.
If the Donor Service Operator does not have a direct connection to the OCH System, but has loaded a table of corresponding TelephoneNumbers and CustomerID's, the OCH System will validate the TelephoneNumber against the table and submit an NP Reject code 339 if the validation fails.
- 10) The value of the first Telephone Number shall be less than or equal to the value of the second Telephone Number. If not, then the message is flagged with error code 328.
- 11) The telephone number configuration shall match Donors registration. If not, then the message is flagged with a reject code 330.
- 12) The RecipientNetworkOperator shall be the sender of the message. If not, then the message is flagged with error code 372.

- 14) The CurrentNumberType shall be of the same type as registered in the Number Database. If not, then the message is flagged with error code 334.

- 15) The TelephoneNumber and all numbers in the Series fields must be of same NumberType. If not, the message is flagged with error code 385.
The TelephoneNumber and all numbers in the Series fields must be tied to the same CurrentServiceOperator. If not, the message is flagged with error code 386.
The TelephoneNumber and all numbers in the Series fields must be tied to the same CurrentNetworkOperator. If not, the message is flagged with error code 387.

- 17) The OriginatingOrderNumber must not already exist in an active flow. Otherwise the message is flagged with error code 324. This validation is not performed.
- 18) If TelephoneNumber not located at donor operator, then send reject code 338.
- 19) If TelephoneNumber not in use at donor operator, then sends reject code 349.
- 20) If pending change of TelephoneNumber, then donor sends reject code 351.

- 22) If pending change of customer, then donor sends reject code 353.
- 24) If customer subscribes to protection code, then donor sends reject code 355.
- 25) If donor operator is the customer, then send reject code 356.
- 28) If the written termination should be used for validation of the porting and it is not received according to agreement specified in Rules & procedures, then send reject code 376.
- 29) If the claimant of the porting is not the subscriber of the TelephoneNumber, then send reject code 380.
- 30) If ICC number does not match TelephoneNumber, then send reject code 382.

- 32) ICC is mandatory for PrePaid mobile numbers. When omitted for a Prepaid mobile number, the donor may reject the porting with rejection code 382.
- 33) The telephoneNumber within one porting request must be of the same length
Error code 400
- 34) If the operator is blocked in the OCH system, then a NP Create is flagged with an error 614.
- 35) If the total amount of numbers exceeds the allowed maximum (100.000) then error 617 occurs

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7.4.2. NP OCH Order Number Response

NP OCH Order Number Response	In OCH	
	Semantic	DB Lookup
TelephoneNumber		
OCHOrderNumber		
UniqueID		
OriginatingOrderNumber		
Comment (1 - n Times)		

7.4.3. NP Error/Reject

NP Reject	In OCH		In ICH	
	Semantic	DB Lookup	Semantic	DB Lookup
TelephoneNumber		1)		
OCHOrderNumber		2) 7)		
UniqueID		3) 7)		
OriginatingOrderNumber		4)		
OtherOperator		5)		
Error/RejectCode (1 - n Times)		6)		
Error/RejectText (1 - n Times)				
Comment (1 - n Times)				

- 1) The TelephoneNumber must be part of the flow corresponding to the OCHOrderNumber. If not, then the message is flagged with error code 319.
- 2) The OCHOrderNumber must be part of the flow corresponding to the TelephoneNumber. If not, then the message is flagged with error code 319.
- 3) The UniqueID must match the UniqueID of the preceding/initiating <NP create>. If not, then the message is flagged with error code 326.
- 4) The OriginatingOrderNumber must be part of the flow corresponding to the TelephoneNumber. If not, then message is flagged with error code 323.
- 5) The OtherOperator shall be a valid Operator ID. If not, then the message is flagged with error code 314.
The RejectCode shall be marked as a Reject in section 7.5. If not, then the message is flagged with error code 388.
- 6) The OCHOrderNumber must match the UniqueID and visa versa. If not, then the message is flagged with error code 320.

7.4.4. NP Confirmation

NP Confirmation	In OCH		In ICH	
	Semantic	DB Lookup	Semantic	DB Lookup
TelephoneNumber		1)		
OCHOrderNumber		2) 13) 14)		
UniqueID		3) 13)		
OriginatingOrderNumber		4)		

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NP Confirmation	In OCH		In ICH	
	Semantic	DB Lookup	Semantic	DB Lookup
CurrentServiceOperator		11)		
CurrentNetworkOperator		12)		
CurrentNumberType				
ConfirmedExecutionDate	5)	6)		
ConfirmedExecutionTime				
ConfirmationStatus		10)		
DirectoryInfo				
Series	9)	8)		
Comment (1 - n Times)				

- 1) The TelephoneNumber must be part of the flow corresponding to the OCHOrderNumber. If not, then the message is flagged with error code 319.
- 2) The OCHOrderNumber must be part of the flow corresponding to the TelephoneNumber. If not, then the message is flagged with error code 319.
- 3) The UniqueID must match the UniqueID of the preceding/initiating <NP create>. If not, then the message is flagged with error code 326.
- 4) The OriginatingOrderNumber must be part of the flow corresponding to the TelephoneNumber. If not, then message is flagged with error code 323.
- 5) The ConfirmedExecutionDate shall be greater than or equal to Today. If not, then message is flagged with error code 363.
- 6) The ConfirmedExecutionDate in the <NP Confirmation> shall be greater than or equal to RequestedExecutionDate from the matching <NP Create>. If not, then message is flagged with error code 366.
The ConfirmedExecutionDate shall be less than any previous ConfirmedExecutionDate. If not, then message is flagged with error code 389.
- 8) The Series (if present) shall be identical to the Series in the matching <NP Create>. If not, then message is flagged with error code 367.
- 9) The value of the first Telephone Number shall be less than or equal to the value of the second Telephone Number. If not, then the message is flagged with error code 328.
- 10) If the ConfirmedExecutionDate is different from the RequestedExecutionDate in the <NP Create>, then ConfirmationStatus shall be present. If not, then the message is flagged with error code 364.
- 11) The CurrentServiceOperator shall be a valid Operator ID and equal to the content of the field RecipientServiceOperator received in the preceding NP Create. If not, then the message is flagged with error code 314.
- 12) The CurrentNetworkOperator shall be a valid Network Operator ID and equal to the content of the field RecipientNetworkOperator received in the preceding NP Create. If not, then the message is flagged with error code 316.
- 13) The OCHOrderNumber must match the UniqueID and visa versa. If not, then the message is flagged with error code 320.
- 14) If an NP Confirmation does not match an NP Create, then OCH send error code 340.

7.4.5. NP Completion

NP Completion	In OCH	
	Semantic	DB Lookup
TelephoneNumber		1)
OCHOrderNumber		2) 17)
UniqueID		3) 17)
OriginatingOrderNumber		
RecipientServiceOperator		6)

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NP Completion	In OCH	
	Semantic	DB Lookup
RecipientNetworkOperator		7) 18)
PortingCase	16)	23) 24) 25) 26)
SPC	20) 21)	8) 13) 18) 23) 24)
Municipality	16) 21)	9) 18) 23) 24)
RoutingInfo	19)	10) 18) 25) 26) 27) 28) 29)
ChargingInfo	19) 20) 22)	11) 18) 25) 26) 27) 28) 30)
NewNumberType	22)	
NumberPorted		14) 15)
Series (1 - n Times)	12)	5)
Comment (1 - n Times)		

If the NP Completion is received before the date (and only the date) that has been confirmed for this flow, the message is flagged with error code 384.

- 1) The TelephoneNumber must be part of the flow corresponding to the OCHOrderNumber. If not, then the message is flagged with error code 319.
- 2) The OCHOrderNumber must be part of the flow corresponding to the TelephoneNumber. If not, then the message is flagged with error code 319.
- 3) The UniqueID must match the UniqueID of the preceding/initiating <NP create>. If not, then the message is flagged with error code 326.
- 5) The Series (if present) shall be identical to the Series in the matching <NP Create>. If not, then message is flagged with error code 367.
- 6) The RecipientServiceOperator shall be a valid Operator ID and equal to the content of the field RecipientServiceOperator received in the preceding NP Create. If not, then the message is flagged with error code 314.
- 7) The RecipientNetworkOperator shall be a valid Network Operator ID and equal to the content of the field RecipientNetworkOperator received in the preceding NP Create. If not, then the message is flagged with error code 316.
- 8) The SPC shall be present in the Number Database in the Range Part. If not, then the message is flagged with error code 329.
- 9) The Municipality shall be present in the Number Database in the Range Part. If not, then the message is flagged with error code 368.
- 10) The RoutingInfo shall be present in the Number Database in the Range Part for the RecipientNetworkOperator. If not, then the message is flagged with error code 370.
- 11) The ChargingInfo shall be present in the Number Database in the Range Part for the RecipientNetworkOperator. If not, then the message is flagged with error code 369.
- 12) The value of the first Telephone Number shall be less than or equal to the value of the second Telephone Number. If not, then the message is flagged with error code 328.
- 13) The SPC shall be assigned to the RecipientNetworkOperator. If not, then the message is flagged with error code 331.
- 14) If the NumberPorted='Y' then at least one of the values of RecipientServiceOperator, RecipientNetworkOperator, SPC, Municipality, RoutingInfo, ChargingInfo or NewNumberType shall be different from the Range information in Number Database. If not, then the message is flagged with error code 365.

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- 15) If the NumberPorted='N' then all of the values of RecipientServiceOperator, RecipientNetworkOperator, SPC, Municipality, RoutingInfo, ChargingInfo and NewNumberType shall be equal to the Range information in Number Database. If not, then the message is flagged with error code 371.
- 16) If PortingCase = 'PortedWithGeo' then Municipality shall be different from '000', and SPC shall be different from '00' If not, then the message is flagged with error code 303 on the offending field or fields.
If PortingCase = 'PortedNonGeo' then RoutingInfo and ChargingInfo shall be different from the default values. If not, then the message is flagged with error code 303 on the offending field or fields.
- 17) The OCHOrderNumber must match the UniqueID and visa versa. If not, then the message is flagged with error code 320.
- 18) If the combination of RecipientNetworkOperator, SPC, Municipality, RoutingInfo and ChargingInfo does not exist in the Range Part of the Number Database, then OCH sends error code 373.
- 19) ChargingInfo and RoutingInfo must either both have default-value or both differ from default-value.
If not, then the message is flagged with error code 390.
- 20) Either ChargingInfo or SPC must be default-value. Only one of the fields must be default-value.
If not, then the message is flagged with error code 390.
- 21) SPC and Municipality must either both have default-value or both differ from default-value.
If not, then the message is flagged with error code 390.
- 22) If NewNumberType is GSM, then ChargingInfo must not be default-value.
If not, then the message is flagged with error code 391.
- 23) If SPC and Municipality are not default-values and equal to the range, then PortingCase must be 'Nonported'. If not, then the message is flagged with error code 393.
- 24) If SPC and Municipality are not default-values and at least one of the two is different from the range, then PortingCase must be 'PortedWithGeo'.
If not, then the message is flagged with error code 393.
- 25) If RoutingInfo and ChargingInfo are not default-values but equal to the range, then PortingCase must be 'Nonported'. If not, then the message is flagged with error code 392.
- 26) If RoutingInfo and ChargingInfo is not null and at least one of the two is different from the range, then PortingCase must be 'PortedNonGeo'.
If not, then the message is flagged with error code 392.
- 27) If the telephonenumber is 8-digits then only a RI/CI allocated to a range with 8-digits can be used. If not, then the message is flagged with error code 613
- 28)
- 29) If the telephonenumber is 12-digits then only a RI/CI allocated to a range with 12-digits can be used. If not, then the message is flagged with error code 613
- 30) If using a routing info code that is not officially approved through OCH online the error 615 occur.
If using a charging code that is not officially approved through OCH online the error 616 occur

If an NP Completion does not match an NP Create, then OCH send error code 341.

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If an NP Completion does not match an NP Confirmation, then OCH send error code 342.
If duplicate NP Completions are received, then OCH send error code 343.

7.4.6. NP Update

NP Update	In OCH	
	Semantic	DB Lookup
TelephoneNumber		
OCHOrderNumber		
UniqueID		
OriginatingOrderNumber		
CurrentServiceOperator		
CurrentNetworkOperator		
PortingCase		
SPC		
Municipality		
RoutingInfo		
ChargingInfo		
CurrentNumberType		
NumberPorted		
Series (1 - n Times)		
Comment (1 - n Times)		

7.4.7. NP Update complete

NP Update Complete	In OCH		In ICH	
	Semantic	DB Lookup	Semantic	DB Lookup
TelephoneNumber		1)		
OCHOrderNumber		2) 7) 8)		
UniqueID		3) 7)		
OriginatingOrderNumber		4)		
OtherOperator		5) 6)		
Comment (1 - n Times)				

- 1) The TelephoneNumber must be part of the flow corresponding to the OCHOrderNumber. If not, then the message is flagged with error code 319.

