

# Grouper User Manual

## HRG4+ 2019/20 Engagement Grouper

Published October 2018



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## Grouper Installation and Uninstallation

To help our users, we are providing this detailed guide which gives the pre-requisite system requirements and then walks through both the installation and uninstallation process.

### System Requirements

The Grouper has been developed on a platform that supports Windows servers 2008 onwards. This is in line with a Cabinet Office letter which was published on 8 April 2014.

The letter advised that NHS organisations could apply for an additional 12-month support extension for XP after which NHS organisations should have plans to migrate away from Windows XP from April 2015.

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/314721/DHandCabinetOfficeMicrosoftXPupdate8April14.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/314721/DHandCabinetOfficeMicrosoftXPupdate8April14.pdf)

Therefore, in order to install the Grouper or Prescribed Specialised Services Tool then the Operating Systems (OS) needed are Windows 7/ Server 2008R2 and above. The software can be run on Windows Vista, but it is considered unsupported due to that OS being past end of Microsoft Extended Support.

The minimum specification advised to run the software products based on the minimum recommended PC specification to run Windows 7 as specified by Microsoft:

1 gigahertz (GHz) or faster 32-bit (x86) or 64-bit (x64) processor

1 gigabyte (GB) RAM (32-bit) or 2 GB RAM (64-bit)

A minimum install (excluding example files) requires 47Mb of free disk space.

Microsoft Windows .NET Framework version 4.5 or above

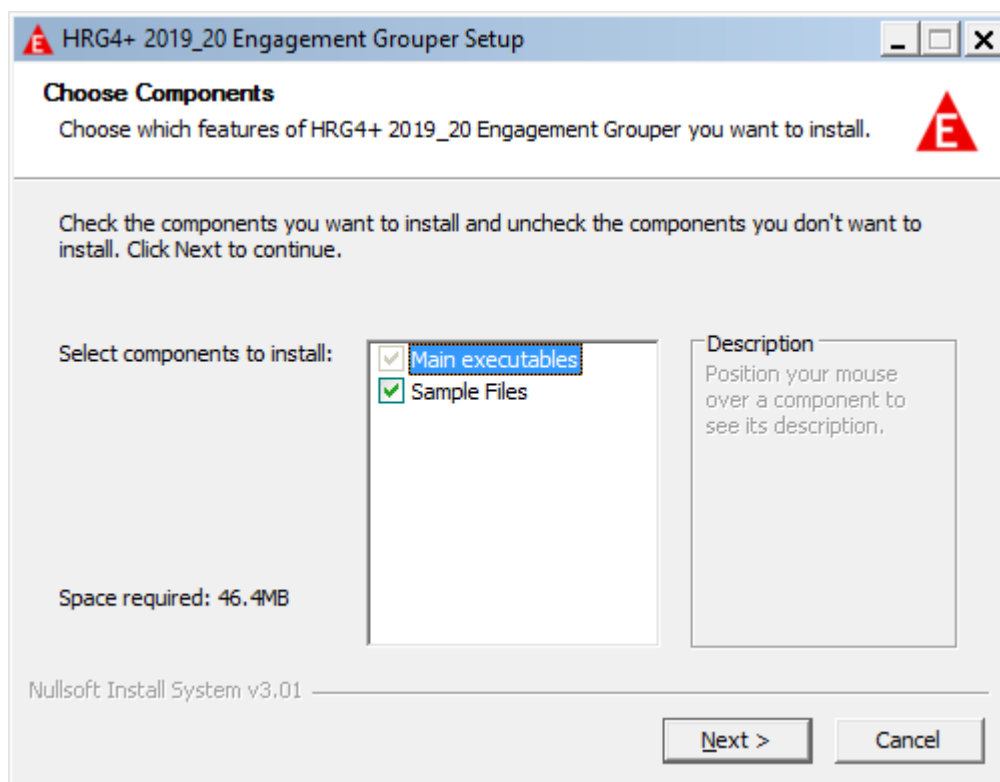
Previous operating systems are not supported in line with the edict from the cabinet office.

### Download and Install the Grouper

- Go to <https://digital.nhs.uk/National-casemix-office/downloads-grouper-and-tools>
- Click on Payment Grouper.
- There may be more than one version available. Older versions are on the archive pages.
- Click on the relevant Grouper.
- Click on the Download link under the Summary text.
- Save the Zip file to an appropriate location on your computer.
- Open the Zip file and extract the installer.
- Double-click the installer file and follow the installation setup wizard. It is important to note that depending upon your security settings you may require elevated permissions or an administrator account to install this application, if this is the case you will need to contact your IT department to get the appropriate permissions.

## Installation Setup Wizard

Double-click the installer file to open it. The Grouper setup wizard should automatically start. The first screen is shown below:



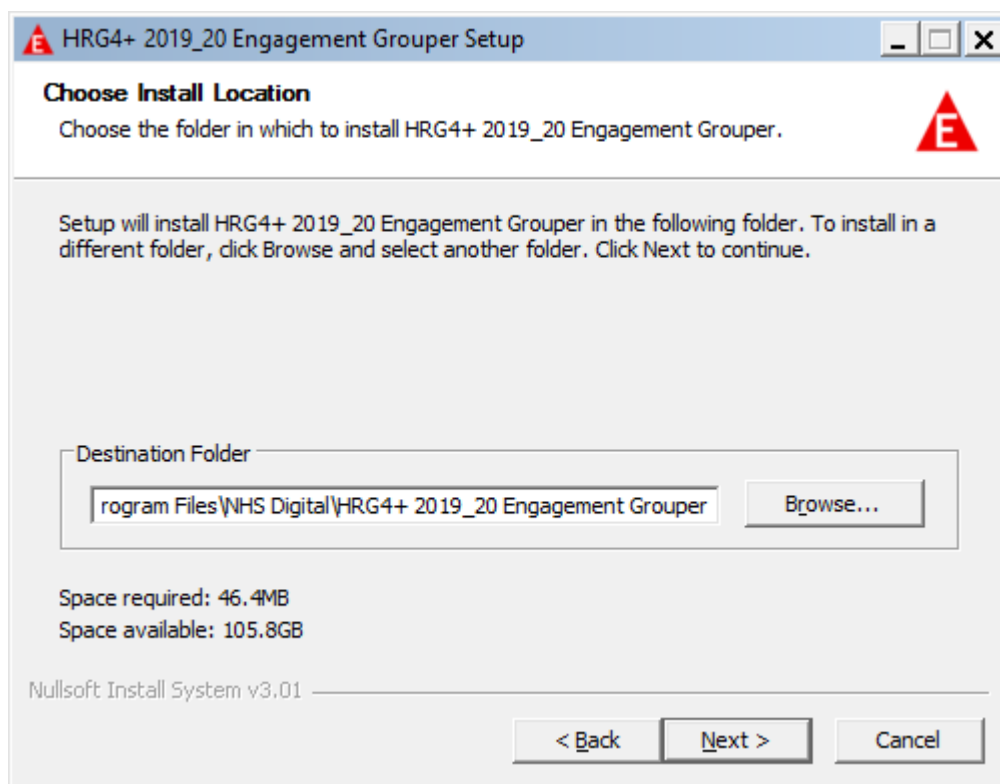
The first screen that is presented is to select the components to be installed. The Main executable component is defaulted to install and can't be changed but a user can choose whether they wish to install a duplicate copy of the '**Sample Files**' as part of the installation process.

