Scottish Care Information

SCI Store

Data Matching Guide

For SCI Store Release 8.5

SCI-DPUG-010

1   Introduction

1.1   Document purpose

The purpose of this document is:

- To provide instructions on how to create Local Patient Data matching rules that can be applied to an inbound interface to ensure that data is saved against the correct patient within the SCI Store database

- To describe how to create CHI Patient Data matching to be used when calls are made to the CHI Server to retrieve patient CHI Numbers.

Please refer to the SCI Store Interface Configuration Guide for information on applying a matching algorithm to an interface.

1.2   Intended Audience

This document should be read by those who may need to set up data matching rules for interfaces that feed into SCI Store.

1.3   Overview

When patient data is supplied to SCI Store, it is imperative that it is saved against the correct patient within the Store database. To allow this to happen, Local Patient Matching rules are set up and applied to data coming from the inbound interface. The matching rules are flexible and have several options that are configurable by the SCI Store administrator, all of which will be detailed in this document.

Web service users also have the ability to perform a lookup to CHI using the appropriate web service call. Additionally, an automatic CHI lookup can be incorporated into the local matching rules which also use the appropriate web services call. In both these cases, a CHI Patient Matching algorithm is used by the web services call to perform the match on the CHI database. This document will detail how to create the CHI Matching Algorithm.

1.4   Reference Documents

- Store Patient Data Matching – Reference Guide

2 Local patient data matching process

2.1 Overview

When patient data is supplied to the SCI Store from an inbound Interface the patient matching algorithm for this interface will be checked by the SCI Store API to find a patient match within the SCI Store database. The patient matching algorithm will consist of one or more matching rules.

The patient fields that can be matched on within SCI Store are:

- CHI Number
- Patient Identifier (e.g. PAS Number)
- Surname
- Forename
- First Initial
- Date of Birth
- Sex
- Address
- Postcode
- Source System
- CHI Demographics
- Record Identifier

A matching rule can be made up of any combination of the above fields and several different combinations can be created and included within the matching algorithm.

Exceptions to this rule are:

- The CHI Demographics field which is used to perform a CHI Auto lookup and is handled slightly differently. This is discussed further in section 6.

- The Record Identifier which is not allowed to be used with other combinations of fields. See section 7 for more detail.

Starting with the combination that has been given the highest priority, the API will process through each rule in turn until either a match is found or the no match rule is applied. Each rule will also have an action associated with it.

The possible actions are: -

- Insert (a new patient record will be created)

- Update (an existing set of patient details will be updated)

- Add Alias (a new patient identifier number will be inserted for an existing patient)

- Patient Exception (a matching anomaly has occurred and an exception record is created)
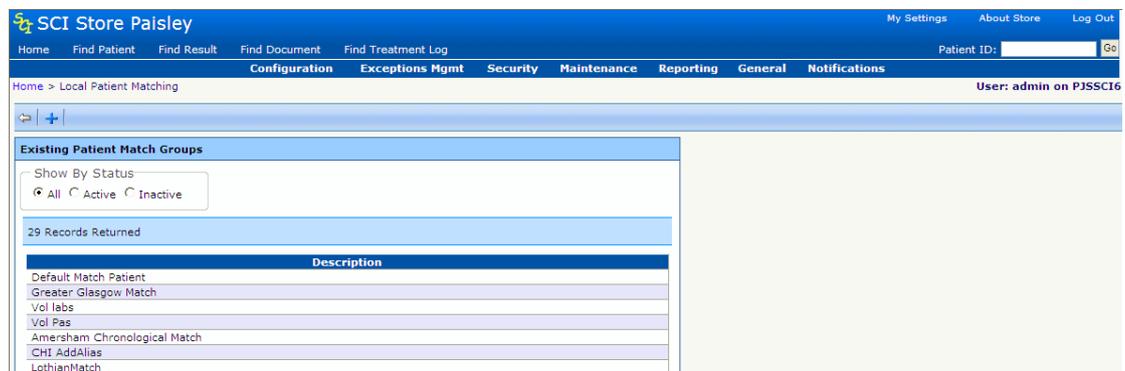
- No Action

3 Local patient match setup

3.1 Accessing the Local Patient Matching Algorithm screen

From the "Configuration" Menu, select 'Local Patient Matching'…

…to open the 'Existing Patient Match Rules' …

The 'Existing Patient Match Rules' screen provides an option to create a new algorithm by clicking the 'New Match' button. Additionally, it provides a list of all current algorithms that have been created and clicking on any of these will display the associated rules and actions. An existing algorithm can be modified only if it has never been used by any of the interfaces. Once used, it cannot be changed.

3.2 Local Patient Matching Screen description

Clicking the 'New Match' button will open the 'Amend Existing Patient Match Algorithm' page. The user will first be asked to provide a name for the new Matching Group

The screen then opens with a default set of rules already applied. The default rules and all the fields will be explained in the following sections.
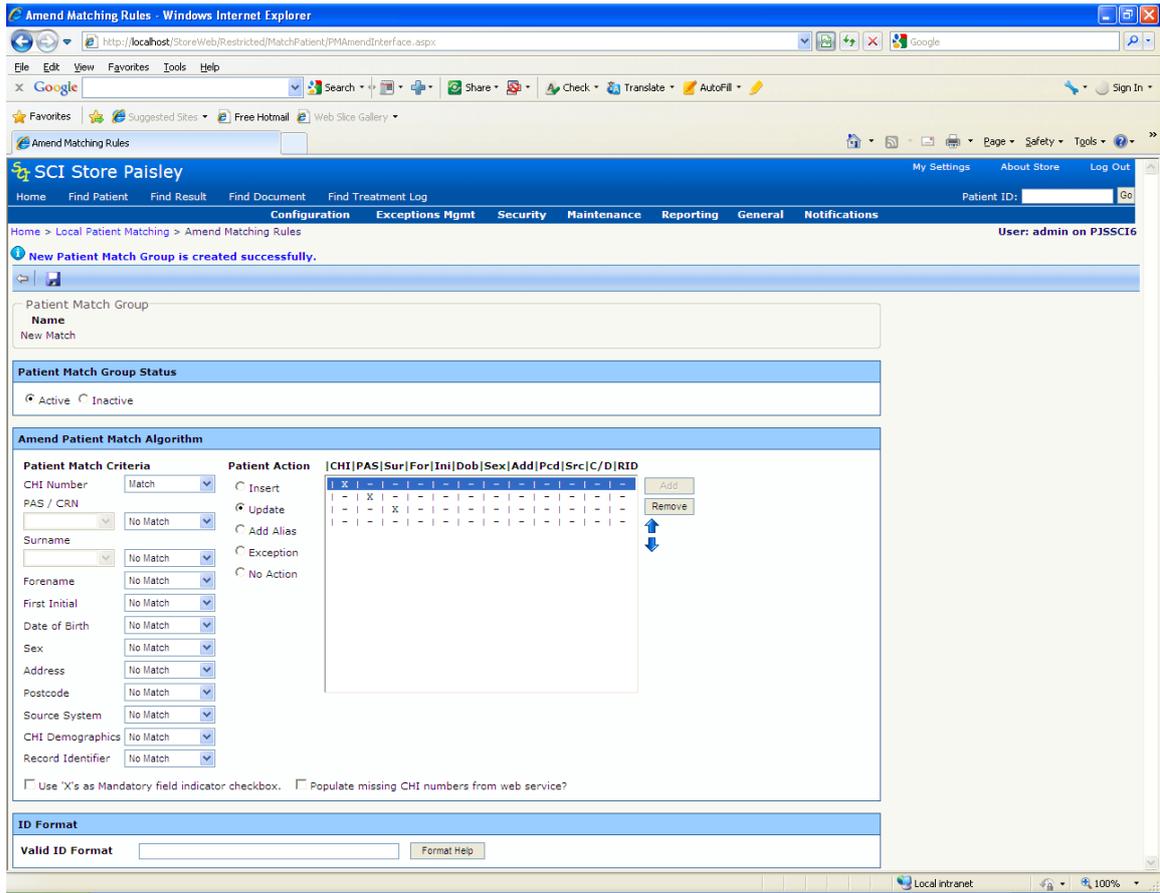
1	**Name (field)**	Populated with the name of the Patient Matching algorithm.
2	**Patient Match Group Status (Radio)**	Select the status of the matching group. Only active groups will be available to use.
3	**Patient Match Criteria (fields)**	Lists the fields that can be used to create a new rule combination.
4	**Patient Action (Radio)**	Lists the action being applied to a specific rule.
5	**Remove (button)**	Will remove the rule that is currently highlighted.
6	**Current Rules (List box)**	The area with the | X | and | - | combinations displays the current rules that have been created. The "| X |" signifies that a match is required on the appropriate column header and a "| - |" indicates that no match is required on that column header.
		When applying the rule to an interface, the prioritisation runs from top to bottom. In the above screen shot, four rules have been created, the first is looking for a match on