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- 2) The OCHOrderNumber must be part of the flow corresponding to the TelephoneNumber. If not, then the message is flagged with error code 319.
- 3) The UniqueID must match the UniqueID of the preceding/initiating <NP Update>. If not, then the message is flagged with error code 326.
- 4) The OriginatingOrderNumber must be part of the flow corresponding to the TelephoneNumber. If not, then message is flagged with error code 323.
- 5) The OtherOperator shall be a valid Operator ID. If not, then the message is flagged with error code 314.
- 6) The value of OtherOperator shall be equal to the SenderID in the header. If not, then the message is flagged with error code 321.
- 7) The OCHOrderNumber must match the UniqueID and visa versa. If not, then the message is flagged with error code 320.
- 8) If an NP Update Complete does not match an NP Update, then OCH send error code 344.

7.4.8. NP Cancel

NP Cancel	In OCH		In ICH	
	Semantic	DB Lookup	Semantic	DB Lookup
TelephoneNumber		1) 5)		
OCHOrderNumber		2) 5) 6)		
UniqueID		3) 6)		
OriginatingOrderNumber		4)		
Comment (1 - n Times)				

- 1) The TelephoneNumber must be part of the flow corresponding to the OCHOrderNumber. If not, then the message is flagged with error code 319.
- 2) The OCHOrderNumber must be part of the flow corresponding to the TelephoneNumber. If not, then the message is flagged with error code 319.
- 3) The UniqueID must match the UniqueID of the preceding/initiating <NP create>. If not, then the message is flagged with error code 326.
- 4) The OriginatingOrderNumber must be part of the flow corresponding to the TelephoneNumber. If not, then message is flagged with error code 323.
- 5) The SenderID of the transaction, as specified in the [Header], shall be the Recipient Operator for the flow. If not, then the message is flagged with error code 375.
- 6) The OCHOrderNumber must match the UniqueID and visa versa. If not, then the message is flagged with error code 320.

7.4.9. NP Change

NP Change	In OCH	
	Semantic	DB Lookup
TelephoneNumber		1)
OriginatingOrderNumber		15)
CurrentServiceOperator		5) 27)
CurrentNetworkOperator		4) 27)
RecipientServiceOperator		3)
PortingCase	20)	21) 22) 23) 24)

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NP Change	In OCH	
	Semantic	DB Lookup
SPC	17) 18) 20)	6) 11) 14) 21) 22)
Municipality	18) 20)	7) 14) 21) 22)
RoutingInfo	16) 20)	8) 14) 23) 24) 25) 26) 28)
ChargingInfo	16) 17) 19) 20)	9) 14) 23) 24) 25) 26) 29)
NewNumberType	19)	14)
NumberPorted		12) 13)
Series (1 - n Times)	2) 10)	30)
Comment (1 - n Times)		

- 1) The TelephoneNumber must be within a range in the number database. If not, then the message is flagged with error code 306.
The TelephoneNumber must be tied to the CurrentServiceOperator. If not, then the message is flagged with error code 333.
The TelephoneNumber must not be present in another active flow. If not, then the message is flagged with error code 309.
- 3) The RecipientServiceOperator shall be a valid Operator ID. If not, then the message is flagged with error code 314.
- 4) The CurrentNetworkOperator shall be a valid Network Operator ID. If not, then the message is flagged with error code 316.
- 5) The CurrentServiceOperator shall be a valid Operator ID. If not, then the message is flagged with error code 314.
- 6) The SPC shall be present in the Number Database. If not, then message is flagged with error code 329
- 7) The Municipality shall be present in the Number Database. If not, then message is flagged with error code 368
- 8) The RoutingInfo shall be present in the Number Database for the Current Network Operator. If not, then message is flagged with error code 370
- 9) The ChargingInfo shall be present in the Number Database for the Current Network Operator. If not, then message is flagged with error code 369
- 10) The value of the first Telephone Number shall be less than or equal to the value of the second Telephone Number. If not, then the message is flagged with error code 328
- 11) The SPC shall be assigned to CurrentNetworkOperator. If not, then the message is flagged with error code 331
- 12) If the NumberPorted='Y' then at least one of the values of RecipientServiceOperator, CurrentNetworkOperator, SPC, Municipality, RoutingInfo, ChargingInfo or NewNumberType from the transaction, supplemented with field values from any current porting information for fields not supplied with the transaction shall be different from the Range information in Number Database. If not, then the message is flagged with error code 365
- 13) If the NumberPorted='N' then the values of RecipientServiceOperator, CurrentNetworkOperator, SPC, Municipality, RoutingInfo, ChargingInfo and NewNumberType shall be equal to the Range information in Number Database. If not, then the message is flagged with error code 371.
- 14) Only the Network Operator can change these fields.

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- 15) The OriginatingOrderNumber must not already exist in an active flow. Otherwise the message is flagged with error code 324.
- 16) ChargingInfo and RoutingInfo must either both have default-value or both differ from default-value.
If not, then the message is flagged with error code 390.
- 17) Either ChargingInfo or SPC must be default-value. Only one of the fields must be default-value.
If not, then the message is flagged with error code 390.
- 18) SPC and Municipality must either both have default-value or both differ from default-value.
If not, then the message is flagged with error code 390.
- 19) If NewNumberType is GSM, then ChargingInfo must not be default-value.
If default-value, then the message is flagged with error code 391.
- 20) If PortingCase = 'PortedWithGeo' then Municipality shall be different from '000', and SPC shall be different from '00' If not, then the message is flagged with error code 303 on the offending field or fields.
If PortingCase = 'PortedNonGeo' then RoutingInfo and ChargingInfo shall be different from the default values. If not, then the message is flagged with error code 303 on the offending field or fields.
- 21) If SPC and Municipality are not default-values and equal to the range, then PortingCase must be 'Nonported'. If not, then the message is flagged with error code 393.
- 22) If SPC and Municipality are not default-values and at least one of the two is different from the range, then PortingCase must be 'PortedWithGeo'.
If not, then the message is flagged with error code 393.
- 23) If RoutingInfo and ChargingInfo are not default-values but equal to the range, then PortingCase must be 'Nonported'. If not, then the message is flagged with error code 392.
- 24) If RoutingInfo and ChargingInfo is not null and at least one of the two is different from the range, then PortingCase must be 'PortedNonGeo'.
If not, then the message is flagged with error code 392.
- 25) If the telephonenumber is 8-digits then only a RI/CI allocated to a range with 8-digits can be used. If not, then the message is flagged with error code 613
- 26) If the telephonenumber is 12-digits then only a RI/CI allocated to a range with 12-digits can be used. If not, then the message is flagged with error code 613
- 27) If the operator is blocked in the OCH system, then a NP Change is flagged with an error 614.
- 28) If using a routing info code that is not officially approved through OCH online the error 615 occur.
- 29) If using a charging code that is not officially approved through OCH online the error 616 occur
- 30) If the total amount of numbers exceeds the allowed maximum (100.000) then error 617 occurs

7.4.10. NP Return

NP Return	In OCH	
	Semantic	DB Lookup
TelephoneNumber		1) 4)
OriginatingOrderNumber		5)
Series (1 - n Times)	3) 6)	4)

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NP Return	In OCH	
	Semantic	DB Lookup
Comment (1 - n Times)		

- 1) The TelephoneNumber must be within a range in the number database. If not, then the message is flagged with error code 306.
The TelephoneNumber must be tied to the SenderID (Lookup in the number database in the field Current Service Operator or Current Network Operator or LUBO). If not, then the message is flagged with error code 332.
The TelephoneNumber must not be present in another active flow. If not, then the message is flagged with error code 309.
- 3) The value of the first Telephone Number shall be less than or equal to the value of the second Telephone Number. If not, then the message is flagged with error code 328
- 4) The Telephone Number(s) being returned shall have the SenderID registered in the portability part of the Number Database as CurrentServiceOperator or CurrentNetworkOperator or LUBO. If not, the message is flagged with error code 333.
- 5) The OriginatingOrderNumber must not already exist in an active flow. Otherwise the message is flagged with error code 324.
- 6) Type 2 transactions must be returned to the main numbers range, Otherwise the message is flagged with error code 620. This validation is only performed in Type 2 transactions.

7.4.11. NP Range Update

NP Range Update	In OCH		In ICH	
	Semantic	DB Lookup	Semantic	DB Lookup
OCHOrderNumber				
UniqueID				
OriginatingOrderNumber		13)		
RangeUpdateType		18)		
Range	10)	1) 2) 5) 12) 18)		
CurrentRangeHolder		3)		
CurrentServiceOperator		3)		
CurrentNetworkOperator		4)		
PortingCase		11)		
OtherOperator		5) 19)		
SPC	15) 16)	6)		
Municipality	16)	7)		
RoutingInfo	14)	8) 18) 20)		
ChargingInfo	14) 15) 17)	9) 18) 21)		
NewNumberType	17)			
Comment (1 - n Times)				

- 1) If RangeUpdateType = 'D' or 'U' then the Range shall be present in the Number Database. If not, then the message is flagged with error code 327.
- 2) If RangeUpdateType = 'I' then the Range shall not be present in the Number Database. Otherwise the message is flagged with error code 346.
- 3) The CurrentRangeHolder and CurrentServiceOperator shall be a valid Operator ID. If not, then the message is flagged with error code 314.
- 4) The CurrentNetworkOperator shall be a valid Network Operator ID. If not, then the message is flagged with error code 316.
- 5) If RangeUpdateType = 'D' or 'U' then the OtherOperator shall be Range Holder, or

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NetworkOperator or LUBO-operator for the specified range. If not, then the message is flagged with error code 347.

The value of OtherOperator shall be equal to the SenderID in the header. If not, then the message is flagged with error code 321.

- 6) If RangeUpdateType = 'D' then the SPC shall be present in the Number Database for the given Range. If not, then the message is flagged with error code 329
- 7) If RangeUpdateType = 'D' then the Municipality shall be present in the Number Database for the given Range. If not, then the message is flagged with error code 368
- 8) If RangeUpdateType = 'D' then the RoutingInfo shall be present in the Number Database for the given Range. If not, then the message is flagged with error code 370
- 9) If RangeUpdateType = 'D' then the ChargingInfo shall be present in the Number Database for the given Range. If not, then the message is flagged with error code 369
- 10) The value of the first Telephone Number shall be less than or equal to the value of the second Telephone Number. If not, then the message is flagged with error code 328
- 11) The value of the field PortingCase shall always be 'NonPorted'. If not, then the message is flagged with error code 303.
- 12) If RangeUpdateType = 'D' and there is ported numbers in the Range, then the message is flagged with error code 379.
- 13) The OriginatingOrderNumber must not already exist in an active flow. Otherwise the message is flagged with error code 324. This validation is not performed.
- 14) ChargingInfo and RoutingInfo must either both have default-value or both differ from default-value.
If not, then the message is flagged with error code 390.
- 15) Either ChargingInfo or SPC must be default-value. Only one of the fields must be default-value.
If not, then the message is flagged with error code 390.
- 16) SPC and Municipality must either both have default-value or both differ from default-value.
If not, then the message is flagged with error code 390.
- 17) If NewNumberType is GSM, then ChargingInfo must not be default-value.
If default-value, then the message is flagged with error code 391.
- 18) If RangeUpdateType = 'I' or RangeUpdateType = 'U' and the wanted RI/CI - code is already in use then the length of the telephonenumber in the two ranges must be the same. If not, then the message is flagged with error code 613
- 19) If the operator is blocked in the OCH system, then a NP Range Update is flagged with an error 614.
- 20) If using a routing info code that is not officially approved through OCH online the error 615 occur.
- 21) If using a charging code that is not officially approved through OCH online the error 616 occur

7.4.12. NP Porting Request

NP Porting Request	In OCH		In ICH	
	Semantic	DB Lookup	Semantic	DB Lookup
TelephoneNumber		2)		
OCHOrderNumber				
UniqueID				
OriginatingOrderNumber		14)		
PortingType				
CurrentServiceOperator		3)		
CurrentNetworkOperator		6)		
RecipientServiceOperator		4) 11) 13)		
RecipientNetworkOperator		5)		
RequestedExecutionDate	7)			

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NP Porting Request	In OCH		In ICH	
	Semantic	DB Lookup	Semantic	DB Lookup
RequestedExecutionTime				
RoutingInfo		8)		
ChargingInfo		9)		
CurrentNumberType				
NewNumberType				
ICC		16)		
CustomerID				
CustomerFirstName				15)
CustomerLastName				15)
CustomerStreetName				15)
CustomerStreetNumber				15)
CustomerStaircase				15)
CustomerFloor				15)
CustomerRightLeftDoor				15)
CustomerLocationName				15)
CustomerHouseName				15)
CustomerPostalCode				15)
CustomerCity				15)
Series (1 - n Times)	12)			
Comment (1 - n Times)				

