British Columbia Ministry of Health

British Columbia
Professional and Software Conformance Standards

Electronic Health Information Exchange

Volume 4B: Application Enforced Rules – Client Registry

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Document Details

Author:	Health Registries
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1.0 Overview

The application enforced rules described in this document reflect active integration of a Point of Service (POS) system with the Client Registry.

Although the POS application can be searched first to find an existing patient, when the patient presents for service the application must trigger a Get Demographics or Find Candidates query to capture the client's personal health number (PHN) and latest demographics.

A search of the Client Registry must only be triggered for clients who have been adequately identified in the POS application. Clients who are not identified correctly in the POS application must not be sent to the Client Registry.

After initial consultations, some sources will be expected to load their source data after analysis and potential data remediation.

Engagement is required to discuss and fully understand the rules as part of the onboarding process.

1.1 Registries Line of Business (RLOB) Help Desk

The Registries Line of Business (RLOB) Help Desk is the point of contact for the Health Registries:

- 250-952-9137 or HLTH.REGISTRIESADMIN@gov.bc.ca

1.2 Business Transactions and Application Enforced Rules

For details of the structure and semantics of each transaction, please refer to the message specifications.

1.2.1 General

The Client Registry can return a generic acknowledgement message which includes the following:

Table 1 General – Transactions

Interaction ID	Name
MCCI_IN000002	Accept Ack

General – Application Enforced Rules

Table 2 General – Application Enforced Rules

#	Rule	Med Practice (EMR) or Lab (LIS)	HA CIS	HA Viewer	Pharmacy
CRTx1.1	**Error Message Display** All applicable error messages returned by the Client Registry must be displayed to the user. **Note(s):** • The applicable error messages will be determined during onboarding discussions. • There is no need for the user to acknowledge each error that is displayed. • Removal of the error message will be dependent on the POS application. • For example, an error message could be removed when the user migrates from the screen or clicks inside the error message.	✓	✓	✓	✓

#	Rule	Med Practice (EMR) or Lab (LIS)	HA CIS	HA Viewer	Pharmacy
CRTx1.2	**Client Registry Functionality Access** The POS application must provide access to the Client Registry functionality from: • both within and outside the patient chart module; or • in the record if the application does not have charts. **Note(s):** This is allowed in order to establish the identity of a patient for the purpose of creating a new patient record in the POS application.	✓		✓	✓
CRTx1.3	**Override Mechanism** An unprompted manual override mechanism must be available for the user to exclude the Client Registry transaction for a particular client. For example, this would apply when a client cannot be identified (e.g., entered as John Doe). Such a client must not be sent to the Client Registry and subsequent Revise Person transactions must not be triggered for such clients.	✓	✓		✓

#	Rule	Med Practice (EMR) or Lab (LIS)	HA CIS	HA Viewer	Pharmacy
CRTx1.4	**Client Registry System Down** If the Client Registry is down the POS application must detect this and allow users to continue working without disruption. The Revise Person and Merge messages must be queued with the associated business date and time, and ensure reliable messages are delivered in date order once the POS application detects the Client Registry is back up. If the message is re-submitted within 24 hours, the message ID needs to be changed or it will be deemed a Potential Duplicate.	✓	✓	✓	✓
CRTx1.5	**Addresses** Addresses stored or displayed in the POS application must be explicitly identified as either a mailing or physical address.	✓	✓	✓	✓

1.2.2 Find Candidates

This transaction retrieves a list of possible candidates based on search criteria when the PHN is unknown.

If the patient does not have a PHN, the POS application must automatically perform a 'Find Candidates', and if the patient cannot be found, a PHN must be generated from the Client Registry.

The Find Candidates transaction uses the name and other criteria (e.g., date of birth) to find the client's record and PHN via a "probabilistic search" in the Client Registry. In a probabilistic search, the outcome of the search cannot be predicted.