The Sample Files include the Sample Data as published on the National Casemix Office website and the Default RDFs that are installed as part of the main executable. These files allow users to see the minimum required format of the data that is required to run the products.

The sample data is provided so users can easily test the product. They also provide a very quick and easy way of testing the install and this is explained at the end of the section.

The sample files in the main executable may not be easily edited from the default install location due to administrative permissions, which is why we also provide the sample data to download from the web.

Once you have chosen the components to install, click '**Next**'.



The next screen allows the user to choose where they would like to install the Grouper software. The destination folder defaults to install to '**C:\Programs Files\NHS Digital\HRG4+ 2019\_20 Engagement Grouper**'.

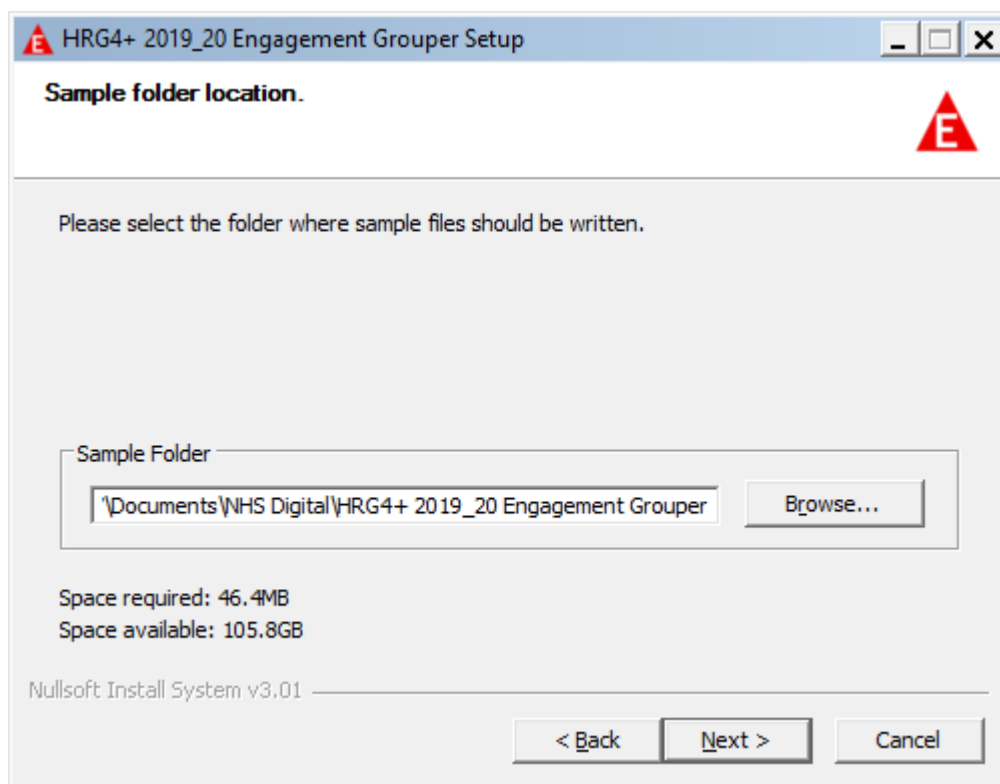
It is strongly recommended that you use this as the destination folder for the Grouper software unless there is a need to install to another location.

The reason for this is that should an update to the same product be made available or should a user wish to re-install the same product, then the updated version will overwrite the previous so avoiding unnecessary disk space being lost and keeping all the relevant files in a same single location.

If, however you do wish to install to another location, then use the browse function and select to another folder location. It is strongly advised to ensure that the standard 21 Grouper application files including 5 folders (3 folders if Sample Data and Default RDF folders are excluded), are extracted and maintained within a sub-directory.

As above, if you wish to reinstall an overwrite, then all you need to do is select the same location and provided there have been no name change to the default folder location (e.g. *HRG4+ 2019\_20 Engagement Grouper*), then the executable will simply overwrite the files as necessary.

When the appropriate destination folder is set, click '**Next**'.