- 2) The TelephoneNumber must be within a range in the number database. If not, then the message is flagged with error code 306.
The TelephoneNumber must be tied to the CurrentServiceOperator. If not, then the message is flagged with error code 333.
The TelephoneNumber must not be present in another active flow. If not, then the message is flagged with error code 309.
The TelephoneNumber must be of the type indicated in the CurrentNumberType. If not, then the message is flagged with error code 334.
- 3) The CurrentServiceOperator shall be a valid Operator ID. If not, then the message is flagged with error code 314.
- 4) The RecipientServiceOperator shall be a valid Operator ID. If not, then the message is flagged with error code 314.
- 5) The RecipientNetworkOperator shall be a valid Network Operator ID. If not, then the message is flagged with error code 316.
- 6) The CurrentNetworkOperator shall be a valid Network Operator ID. If not, then the message is flagged with error code 316.
- 7) The RequestedExecutionDate shall be equal to or greater than today. If not, then the message is flagged with error code 363
- 8) The RoutingInfo shall be present in the Number Database for the given RecipientNetworkOperator. If not, then message is flagged with error code 370
- 9) The ChargingInfo shall be present in the Number Database for the given RecipientServiceOperator. If not, then message is flagged with error code 369
- 10) The OCHOrderNumber must not already exist. If not, then the message is flagged with error code 313.
- 11) The RecipientServiceOperator shall be a valid Operator ID. If not, then the message is flagged with error code 314
- 12) The value of the first Telephone Number shall be less than or equal to the value of the second Telephone Number. If not, then the message is flagged with error code 328
- 13) The RecipientServiceOperator shall be equal to the sender of the message. If not, then

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the message is flagged with error code 372

- 14) The OriginatingOrderNumber must not already exist in an active flow. Otherwise the message is flagged with error code 324.
- 15) If customer address does not match donors information, then send reject code 350.
- 16) ICC is mandatory for PrePaid mobile numbers.

7.4.13. NP Porting Response

NP Porting Response	In OCH		In ICH	
	Semantic	DB Lookup	Semantic	DB Lookup
TelephoneNumber		1)		
OCHOrderNumber		2) 4)		
UniqueID		3) 4)		
OriginatingOrderNumber		1)		
Comment (1 - n Times)				

- 1) There must be an active flow with this particular telephone number and Originating Order Number. If not, then the message is flagged with error code 335.
- 2) The OCHOrderNumber shall exist. If not, then the message is flagged with error code 313.
- 3) The UniqueID shall match the UniqueID in the preceding <NP OCH Order Number Response>. If not, then message is flagged with error code 326
- 4) The OCHOrderNumber must match the UniqueID and visa versa. If not, then the message is flagged with error code 320.

7.5. Error and Reject Codes

Error codes 100 – 299 are reserved for Carrier Pre Select.

Error or reject codes 500 – 699 are reserved for OCH System. The OCH A/S shall inform the users of the OCH System of any and all changes to the codes.

Codes marked with "Reject" are referred as reject codes. Other codes are referred as error codes.

Reject codes listed below are added to the list due to the result of the Industry Agreement regarding Number Portability made by the Telecommunication Industries Association in Denmark. These reject codes reflect the rejection reasons other than technical or administrative and shall be used as described for each reject code. Reject codes may be changed and/or the use of the reject codes modified by the Industry and/or bilaterally by the parties having entered into a Number Portability Agreement.

Other codes are error codes that are the result of a rule violation. Rules are understood as the validation of the syntax, the semantics or database controls as described in chapter 7. Error checking.

Code Description

301	Field is missing.
302	Field is present more than once.
303	Field content is illegal.
304	Field content is missing.
306	The telephone number is not within a range in the number database.
307	Field content is too long.
309	The TelephoneNumber is present in another active flow.
310	MessageCount value does not match number of messages.
313	OCHOrderNumber is in use in another flow.
314	Operator ID does not exist.
316	Network Operator ID does not specify a network operator
318	OCHOrderNumber is not in an active flow.
319	The telephone number is not part of the flow corresponding to the OCHOrderNumber.
320	OCHOrderNumber and UniqueID do not match.
321	OtherOperator does not match SenderID.
323	OriginatingOrderNumber changed during the flow.
324	OriginatingOrderNumber is in use in another active flow.
325	SeriesCount does not match number of Series.

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Code	Description	
326	The UniqueID does not match the UniqueID in the preceding transaction from OCH System.	
327	OCH System has detected a <NP Range Update> with type Update or type Delete for a range that is not present in the database.	
328	The second telephone number is less than the first telephone number.	
329	SPC is not known	
330	The number type II configuration does not match donor's registration.	Reject
331	SPC is not assigned to this network operator.	
332	SenderID and TelephoneNumber do not match	
333	CurrentServiceOperator and TelephoneNumber do not match	
334	NumberType and TelephoneNumber do not match	
335	<NP OCH Order Number Response> does not match the initial transaction sent by the operator.	
336	SenderID and OperatorID do not match.	
337	Recipient Operator/Range Holder receives a duplicate <NP OCH Order Number Response>	
338	Telephone number not located at donor operator	Reject
339	The Customer ID does not match the telephone number	Reject
340	<NP Confirmation> does not match a <NP Create> - no <NP Create> found	
341	<NP Completion> does not match a <NP Create> - no <NP Create> found.	
342	<NP Completion> does not match a <NP Confirmation> - no <No Confirmation> found	
343	Duplicate <NP Completion> received	
344	OCH System can not match the <NP Update Complete> with a <NP Update>	
345	Current Operator / Recipient Operator / Range Holder can not match the <NP Update Complete> with a <NP Completion>, <NP Change>, <NP Return>, <NP Range Update>	
346	OCH System has detected a <NP Range Update> with type Insert for a range that already exists, even if only in part.	
347	OCH System has detected a <NP Range Update> with type Update or type Delete for a range that does not belong to the sender	
348	Internal porting in progress to [MO], due date [DDMMYYYY].	
349	The telephone number is not in use at the donor operator	Reject
350	The FIXED telephone number address is undefined.	Reject
351	Rejected due to pending change of telephone number	Reject
352	The telephone has a pending reactivate order	Reject

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Code	Description	
353	Rejected due to pending change of customer	Reject
355	The customer rejects porting	Reject <i>"Et fåtal af kunder har for at imødegå chikane blokeret deres kundeforhold for enhver form for bestilling, der ikke er positivt autoriseret (ofte via et kodeord) af kunden selv".</i>
356	Rejected, donor operator is the customer	Reject
363	The date is before today.	
364	ConfirmationStatus shall have a contents	
365	When the NumberPorted='Y' then at least one of the values of RecipientServiceOperator, CurrentNetworkOperator, SPC, Municipality, RoutingInfo, ChargingInfo or NewNumberType shall be different from the Range information in Number Database.	
366	ConfirmedExecutionDate can not be earlier than RequestedExecutionDate.	
367	Series must match Series in preceding (e.g. <NP Create>) transaction.	
368	Municipality is not known	
369	ChargingInfo is not known	
370	RoutingInfo is not known	
371	When the NumberPorted='N' then all of the values of RecipientServiceOperator, CurrentNetworkOperator, SPC, Municipality, RoutingInfo, ChargingInfo and NewNumberType shall be equal to the Range information in Number Database.	
372	The RecipientOperator is not equal to the sender of the transaction.	
373	The combination RecipientNetworkOperator, SPC, Municipality, RoutingInfo and ChargingInfo does not exist in the Range Part of the Number Database.	
374	The field must not be present.	
375	The Sender of the transaction is not RecipientServiceOperator	
376	Written termination not received by Donor within timeframe.	Reject
378	Network Operator rejects porting Request. Contact Network Operator for reason.	Reject
379	Range has ported numbers	
380	Wrong name and CVR number	Reject
382	ICC number does not match telephone number.	Reject

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Code	Description	Reject
383	Illegal CVR number used in written termination.	
384	NP Completion sent before Confirmed Execution Date.	
385	All involved telephone numbers must be of same number type.	
386	All involved telephone numbers must have same Service Operator.	
387	All involved telephone numbers must have same Network Operator	
388	Reject Code not valid according to section 7.6	
389	New Confirmed Execution Date must be less than previous Confirmed Execution Date.	
390	The combination of ChargingInfo, RoutingInfo, SPC and Municipality is not valid	
391	The combination of NewNumberType and ChargingInfo is not valid	
392	PortingCase does not match the combination of ChargingInfo, RoutingInfo and Range information in the Number Database.	
393	PortingCase does not match the combination of SPC, Municipality and Range information in the Number Database.	
397	Customer_id do not mach AO customer_id	
398	AO do not accept customer_id validation	
399	Number and Customer_id can not be validated	
400	Series does not have same length as main number	
501	No header record found	
502	SenderAddress unknown	
503	SenderId unknown	
504	SenderID does not match address	
506	ReceiverID unknown	
507	ReceiverID does not match address	
508	TelephoneNumber is not ported, hence NumberPorted is not a valid option	
510	This porting or change flow has already been completed!	
511	Number of records does not match	
522	Protocol Error:	
523	Security Error:	
524	Bad transaction file. Record identifier out of order	
527	TransactionCode not valid:	
537	No trailer record	
547	RangeStart is greater than RangeEnd	
550	Unable to delete range as ported telephone numbers are contained in this range	
551	Current service operator is not owner of series. Series cannot be returned	
558	The order has been cancelled	
562	Illegal UniqueId - Transaction can not be a reply to transaction specified by UniqueId	
564	Update already completed	
570	Sessionlayer passed:	

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Code Description

- 571 The specified service operator is not current service operator on the specified number (series)
- 572 The specified network operator is not current network operator on the specified number (series)
- 573 SenderId does not match the specified current network operator
- 582 The telephone number is not ported
- 583 An order with this OCH order number does not exist
- 584 The order is error flagged
- 585 The order has been completed
- 589 No pending terminate order found
- 590 Too many transactions in message file
- 591 TransactionType is not found after [Message]
- 592 Section received out of order
- 593 TransactionGroup not found after [Header]
- 594 Illegal use of AL_STATE
- 595 Illegal use of TL_STATE
- 596 Validation Error:
- 597 Sessionlayer Internal Error:
- 598 Transaction layer Internal Error:
- 599 Action layer Internal Error:
- 600 Transaction format not recognized
- 601 Field should have occurred once but is either missing or occurred multiple times
- 602 Field is not supposed to be present
- 603 Specified field is not a part of this transaction:
- 604 [NPReject] does not match a [NPCreate]
- 605 [NPCancel] does not match a [NPOCHOrderResponse]
- 606 [NPCancel] does not match a [NPConfirmation]
- 607 RecipientServiceOperator does not match RecipientServiceOperator in [NPCreate]
- 608 RecipientNetworkOperator does not match RecipientNetworkOperator in [NPCreate]
- 609 One or more telephonenumber in the series has no range informations within the number database;
- 613 Chosen RI/CI belong to a range with different number length
- 614 The recipient service operator is blocked from sending this type of transaction
- 615 The routing info is not officially approved
- 616 The charging info is not officially approved
- 617 The total amount of numbers exceeds the allowed maximum
- 618 The total amount of numbers in a series exceeds the allowed maximum
- 619 Series Count can not exceed 99
- 620 NP Return type II does not support number return to ranges with non-identical routing information

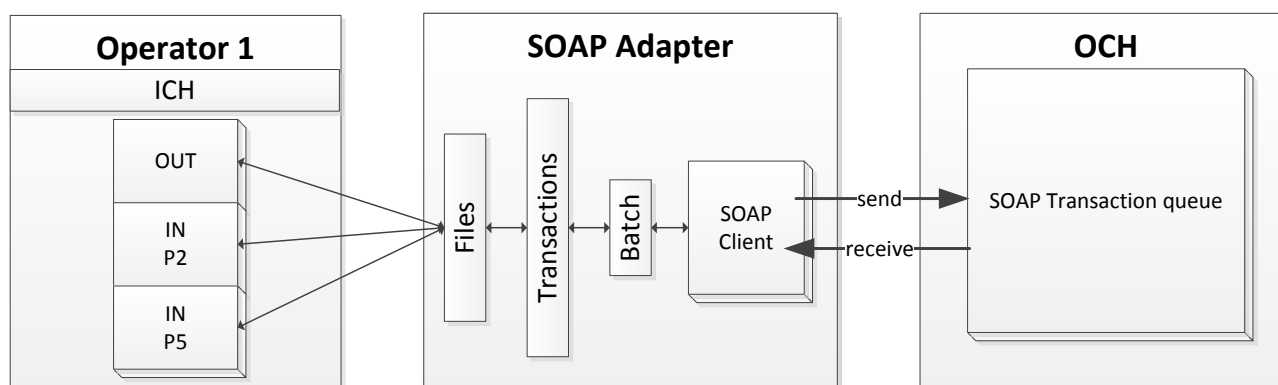
8. Appendixes

8.1. Old legacy communication

The material listed in the legacy appendixes is only relevant for operators which uses the SOAP Adapter and are not using the SOAP Transport service directly.