The Find Candidates transaction could return many matches depending on the information provided.

Specific search criteria include:

- Surname;
- Given names;
- Date of birth;
- Phone number;
- Street address; or
- Postal code.

Sending too much data in the search can skew the results.

The best search criteria are:

- Surname;
- Given names; and
- Date of birth.

The Find Candidates is a synchronous request-response transaction which includes the following:

Table 3 Find Candidates – Transactions

Interaction ID	Name
HCIM_IN_FindCandidates	Find Candidates
HCIM_IN_FindCandidatesResponse	Find Candidates Response

Even in the instance where a request is refused, the response will still be a Find Candidates Response.

Find Candidates – Application Enforced Rules

Mandatory application enforced rules that apply to this transaction (outside of those in the Client Registry Message Specification) are included in the following table:

Table 4 Find Candidates – Application Enforced Rules

#	Rule	Med Practice (EMR) or Lab (LIS)	HA CIS	HA Viewer	Pharmacy
CRTx2.1	**Query Parameters** All Find Candidates query parameters in the message specification must be available for the user in the Find Candidates transaction.	✓	✓	✓	✓

CRTx2.2	**Query Combinations**
	The query must be based on a minimum of the following acceptable search combinations:
	• full surname, first name, and
	  o complete date of birth (best search);
	  o street address line 1;
	  o postal code; or
	  o phone number.
		✓	✓	✓	✓

CRTx2.3	**Matched Score Display** Returned matches (including matched score) must be displayed in order of descending matched score (i.e., the highest ranking score displayed first). Within the same matched score rank, records must be ordered in alphabetical order of surname, then given name.	✓	✓	✓	✓

#	Rule	Med Practice (EMR) or Lab (LIS)	HA CIS	HA Viewer	Pharmacy
CRTx2.4	**Maximum Search Results** A maximum of 10 candidates will be returned on the search results. If a response contains more than 10 results, the following must be displayed to the user: • the first 10 results; and • a warning which indicates that the criteria must be refined. For example: • Warning: The maximum number of results were returned and more may be available. Please refine your search criteria and try again).	✓	✓	✓	✓

#	Rule	Med Practice (EMR) or Lab (LIS)	HA CIS	HA Viewer	Pharmacy
CRTx2.5	**Confidential Demographics** For demographic information returned from the Client Registry where a client has requested that some or all of their demographic data be kept confidential (the corresponding data attributes will be returned with a nullFlavor of “MSK”), the values displayed to the user must be the word “confidential” or an asterisk for short attributes (e.g., administrative gender). **Note(s):** • All demographic updates sent will update the Client Registry including masked attributes; however, the attributes will remain masked in subsequent queries. • A masked attribute in the Client Registry is always set on the source record. • In order to have a confidentiality mask added or removed from the Client Registry, the user must contact the RLOB Help Desk.	✓	✓	✓	✓
CRTx2.6	**No PHN** If a new client is entered into the POS application with no PHN, the application must automatically perform a Find Candidates query. **Note(s):** This rule does not apply if the client cannot be identified in the POS application (e.g., entered as John Doe).	✓	✓	✓	✓

<table>
<tr><th>#</th><th>Rule</th><th>Med Practice (EMR) or Lab (LIS)</th><th>HA CIS</th><th>HA Viewer</th><th>Pharmacy</th></tr>
<tr><td>CRTx2.7</td><td>Auto Request for a PHN
A Revise Person transaction must automatically trigger a new PHN request if the following apply:
A candidate is not selected from the Find Candidates response; and
A PHN is not recorded in the POS application.</td><td>✓</td><td>✓</td><td></td><td>✓</td></tr>
<tr><td>CRTx2.8</td><td>Display Find Candidates Response
The results of the Find Candidates response must be displayed to the user on the first screen.
This will include:
PHN;
Documented Name (i.e., Surname and First Name);*
Date of birth;
Gender;
Full Address (i.e., mailing and/or physical);
Phone number; and
Date of death (if applicable).
*If the Documented Name is not available, then the Declared Name (i.e., Surname and First Name) must be displayed.</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>CRTx2.9</td><td>Display Candidate Selection
If a user selects a client from the list of candidates, all demographic information from the response message must be displayed to the user for the purposes of updating.</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
</table>