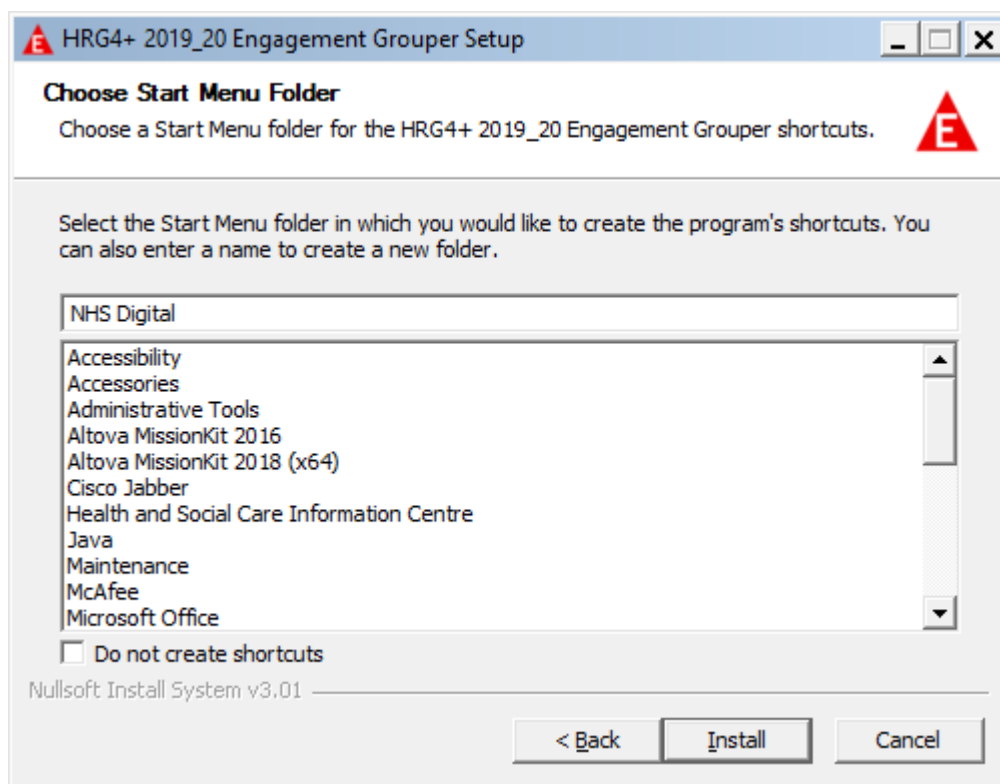


As stated above users have the option (if selected) of installing a duplicate set of **Sample Files** as part of the installation process.

The default installation destination is set to a user's '**Documents**' folder. If you do wish to install to another location, then simply use the browse function and select another folder location.

If you did not select to install the '**Sample Files**' component on the first screen, then this screen will not be shown as part of the installation process.

When the sample file folder is set, click '**Next**'.

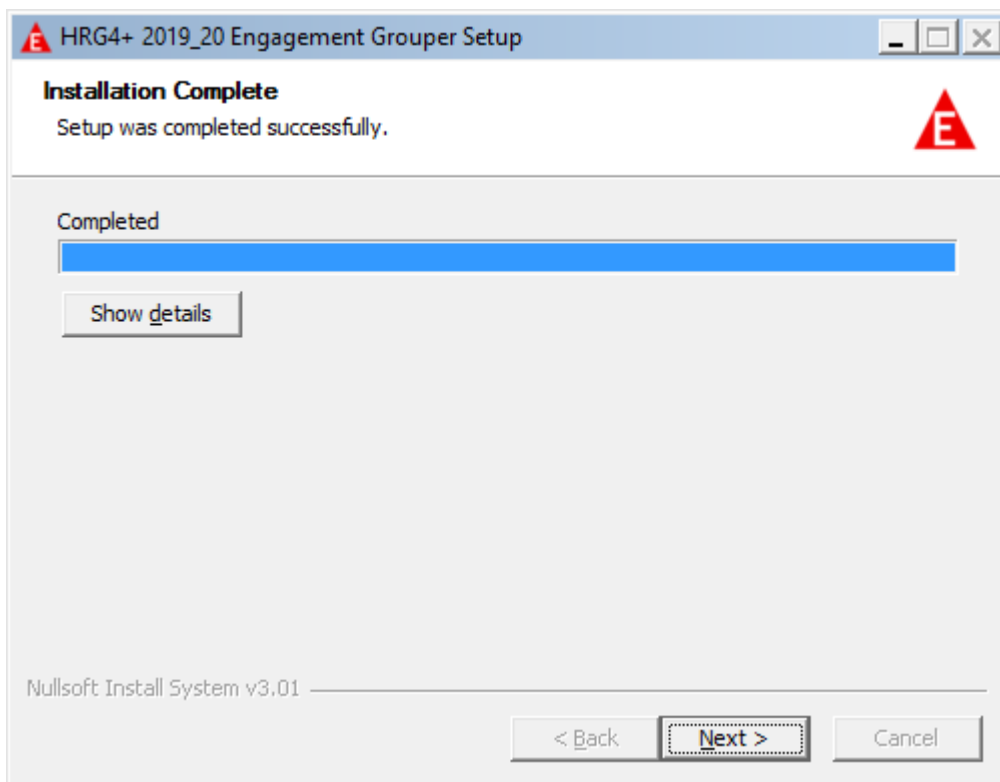


The next screen allows you to create a Grouper shortcut in the '**Start Menu Folder**'. This defaults to a folder called *NHS Digital*, which is recommended, but a user can change the folder name if they wish, or depending on administrative rights, select an existing folder.

There is also an option not to create a shortcut by ticking the '**Do not create shortcuts**' box.

If at any point up to this stage, you wish to alter any of the default or chosen file locations you can use and navigate back through the process using the '**<Back**' button.

Once you have set a shortcut folder, you are ready to complete the installation process by clicking the '**Install**' button.



The installation screen shows the progress of the installation and once completed click 'Next'.

Users will then see the following screen which illustrates that the installation process is complete.



This final screen allows you to finish the installation process and close the installation wizard by clicking '**Finish**' or to open the Grouper directly by clicking the check box.

In the above example this will open the '**HRG4+ 2019\_20 Engagement Grouper**' and you are ready to start using the product.

Alternatively (or after pressing finish) the product can be opened from the shortcut link in the start menu, or by clicking on the '**GUIShell**' icon (which is the Grouper application) in the destination folder which was selected as part of the install.

A simple test that the application is working as expected is to open the Grouper, select new Batch, load the sample APC RDF and then sample APC data and press process. This will result in successful grouping, resulting in 90% grouped and 10% ungrouped.

It is important to note that the sample data as provided will always result in this ratio of expected results. They are specifically designed and provided to do so and are product specific. If you do not obtain this result, but grouping has been successful then it is suggested you have altered the sample data in some way or you are using sample data designed to work with a different design.

So, in the first instance, please re-download a clean copy of the sample data and expected results from the NCO website, which is specific to the relevant release. If you are still unsure, please get in touch with us at [enquiries@nhsdigital.nhs.uk](mailto:enquiries@nhsdigital.nhs.uk) stating the relevant Grouper name in the subject title and we will be happy to help walk-through the process with you.