		CHI and if a match exists an 'Update' will occur as this is the assigned action as displayed in the Patient Action section.
		The lowest priority rule will always be matching on no fields and will be the default if no match occurs on a previous rule
7	**ADD (button)**	Will become enabled when starting to create a new rule by changing some of the drop down lists within the Patient Match Criteria
8	**Move Up and Move Down (buttons)**	To change the prioritisation of a rule within the list.
9	**Save and Exit (buttons)**	To save changes that have been made and to exit the page.
10	**Use 'X's as Mandatory field indicator (checkbox)**	If no match is found for the supplied patient details then one of the following actions will occur:
		If the Use 'X's as mandatory field indicator checkbox has been checked and none of the matching rules have been applied due to the relevant data fields having null values, then an exception will be raised.
		• If the Use 'X's as mandatory field indicator checkbox has been checked and one or more of the matching rules have been applied but no match was found, the action for the default no match rule will be taken.
		• If the Use 'X's as mandatory field indicator checkbox has not been checked the action for the default no match rule will be taken
11	**Populate missing CHI numbers from web service (checkbox)**	if checked, then if no CHI number is available, then a call to the CHI server will take place via the CHI Lookup web service to retrieve the missing CHI number.
12	**Valid ID Format (field)**	Used to specify a style for ID's coming from other systems (see Format Help).
13	**Format Help (button)**	Opens a help window to explain the use of the Valid ID Format field.

4 Creating a new Patient Matching Algorithm

4.1 Create algorithm name

To create a new algorithm enter a name within the 'Name' (point 1 below) field and then click on the 'Save' button (point 2 below). In this case the algorithm has been named 'Test Group':
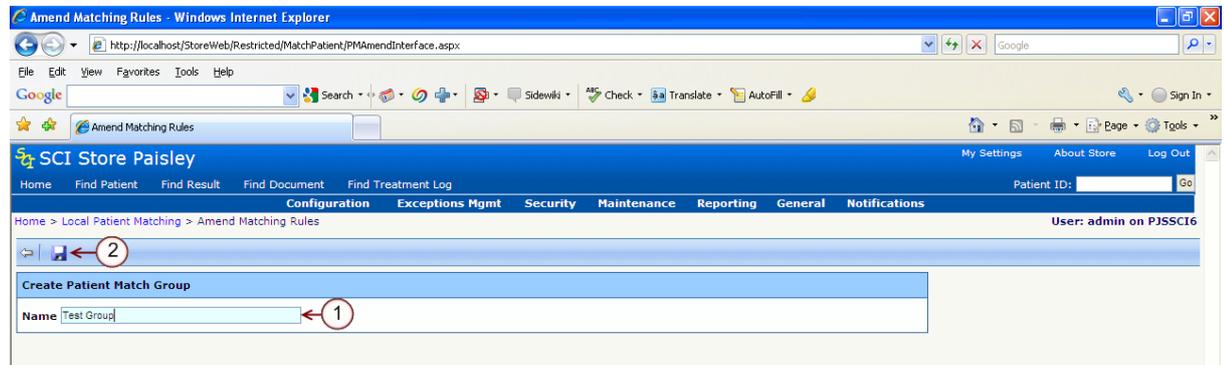

4.2 Adding a new rule to the Patient Matching Algorithm

Select the relevant fields from the "Patient Match Criteria" section that the new rule should match on; in this case Forename, Date of Birth and Postcode.

Once the criteria have been selected, the "Patient Action" should also be determined and selected. This indicates what will happen to the patient details within the database; in this case 'Update' will be applied

Clicking 'Add' will add the new rule to the algorithm and clicking 'Save' will save the changes. The new rule will now insert at the bottom of the prioritisation, but will always be inserted above the default 'No Match Rule'. The new rule will match on Forename, Date of Birth and Postcode, and if a match is made, an update will be performed on the database:
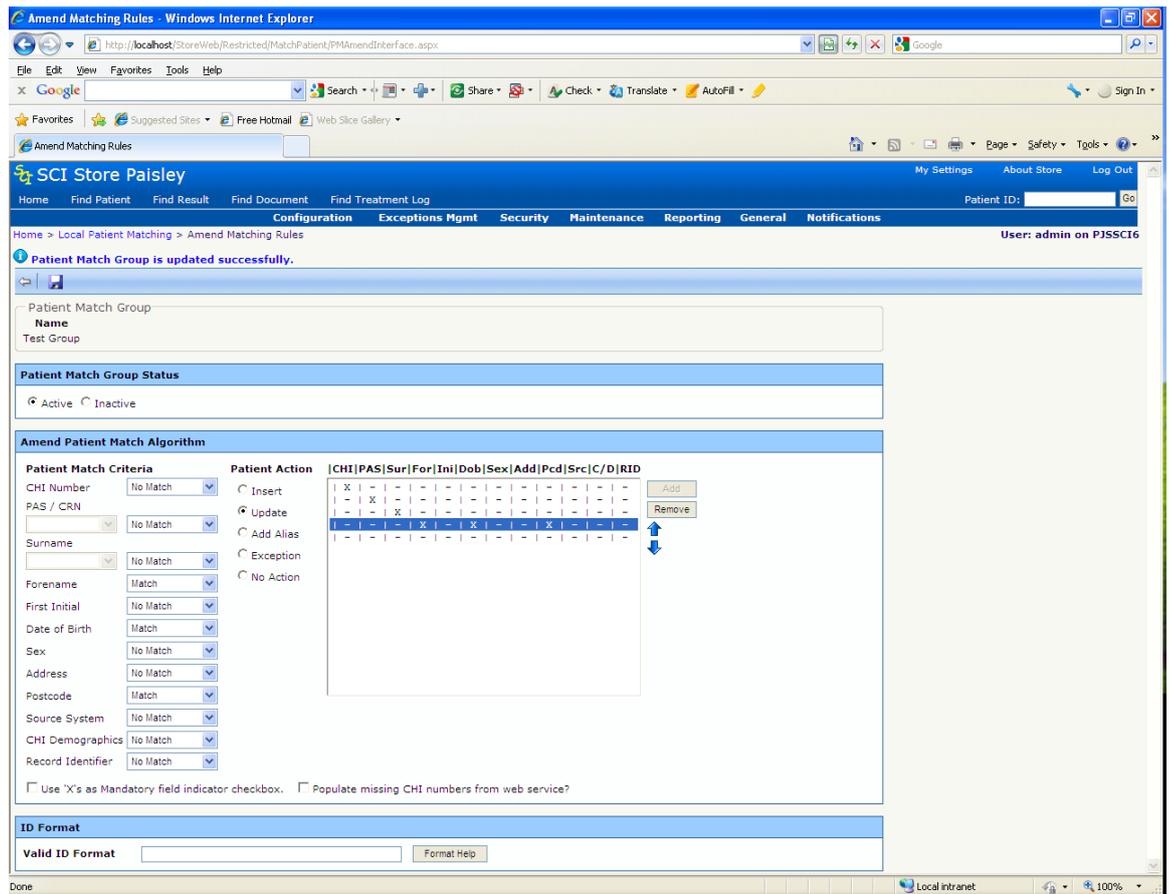
4.2.1 PAS / CRN

If selecting "PAS/CRN" or "Surname", then further drop down list options become enabled to further enhance the match criteria.

The additional drop down list contains two options, "ID Value Only" and "ID Type/Value". After the ID (e.g. RAH123456) has been processed it could be split so that ID Type (RAH) and the value (123456) are held as separate entities within the message. This option allows us to define whether the rule matches on only the value (123456) or the value and type combined (RAH123456). A lowercase x represents a match on both ID type and value, ID value on its own is uppercase X.

4.2.2 Surname Text / Surname Soundex

The surname matching can match on Text only, but also includes an option to turn on Soundex on a rule-by-rule basis. This allows fuzzy matching for Mc and Mac surnames for example. A non Soundex-matching rule is represented by an uppercase X in the list, where as a Soundex match is a lowercase x.