#	Rule	Med Practice (EMR) or Lab (LIS)	HA CIS	HA Viewer	Pharmacy
CRTx2.10	**Gender** There are four genders that can be returned in the HL7 v3 message: • Male = M • Female = F • Unknown = UNK • Undiferrentiated = UN **Note(s):** Currently, the Client Registry cannot consume an 'X'.	✓	✓	✓	✓
CRTx2.11	**No Candidates Found** If no candidates are found, a warning must be displayed to the user so they can modify the search criteria and try again. For example: "No candidates found. Please refine your search."	✓	✓	✓	✓
CRTx2.12	**Errors** If errors are returned, they must be displayed to the user. For example: • BCHCIM.FC.2.0004 -- Error: The EMPI is unavailable. Please report the problem to the helpdesk. • BCHCIM.FC.2.0005 -- Error: A technical error has occurred. Please report the problem to the helpdesk. • BCHCIM.FC.2.0006 -- Error: The HL7 message is invalid. Please correct the HL7 message and resubmit it. • BCHCIM.FC.2.0007 -- Error: An invalid PHN was supplied.	✓	✓	✓	✓

1.2.3 Get Demographics

This transaction is used to retrieve the most current demographic information (i.e., name, address, gender, date of birth, and date of death if applicable) from the Client Registry and confirm MSP eligibility for a specific person when the PHN is known.

If the patient has a PHN, a 'get' is performed against the Client Registry and the demographics returned and displayed to the user.

Using Get Demographics is referred to as performing a "deterministic search". In a deterministic search, the outcome of the search can be predicted. Get Demographics will return only one client record because there is only one client record that corresponds to the provided PHN.

The Get Demographics is a synchronous request-response transaction which includes the following:

Table 5 Get Demographics – Transactions

Interaction ID	Name
HCIM_IN_GetDemographics	Get Client Demographics
HCIM_IN_GetDemographicsResponse	Get Client Demographics Response

Even in the instance where a request is refused, the response will still be a Get Client Demographics Response.

Get Demographics – Application Enforced Rules

Mandatory application enforced rules that apply to this transaction are included in the following table:

Table 6 Get Demographics – Application Enforced Rules

#	Rule	Med Practice (EMR) or Lab (LIS)	HA CIS	HA Viewer	Pharmacy
CRTx3.1	**Automatic Get Demographic Search** A Get Demographic search must automatically be triggered if: • A record is selected from the Find Candidate search results; • The patient`s PHN is already in the POS application (when they present for service); or • The POS is actively integrated with the EMPI. The demographics returned must be presented for the user to view and update (if required). **Note(s):** • The initial interaction is when the patient first presents for a visit; and the Get Demographics will not appear again during that visit (e.g., when the practitioner sees the patient).	✓	✓	✓	✓
CRTx3.2	**Merged PHN** If the PHN used to query the Client Registry has been merged and is no longer valid: • A notification must be displayed to the user indicating the new, valid PHN; and • POS application client records must be updated with the new, valid PHN. **Note(s):** This information will be indicated in the Get Client Demographics Response message.	✓	✓	✓	✓