## Uninstalling the Grouper

If you do need to uninstall a Grouper, then the installation pack comes with an uninstall executable i.e. Uninstall.exe.

| Name                                      | Date modified    | Type                  | Size   |
|---|------------------|-----------------------|--------|
| Default RDF                               | 12/06/2018 09:02 | File folder           |        |
| en  | 12/06/2018 09:01 | File folder           |        |
| PluginData                                | 12/06/2018 09:01 | File folder           |        |
| Plugins                                   | 12/06/2018 09:01 | File folder           |        |
| Sample Data                               | 12/06/2018 09:02 | File folder           |        |
| About.dll                                 | 06/06/2018 17:42 | Application extens... | 22 KB  |
| BatchGUI.dll                              | 06/06/2018 17:43 | Application extens... | 46 KB  |
| GrouperAutocomplete.dll                   | 06/06/2018 17:42 | Application extens... | 16 KB  |
| GrouperBatchApi.dll                       | 06/06/2018 17:43 | Application extens... | 72 KB  |
| GrouperCSharpAPI.dll                      | 06/06/2018 17:42 | Application extens... | 35 KB  |
| GrouperDatabaseVersionAPI.dll             | 06/06/2018 17:43 | Application extens... | 13 KB  |
| GrouperDescriptions.dll                   | 06/06/2018 17:42 | Application extens... | 14 KB  |
| GrouperRdfMappings.dll                    | 06/06/2018 17:42 | Application extens... | 24 KB  |
| GrouperSchemaReader.dll                   | 06/06/2018 17:43 | Application extens... | 27 KB  |
| GUIShell.exe                              | 06/06/2018 17:42 | Application           | 411 KB |
| GUIShell.exe.config                       | 06/06/2018 17:42 | CONFIG File           | 3 KB   |
| HomeGUI.dll                               | 06/06/2018 17:42 | Application extens... | 23 KB  |
| HRGGrouperc.exe                           | 06/06/2018 17:43 | Application           | 317 KB |
| HRGGrouperc.exe.config                    | 06/06/2018 17:42 | CONFIG File           | 1 KB   |
| msvcp120.dll                              | 08/05/2018 17:05 | Application extens... | 645 KB |
| msvcr120.dll                              | 08/05/2018 17:05 | Application extens... | 941 KB |
| Newtonsoft.Json.dll                       | 13/06/2016 23:06 | Application extens... | 514 KB |
| RdfGUI.dll                                | 06/06/2018 17:43 | Application extens... | 58 KB  |
| SharedGUIResources.dll                    | 06/06/2018 17:42 | Application extens... | 503 KB |
| SingleSpellGUI.dll                        | 06/06/2018 17:42 | Application extens... | 84 KB  |
| System.Windows.Controls.Input.Toolkit.dll | 15/01/2012 01:17 | Application extens... | 107 KB |
| Uninstall.exe                             | 12/06/2018 09:01 | Application           | 338 KB |
| ViewerGUI.dll                             | 06/06/2018 17:42 | Application extens... | 46 KB  |
| WPFToolkit.dll                            | 15/01/2012 01:17 | Application extens... | 457 KB |

There is no need to uninstall the product if you are re-installing a fresh copy. Provided the file names have not been altered and the same destination folder is selected then the executable will overwrite the previous installation.

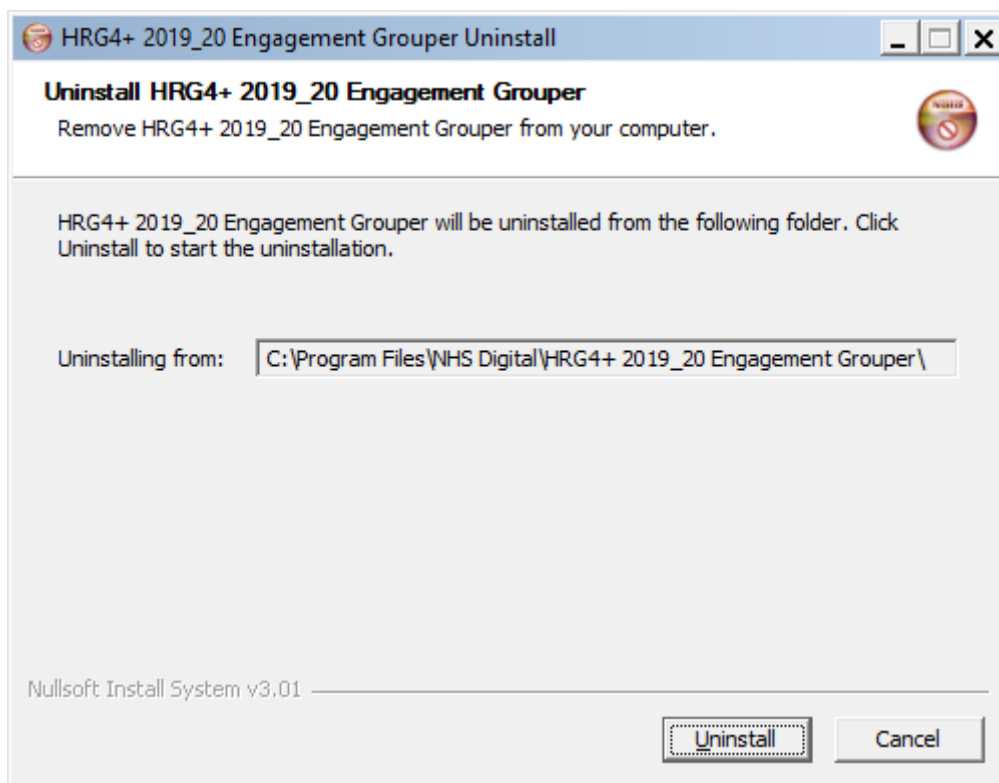
New products will similarly install as separate folders and will not affect previous products based on a different design.

If, however you still feel the need to uninstall the product then the only consideration before Double-clicking the Uninstall.exe is to ensure that the above files are contained within a distinct separate folder.

This only matters to users who have used the functionality to create bespoke destination locations or who have altered the names of the destination folders/file names or added files to the program file folder after the installation. In this circumstance, users are instructed that

prior to uninstalling the grouper, the files as listed above need to be contained in a separate sub-folder.

If you are ready to uninstall simply click '**Uninstall.exe**', and you will be presented with an uninstall dialogue box.