4.2.3 Default No Match Rule

The last rule within the Match Rule list box will always be the No Match Rule. The position of this rule cannot be changed, therefore if the SCI API has processed all of the other match rules for an interface and not found a match

on the database it will take whatever action has been assigned to the No Match rule unless the Mandatory field Indicator Checkbox has been checked.

4.2.4 Mandatory Field Indicator Checkbox

If this checkbox is checked and none of the matching rules have been applied due to the data fields supplied having null values, an exception will be raised.

If this checkbox is checked and one or more of the matching rules have been applied the No Match rule action will be applied.

The new rule will match on CHI, PAS and Surname, and if a match is made, an update will be performed on the database.

4.3 Positioning a Rule within an Existing Local Patient Matching Algorithm

The prioritisation of the new rule can be changed by using the "Move Up" and "Move Down" buttons. When inserted directly above the default no match rule, the "Down Button" will be disabled as the default No Match rule must always have the lowest priority. When moved to the highest priority, the "Move Up" button will be disabled as the rule will already be at the top of the prioritisation. Once the rule has been repositioned, click 'Save' to save the changes.
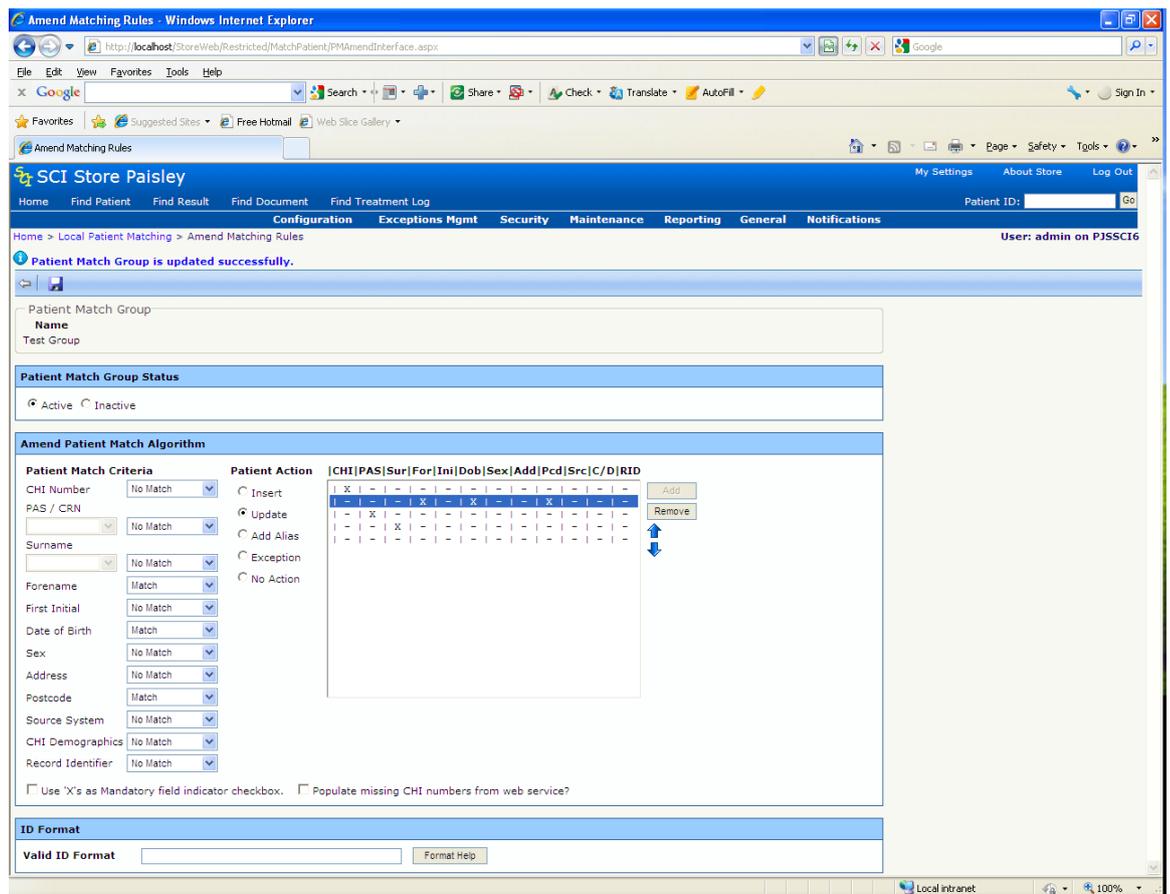
## 4.4 Removing a Rule from an Existing Local Patient Matching Algorithm

To remove a rule from the algorithm, click on the rule to highlight it and then click the "Remove" button:
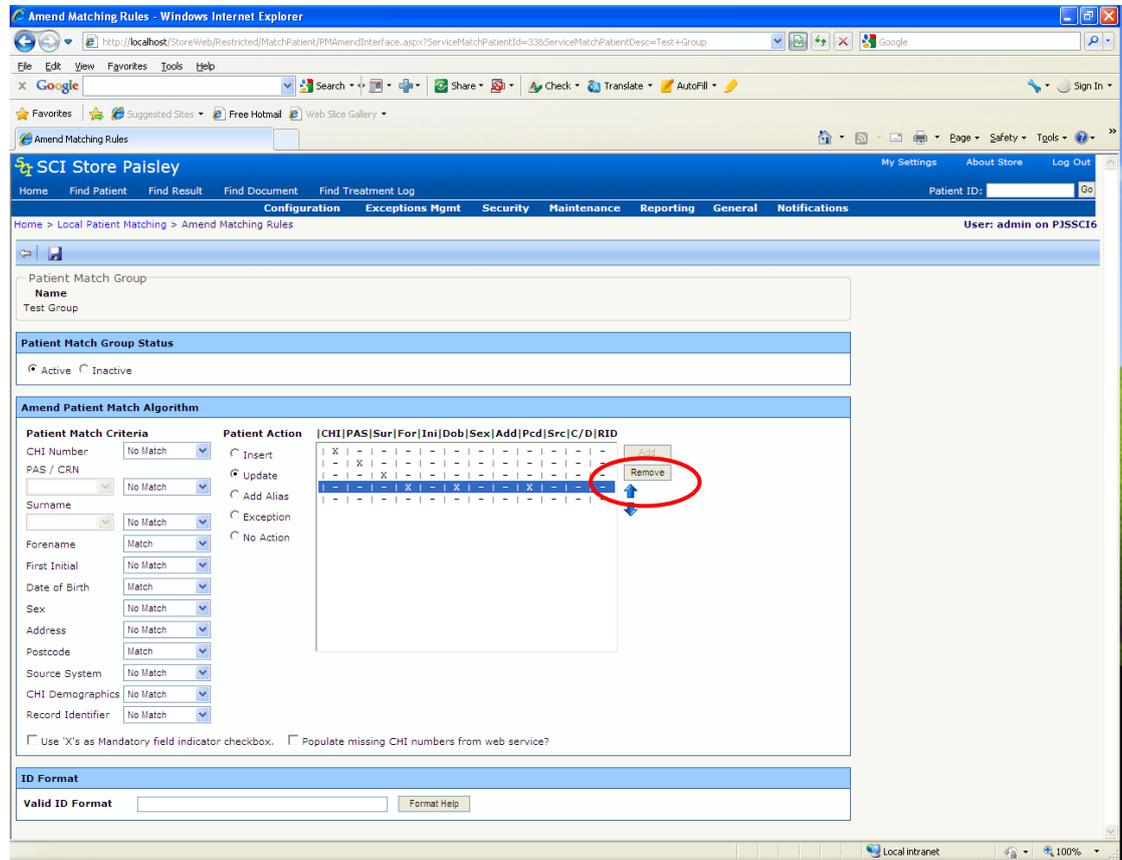

The screen will update and the rule will be removed. Click 'Save' to save the changes.

4.5 Editing the Patient Action for a rule

The action associated with a rule will be indicated by the "Patient Action" radio button option that is selected. The rule highlighted below has "Update" associated with it.