#	Rule	Med Practice (EMR) or Lab (LIS)	HA CIS	HA Viewer	Pharmacy
CRTx3.3	**Masked Demographics** If demographic data returned from the Client Registry is flagged as confidential, the values displayed to the user must be: • The word “confidential”; or • An asterisk for short attributes (e.g., administrative gender). **Note(s):** The corresponding data attributes will be returned with a nullFlavor of “MSK”.	✓	✓	✓	✓
CRTx3.4	**Date of Death Indicator** A date of death indicator, issued by the BC Vital Statistics Agency (VSA), returned in the Get Client Demographics Response must be displayed to the user. **Note(s):** • If a date of death confirmation indicator (Y) is set for a client in the Client Registry, it indicates the VSA confirmed the date of death. • The POS application can determine when to display the indicator by the presence of the Boolean <deceasedInd value="true" /> from the response message.	✓	✓	✓	✓
CRTx3.5	**PHN Validation** The POS application must validate PHNs that are entered using the PHN checksum algorithm.	✓	✓		✓

#	Rule	Med Practice (EMR) or Lab (LIS)	HA CIS	HA Viewer	Pharmacy
CRTx3.6	**Demographics Response Display** The full results of the Get Demographics response returned from the Client Registry must be displayed to the user. All address lines returned must be consumed.	✓	✓	✓	✓
CRTx3.7	**Other Provincial Identifiers** The POS application must have the ability to record both a BC PHN and other provincial identifiers in separate fields (for billing purposes). **Note(s):** Other provincial identifiers do not have to be sent to the Client Registry.	✓	✓		
CRTx3.8	**Documented and Declared Identities** If both the documented and declared identities are returned in the Get Demographics response, the POS application must display and distinguish both identities to the user or the documented if only one name is recorded. If returned, the Documented Identity must be consumed. **Note(s):** • Documented identity – is a name recorded (most often the clients legal name) as a result of a high-quality identity-proofing process from a trusted identity document. • Declared identity – is the client's identity (captured during a health care encounter) that has not been validated by an identity-proofing process.	✓	✓	✓	✓

#	Rule	Med Practice (EMR) or Lab (LIS)	HA CIS	HA Viewer	Pharmacy
CRTx3.9	**Date of Death (Get Demographics)** The BC Vital Statistics Agency is the only trusted source to add a date of death to the Client Registry. If there is a date of death, it must be displayed to the user.	✓	✓	✓	✓
CRTx3.10	**Address** The POS application must have the ability to record all address lines that are returned. Both address types (i.e., mailing and physical) are not required, but what is consumed must be returned.	✓	✓	✓	✓

1.2.4 Revise Person

The Revise Person transaction is used to add or update client information in the Client Registry. If the demographics are updated on the POS application, a 'Revise Person' message must be automatically generated to the Client Registry.

An add is defined as an event where at least the minimum Client Registry data elements are gathered for the first time, validated using trusted identification provided by the client and a new PHN and client record is created.

An update is defined as an event where at least the minimum Client Registry data elements of an existing client with a PHN are verified using trusted identification provided by the client and updated.

The Client Registry treats the incoming Revise Person as a complete snapshot of the source record. If the POS application sends a blank attribute to the Client Registry, that attribute in the source's record in the Client Registry will be terminated.

To prevent the termination of certain attributes in the composite view, the POS application must first query the Client Registry and resend in a Revised Person message any attributes that were returned on the query that are not maintained in the local system.

The Revise Person is a synchronous request-response transaction which includes the following:

Table 7 Revise Person – Transactions

Interaction ID	Name
HCIM_IN_PersonRevised	Revise Person Request
HCIM_IN_PersonRevisedResult	Revise Person Result

Even in the instance where a request is refused, the response will still be a Revise Person Result.