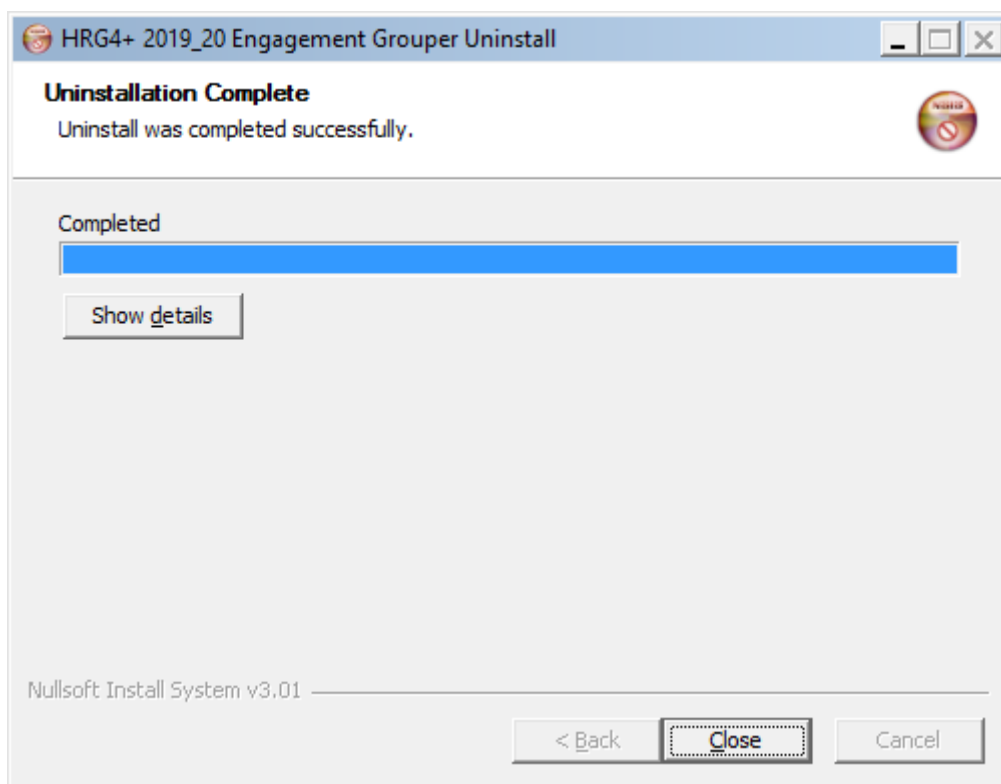


The uninstall screen confirms the folder and file path from which the software will be uninstalled.

Once you are happy that the folder and file path are correct, select '**Uninstall**'.

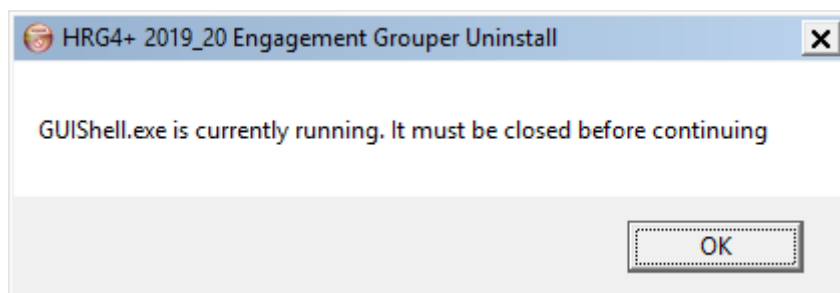
Whilst we strongly recommend users to use the default installation folder we recognise that by giving users the flexibility to install the product as they wish, then users may, in very rare circumstances wish to change the folder or file names, add files into the destination folders, or to not contain the Grouper files in a distinct sub-folder location. This will prevent the uninstallation from working correctly but can be resolved by ensuring the installation files are named as given above and are stored in a separate sub-folder as per the standard install.

If after the uninstallation is complete you see any files remaining, these are files which were not created as part of the standard install or have been altered. These legacy files/folders can be moved or deleted as deemed appropriate by the user.



The uninstallation screen shows the progress of the uninstallation and once completed click '**Close**'.

If in the rare event that during the uninstallation process, you have elements of the Grouper open, then the uninstallation will be halted, and the following message will be displayed.



To continue the uninstallation process, close any element of the Grouper and click '**Ok**' and the uninstallation process will continue.

# Grouper Functionality

This section will explain the different functionality available to users in the Grouper software. In order to help users understand how to use the functionality available, each section will use the default RDFs and sample data that are installed as part of the Grouper installation and the sample data and expected results, which can be downloaded from the National Casemix Office website, from where the Grouper was downloaded.

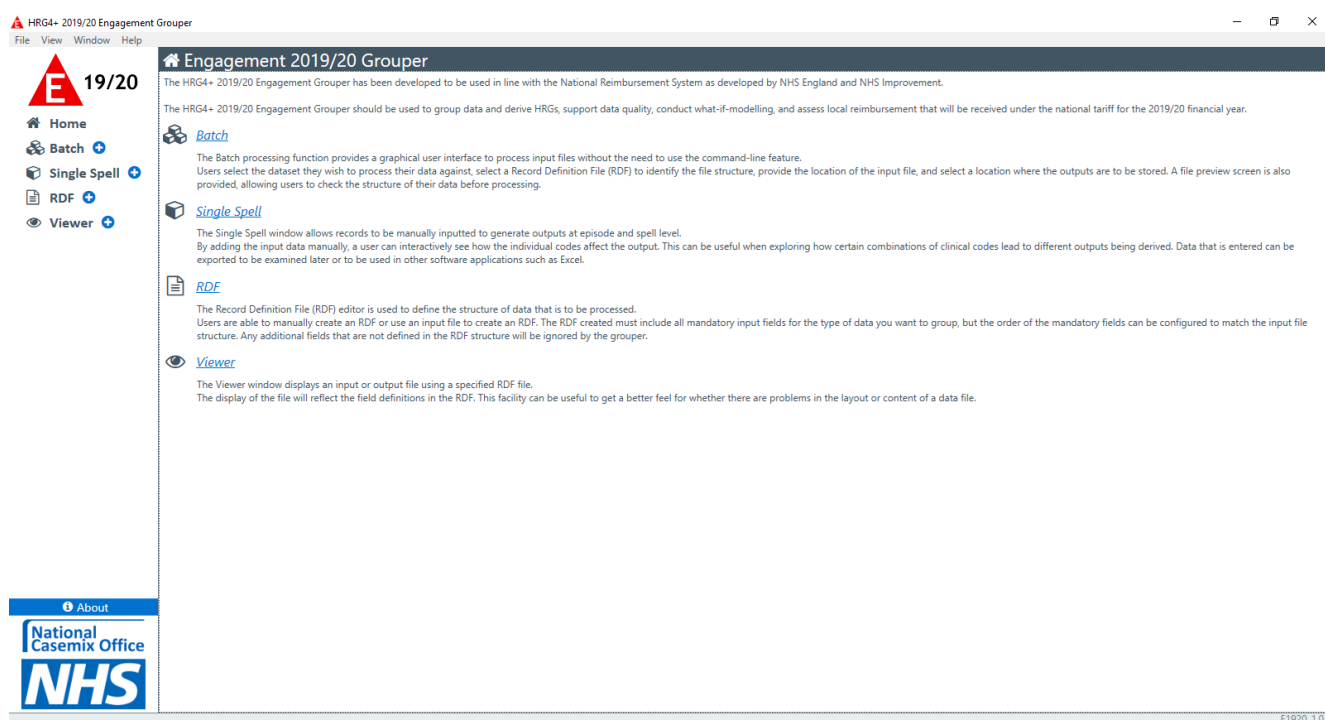
## Batch Processing

Grouping large amounts of data can be done via the Batch screen or Command Line. This section covers processing data via the Batch screen.