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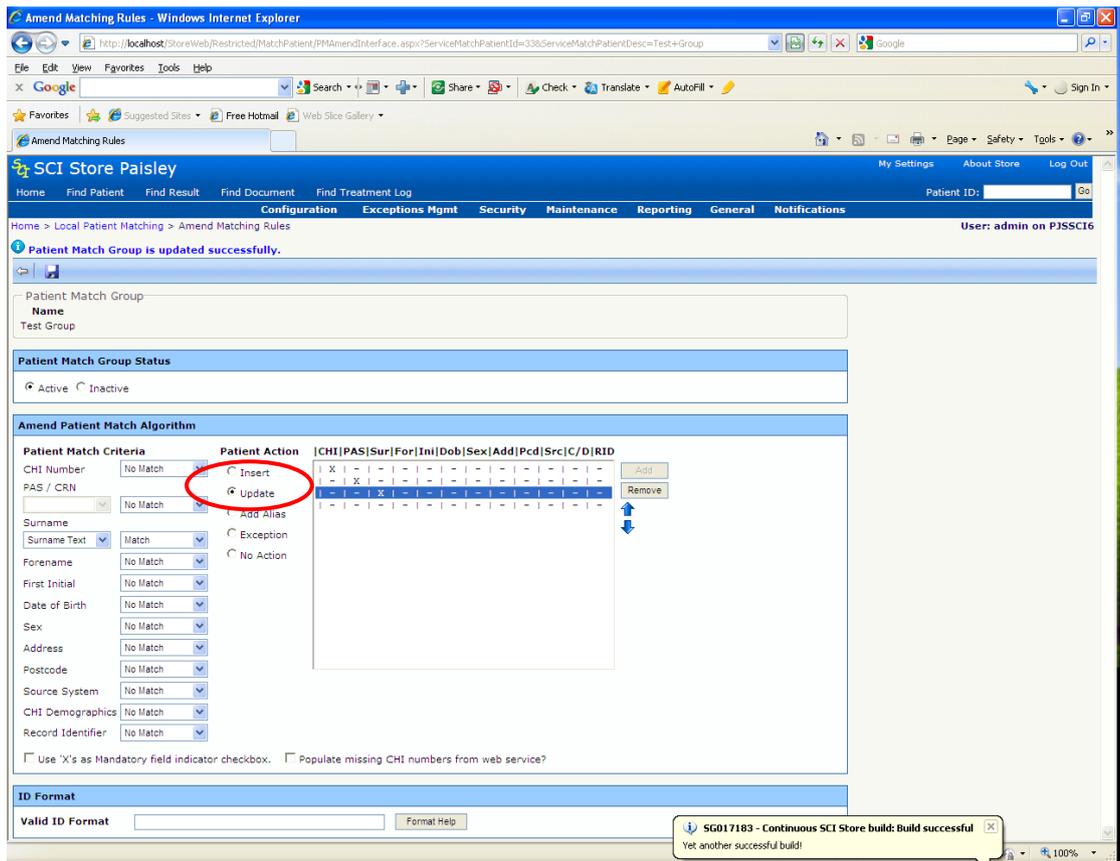
The action can be changed for that specific rule by selecting a different radio
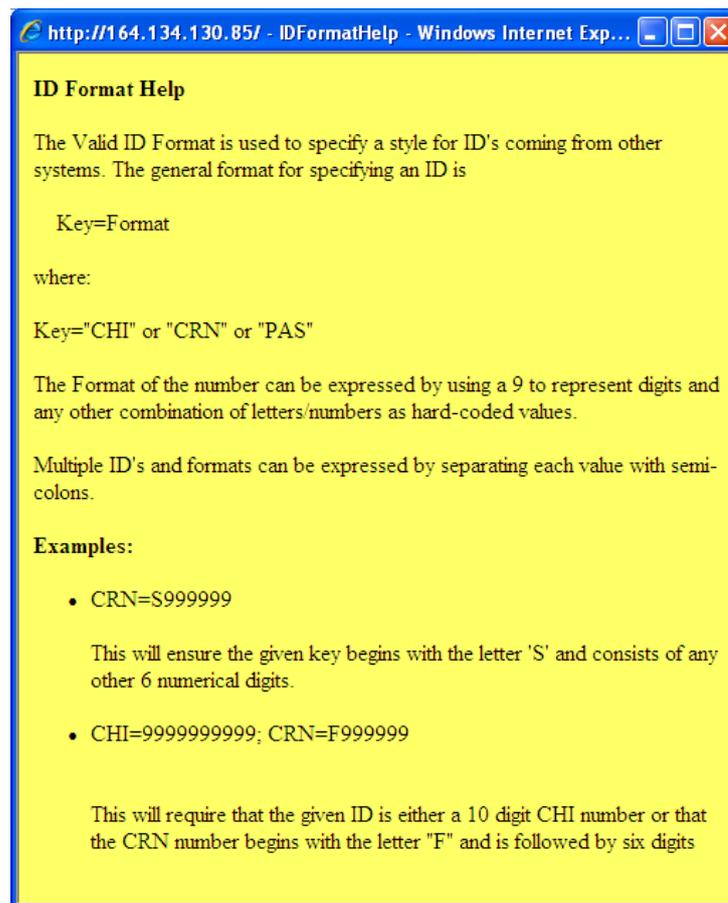button option and then hitting save.
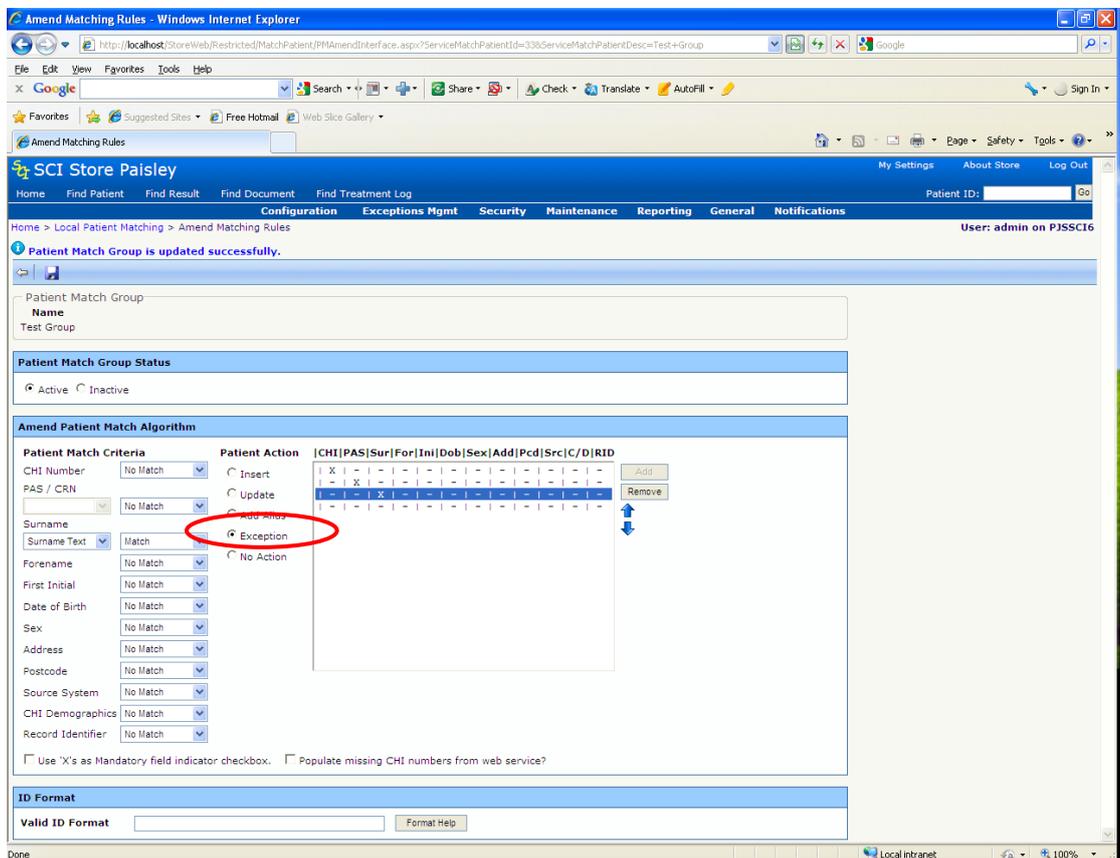
4.6　Applying a Valid ID Format to an Algorithm

For some interfaces there may be a requirement to ensure that the ID numbers being input are in a valid format.

If validation rules are entered into the 'Valid ID Format' text box, they will be processed by the SCI Store API. If an ID number is passed in that fails the validation, an exception will be raised on the SCI Store.

Clicking on the 'Format Help' button will display a help page which explains how to set up the validation for the 'Valid ID Format' field.