Revise Person – Application Enforced Rules

Mandatory application enforced rules that apply to this transaction are included in the following table:

Table 8 Revise Person – Application Enforced Rules

#	Rule	Med Practice (EMR) or Lab (LIS)	HA CIS	HA Viewer	Pharmacy
CRTx4.1	**Order of Transaction** A Get Demographics or Find Candidates transaction must be performed before a Revise Person transaction.	✓	✓		✓
CRTx4.2	**Triggering a Revise Person Transaction** A Revise Person transaction must be automatically triggered when a user: • creates a new client record using trusted identity documentation; or • completes a validated modification to an existing client record. **Note(s):** A Revise Person must not be triggered in any other scenario (e.g., names and addresses of new clients from an inbound referral or reported family members or “next of kin” of existing clients).	✓	✓		✓

#	Rule	Med Practice (EMR) or Lab (LIS)	HA CIS	HA Viewer	Pharmacy
CRTx4.3	**Name Fields** The following patient name fields must be supported: • Surname; and • First name. All supported names in the POS application must be recorded in separate fields; multiple name fields must not be entered/merged into one field. **Note(s):** All EMR or HA name updates will only update the declared name fields which will match the Client Registry documented identity if a BC Services Card has been issued.	✓	✓		✓
CRTx4.4	**Telephone Number – Long Distance** Telephone numbers must be: • equal to, or greater than, ten digits; and • numbers only. If the POS application includes a (1) in the phone number to indicate long distance, the (1) must not be sent to the Client Registry.	✓	✓		✓

#	Rule	Med Practice (EMR) or Lab (LIS)	HA CIS	HA Viewer	Pharmacy
CRTx4.5	**No Temporary Address** Temporary addresses maintained in the POS application must not be sent to the Client Registry. **Note(s):** • The Client Registry does not support temporary addresses. • If the POS application supports the collection of a temporary address it must also support flagging it; so that the temporary address is distinguishable and will not trigger a Revise Person request to the Client Registry.	✓	✓		✓
CRTx4.6	**Postal Code** Postal codes must be in the correct alphanumeric format as stated in the Canada Post Addressing Standards: • a six-character uniformly structured, alphanumeric code in the form “ANA NAN” where “A” represents an alphabetic character and “N” represents a numeric character.	✓	✓		✓

#	Rule	Med Practice (EMR) or Lab (LIS)	HA CIS	HA Viewer	Pharmacy
CRTx4.7	**Coded Addresses** Coded address values must be in the correct format as stated in the Canada Post Addressing Standards. For example: • ST, RD, AVE; • Canadian Provincial codes (e.g., BC); and • International Organization for Standardization (ISO) country codes. **Note(s):** • The application could provide a dropdown list for each code or provide translation prior to sending to the Client Registry. • Canada Post Addressing Standards should be referenced for a complete list of valid codes.	✓	✓		✓
CRTx4.8	**Location Fields** The following fields must be sent to the Client Registry as separate fields: • Address Line 1, • Address Line 2, • Address Line 3, • City, • Province, and • Country.	✓	✓		✓

#	Rule	Med Practice (EMR) or Lab (LIS)	HA CIS	HA Viewer	Pharmacy
CRTx4.9	**Demographic Changes** Changes made to patient demographics after a Get Demographic transaction, must trigger a Revise Person message to the Client Registry. Attributes that are returned in the original response but not supported in the POS application must be resent in the Revise Person request to avoid the attribute termination in the Client Registry composite view.	✓	✓		✓
CRTx4.10	**Display Prior to Revise Person** Prior to a Revise Person transaction all the selected client data from the Get Demographics or Find Candidates must be displayed to the user.	✓	✓		✓
CRTx4.11	**PHN Assignment** A Find Candidates transaction must be performed before a new PHN can be assigned.	✓	✓		✓
CRTx4.12	**New PHN Request Criteria** A request for a new PHN must be sent with a minimum of: • Full name (from a trusted identity document); • Date of birth; • Gender; and • Address.	✓	✓		✓