Before walking through how to use the Batch screen, it is important to have access to the sample data that is installed as part of the Grouper installation or from the National Casemix Office website.

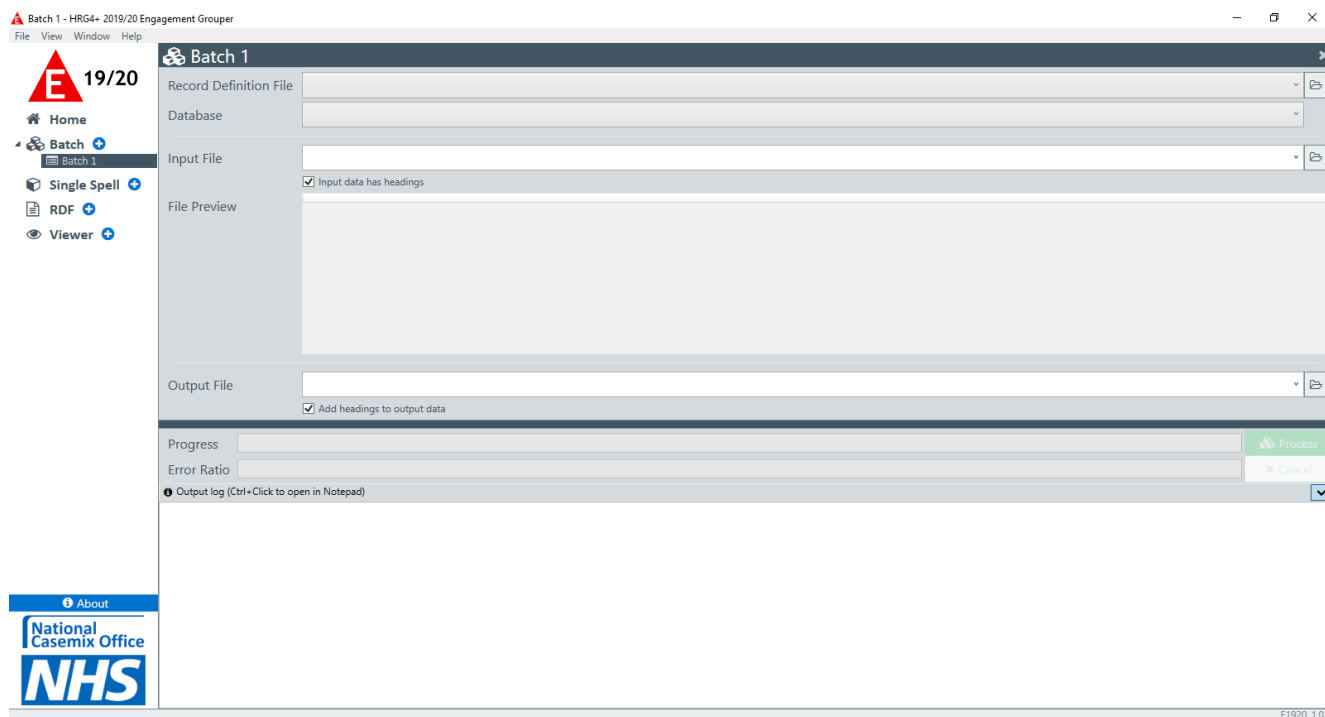
If the sample data wasn't installed as part of the Grouper installation process, then download the "HRG4+ 2019/20 Engagement Grouper Sample Data and Expected Results.zip" file from the same page as the Grouper and extract the contents of the zip file to a suitable location.

Open the Grouper application via the start menu or the GUIShell.exe within the installation folder.




Opening a Batch screen can be done in several ways:

- Select the **+** icon next to **Batch** on the navigation pane;
- Select the '**Batch**' title hyperlink or the  icon on the main home screen;
- Select '**File**' on the menu bar, '**New**' and then '**Batch**'; or
- Use shortcut keys **Alt+B**