Legacy transactions contains a few fields specific to the file format. These are documented in the following sections. Other fields documented in section 6.1 are also relevant for transaction files, how these fields are formatted for transaction file usage is explained in the EBNF specification.

The SOAP Adapter will transform outgoing files to SOAP Transactions and batches to OCH, and SOAP Batches and transactions from OCH is also transformed to files.



The SOAP Adapter will process transactions files and wrap them in batches, if an outgoing file contains 500 transactions, a batch send sent to OCH with 500 transactions, similar, if the transaction file contains only 1 transaction, a batch with 1 transaction is sent to OCH.

If the transaction file contains syntax errors which makes the mapping to a SOAP Transaction impossible, the transaction is places in an "error box" directory. It shall be the operators responsibility to monitor the error box and rectify malformed transactions.

All fields in a transaction message must be written in the correct order on the output side of the OCH System, as described under each transaction in 4.1. Message types and Fields on page 37. This requirement does not apply to the input side of the OCH System.

8.2. EBNF specification

The EBNF Specification defines the complete grammar for transaction files, refer to this section when creating or parsing file based transactions.

+ indicates one or more occurrences.

* indicates zero or more occurrences.

```

Transfile      ::= header message+ trailer
Header         ::= headerhdr headerinfo
Headerhdr     ::= '[Header]' le
Headerinfo    ::= Transactiongroup priority senderid sentdate senttime
Transactiongroup ::= 'TransactionGroup=NumberPortability' fe
  
```

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```

Priority                ::=  'Priority=' {{ 'P2' } | { 'P5' }} fe
Senderid               ::=  'SenderID=' operid fe
Sentdate              ::=  'SentDate=' date fe
Senttime              ::=  'SentTime=' time fe
Trailer               ::=  Trailerhdr trailerinfo
Trailerhdr            ::=  '[Trailer]' le
Trailerinfo           ::=  Messagecount
Messagecount          ::=  'MessageCount=' longint1 fe
Message              ::=  Messagehdr messageinfo
Messagehdr            ::=  '[Message]' le
Messageinfo           ::=  NPCreate | NPOCHResp | NPError | NPReject | NPConf |
                          NPCompl | NPUpdate | NPUpdCompl | NPCancel | NPReturn |
                          NPChange | NPRangeUpd | NPPortReq | NPPortResp
NPSend                ::=  'TransactionType=001' fe
                          TelephoneNumber
                          { OCHOrderNumber | empty }
                          { UniqueID | empty }
                          OriginatingOrderNumber
                          { CurrentServiceOperator | empty }
                          RecipientServiceOperator
                          RecipientNetworkOperator
                          { CurrentNumberType | empty }
                          { RequestedExecutionDate | empty }
                          { RequestedExecutionTime | empty }
                          { CustomerID | empty }
                          { ICC | empty }
                          PointOfConnection
                          SeriesCount
                          Series*
                          Comment*
NPOCHResp              ::=  'TransactionType=002' fe
                          TelephoneNumber
                          OCHOrderNumber
                          UniqueID
                          OriginatingOrderNumber
                          Comment*
NPError                ::=  'TransactionType=005' fe
                          { TelephoneNumber | empty }
                          { OCHOrderNumber | empty }
                          { UniqueID | empty }
                          { OriginatingOrderNumber | empty }
                          ErrorCode+
                          ErrorText+
                          ErrorField+
                          Comment*
NPReject               ::=  'TransactionType=006' fe
                          TelephoneNumber
                          OCHOrderNumber
                          UniqueID
                          OriginatingOrderNumber
                          OtherOperator
                          RejectCode+
                          RejectText+
                          Comment*

```

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NPConf ::= `TransactionType=004' fe
TelephoneNumber
OCHOrderNumber
UniqueID
OriginatingOrderNumber
{ CurrentServiceOperator | empty }
{ CurrentNetworkOperator | empty }
{ CurrentNumberType | empty }
ConfirmedExecutionDate
{ ConfirmedExecutionTime | empty }
{ ConfirmationStatus | empty }
{ DirectoryInfo | empty }
SeriesCount
Series*
Comment*

NPCompl ::= `TransactionType=008' fe
TelephoneNumber
OCHOrderNumber
UniqueID
OriginatingOrderNumber
RecipientServiceOperator
RecipientNetworkOperator
PortingCase
SPC
Municipality
RoutingInfo
ChargingInfo
NewNumberType
NumberPorted
SeriesCount
Series*
Comment*

NPUpdate ::= `TransactionType=009' fe
TelephoneNumber
OCHOrderNumber
UniqueID
OriginatingOrderNumber
CurrentServiceOperator
CurrentNetworkOperator
CurrentNumberType
PortingCase
SPC
Municipality
RoutingInfo
ChargingInfo
NumberPorted
SeriesCount
Series*
Comment*

NPUpdCompl ::= `TransactionType=010' fe
TelephoneNumber
OCHOrderNumber
UniqueID
OriginatingOrderNumber
OtherOperator
Comment*

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```
NPCancel ::= `TransactionType=007' fe
          TelephoneNumber
          OCHOrderNumber
          UniqueID
          OriginatingOrderNumber
          Comment*

NPReturn ::= `TransactionType=012' fe
           TelephoneNumber
           OriginatingOrderNumber
           SeriesCount
           Series*
           Comment*

NPChange ::= `TransactionType=017' fe
            TelephoneNumber
            OriginatingOrderNumber
            { CurrentServiceOperator | empty }
            { CurrentNetworkOperator | empty }
            { RecipientServiceOperator | empty }
            { PortingCase | empty }
            { SPC | empty }
            { Municipality | empty }
            { RoutingInfo | empty }
            { ChargingInfo | empty }
            { NewNumberType | empty }
            NumberPorted
            SeriesCount
            Series*
            Comment*

NPRangeUpd ::= `TransactionType=014' fe
              { OCHOrderNumber | empty }
              { UniqueID | empty }
              OriginatingOrderNumber
              RangeUpdateType
              Range
              OtherOperator
              CurrentRangeHolder
              CurrentServiceOperator
              CurrentNetworkOperator
              PortingCase
              SPC
              Municipality
              RoutingInfo
              ChargingInfo
              NewNumberType
              Comment*
```


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```

NPPortReq ::= `TransactionType=018' fe
    TelephoneNumber
    { OCHOrderNumber | empty }
    { UniqueID | empty }
    OriginatingOrderNumber
    PortingType
    { CurrentServiceOperator | empty }
    { CurrentNetworkOperator | empty }
    RecipientServiceOperator
    RecipientNetworkOperator
    { CurrentNumberType | empty }
    { RequestedExecutionDate | empty }
    { RequestedExecutionTime | empty }
    { RoutingInfo | empty }
    { ChargingInfo | empty }
    NewNumberType
    { ICC | empty }
    { CustomerID | empty }
    { CustomerFirstName | empty }
    { CustomerLastName | empty }
    { CustomerStreetName | empty }
    { CustomerStreetNumber | empty }
    { CustomerStairCase | empty }
    { CustomerFloor | empty }
    { CustomerRightLeftDoor | empty }
    { CustomerLocationName | empty }
    { CustomerHouseName | empty }
    { CustomerPostalCode | empty }
    { CustomerCity | empty }
    SeriesCount
    Series*
    Comment*

NPPortResp ::= `TransactionType=019' fe
    TelephoneNumber
    OCHOrderNumber
    UniqueID
    OriginationOrderNumber
    Comment*

TransactionType ::= `TransactionType='
    { '001' /* NP Create */ */
    | '002' /* NP OCH Resp */ */
    | '004' /* NP Conf */ */
    | '005' /* NP Error */ */
    | '006' /* NP Reject */ */
    | '007' /* NP Cancel */ */
    | '008' /* NP Compl */ */
    | '009' /* NP Update */ */
    | '010' /* NP Upd Compl */ */
    | '012' /* NP Return */ */
    | '014' /* NP Range Update */ */
    | '017' /* NP Change */ */
    | '018' /* NP Porting Request */ */
    | '019' /* NP Porting Response */ */
    } fe

ChargingInfo ::= `ChargingInfo=' EquivNumber fe
Comment ::= `Comment[' ShortInt1 ']= ' string fe
ConfirmedExecutionDate ::= `ConfirmedExecutionDate=' Date fe
ConfirmedExecutionTime ::= `ConfirmedExecutionTime=' Time fe
ConfirmationStatus ::= `ConfirmationStatus=' ShortInt1 fe
CurrentNetworkOperator ::= `CurrentNetworkOperator=' operid fe
CurrentNumberType ::= `CurrentNumberType=' { 'FIXED' | 'GSM' }
CurrentRangeHolder ::= `CurrentRangeHolder=' operid fe

```

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```

CurrentServiceOperator ::= `CurrentServiceOperator=' operid fe
CustomerCity           ::= `CustomerCity=' string fe
CustomerFirstName     ::= `CustomerFirstName=' string fe
CustomerFloor         ::= `CustomerFloor=' string fe
CustomerHouseName    ::= `CustomerHouseName=' string fe
CustomerID            ::= `CustomerID=' string fe
CustomerLastName      ::= `CustomerLastName=' string fe
CustomerLocationName ::= `CustomerLocationName=' string fe
CustomerPostalCode   ::= `CustomerPostalCode=' string fe
CustomerRightLeftDoor ::= `CustomerRightLeftDoor=' string fe
CustomerStairCase    ::= `CustomerStairCase=' string fe
CustomerStreetName   ::= `CustomerStreetName=' string fe
CustomerStreetNumber ::= `CustomerStreetNumber=' string fe
DirectoryInfo        ::= `DirectoryInfo=' ShortInt1 fe
ErrorCode             ::= `ErrorCode[' ShortInt1 ']= ShortInt1 fe
ErrorField           ::= `ErrorField[' ShortInt1 ']= string fe
ErrorText            ::= `ErrorText[' ShortInt1 ']= string fe
ICC                  ::= `ICC=' String fe
RejectCode           ::= `RejectCode[' ShortInt1 ']= ShortInt1 fe
RejectText          ::= `RejectText[' ShortInt1 ']= string fe
Municipality         ::= `Municipality=' ShortInt0 fe
NewNumberType        ::= `NewNumberType=' { `FIXED' | `GSM' }
NumberPorted         ::= `NumberPorted=' { `Y' | `N' }
OCHOrderNumber       ::= `OCHOrderNumber=' longint fe
OriginatingOrderNumber ::= `OriginatingOrderNumber=' operid longint fe
OtherOperator        ::= `OtherOperator=' operid fe
PointOfConnection   ::= `PointOfConnection=' { `RECIPIENT' | `DONOR' }
PortingCase          ::= `PortingCase=' { `NonPorted' | `PortedWithGeo' |
`PortedNonGeo' }
PortingType          ::= `PortingType=' { `Operator' | `Geographic' | `Function' }
Range                ::= `Range=' phoneno '-' phoneno fe
RangeUpdateType      ::=
8.3.           `RangeUpdateType=' { `I' | `U' | `D' }

RecipientNetworkOperator ::= `RecipientNetworkOperator=' operid fe
RecipientServiceOperator ::= `RecipientServiceOperator=' operid fe
RequestedExecutionDate  ::= `RequestedExecutionDate=' Date fe
RequestedExecutionTime  ::= `RequestedExecutionTime=' Time fe
RoutingInfo             ::= `RoutingInfo=' EquivNumber fe
Series                  ::= `Series[' ShortInt1 ']= phoneno '-' phoneno fe
SeriesCount             ::= `SeriesCount=' ShortInt0 fe
SPC                     ::= `SPC=' spccode fe
TelephoneNumber         ::= `TelephoneNumber=' phoneno fe
UniqueID                ::= `UniqueID=' { longint } fe
FileComment             ::= `#' string le

Phoneno                 ::= { 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 } digit digit digit digit
                        digit digit digit
Spccode                 ::= Networkindicator pointcode
NetworkIndicator        ::= 0 .. 3
PointCode               ::= 0 .. 16383
EquivNumber             ::= { { 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 } digit
                        { digit | empty } { digit | empty } { digit | empty }
                        { digit | empty } { digit | empty } { digit | empty } }
                        | `00000000'

ShortInt0               ::= 0 .. 999
ShortInt1               ::= 1 .. 999
LongInt                 ::= 1 .. 9999999999999
Date                   ::= year month day
Year                   ::= 1999 | 2000 | 2001 | 2002 | 2003 | 2004
Month                  ::= 01 .. 12
Day                    ::= 01 .. 31
Time                   ::= hour mins
Hour                   ::= 00 .. 23
Mins                   ::= 00 .. 59
Operid                 ::= noid | soid
Noid                    ::= 0 1 0 digit digit