ID Format Help

The Valid ID Format is used to specify a style for ID's coming from other systems. The general format for specifying an ID is

　　Key=Format

where:

Key="CHI" or "CRN" or "PAS"

The Format of the number can be expressed by using a 9 to represent digits and any other combination of letters/numbers as hard-coded values.

Multiple ID's and formats can be expressed by separating each value with semi-colons.

Examples:

- CRN=S999999

  This will ensure the given key begins with the letter 'S' and consists of any other 6 numerical digits.

- CHI=9999999999; CRN=F999999

  This will require that the given ID is either a 10 digit CHI number or that the CRN number begins with the letter "F" and is followed by six digits

5 CHI auto lookup

5.1 Overview

Auto lookup of the CHI Database can be incorporated into the local patient matching algorithms. The local algorithm requires being setup in a specific manner and will use the CHI Matching algorithm when looking up the CHI database. Also, there are additional check boxes that need to be selected within the Translator interface to enable the auto lookup of CHI.

[Note: A prerequisite is that the CHI Web Service has previously been implemented on the SCI Store Server].

5.2 Local Patient Matching Algorithm Requirements

The local algorithm will be set up in the same manner as discussed in section 3. However the last two rules need to be set up in a specific manner. The default rule (lowest prioritisation) must have 'Patient Action' set to insert and the second lowest prioritisation rule must have 'Patient Criteria' set to match on 'CHI Demographics' and 'Patient Action' set to 'Insert'. If no match is made on any of the rules above these two, then an auto lookup of CHI will take place (ensure translator is set up as specified in 4.3), and the patient demographics downloaded from CHI and inserted in to the Store database.
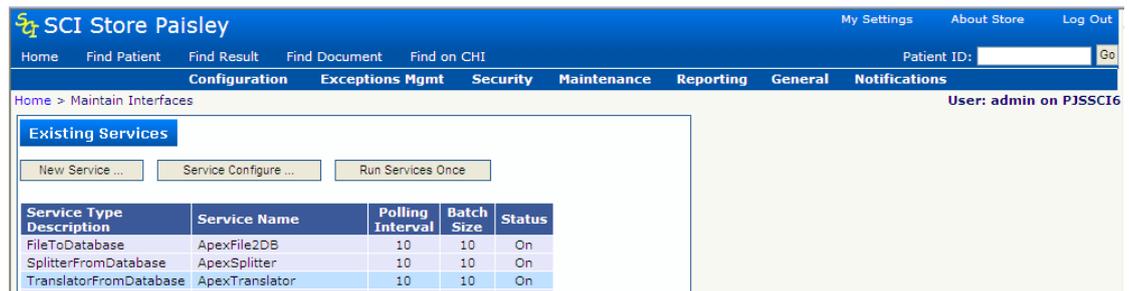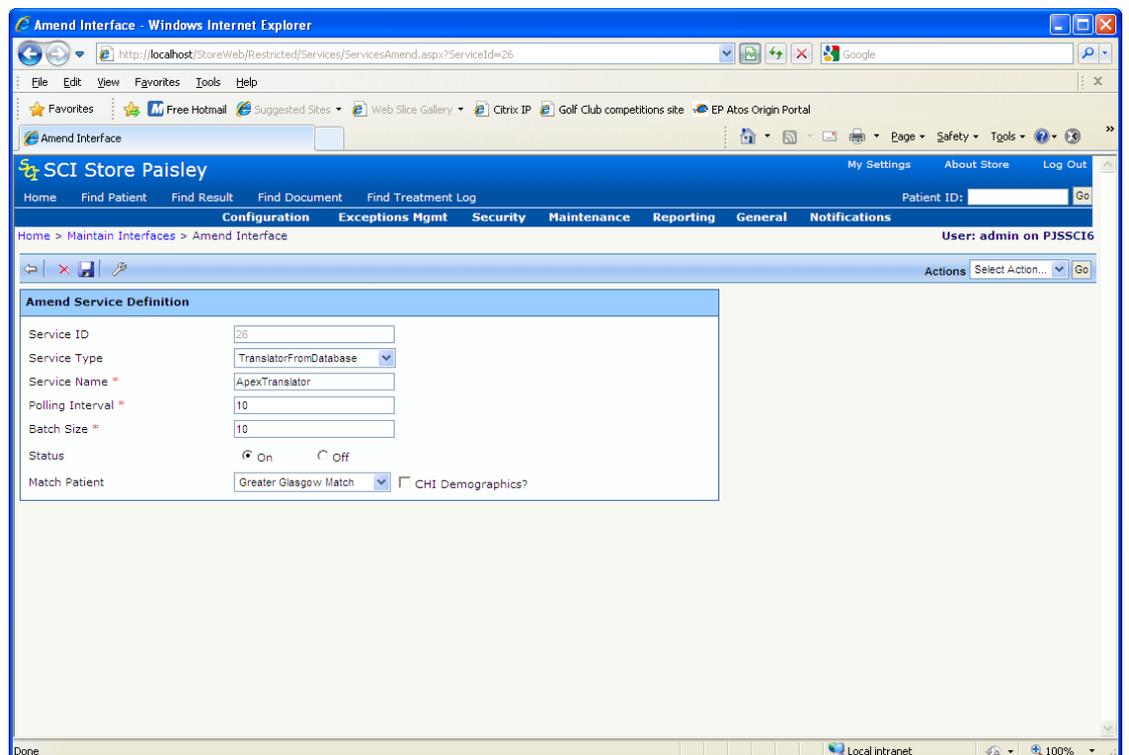
5.3 Translator Interface Requirements

From the "Configuration" Menu, select "Maintain Interfaces"…

…to open the Maintain Services screen…

Select the translator that the auto lookup will be applied to, in this case 'Apex Translator' to open the 'Amend Services' screen…

Ensure that the required Matching Rule is selected from the drop down list and that the 'CHI Demographics' check box is selected. When selecting 'CHI Demographics' check box, an additional check box is displayed – 'Enforce CHI Demographics Match'. Ensure that this is checked also. Save the changes to complete the translator set up.
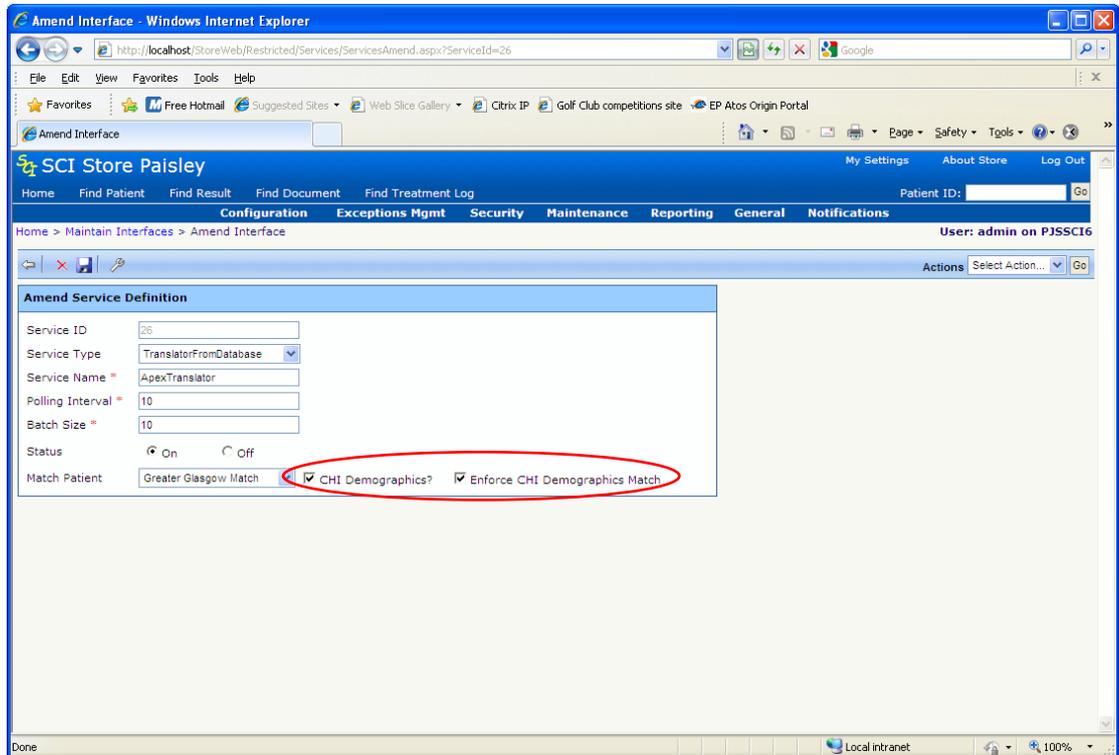
6   CHI patient match process

6.1   Overview

The CHI Patient Match algorithm will be applied any time an automatic call is made to the CHI Server to return demographics for a patient. The call to the CHI server can be made from a web service user or from the auto CHI lookup option if it has been implemented within Local Patient Match rules (see chapter 4).