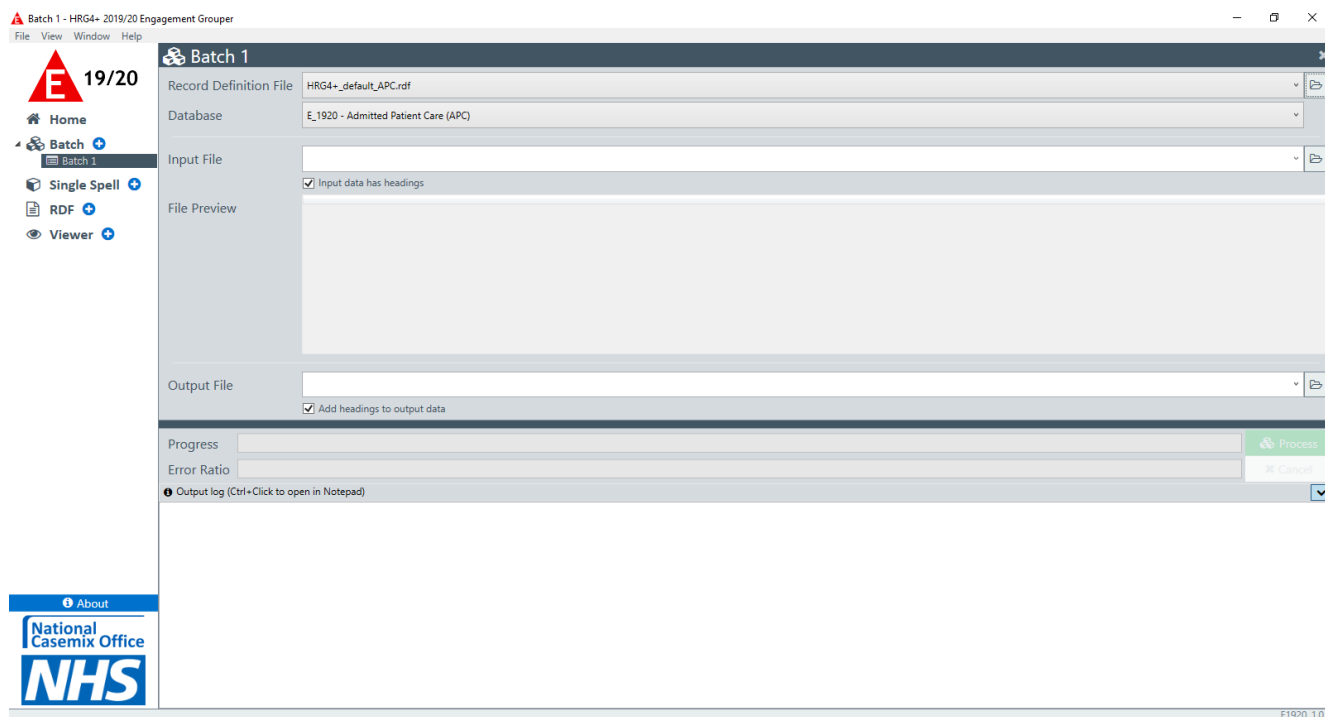


In order to group data, a **Record Definition File (RDF)** must be selected. An RDF tells the grouper the structure of the data you want to process so input fields must match to the field position in the RDF. The Grouper comes with a set of sample RDFs otherwise there is an RDF Editor within the Grouper allowing users to create their own RDFs to match the structure of an input file.


To select an RDF, click the  icon to the right of the **Record Definition File** drop-down list. This will open the **Record Definition File** dialog box allowing a user to search for the relevant RDF. The sample RDFs are located in the application's installation folder in a sub-folder called `Default RDF`.

Open the file `HRG4+_default_APC.rdf`. An alternative sample RDF file should be used for other database selections.

Alternatively, an RDF can be simply dragged and dropped from a file explorer window, straight into the **Record Definition File** drop-down box.

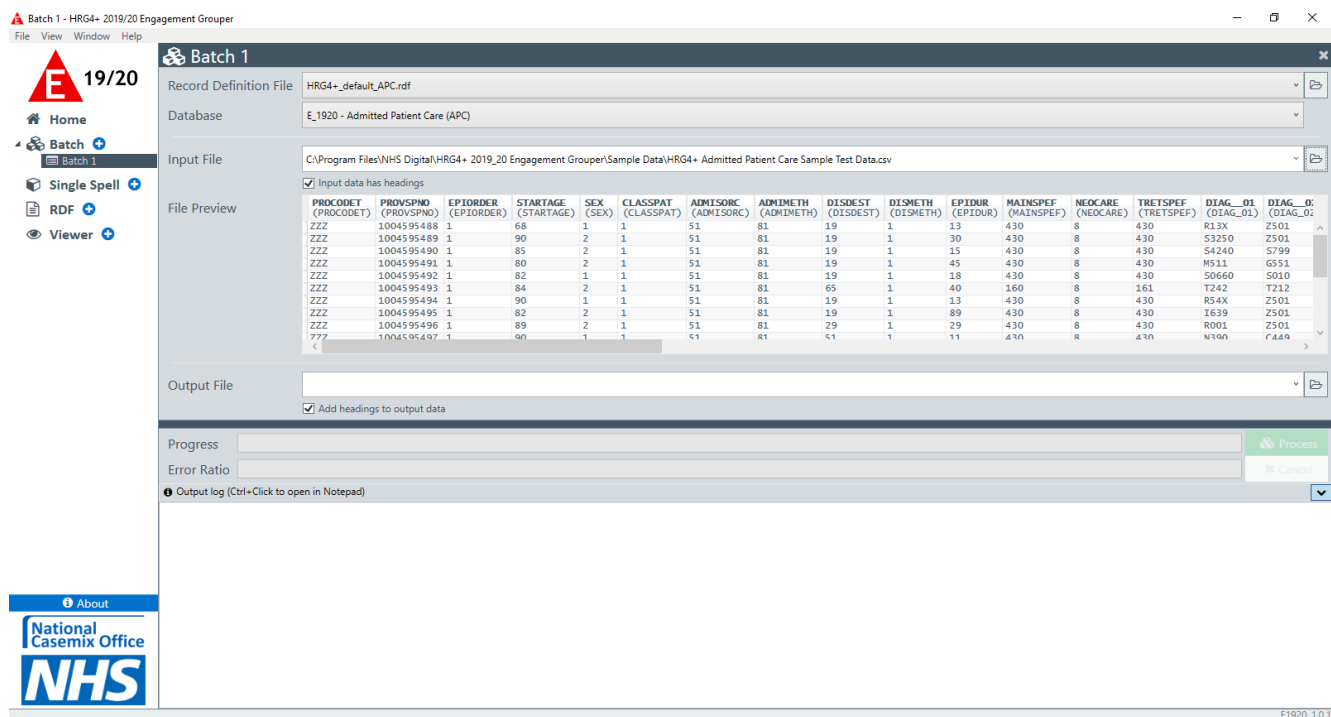


When an RDF is selected, the Database drop-down box will automatically populate with one of the seven databases used for Grouping. The Grouper chooses the relevant database based on the fields defined in the RDF and processes the data with the correct algorithm.

The next step is to select an input file for grouping. To select an input file, click the  icon to the right of the **Input File** drop-down list. This will open the **Input File** dialog box allowing a user to search for the relevant input file for grouping. The sample data are located in the application's installation folder in a sub-folder called `Sample Data`.

Open the file `HRG4+ Admitted Patient Care Sample Test Data.csv`. An alternative sample data file should be used for other database selections.

Alternatively, an input file can be simply dragged and dropped from a file explorer window, straight into the **Input File** drop-down box.