#	Rule	Med Practice (EMR) or Lab (LIS)	HA CIS	HA Viewer	Pharmacy
CRTx4.13	**Automatic Storage of PHNs** All PHNs assigned by the Client Registry must be: • Automatically captured from the Revise Person Response; • Displayed to the user; and • Stored in the POS application as part of the client's record.	✓	✓		✓
CRTx4.14	**PHN Status Displayed to User** If a Revise Person transaction results in the return of a new PHN or if the Client Registry reports that a PHN used in a Revise Person transaction has been merged to another PHN: • This information and the new PHN must be displayed to the user; and • The POS application client record must be updated with the correct PHN.	✓	✓		✓
CRTx4.15	**Submission of Updates** If a POS application applies multiple updates to a single client record, and the order of the applied updates is important to the POS, then the POS application must receive the Revise Person Result of the preceding update, before submitting the next Revise Person Request.	✓	✓		✓
CRTx4.16	**Request Newborn PHN** A request to create a newborn PHN must be sent with the birth mother's PHN in the message.		✓		

#	Rule	Med Practice (EMR) or Lab (LIS)	HA CIS	HA Viewer	Pharmacy
CRTx4.17	**Date of Death (Revise Person)** The BC Vital Statistics Agency (VSA) is the only trusted source for adding the verified date of death. **Note(s):** • Connected Partners can send in a death date on their record, but it will not be returned in any query responses. • Only death dates received from the VSA will be returned by the Client Registry.	✓	✓		✓

1.2.5 Merge Person

If a POS sends Revised Person messages to the Client Registry, there is the potential for duplicate records.

The Merge Person transaction is used to merge duplicate records in the Client Registry.

If the records are merged on the POS application, a 'Merged Person' message must be automatically generated to the Client Registry.

If the demographics are updated at the same time as the merge, a 'MergePerson with Demos' message will be sent to the Client Registry. The demographic update will be processed as a 'Revised Person' message and will update the demographics once the merge is complete.

If the Client Registry merges duplicate PHNs and the source record has the incorrect PHN, a distribution will be sent to the POS with the correct PHN which must be consumed by the POS application.

The record the POS is keeping must be in the EMPI prior to the merge or the Merge Person message will fail. This record is known as the 'survivor' record.

The Merge Person is a synchronous request-response transaction which includes the following:

Table 9 Merge Person – Transactions

Interaction ID	Name
HCIM_IN_PersonMerged	Merge Person Request
HCIM_IN_PersonMergedResult	Merge Person Result

Even in the instance where a request is refused, the response will still be a Merge Person Result.

Merge Person – Application Enforced Rules

Mandatory application enforced rules that apply to this transaction are included in the following table:

Table 10 Merge Person – Application Enforced Rules

#	Rule	Med Practice (EMR) or Lab (LIS)	HA CIS	HA Viewer	Pharmacy
CRTx5.1	**Triggering a Merge Person Transaction** A Merge Person transaction must be automatically triggered when a user completes the merge in the POS application.		✓		
CRTx5.2	**Valid Record in Client Registry** The survivor record must be in Client Registry prior to the merge or the merge message will fail; and the user must be notified that the merge failed.		✓		
CRTx5.3	**Survivor PHN Consumed** The POS application must consume any new PHN that is the result of a merge.	✓	✓		✓

1.2.6 Distribution Messages

A POS can subscribe to receive the following distribution messages:

Table 11 Distribution Messages

Message	Description
Composite View (COMP)	• The Composite View is the complete 'picture' of a client at a point in time. • This distribution message highlights changes to a patient's DOB, DOD, PHN, name, address and/or phone.
Death	• This distribution message is sent to source members if they are missing the DOD or have the incorrect DOD; and also when the Death Indicator flag is set by the Client Registry.
Enterprise Identifier (EID)	• The EID is the internal identifier assigned by the Enterprise Master Patient Index (EMPI) software. • This distribution message is only available to VCHA and is sent if the demographics for a source member in a set differ from the Composite View or a member joins or leaves an EID set.
Merge	• This distribution message is sent to subscribers that have permission to view the non-survivor (i.e., the member that is deemed inactive) when a PHN merge occurs.
New	• This distribution is sent if a new PHN is created in the Client Registry.
PHN	• This distribution message is sent if a source member in the set has a missing or incorrect purported PHN. • All sources that contribute data to the Client Registry must subscribe to PHN changes. • Source applications update PHNs in their systems "passively" via reports and manual entry.
PHNJoin	• This distribution message is sent if a member joins a linkage set with a PHN; or a PHN joins a set with another member. • This includes the situation where an existing PHN in a linkage set is replaced by a merge across EID sets.