The patient fields that can be matched on within CHI are:

- CHI Number
- Surname
- Forename
- First Initial
- Date of Birth
- Sex
- Address
- Postcode

A matching rule can be made up of any combination of the above fields and several different combinations can be created and included within the matching algorithm.

Starting with the combination that has been given the highest priority, the API will process through each rule in turn. If a match is found then the action applied will be an insert otherwise no action is applied.

6.2   Access CHI patient matching screen

To access the CHI patient match screen select "CHI Patient matching" from the "Configuration" Menu.
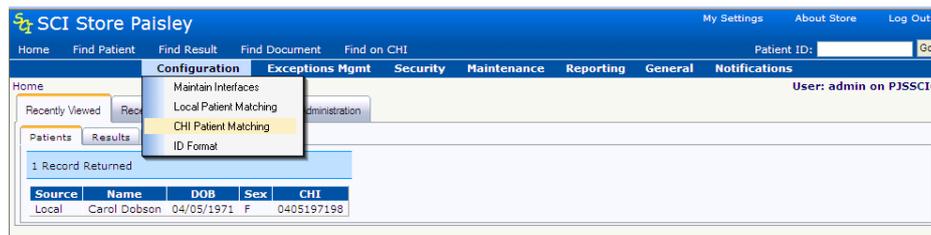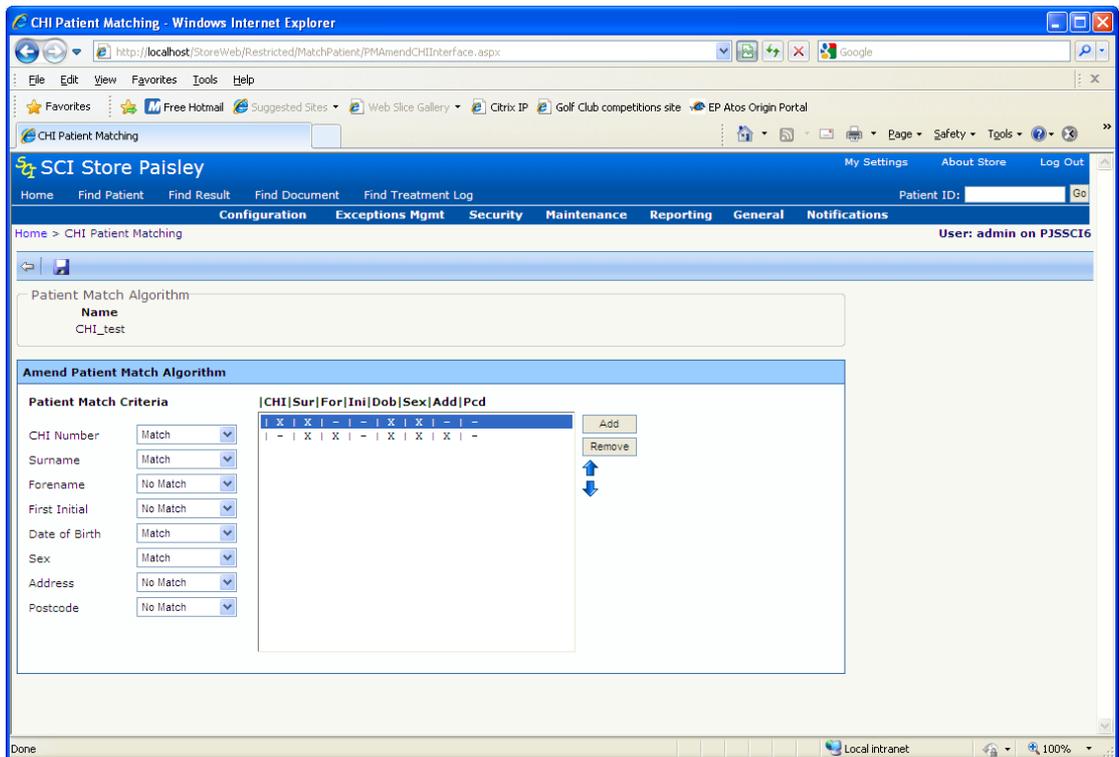

This will open the CHI Patient Matching screen:
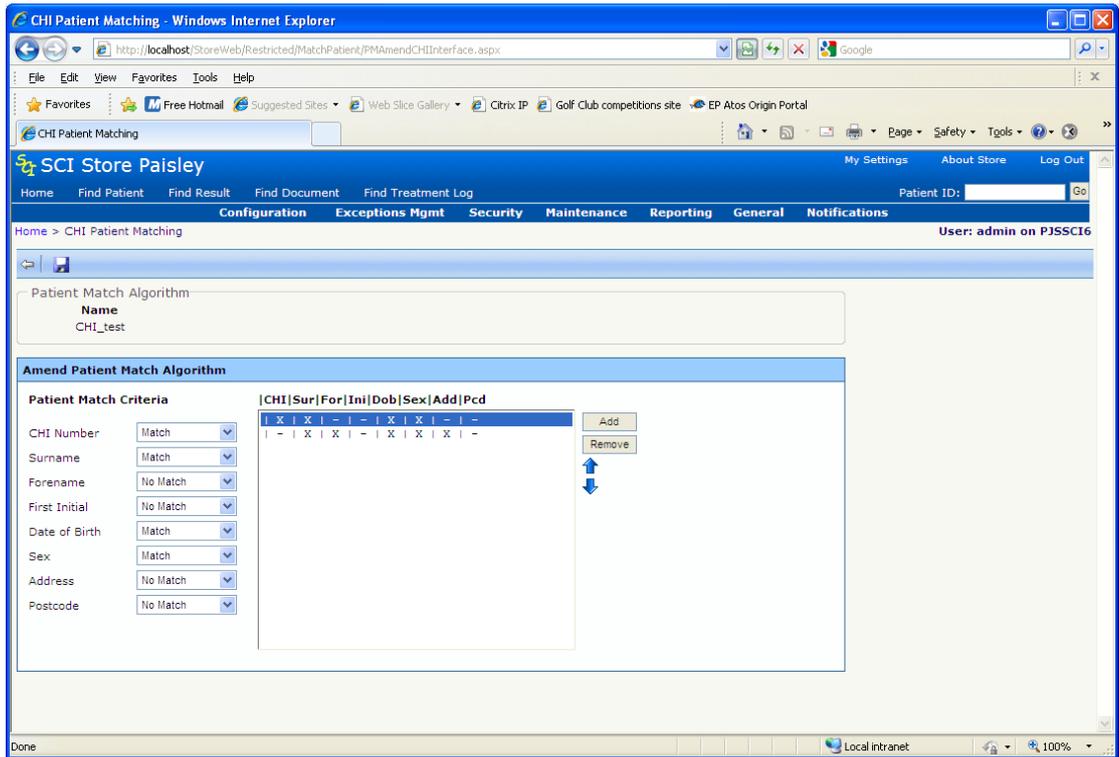
## 6.3 CHI Patient Matching Screen description

The CHI Patient Matching screen is simplified version of the Local Patient Match…

| 1	**Name field**	Contains name of the Patient Matching algorithm.
2	**Patient Match Criteria**	Lists the fields that can be used to create a new rule combination
3	**Remove button**	Will remove the rule that is currently highlighted
4	**Current Rules**	Rules that have been added for the new algorithm will be displayed in the area below the |CHI|Sur|For|Ini|Dob|Sex|Add|Pcd headers
5	**ADD button**	Will add a new rule defined by the selection of the drop down lists within the Patient Match Criteria
6	**Move Up and Move Down buttons –**	Used to change the prioritisation of a rule within the list.
7	**Save and Exit buttons –**	Used to save changes that have been made and to exit the page.