```

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```
Soid ::= 0 0 digit digit digit
Fe ::= sc le
Sp ::= ` `
Cr ::= carriage return
Lf ::= line feed
Nl ::= newline
Le ::= { cr lf } | nl
Sc ::= `;'
Digit ::= 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9
Digits ::= digit+
Char ::= chr(32) .. chr(255) See section 8.1
String ::= char* | empty
Empty ::=
```

8.3.1. Validation and Error messages

Each transaction file shall contain

1. one and only one header (identified by the text `[Header]`)
2. one and only one trailer (identified by the text `[Trailer]`)
3. one or more messages (identified by the text `[Message]`)

Each [Header] shall contain

1. The field TransactionGroup shall be present and correct.
2. The field Priority shall be present and correct.
3. The field SenderID shall be present one and only one time and shall have the correctly formatted content.
4. The field SentDate shall be present one and only one time and shall have the correctly formatted content.
5. The field SentTime shall be present one and only one time and shall have the correctly formatted content.

Each [Trailer] shall contain

1. The field MessageCount shall be present and correct.

If there are errors found at the file level, then the entire file shall be rejected, and an error shall be reported. Errors found at [Message] level (i.e. between [Message] and the following [Message], or between [Message] and [Trailer]) shall cause the [Message] to be rejected.

Rejected files will be placed in the "errorbox" folder in the SOAP Adapter installation. It is the operators responsibility to monitor this folder and correct any transactions put there.

The following common validation rules applies to all file based transactions

- Field missing → the file is rejected by OCH with error code 301.
- Semicolon missing → the file is rejected by SOAP Adapter and placed in errorbox.
- Field content is illegal → the file is rejected by OCH with error code 303.
- Field content is missing → the file is rejected by OCH with error code 304.
- File Syntax error → the file is rejected by SOAP Adapter and placed in errorbox.

Once a transaction has been accepted by the SOAP Adapter and sent to OCH, the validation process begins, the validation is described in section **Fejl! Henvisningskilde ikke fundet.**

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8.3.2. Fields in the Header

8.3.2.1. [Header]

Usage: Signals the start of a Header section
Example: [Header]
Type: Fixed text
Length: n/a
Value(s): None
Validation: [Header] not present → the file is rejected by SOAP Adapter and placed in errorbox.
[Header] present more than once → the file is rejected by SOAP Adapter and placed in errorbox.

Comments:

```
Headerhdr ::= '[Header]' le
```

8.3.2.2. TransactionGroup

Usage: Indicates that this file contains transactions for number portability.
Example: TransactionGroup=NumberPortability;
Type: Fixed text
Length: 17
Value(s): NumberPortability
Validation:
Comments:

```
Transactiongroup ::= 'TransactionGroup=NumberPortability' fe
```

8.3.2.3. SenderID

Usage: Informs about the identification of the sender.
Example: SenderID=01011; (Network Operator)
SenderID=00123; (Service Operator)
SenderID=00000; (OCH System)
Type: Numeric
Length: 5 characters
Value(s): Agreed prefix code with leading zeroes.
Validation: SenderID is illegal → the file is rejected with error code 336.
Comments: When a transaction file is generated by the OCH System, the content of this field is '00000'.
When a transaction is generated by an Operator. This pseudoprefix is an agreed 5 digit unique number where the first two digits are '00'.
SenderID shall be equal to the CPS code given by OCH.

8.3.3. Fields in the Message

8.3.3.1. [Message]

Usage: Signals the start of a transaction message.
Example: [Message]
Type: Fixed text
Length: n/a
Value(s): None
Validation: [Message] not present → the file is rejected by SOAP Adapter and placed in errorbox.

Comments:

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8.3.3.2. Range

Usage: The start of range about to be created or modified. Used in conjunction with RangeEnd field.
Example: RangeStart=39664000-39664999;
Range=39664000-39664000;
Range=371213000000-371213999999;
Type: StringAlphanumeric
Length: 17 or 25 characters
Value(s): Two fully qualified telephone numbers, separated by a dash i.e. the first digit shall be in the range '2'..'9'. The remaining digits shall be '0'..'9'.

Comments:

8.3.3.3. SeriesCount

Usage: The count of number series entered in the transaction message.
Example: SeriesCount=1;
Type: Numeric
Length: Minimum 1 character, maximum 3 characters
Value(s): '0' .. '999'
Validation: If the field exceed 999 then a error 619 occur.
Comments: The field value is 0 if Series is empty. If Series is filled then SeriesCount shall be filled.

8.3.3.4. Comment

8.3.3.5. ErrorCode

Usage: The returned error code from OCH System.
Example: ErrorCode[1]=305;
Type: Numeric
Length: maximum 3 characters
Value(s): 300..999
Validation: Is not validated
Comments: Returns information about the errors that have been found.
The ErrorCode and corresponding ErrorText are defined in 7.6. Error Codes.
Error codes 500 – 699 are reserved for OCH System. The OCH A/S shall inform the users of the OCH System of any and all changes to the error codes.
Error codes 700 – 999 are reserved for future use.

8.3.3.6. ErrorField

Usage: The returned error field from OCH System.
Example: ErrorField[1]=at line 24: DirectoryInfo='Not Shown';
Type: Alphanumeric
Length: maximum 255 characters
Value(s):
Validation: Common file validation
Comments: Returns information about the position of the error and the entire offending line that has been found.

8.3.3.7. ErrorText

Usage: The returned error text from OCH System.
Example: ErrorText[1]=Illegal field value;
Type: Alphanumeric
Length: maximum 255 characters

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Value(s):
 Validation: Common file validation
 Comments: Returns information about the errors that have been found.
 The error text shall contain the values stated in 7.6. Error Codes. Any supplementary information shall be appended to this value.

8.3.3.8. FileComment `#`

Usage: Local comments in the transaction file.
 Example: # This is a comment
 Type:
 Length: 255 characters
 Value(s):
 Validation: No validation is performed. The information contained in the field is not transported across the OCH System.
 Comments: The FileComment is used for inserting local comments in a transaction file. These comments can be used to hold supplementary information about the transaction file for testing purposes, and other information that does not need to be transported across the OCH System.
 The FileComment can occur anywhere in a transaction file.

8.3.4. Fields in the Trailer

8.3.4.1. [Trailer]

Usage: Signals the start of the trailer section
 Example: [Trailer]
 Type: Fixed text
 Length: n/a
 Value(s): None

Comments:

8.3.4.2. MessageCount

Usage: Informs about the number of transaction messages in the file.
 Example: MessageCount=2;
 Type: Left aligned numeric
 Length: Maximum 4 characters
 Value(s): `1` .. `1000`
 Validation: Field content does not match with the number of messages in the transaction file → the file is rejected with error code 310.

Comments:

8.3.5. Field mapping to Messages

Since all transaction are passed through the OCH System the notation X/Y is used. X is the status of the field to the OCH System and Y is the status from the OCH System. Example: O/M means that the field is optional from the operator to the OCH System, but is mandatory from the OCH System to the operator.

	NP Create	NP OCH Resp	NP Error	NP Reject	NP Conf	NP Compl	NP Update	NP Upd Compl	NP Cancel	NP Return	NP Change	NP Range Upd	NP Port Req	NP Port Resp
TransactionType	001	002	005	006	004	008	009/ 0111	010	007	012	017	014/ 015	018	019

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ChargingInfo						M/	/M					O/	M/M	O/O	
Comment (1 – n Times)	O/O	/O	/O	O/O	O/O	O/	/O	O/O	O/O	O/	O/	O/O	O/O	O/O	
ConfirmedExecutionDate					M/M										
ConfirmedExecutionTime					O/O										
ConfirmationStatus					O/O										
CurrentNetworkOperator					/M		/M				O/	M/M	O/M		
CurrentNumberType	O/M				/M		/M							O/M	
CurrentRangeHolder												M/M			
CurrentServiceOperator	O/M				/M		/M				O/	M/M	O/M		
CustomerCity														O/O	
CustomerFirstName														O/O	
CustomerFloor														O/O	
CustomerHouseName														O/O	
CustomerID	O/O													O/O	
CustomerLastName														O/O	
CustomerLocationName														O/O	
CustomerPostalCode														O/O	
CustomerRightLeftDoor														O/O	
CustomerStaircase														O/O	
CustomerStreetName														O/O	
CustomerStreetNumber														O/O	
DirectoryInfo					O/O										
ErrorCode (1 – n Times)			/M												
ErrorField (1 – n Times)			/M												
ErrorText (1 – n Times)			/M												
ICC	O/O													O/O	
FileComment (1 – n Times)	O/			O/	O/	O/		O/	O/	O/	O/	O/	O/	O/	O/
Municipality						M/	/M				O/	M/M			
NewNumberType						M/					O/	M/M	M/M		
NumberPorted						M/	/M				M/				
OCHOrderNumber	/M	/M	/M	M/M	M/M	M/	/M	M/M	M/M			/M	/M	M/M	
OriginatingOrderNumber	M/M	/M	/M	M/M	M/M	M/	/M	M/M	M/M	M/	M/	M/M	M/M	M/M	
OtherOperator				M/M				M/M					M/M		
PointOfConnection	M/M														
PortingCase						M/	/M				O/	M/M			
PortingType														M/M	
Range													M/M		
RangeUpdateType													M/M		
RecipientNetworkOperator	M/M					M/								M/M	
RecipientServiceOperator	M/M					M/					O/			M/M	
RejectCode (1 – n Times)				M/M											
RejectText (1 – n Times)				M/M											
RequestedExecutionDate	O/O													O/O	
RequestedExecutionTime	O/O													O/O	
RoutingInfo						M/	/M				O/	M/M	O/O		
Series (1 – n Times)	O/O			O/O	O/	/O				O/	O/			O/O	
SeriesCount	M/M				M/M	M/	/M			M/	M/			M/M	
SPC						M/	/M				O/	M/M			
TelephoneNumber	M/M	/M	/M	M/M	M/M	M/	/M	M/M	M/M	M/	M/			M/M	M/M
TransactionType	M/M	/M	/M	M/M	M/M	M/	/M	M/M	M/M	M/M	M/			M/M	M/M
UniqueID	/M	/M	/M	M/M	M/M	M/	/M	M/M	M/M					/M	/M

8.4. Character set

The character set is ISO 8859-1 as specified below.

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0	■	32	64	@	96	`	128	■	160	192	à	224	à
1	■	33	!	65	A	97	a	129	■	161	í	225	á
2	■	34	"	66	B	98	b	130	˘	162	ê	226	â
3	■	35	#	67	C	99	c	131	f	163	ë	227	ã
4	■	36	\$	68	D	100	d	132	˘	164	ÿ	228	ä
5	■	37	%	69	E	101	e	133	...	165	¥	197	ÿ
6	■	38	&	70	F	102	f	134	†	166	!	198	æ
7	■	39	'	71	G	103	g	135	‡	167	§	199	ç
8	■	40	(	72	H	104	h	136	^	168	˘	200	è
9	■	41	)	73	I	105	i	137	‰	169	@	201	é
10	■	42	*	74	J	106	j	138	Š	170	æ	202	ê
11	■	43	+	75	K	107	k	139	<	171	«	203	ë
12	■	44	,	76	L	108	l	140	Œ	172	˘	204	ì
13	■	45	-	77	M	109	m	141	■	173	-	205	í
14	■	46	.	78	N	110	n	142	■	174	@	206	î
15	■	47	/	79	O	111	o	143	■	175	-	207	ï
16	■	48	0	80	P	112	p	144	■	176	°	208	ð
17	■	49	1	81	Q	113	q	145	‘	177	±	209	ñ
18	■	50	2	82	R	114	r	146	’	178	²	210	ò
19	■	51	3	83	S	115	s	147	“	179	³	211	ó
20	■	52	4	84	T	116	t	148	˘	180	´	212	ô
21	■	53	5	85	U	117	u	149	•	181	µ	213	õ
22	■	54	6	86	U	118	v	150	—	182	¶	214	ö
23	■	55	7	87	W	119	w	151	—	183	·	215	÷
24	■	56	8	88	X	120	x	152	~	184	,	216	ø
25	■	57	9	89	Y	121	y	153	™	185	˘	217	ù
26	■	58	:	90	Z	122	z	154	š	186	œ	218	ú
27	■	59	;	91	[	123	{	155	>	187	»	219	û
28	■	60	<	92	\	124	|	156	œ	188	¼	220	ü
29	■	61	=	93	]	125	}	157	■	189	½	221	ý
30	■	62	>	94	^	126	~	158	■	190	¾	222	þ
31	■	63	?	95	_	127	■	159	ÿ	191	¿	223	ÿ

■ Indicates that this character isn't supported by Windows.

† Indicates that this character is available only in TrueType fonts.

9. Requirements to the OCH System

9.1. Performance

The OCH system shall handle (read, process and reply) worst case, starting with an idle system:

- 10 message in less than 60 seconds
- 100 messages in less than 120 seconds
- 1000 messages in less than 300 seconds

where each message is located in a separate file.

9.2. Stability

Because the OCH system contains and maintains the master Number Database in Denmark, no number portability can take place if the OCH system is non-operational.

The OCH system shall be constructed in such a manner that data loss cannot happen.

The OCH system shall have an availability of 99,5% measured over a period of one year (365 days), with a time to repair / restore (single instance) of maximum 4 hours. Not included in this figure are scheduled and agreed service periods.

9.3. Collection of statistical information

The reports generated below shall be divided into a section concerning fixed numbers and a section concerning mobile numbers.

The description in this section is not complete, ref. 12.1. Additions and Enhancements under consideration.

9.3.1. Operators use of OCH System (Transaction charging)

The OCH system shall include the functionality required to ensure that the Operators can be charged for the usage of the OCH system.

The specification will be included in the design document.

9.3.2. Operators use of ported numbers where current operator is not Range Holder

The OCH system shall upon request provide information required for a Range Holder to invoice Operators that have ported the Range Holder's numbers into their networks.

The request contains

- time period
- Range Holder identification

The response contains

- time period
- Range Holder identification
- count of number-days, grouped by Operator identification

One number-day is defined as one telephone number ported for one day.

9.3.3. Donors Porting Fee

The OCH system shall upon request from an Operator provide information as described below.

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The request contains

- time period
- requesting operator identification

The response contains

- time period
- requesting operator identification
- count of all successful operator portings where requesting operator is donor, grouped by the recipient operator.

9.3.4. Other Reports

The OCH System shall keep count of the number of attempted portings, the number of successful portings, the number of failed portings including cause of failure.

The request contains

- time period
- requesting operator identification

The response contains

- time period
- requesting operator identification

- count (one for each other operator) of successful operator portings where requesting operator is donor, grouped by week number.
- count (one for each other operator) of failed operator portings due to error in the <NP Create> where requesting operator is donor, grouped by week number.
- count (one for each other operator) of failed operator portings due to <NP Reject> from donor where requesting operator is donor, grouped by week number.
- count (one for each other operator) of cancelled operator portings where requesting operator is donor, grouped by week number.

- counts (one for each other operator) of successful operator portings where requesting operator is recipient, grouped by week number.
- counts (one for each other operator) of failed operator portings due to error in the <NP Create> where requesting operator is recipient, grouped by week number.
- counts (one for each other operator) of failed operator portings due to <NP Reject> from donor where requesting operator is recipient, grouped by week number.
- counts (one for each other operator) of cancelled operator portings where requesting operator is recipient, grouped by week number.

- counts of <NP Update> sent by the OCH System and <NP Update Complete> received by the OCH System, grouped by week number. One for each operator, including the requesting operator.
- shortest, longest and average time between <NP Update> is sent by OCH System and <NP Update Complete> received by the OCH System, grouped by operator and week number as indicated by the Sent Date & Time on the <NP Update> message. As a result of this, the OCH System must register the received date and time on files from the Operators.

This information shall be used by Operators to validate the quality and performance of their ICH systems.

9.4. On-Line Query Forms

The description in this section is not complete, ref. 12.1. Additions and Enhancements under consideration.

9.4.1. Telephone Number Current Status

The request contains

- Telephone number or interval of numbers

The response contains for each telephone number

- Response date and time
- Telephone number or interval of numbers
- Starting date and time for information (Start Date & Time from DB)
- Range Holder
- Current Service Operator
- Current Network Operator
- Number Type
- SPC
- Municipality
- ChargingInfo
- RoutingInfo
- Current Porting Status (NumberPorted)
- Porting In Progress (No or OCH Order Number)
- Porting Case
- Part of Range (RangeStart and RangeEnd)

9.4.2. Telephone Number History

The request contains

- Telephone number

The response contains for each change in any of the fields in the Number Database

- Starting date and time for information (Start Date & Time from DB)
- Ending date and time for information (End Date & Time from DB)
- Telephone number
- Range Holder
- Current Service Operator
- Current Network Operator
- Number Type
- SPC
- Municipality
- ChargingInfo
- RoutingInfo
- Current Porting Status (NumberPorted)
- Porting Case
- Part of Range (RangeStart and RangeEnd)

9.4.3. Active Porting Status

The request contains

- Telephone number or OCH Order Number or Originating Order Number

The Telephone number must be the number in the field TelephoneNumber in the initial message.

The response contains

- Information Date and Time

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- Telephone number
- Originating Order Number
- Starting date and time for information (Start Date & Time from DB)
- Range Holder
- Current Service Operator
- Current Network Operator
- Number Type
- SPC
- Municipality
- ChargingInfo
- RoutingInfo
- Current Porting Status (NumberPorted)
- Porting In Progress (No or OCH Order Number)
- Porting Case
- Part of Range (RangeStart and RangeEnd)

- For each transaction in the porting flow:
 - Date and Time when transaction was sent or received by the OCH
 - Receiving or sending Operator Identification
 - Transaction contents

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9.5. Dump facility of the Number Database

9.5.1. Data dump format