Message	Description
SSRISYNC	• This distribution message is sent to sources that have a parent/child association listed in the EMPI. • The "parent" is source's unique record number (URN) and the "child" is the sub-source record identifier (SSRI) for that same patient.

During the onboarding process, the appropriate distribution profile will be recommended.

Some events that may trigger distributions include:

- New member added to the EMPI
- Update to member
- Overlay resolved
- Linkage task created
- Linkage task resolved
- Manual update to Inspector that affects the Composite View
- Source records or PHNs are merged

Distributions – Application Enforced Rules

Mandatory application enforced rules that apply to this transaction are included in the following table:

Table 12 Merge Person – Application Enforced Rules

#	Rule	Med Practice (EMR) or Lab (LIS)	HA CIS	HA Viewer	Pharmacy
CRTx6.1	**Consuming Distributions** If a source subscribes to a distribution, they must consume the data from the distribution into the POS application.	✓	✓		✓

1.3 PHN Check Digit Number Validation Routine

The PHN is sent as a 10-digit number. A Mod 11 check digit can be applied to confirm that the PHN is valid by breaking it into single digits and applying a weight to each digit as follows:

Digit (by position)	1	2	3	4	5	6	7	8	9	10
Weight		2	4	8	5	10	9	7	3	

Table 13 PHN Check Digit Number Validation Routine

Step	Description
1.	Ignore the first digit in the PHN since it is always a 9.
2.	Multiply each digit (2-9) by its weight and divide each product by 11.
3.	Sum the remainder values and divide the total by 11.
4.	Subtract the remainder from 11 to yield a check digit value.
5.	Compare this value to the 10th digit, and if the two numbers are equal then the PHN is valid, otherwise the PHN is invalid. If the result is 10 or 11, the PHN is not valid because the 10th digit is a single number.

1.3.1 PHN Check Digit Number Validation Example

The PHN in this example is ‘9698658215’.

Table 14 PHN Check Digit Number Validation Example

<table>
<tr><th>Step</th><th>Result</th></tr>
<tr><td>1.</td><td>Ignore the first digit in the PHN since it is always a 9.</td></tr>
<tr><td>2.</td><td>Multiply each digit (2-9) by its weight and divide each product by 11.
<table>
<tr><td>PHN</td><td>9</td><td>6</td><td>9</td><td>8</td><td>6</td><td>5</td><td>8</td><td>2</td><td>1</td><td>5</td></tr>
<tr><td>Weights</td><td></td><td>2</td><td>4</td><td>8</td><td>5</td><td>10</td><td>9</td><td>7</td><td>3</td><td></td></tr>
<tr><td>Multiply</td><td></td><td>6x2</td><td>9x4</td><td>8x8</td><td>6x5</td><td>5x10</td><td>8x9</td><td>2x7</td><td>1x3</td><td></td></tr>
<tr><td>Product</td><td></td><td>12</td><td>36</td><td>64</td><td>30</td><td>50</td><td>72</td><td>14</td><td>3</td><td></td></tr>
<tr><td>Divide by 11</td><td></td><td>12÷11</td><td>36÷11</td><td>64÷11</td><td>30÷11</td><td>50÷11</td><td>72÷11</td><td>14÷11</td><td>3÷11</td><td></td></tr>
<tr><td>Remainder</td><td></td><td>1</td><td>3</td><td>9</td><td>8</td><td>6</td><td>6</td><td>3</td><td>3</td><td></td></tr>
</table></td></tr>
<tr><td>3.</td><td>Sum the remainder values and divide this total by 11.
(1+3+9+8+6+6+3+3) = 39
39÷11 = 3 with a remainder of 6</td></tr>
<tr><td>4.</td><td>Subtract the remainder from 11 to yield a check digit value.
(11-6) = 5</td></tr>
<tr><td>5.</td><td>Compare this value to the 10th digit.
The check digit value (5) matches the 10th place digit in the PHN (5) which indicates that the PHN is valid.</td></tr>
</table>