6.4 Creating a new CHI Patient Matching Algorithm

Enter a name for the new Algorithm into the 'Name' field and add at least one new rule and then click the 'Save' button. In this case, the algorithm is named 'CHI_test' and three rules have been added:
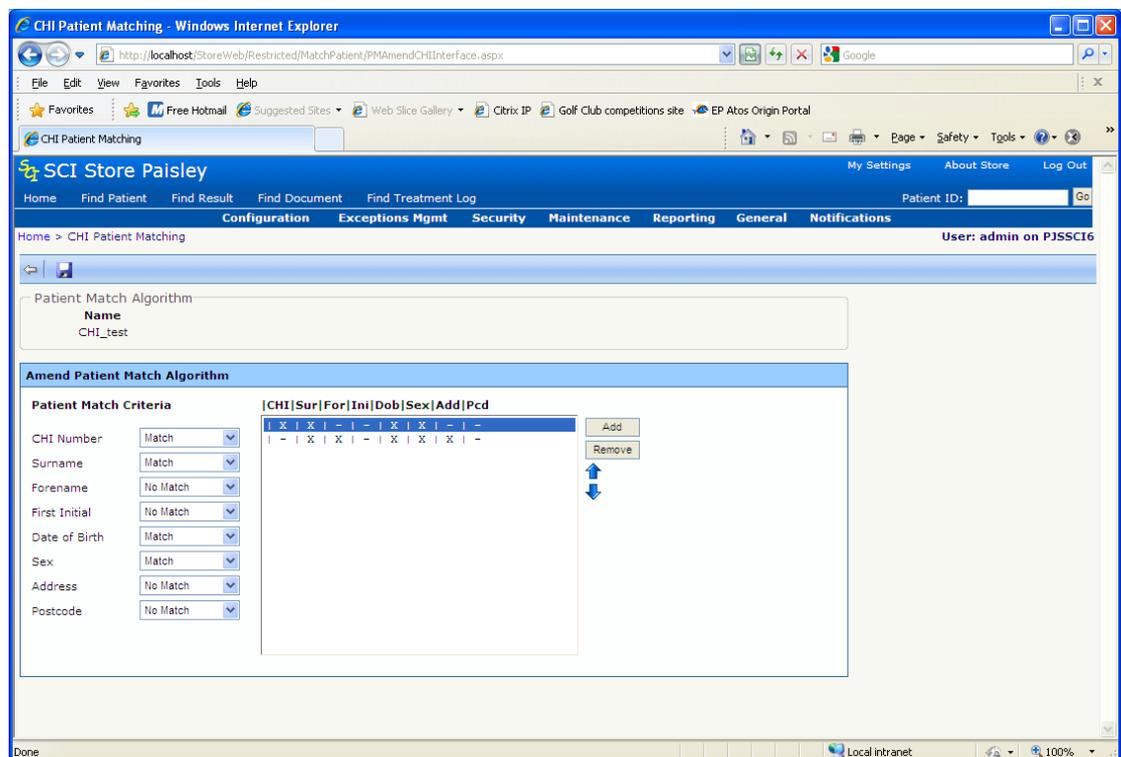
6.5 Positioning a Rule within a CHI Patient Matching Algorithm

The prioritisation of the new rule can be changed by using the 'Move Up' and 'Move Down' buttons. When positioned at the bottom of the list, the 'Down Button' will be disabled and when positioned at the top of the list the 'Move Up' button will be disabled. Once the rule has been repositioned, click 'Save' to save the changes.
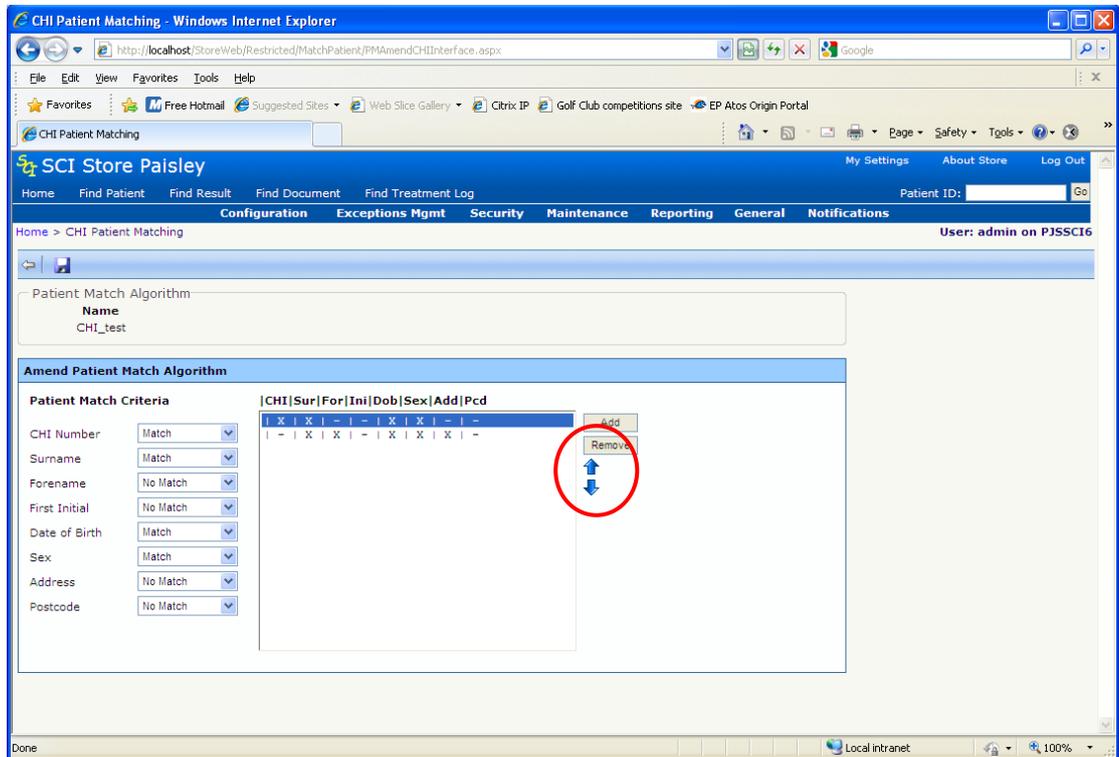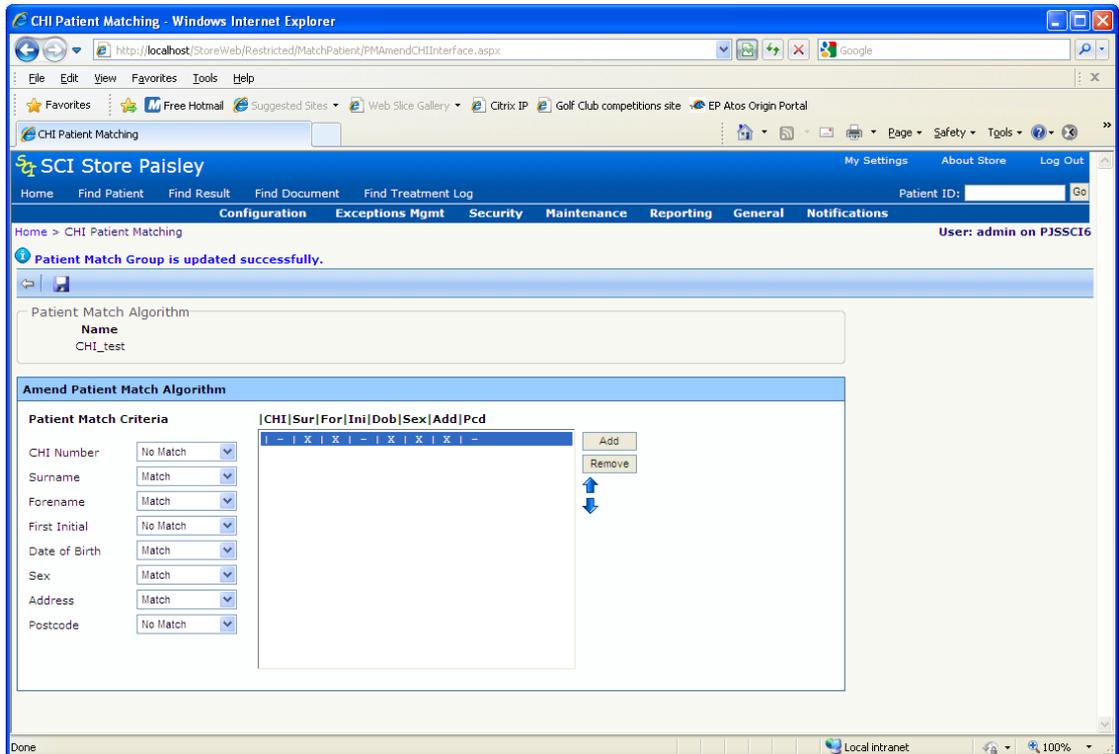