```

DataDump          ::= Header Details Trailer
Header            ::= `[Header]' le
                  `CreationDateTime=' TimeStamp fe
Trailer           ::= `[Trailer] le
                  `DetailCount=' longint fe
Details           ::= `[Details]' le Detail+
Detail            ::= { Range | Porting } comma
                  { RangeHolder | empty } comma
                  NetworkOperator comma
                  ServiceOperator comma
                  FirstPhoneNumber comma
                  LastPhoneNumber comma
                  PortingCase comma
                  Municipality comma
                  SPC comma
                  NumberType comma
                  RoutingInfo comma
                  ChargingInfo comma
                  StartTimeStamp comma
                  { EndTimeStamp | empty } comma
                  LUBO fe
Range             ::= `R'
Porting           ::= `P'
RangeHolder       ::= operid
NetworkOperator   ::= operid
Service Operator  ::= operid
FirstPhoneNumber  ::= phoneno
LastPhoneNumber   ::= phoneno
PortingCase       ::= { `NonPorted' | `PortedWithGeo' | `PortedNonGeo' }
Municipality      ::= ShortInt0
SPC               ::= NetworkIndicator PointCode
NumberType        ::= { `FIXED' | `GSM' }
RoutingType       ::= EquivNumber
ChargingInfo      ::= EquivNumber
StartTimeStamp    ::= TimeStamp
EndTimeStamp      ::= TimeStamp
LUBO              ::= operid
TimeStamp         ::= year month day hour mins secs
Year              ::= 1999 | 2000 | 2001 | 2002 | 2003 | 2004
Month             ::= 01 .. 12
Day               ::= 01 .. 31
Hour              ::= 00 .. 23
Mins              ::= 00 .. 59
Secs              ::= 00 .. 59
                  ::=
Phoneno           ::= { 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 } digit digit digit digit
                  digit digit digit
Spc               ::= Networkindicator pointcode
NetworkIndicator  ::= 0 .. 3
PointCode         ::= 0 .. 16383
EquivNumber       ::= { { 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 } digit
                  { digit | empty } { digit | empty } { digit | empty }
                  { digit | empty } { digit | empty } { digit | empty } }
                  | `00000000'
                  ::=
ShortInt0         ::= 0 .. 999
LongInt           ::= 1 .. 999999999999
Operid            ::= noid | soid
Noid              ::= 0 1 0 digit digit
Soid              ::= 0 0 digit digit digit

```

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```
Fe ::= sc le
Sp ::= ` `
Cr ::= carriage return
Lf ::= line feed
NL ::= newline
Le ::= { cr lf } | nl
Sc ::= `/'
Comma ::= `,'
Digit ::= 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9
Digits ::= digit+
Char ::= chr(32) .. chr(255) See section 7.1
String ::= char* | empty
Empty ::=
```

9.5.2. Ordering and delivery

The database dump is ordered and delivered using the following procedure:

- The Operator submits a request to the OCH A/S via phone, mail or fax. The request shall specify if an entire database dump is required or only current information including range information. The request shall also specify the delivery method (CD-ROM, Email, Download via OCH Online).

9.6. System Documentation

9.6.1. Design document

This document shall be written by the software vendor and approved by the OCH A/S.

9.6.2. Test specification

This document shall be written based on the information in Rules & Procedures (APG26), this document (APG96) and the design document. The specification is written by the NPP and is approved by the NPA.

9.6.3. Test report

The test report is the documented result of the test, and is created by the NPP during the acceptance test.

9.6.4. Operations Manual

The software vendor shall in cooperation with the OCH A/S produce the operations manual. The OCH A/S shall approve the document.

The document shall as minimum contain:

- Daily operational procedures
- Installation documentation
- Troubleshooting information

9.6.5. User Manual

The software vendor shall in cooperation with the OCH A/S produce this document. The NPA shall approve the document.

This document shall as minimum contain:

- Technical procedure for establishing connection to the OCH System
- Description of on-line functionality
- Procedure for obtaining statistical information

9.7. Test Environment

A test environment shall be available for exclusive use during the acceptance test of phase 2.

When the acceptance test is completed this test environment can be used to test new operator's internal systems, before they are connected to the production system. The conditions for the use of the test environment are subject to separate negotiation.

10. Transaction Examples

10.1. NP Create – Examples

10.1.1. Single telephone number

```
Priority=5;  
TransactionType=001  
TelephoneNumber=39664111  
RecipientServiceOperator=01010  
RecipientNetworkOperator=01010  
CurrentNumberType=FIXED  
PointOfConnection=RECIPIENT
```

10.1.2. 100 numbers with main number inside the series

```
TransactionType=001  
TelephoneNumber=39664111  
RecipientServiceOperator=01010  
RecipientNetworkOperator=01010  
CurrentNumberType=FIXED  
PointOfConnection=RECIPIENT  
Series[index 0]=Series(start=39664100,end=39664199)
```

Result: All numbers in the range 39664000 – 39664099 and the main number are ported, i.e. a total of 100 numbers are ported.

10.1.3. 100 numbers with main number outside the series

```
TransactionType=001  
TelephoneNumber=39664111  
RecipientServiceOperator=01010  
RecipientNetworkOperator=01010  
CurrentNumberType=FIXED  
PointOfConnection=RECIPIENT  
SeriesCount=1  
Series[index 0]=Series(start=39664000,end=39664099)
```

Result: All numbers in the range 39664000 – 39664099 and the main number are ported, i.e. a total of 101 numbers are ported.

10.1.4. 8 numbers with main number inside the series

```
TransactionType=001  
TelephoneNumber=39664111  
RecipientServiceOperator=01010  
RecipientNetworkOperator=01010  
CurrentNumberType=FIXED  
PointOfConnection=RECIPIENT  
  
Series[index 0]=Series(start=39664110,end=39664111)  
Series[index 1]=Series(start=44688080,end=44688083)  
Series[index 2]=Series(start=39651212,end=39651213)  
Comment[index 0]=Comment(text=Porting 8 numbers with main number inside the series)
```

Result: All number in the Series list are ported, i.e. a total of 8 numbers are ported.

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10.1.5. 8 numbers with main number outside the series

TransactionType=001
TelephoneNumber=39664115
RecipientServiceOperator=01010
RecipientNetworkOperator=01010
CurrentNumberType=FIXED
PointOfConnection=RECIPIENT
Series[index 0]=Series(start=39664110,39664111)
Series[index 1]=Series(start=44688080,44688083)
Series[index 2]=Series(start=39651212,39651213)

Result: All numbers in the Series list and the TelephoneNumber are ported, i.e. a total of 9 numbers are ported.

10.2. Scenario

In this scenario two ranges are created, and one telephone number is ported from the first to second range. All messages involved are shown in the scenario. Only TDC, Orange, Telenor and Telia are in the scenarios.