1.4 Accepted Foreign Characters

Type	Characters					
ACUTE	Á	É	Í	Ó	Ú	Ý
	á	é	í	ó	ú	ý
CEDILLA	Ç	-	-	-	-	-
	ç	-	-	-	-	-
CIRCUMFLEX	Â	Ê	Î	Ô	Û	-
	â	ê	î	ô	û	-
GRAVE	À	È	Ì	Ò	Ù	-
	à	è	ì	ò	ù	-
UMLAUT	Ä	Ë	Ï	Ö	Ü	-
	ä	ë	ï	ö	ü	-

1.5 List of Invalid Characters for Client Registry

The characters in the following tables are invalid and will be removed from any incoming message:

ASCII Characters											
Char.	**Dec.**	**Hex.**	**Char.**	**Dec.**	**Hex.**	**Char.**	**Dec.**	**Hex.**	**Char.**	**Dec.**	**Hex.**
!	33	21	,	44	2C	8	56	38	\	92	5C
"	34	22	/	47	2F	9	57	39	]	93	5D
#	35	23	0	48	30	:	58	3A	^	94	5E
$	36	24	1	49	31	;	59	3B	_	95	5F
%	37	25	2	50	32	<	60	3C	`	96	60
&	38	26	3	51	33	=	61	3D	{	123	7B
(	40	28	4	52	34	>	62	3E	|	124	7C
)	41	29	5	53	35	?	63	3F	}	125	7D
*	42	2A	6	54	36	@	64	40	~	126	7E
+	43	2B	7	55	37	[	91	5B		127	7F

Extended ASCII Characters											
Char.	**Dec.**	**Hex.**	**Char.**	**Dec.**	**Hex.**	**Char.**	**Dec.**	**Hex.**	**Char.**	**Dec.**	**Hex.**
	128	80	•	149	95	ª	170	AA	¿	191	BF
	129	81	–	150	96	«	171	AB	Ã	195	C3
‚	130	82	—	151	97	¬	172	AC	Å	197	C5
ƒ	131	83	˜	152	98	¬	173	AD	Æ	198	C6
„	132	84	™	153	99	®	174	AE	Đ	208	D0
…	133	85	š	154	9A	¯	175	AF	Ñ	209	D1
†	134	86	›	155	9B	°	176	B0	Õ	213	D5
‡	135	87	œ	156	9C	±	177	B1	×	215	D7
ˆ	136	88		157	9D	²	178	B2	Ø	216	D8
‰	137	89		158	9E	³	179	B3	Þ	222	DE
Š	138	8A	Ÿ	159	9F	´	180	B4	ß	223	DF
‹	139	8B		160	A0	µ	181	B5	ã	227	E3
Œ	140	8C	¡	161	A1	¶	182	B6	å	229	E5
	141	8D	¢	162	A2	·	183	B7	æ	230	E6
	142	8E	£	163	A3	¸	184	B8	ð	240	F0
	143	8F	¤	164	A4	¹	185	B9	ñ	241	F1
	144	90	¥	165	A5	º	186	BA	õ	245	F5
‘	145	91	¦	166	A6	»	187	BB	÷	247	F7
’	146	92	§	167	A7	¼	188	BC	ø	248	F8
“	147	93	¨	168	A8	½	189	BD	þ	254	FE
”	148	94	©	169	A9	¾	190	BE	ÿ	255	FF