6.6 Removing a Rule from a CHI Patient Matching Algorithm

To remove a rule from the algorithm, click on the rule to highlight it and then click the "Remove" button:

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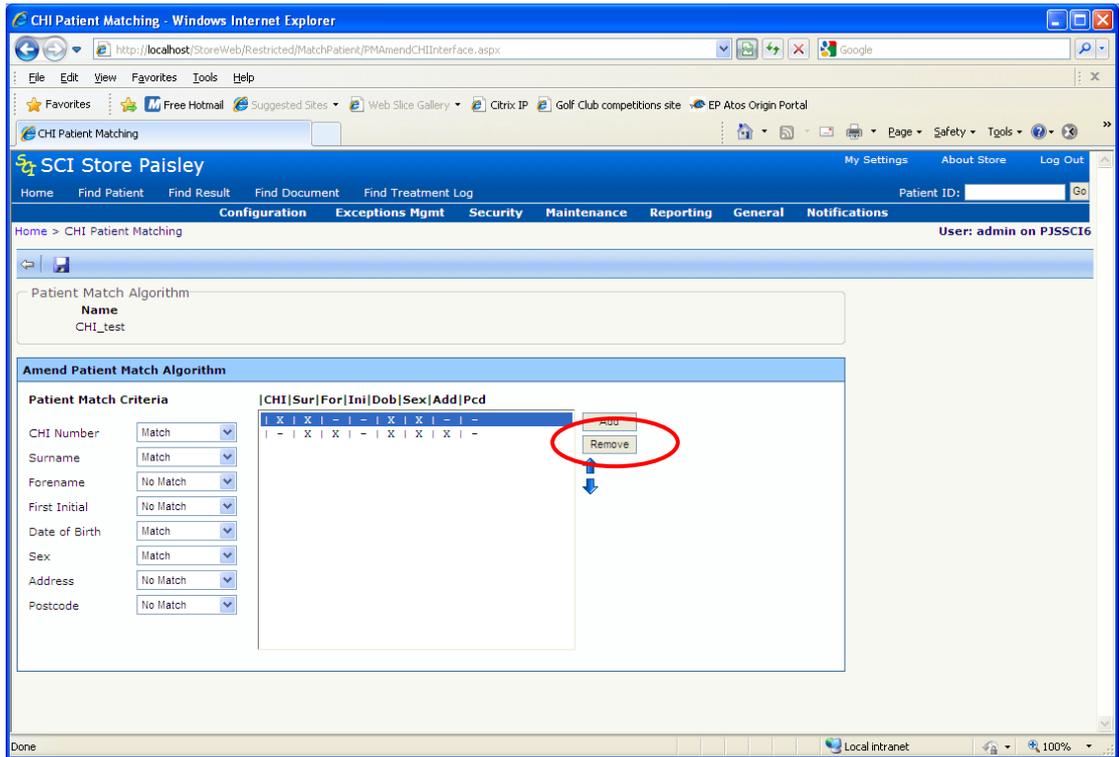
The screen will update and the rule will be removed. Click 'Save' to save the changes:

7 Record Identifier

7.1 Overview

Patient Matching was extended in version 7.0 of SCI Store to allow the use of the record identifier within the patient matching rules.

Use of the Record Identifier (RID) match rule is relevant when there is not enough demographic information to match on a patient. Demographic information may be unavailable because the patient wishes to remain anonymous or is unconscious.

Depending on the type of data being sent, the record identifier could be:

- Report Identifier
- Document Identifier
- Treatment Log Identifier
- ADT Identifier

An example of a use for this new matching rule might be when a patient has been admitted to an accident and emergency department and is unconscious. Their treatment, results and admission are raised against a temporary patient and processed into SCI Store. Later when the patient regains consciousness they give full details which are updated in the system. This should trigger a demographics update against the original record that would ensure that the correct demographics are associated with the records.

7.2 Record Identifier Patient match Rule

The screenshot below displays an example patient matching rules that makes use of the RID rule.
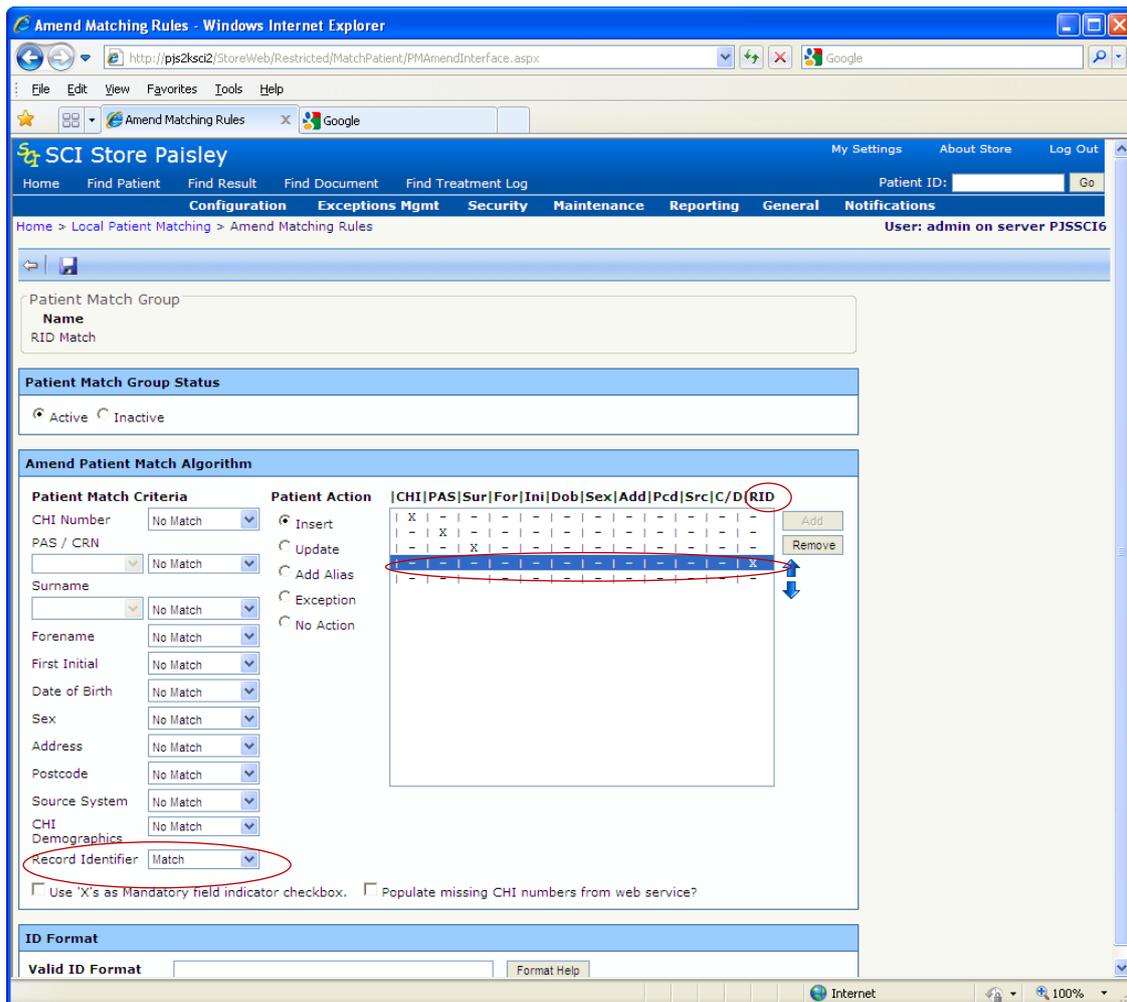
If a specific matching rule contains the record identifier then it cannot contain any other matching criteria.

7.3 Additional Information

This feature should only be used for systems where the record identifier is unique for the specific source of information.

The record identifier used for matching purposes will be dependent on the type of data being sent into SCI Store, (e.g. lab results will use the Report Identifier, documents will use the Document Identifier, etc).

This rule is intended for use with interfaces that cannot always provide enough demographic information to identify the patient. It is envisioned that a typical set of matching rules for this scenario would firstly try and match against specific patient demographics, with the final rule being a match against the record identifier only.

Document control

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Changed by	:	Stephen Alexander
Details:		Record Identifier update

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