Creation of TDC Range

TDC sends NP Range Upd to the OCH System:

TransactionType=014;
OriginatingOrderNumber=0101120000523000001;
RangeUpdateType=I;
RangeStart=33120000
RangeEnd=33129999
OtherOperator=01011
CurrentRangeHolder=01011
CurrentServiceOperator=01011
CurrentNetworkOperator=01011
PortingCase=NonPorted
SPC=213
Municipality=101
RoutingInfo=00000000
ChargingInfo=00000000
NewNumberType=FIXED

The OCH System sends NP OCH Resp to TDC:

TransactionType=002
TelephoneNumber=33120000
OCHOrderNumber=00000100000000000000
UniqueID=123
OriginatingOrderNumber=0101120000523000001

The OCH System sends NP Range Upd to Orange:

TransactionType=014
OCHOrderNumber=00000100000000000000
UniqueID=124
OriginatingOrderNumber=0101120000523000001
RangeUpdateType=I
RangeStart=33120000
RangeEnd=33129999
OtherOperator=01011
CurrentRangeHolder=01011
CurrentServiceOperator=01011
CurrentNetworkOperator=01011
PortingCase=NonPorted
SPC=213
Municipality=101
RoutingInfo=00000000
ChargingInfo=00000000

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NewNumberType=FIXED;

The OCH System sends NP Range Upd to Telenor:

TransactionType=014
OCHOrderNumber=00000100000000000000
UniqueID=125
OriginatingOrderNumber=0101120000523000001
RangeUpdateType=I
RangeStart=33120000
RangeEnd=33129999
OtherOperator=01011
CurrentRangeHolder=01011
CurrentServiceOperator=01011
CurrentNetworkOperator=01011
PortingCase=NonPorted
SPC=213
Municipality=101
RoutingInfo=00000000
ChargingInfo=00000000
NewNumberType=FIXED;

The OCH System sends NP Range Upd to Telia:

TransactionType=014
OCHOrderNumber=00000100000000000000
UniqueID=125
OriginatingOrderNumber=0101120000523000001
RangeUpdateType=I
RangeStart=33120000
RangeEnd=33129999
OtherOperator=01011
CurrentRangeHolder=01011
CurrentServiceOperator=01011
CurrentNetworkOperator=01011
PortingCase=NonPorted
SPC=213
Municipality=101
RoutingInfo=00000000
ChargingInfo=00000000
NewNumberType=FIXED;

Orange sends NP Upd Compl to the OCH System:

TransactionType=010;
TelephoneNumber=33120000
OCHOrderNumber=00000100000000000000
UniqueID=124OriginatingOrderNumber=0101120000523000001
OtherOperator=01026

The OCH System sends NP Upd Compl to TDC

TransactionType=010
TelephoneNumber=33120000
OCHOrderNumber=00000100000000000000
UniqueID=124
OriginatingOrderNumber=0101120000523000001
OtherOperator=01026

Telia sends NP Upd Compl to the OCH System:

TransactionType=010
TelephoneNumber=33120000
OCHOrderNumber=00000100000000000000
UniqueID=125
OriginatingOrderNumber=0101120000523000001
OtherOperator=01010

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The OCH System sends NP Upd Compl to TDC

```
TransactionType=010
TelephoneNumber=33120000
OCHOrderNumber=00000100000000000000
UniqueID=125
OriginatingOrderNumber=0101120000523000001
OtherOperator=01010
```

Telenor sends NP Upd Compl to the OCH System

```
TransactionType=010
TelephoneNumber=33120000
OCHOrderNumber=00000100000000000000
UniqueID=124
OriginatingOrderNumber=0101120000523000001
OtherOperator=01015
```

The OCH System sends NP Upd Compl to TDC

```
TransactionType=010
TelephoneNumber=33120000
OCHOrderNumber=00000100000000000000
UniqueID=124
OriginatingOrderNumber=0101120000523000001
OtherOperator=01015
```

10.3. Porting and splitting of series

The OCH system shall not validate whether existing series are being broken by subsequent porting flows.

The donor operators Customer Care Systems can only perform this validation.

In the example below it is shown how a number series is ported and subsequently split by another porting and only part of the original number series is returned to the Range Holder.

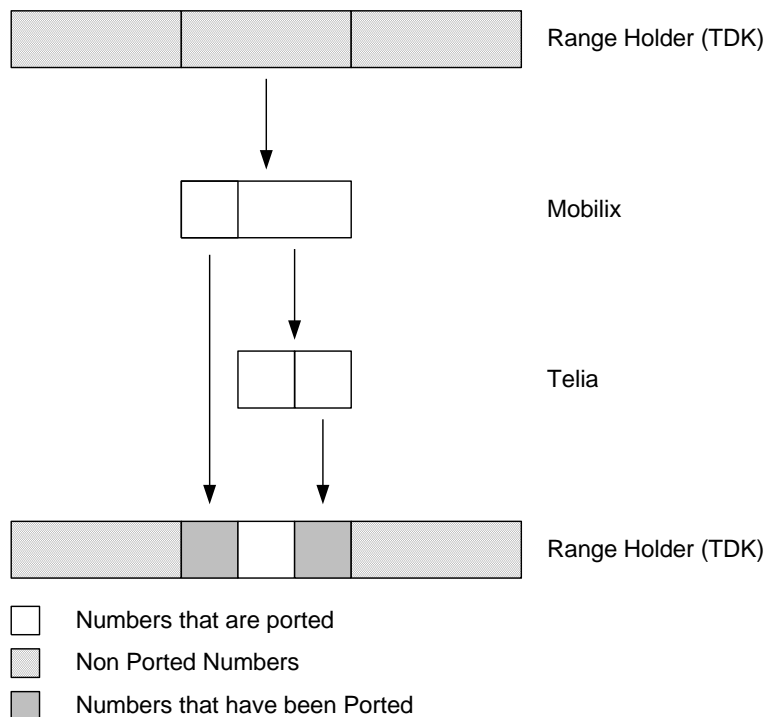


Figure 12 - Porting and splitting of series

10.4. Splitting and Merging of Ranges

When two consecutive ranges gets the same values for SPC, Municipality, RoutingInfo, ChargingInfo, NumberType, RangeHolder, NetworkOperator, ServiceOperator the two ranges shall be merged to one logical unit, which can be updated using one <NP Range Update>.

NP Range Update (Update) and NP Range Update (Delete) can be performed on a part of a range, it is not restricted to operate on an entire range. This rule is introduced to prevent restrictions in the operation of the telephone network.

Scenario to illustrate the rationale behind the introduction of this rule:

An Operator has a large switch controlling 100.000 telephone numbers (39700000 to 39799999), and wishes to move 20.000 (39780000 to 39799999) telephone numbers to a new switch with a difference signaling point code. There are ported numbers in the range about to be manipulated (e.g. 39710100-39710199). These ported numbers are not affected by the move. If the Updates and Deletes are not possible on a part of a range, then the Operator shall delete the entire range (all 100.000 numbers) in the OCH and then insert two new ranges (one of 80.000 numbers and one of 20.000 numbers).

However, it is not possible to delete ranges which have ported numbers (see validation rule 12 in section 7.5.11 of the Transaction document). This means that the range will be blocked for changes, which is not acceptable to the operators.

10.4.1. Case 1a: Updating part of a Range (middle) - split

The database content when this case is started is as follows:

	Range Start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	

A Range Update for the Range 39471100-39471199 is performed, where the SPC is set to 289.

Range: +-----+-----+-----+
Affected area: +---+

The resulting database content is as follows:

	Range Start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471000	39471099	01011	01011	01011	287	101	00000000	00000000	2001yy	
5	39471100	39471199	01011	01011	01011	289	101	00000000	00000000	2001yy	
6	39471200	39471999	01011	01011	01011	287	101	00000000	00000000	2001yy	

As can be seen the row 2 (39471000-39471999) has been closed (End Time set) and three new rows (rows 4, 5 and 6) has been inserted in the database.

10.4.2. Case 1b: Updating part of a Range (start) - split

The database content when this case is started is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	

A Range Update (Update) Range 39471000-39471099 is performed, where the SPC is set to 289.

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Range: +-----+-----+-----+
Affected area: +---+

The resulting database content is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471000	39471099	01011	01011	01011	289	101	00000000	00000000	2001yy	
5	39471100	39471999	01011	01011	01011	287	101	00000000	00000000	2001yy	

As can be seen the row 2 (39471000-39471999) has been closed (End Time set) and two new rows (rows 4 and 5) has been inserted in the database.

10.4.3. Case 1c: Updating part of a Range (end) - split

The database content when this case is started is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	

A Range Update (Update) for the Range 39471900-39471999 is performed, where the SPC is set to 289.

Range: +-----+-----+-----+
Affected area: +---+

The resulting database content is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471000	39471899	01011	01011	01011	287	101	00000000	00000000	2001yy	
5	39471900	39471999	01011	01011	01011	289	101	00000000	00000000	2001yy	

As can be seen the row 2 (39471000-39471999) has been closed (End Time set) and two new rows (rows 4 and 5) has been inserted in the database.

10.4.4. Case 1d: Updating part of a Range (across lower boundary) - error

The database content when this case is started is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	

A Range Update (Update) for the Range 39470100-39471199 is performed, where the SPC is set to 289.

Range: +-----+-----+-----+
Affected area: +---+

The resulting database content is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	

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This NP Range Update shall be rejected by the OCH, the internal clearing houses and any connected systems.

10.4.5. Case 1e: Updating part of a Range (across upper boundary) - error

The database content when this case is started is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	

A Range Update (Update) for the Range 39471100-39472199 is performed, where the SPC is set to 289.

Range: +-----+-----+-----+
Affected area: +---+

The resulting database content is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	

This NP Range Update shall be rejected by the OCH, the internal clearing houses and any connected systems.

10.4.6. Case 1f: Updating part of a Range (middle) - merge

The database content when this case is started is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471000	39471099	01011	01011	01011	287	101	00000000	00000000	2001yy	
5	39471100	39471199	01011	01011	01011	289	101	00000000	00000000	2001yy	
6	39471200	39471999	01011	01011	01011	287	101	00000000	00000000	2001yy	

A Range Update (Update) for the Range 39471100-39471199 is performed, where the SPC is set to 287.

Range: +-----+-----+-----+
Affected area: +---+

The resulting database content is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471000	39471099	01011	01011	01011	287	101	00000000	00000000	2001yy	2001zz
5	39471100	39471199	01011	01011	01011	289	101	00000000	00000000	2001yy	2001zz
6	39471200	39471999	01011	01011	01011	287	101	00000000	00000000	2001yy	2001zz
7	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001zz	

As can be seen the rows 4, 5 and 6 has been closed (End Time set) and one new row (row 7) has been inserted in the database. This row is identical to closed row 2, because a merge operation has been performed after row 5 has been 'updated'.

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10.4.7. Case 1g: Updating part of a Range (start) - merge

The database content when this case is started is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471000	39471099	01011	01011	01011	289	101	00000000	00000000	2001yy	
5	39471100	39471999	01011	01011	01011	287	101	00000000	00000000	2001yy	

A Range Update (Update) for the Range 39471000-39471099 is performed, where the SPC is set to 287.

Range: +-----+---+-----+-----+
Affected area: +---+

The resulting database content is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471000	39471099	01011	01011	01011	289	101	00000000	00000000	2001yy	2001zz
5	39471100	39471999	01011	01011	01011	287	101	00000000	00000000	2001yy	2001zz
6	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001zz	

As can be seen the rows 4 and 5 has been closed (End Time set) and one new row (row 6) has been inserted in the database. This row is identical to the closed row 2, because a merge operation has been performed after row 4 has been 'updated'.

10.4.8. Case 1h: Updating part of a Range (end) - merge

The database content when this case is started is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471000	39471899	01011	01011	01011	287	101	00000000	00000000	2001yy	
5	39471900	39471999	01011	01011	01011	289	101	00000000	00000000	2001yy	

A Range Update for the Range 39471900-39471999 is performed, where the SPC is set to 287.

Range: +-----+-----+---+-----+
Affected area: +---+

The resulting database content is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471000	39471899	01011	01011	01011	287	101	00000000	00000000	2001yy	2001zz
5	39471900	39471999	01011	01011	01011	289	101	00000000	00000000	2001yy	2001zz
6	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001zz	

As can be seen the rows 4 and 5 has been closed (End Time set) and one new row (row 6) has been inserted in the database. This row is identical to the closed row 2, because a merge operation has been performed after row 5 has been 'updated'.

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10.4.9. Case 2a: Deleting part of a Range (middle) - split

The database content when this case is started is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	

A Range Update (Delete) for the Range 39471100-39471199 is performed.

Range: +-----+-----+-----+
Affected area: +---+

The resulting database content is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471000	39471099	01011	01011	01011	287	101	00000000	00000000	2001yy	
5	39471200	39471999	01011	01011	01011	287	101	00000000	00000000	2001yy	

As can be seen the row 2 (39471000-39471999) has been closed (End Time set) and two new rows (rows 4 and 5) has been inserted in the database.

If there is any ported numbers in the range about to be deleted, then the deletion shall be aborted.

10.4.10. Case 2b: Deleting part of a Range (start) - split

The database content when this case is started is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	

A Range Update (Delete) for the Range 39471000-39471099 is performed.

Range: +-----+-----+-----+
Affected area: +---+

The resulting database content is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471100	39471999	01011	01011	01011	287	101	00000000	00000000	2001yy	

As can be seen the row 2 (39471000-39471999) has been closed (End Time set) and one new row (row 4) has been inserted in the database.

If there is any ported numbers in the range about to be deleted, then the deletion shall be aborted.

10.4.11. Case 2c: Deleting part of a Range (end) - split

The database content when this case is started is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	

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A Range Update (Delete) for the Range 39471900-39471999 is performed.

Range: +-----+-----+-----+
Affected area: +---+

The resulting database content is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471000	39471899	01011	01011	01011	287	101	00000000	00000000	2001yy	

As can be seen the row 2 (39471000-39471999) has been closed (End Time set) and one new row (rows 4) has been inserted in the database.

10.4.12. Case 2d: Deleting part of a Range (across lower boundary) - error

The database content when this case is started is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	

A Range Update (Delete) for the Range 39470100-39471199 is performed.

Range: +-----+-----+-----+
Affected area: +---+

The resulting database content is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	

This NP Range Update shall be rejected by the OCH, the internal clearing houses and any connected systems.

10.4.13. Case 2e: Deleting part of a Range (across upper boundary) - error

The database content when this case is started is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	

A Range Update (Delete) for the Range 39471100-39472199 is performed.

Range: +-----+-----+-----+
Affected area: +---+

The resulting database content is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	

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This NP Range Update shall be rejected by the OCH, the internal clearing houses and any connected systems.

10.4.14. Case 3a: Inserting part of a Range (middle) - merge

The database content when this case is started is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471000	39471099	01011	01011	01011	287	101	00000000	00000000	2001yy	
5	39471200	39471999	01011	01011	01011	287	101	00000000	00000000	2001yy	

A Range Update (Insert) for the Range 39471100-39471199 is performed, where the SPC is set to 287.

Range: +-----+--+ +---+-----+
Affected area: +---+

The resulting database content is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471000	39471099	01011	01011	01011	287	101	00000000	00000000	2001yy	2001zz
5	39471200	39471999	01011	01011	01011	287	101	00000000	00000000	2001yy	2001zz
6	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001zz	

As can be seen the rows 4 and 5 has been closed (End Time set) and one new row (row 6) has been inserted in the database.

If there is overlap in the Range about to be inserted with an existing range, the NP Range Update (Insert) shall be rejected by the OCH, the internal clearing houses and any connected systems.

10.4.15. Case 3b: Inserting part of a Range (start) - merge

The database content when this case is started is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471100	39471999	01011	01011	01011	287	101	00000000	00000000	2001yy	

A Range Update (Insert) for the Range 39471000-39471099 is performed, where the SPC is set to 287.

Range: +-----+ +-----+-----+
Affected area: +---+

The resulting database content is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471100	39471999	01011	01011	01011	287	101	00000000	00000000	2001yy	2001zz
5	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001zz	

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As can be seen the row 4 has been closed (End Time set) and one new row (row 5) has been inserted in the database.

If there is overlap in the Range about to be inserted with an existing range, the NP Range Update (Insert) shall be rejected by the OCH, the internal clearing houses and any connected systems.

10.4.16. Case 3c: Inserting part of a Range (end) - merge

The database content when this case is started is as follows:

	Range Start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471000	39471899	01011	01011	01011	287	101	00000000	00000000	2001yy	

A Range Update (Insert) for the Range 39471900-39471999 is performed, where the SPC is set to 287.

Range: +-----+-----+ +-----+
Affected area: +---+

The resulting database content is as follows:

	Range Start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471000	39471899	01011	01011	01011	287	101	00000000	00000000	2001yy	2001zz
5	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001zz	

As can be seen the row 4 has been closed (End Time set) and one new row (rows 5) has been inserted in the database.

If there is overlap in the Range about to be inserted with an existing range, the NP Range Update (Insert) shall be rejected by the OCH, the internal clearing houses and any connected systems.

10.5. Splitting and Merging of Series

When two consecutive series gets the same values for SPC, Municipality, RoutingInfo, ChargingInfo, NumberType, RangeHolder, NetworkOperator, ServiceOperator the two series shall be merged to one logical unit, which can be updated using one <NP Update>.

10.5.1. Case 1a: Updating part of a Series (middle) - split

The database content when this case is started is as follows:

	Range Start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	

An NP Update for the Series 39471100-39471199 is performed, where the SPC is set to 289.

Series: +-----+-----+-----+
Affected area: +---+

The resulting database content is as follows:

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	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471000	39471099	01011	01011	01011	287	101	00000000	00000000	2001yy	
5	39471100	39471199	01011	01011	01011	289	101	00000000	00000000	2001yy	
6	39471200	39471999	01011	01011	01011	287	101	00000000	00000000	2001yy	

As can be seen the row 2 (39471000-39471999) has been closed (End Time set) and three new rows (rows 4, 5 and 6) has been inserted in the database.

10.5.2. Case 1b: Updating part of a Series (start) - split

The database content when this case is started is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	

An NP Update for the Series 39471000-39471099 is performed, where the SPC is set to 289.

Series: +-----+-----+-----+
Affected area: +---+

The resulting database content is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471000	39471099	01011	01011	01011	289	101	00000000	00000000	2001yy	
5	39471100	39471999	01011	01011	01011	287	101	00000000	00000000	2001yy	

As can be seen the row 2 (39471000-39471999) has been closed (End Time set) and two new rows (rows 4 and 5) has been inserted in the database.

10.5.3. Case 1c: Updating part of a Series (end) - split

The database content when this case is started is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	

An NP Update for the Series 39471900-39471999 is performed, where the SPC is set to 289.

Series: +-----+-----+-----+
Affected area: +---+

The resulting database content is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471000	39471899	01011	01011	01011	287	101	00000000	00000000	2001yy	
5	39471900	39471999	01011	01011	01011	289	101	00000000	00000000	2001yy	

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As can be seen the row 2 (39471000-39471999) has been closed (End Time set) and two new rows (rows 4 and 5) has been inserted in the database.

10.5.4. Case 1d: Updating part of a Series (across lower boundary) - error

The database content when this case is started is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	

An NP Update for the Series 39470100-39471199 is performed, where the SPC is set to 289.

Series: +-----+-----+-----+
Affected area: +---+

The resulting database content is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	

This NP Update shall be rejected by the OCH, the internal clearing houses and any connected systems.

10.5.5. Case 1e: Updating part of a Series (across upper boundary) - error

The database content when this case is started is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	

An NP Update for the Series 39471100-39472199 is performed, where the SPC is set to 289.

Series: +-----+-----+-----+
Affected area: +---+

The resulting database content is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	

This NP Update shall be rejected by the OCH, the internal clearing houses and any connected systems.

10.5.6. Case 1f: Updating part of a Series (middle) - merge

The database content when this case is started is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471000	39471099	01011	01011	01011	287	101	00000000	00000000	2001yy	
5	39471100	39471199	01011	01011	01011	289	101	00000000	00000000	2001yy	
6	39471200	39471999	01011	01011	01011	287	101	00000000	00000000	2001yy	

An NP Update for the Series 39471100-39471199 is performed, where the SPC is set to 287.

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Series: +-----+-----+-----+-----+
Affected area: +---+

The resulting database content is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471000	39471099	01011	01011	01011	287	101	00000000	00000000	2001yy	2001zz
5	39471100	39471199	01011	01011	01011	289	101	00000000	00000000	2001yy	2001zz
6	39471200	39471999	01011	01011	01011	287	101	00000000	00000000	2001yy	2001zz
7	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001zz	

As can be seen the rows 4, 5 and 6 has been closed (End Time set) and one new row (row 7) has been inserted in the database. This row is identical to closed row 2, because a merge operation has been performed after row 5 has been 'updated'.

10.5.7. Case 1g: Updating part of a Series (start) - merge

The database content when this case is started is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471000	39471099	01011	01011	01011	289	101	00000000	00000000	2001yy	
5	39471100	39471999	01011	01011	01011	287	101	00000000	00000000	2001yy	

An NP Update for the Series 39471000-39471099 is performed, where the SPC is set to 287.

Series: +-----+-----+-----+-----+
Affected area: +---+

The resulting database content is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471000	39471099	01011	01011	01011	289	101	00000000	00000000	2001yy	2001zz
5	39471100	39471999	01011	01011	01011	287	101	00000000	00000000	2001yy	2001zz
6	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001zz	

As can be seen the rows 4 and 5 has been closed (End Time set) and one new row (row 6) has been inserted in the database. This row is identical to the closed row 2, because a merge operation has been performed after row 4 has been 'updated'.

10.5.8. Case 1h: Updating part of a Series (end) - merge

The database content when this case is started is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471000	39471899	01011	01011	01011	287	101	00000000	00000000	2001yy	
5	39471900	39471999	01011	01011	01011	289	101	00000000	00000000	2001yy	

An NP Update for the Series 39471900-39471999 is performed, where the SPC is set to 287.

Series: +-----+-----+-----+-----+
Affected area: +---+

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The resulting database content is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471000	39471899	01011	01011	01011	287	101	00000000	00000000	2001yy	2001zz
5	39471900	39471999	01011	01011	01011	289	101	00000000	00000000	2001yy	2001zz
6	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001zz	

As can be seen the rows 4 and 5 has been closed (End Time set) and one new row (row 6) has been inserted in the database. This row is identical to the closed row 2, because a merge operation has been performed after row 5 has been 'updated'.

10.5.9. Case 3a: Inserting part of a Series (middle) - merge

The database content when this case is started is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471000	39471099	01011	01011	01011	287	101	00000000	00000000	2001yy	
5	39471200	39471999	01011	01011	01011	287	101	00000000	00000000	2001yy	

An NP Update for the Series 39471100-39471199 is performed, where the SPC is set to 287.

Series: +-----+ +-----+
Affected area: +---+

The resulting database content is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471000	39471099	01011	01011	01011	287	101	00000000	00000000	2001yy	2001zz
5	39471200	39471999	01011	01011	01011	287	101	00000000	00000000	2001yy	2001zz
6	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001zz	

As can be seen the rows 4 and 5 has been closed (End Time set) and one new row (row 6) has been inserted in the database.

If there is overlap in the Series about to be inserted with an existing series, the NP Update shall be rejected by the OCH, the internal clearing houses and any connected systems.

10.5.10. Case 3b: Inserting part of a Series (start) - merge

The database content when this case is started is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471100	39471999	01011	01011	01011	287	101	00000000	00000000	2001yy	

An NP Update for the Series 39471000-39471099 is performed, where the SPC is set to 287.

Series: +-----+ +-----+
Affected area: +---+

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The resulting database content is as follows:

	Range start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471100	39471999	01011	01011	01011	287	101	00000000	00000000	2001yy	2001zz
5	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001zz	

As can be seen the row 4 has been closed (End Time set) and one new row (row 5) has been inserted in the database.

If there is overlap in the Series about to be inserted with an existing series, the NP Update shall be rejected by the OCH, the internal clearing houses and any connected systems.

10.5.11. Case 3c: Inserting part of a Series (end) - merge

The database content when this case is started is as follows:

	Range Start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471000	39471899	01011	01011	01011	287	101	00000000	00000000	2001yy	

An NP Update for the Series 39471900-39471999 is performed, where the SPC is set to 287.

Series: +-----+-----+ +-----+
Affected area: +---+

The resulting database content is as follows:

	Range Start	Range end	Network operator	Service operator	Range Holder	SPC	Municipality	Charging Info	Routing Info	Start Time	End Time
1	39470000	39470999	01011	01011	01011	288	101	00000000	00000000	2001xx	
2	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001xx	2001yy
3	39472000	39472999	01011	01011	01011	288	101	00000000	00000000	2001xx	
4	39471000	39471899	01011	01011	01011	287	101	00000000	00000000	2001yy	2001zz
5	39471000	39471999	01011	01011	01011	287	101	00000000	00000000	2001zz	

As can be seen the row 4 has been closed (End Time set) and one new row (rows 5) has been inserted in the database.

If there is overlap in the Series about to be inserted with an existing series, the NP Update shall be rejected by the OCH, the internal clearing houses and any connected systems.

11. Items outdated

Subject moved to this chapter for either update or deletions.

12. Unresolved Issues

None

12.1. Additions and Enhancements under consideration