Batch 1 - HRG4+ 2019/20 Engagement Grouper

File View Window Help

**E** 19/20

Home

Batch 1

Single Spell

RDF

Viewer

Batch 1

Record Definition File: HRG4+\_default\_APC.rdf

Database: E\_1920 - Admitted Patient Care (APC)

Input File: C:\Program Files\NHS Digital\HRG4+ 2019\_20 Engagement Grouper\Sample Data\HRG4+ Admitted Patient Care Sample Test Data.csv

Input data has headings

| PROCODET (PROCODET) | PROVSPNO (PROVSPNO) | EPIORDER (EPIORDER) | STARTAGE (STARTAGE) | SEX (SEX) | CLASSPAT (CLASSPAT) | ADMISORC (ADMISORC) | ADMIMETH (ADMIMETH) | DISDEST (DISDEST) | DISMETH (DISMETH) | EPIOUR (EPIOUR) | MAINSPEF (MAINSPEF) | NEOCARE (NEOCARE) | TRETSPEF (TRETSPEF) | DIAG_01 (DIAG_01) | DIAG_02 (DIAG_02) |
|---------------------|---------------------|---------------------|---------------------|-----------|---------------------|---------------------|---------------------|-------------------|-------------------|-----------------|---------------------|-------------------|---------------------|-------------------|-------------------|
| ZZZ                 | 1004595488          | 1                   | 68                  | 1         | 1                   | 51                  | 81                  | 19                | 1                 | 13              | 430                 | 8                 | 430                 | R13K              | Z501              |
| ZZZ                 | 1004595489          | 1                   | 90                  | 2         | 1                   | 51                  | 81                  | 19                | 1                 | 30              | 430                 | 8                 | 430                 | S3250             | Z501              |
| ZZZ                 | 1004595490          | 1                   | 85                  | 2         | 1                   | 51                  | 81                  | 19                | 1                 | 15              | 430                 | 8                 | 430                 | S4240             | S799              |
| ZZZ                 | 1004595491          | 1                   | 80                  | 2         | 1                   | 51                  | 81                  | 19                | 1                 | 45              | 430                 | 8                 | 430                 | MS11              | G551              |
| ZZZ                 | 1004595492          | 1                   | 82                  | 1         | 1                   | 51                  | 81                  | 19                | 1                 | 18              | 430                 | 8                 | 430                 | S0660             | S010              |
| ZZZ                 | 1004595493          | 1                   | 84                  | 2         | 1                   | 51                  | 81                  | 65                | 1                 | 40              | 160                 | 8                 | 161                 | T242              | T212              |
| ZZZ                 | 1004595494          | 1                   | 90                  | 1         | 1                   | 51                  | 81                  | 19                | 1                 | 13              | 430                 | 8                 | 430                 | RS4X              | Z501              |
| ZZZ                 | 1004595495          | 1                   | 82                  | 2         | 1                   | 51                  | 81                  | 19                | 1                 | 89              | 430                 | 8                 | 430                 | I639              | Z501              |
| ZZZ                 | 1004595496          | 1                   | 89                  | 2         | 1                   | 51                  | 81                  | 29                | 1                 | 29              | 430                 | 8                 | 430                 | R001              | Z501              |
| ???                 | 1004595497          | 1                   | 90                  | 1         | 1                   | 51                  | 81                  | 51                | 1                 | 11              | 430                 | 8                 | 430                 | NR00              | R244              |

Output File:

Add headings to output data

Progress:

Error Ratio:

Output log (Ctrl+Click to open in Notepad)

Process

Cancel

About


National Casemix Office

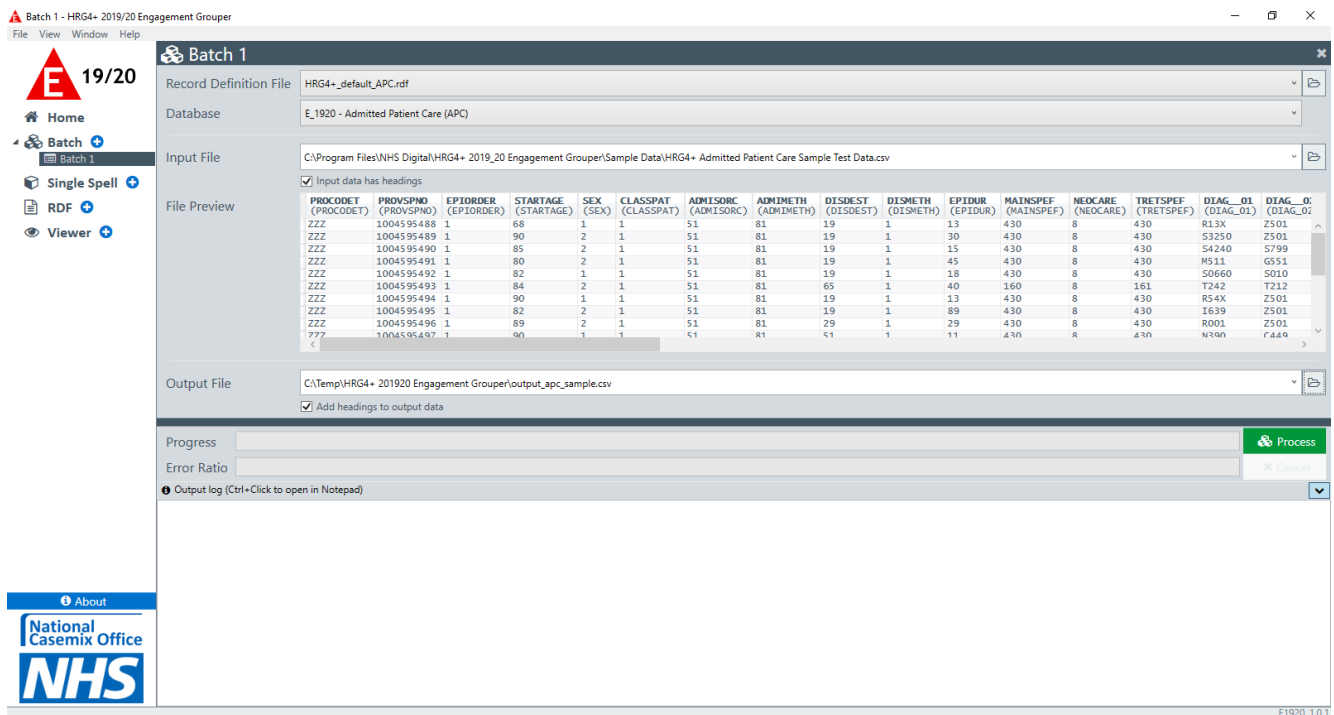
NHS

E1920\_1.0.1

Ensure that the **Input data has headings** box is checked. This tells the Grouper not to process the first line of input file. If the first row of the input file does not contain headers, then this should be unchecked.

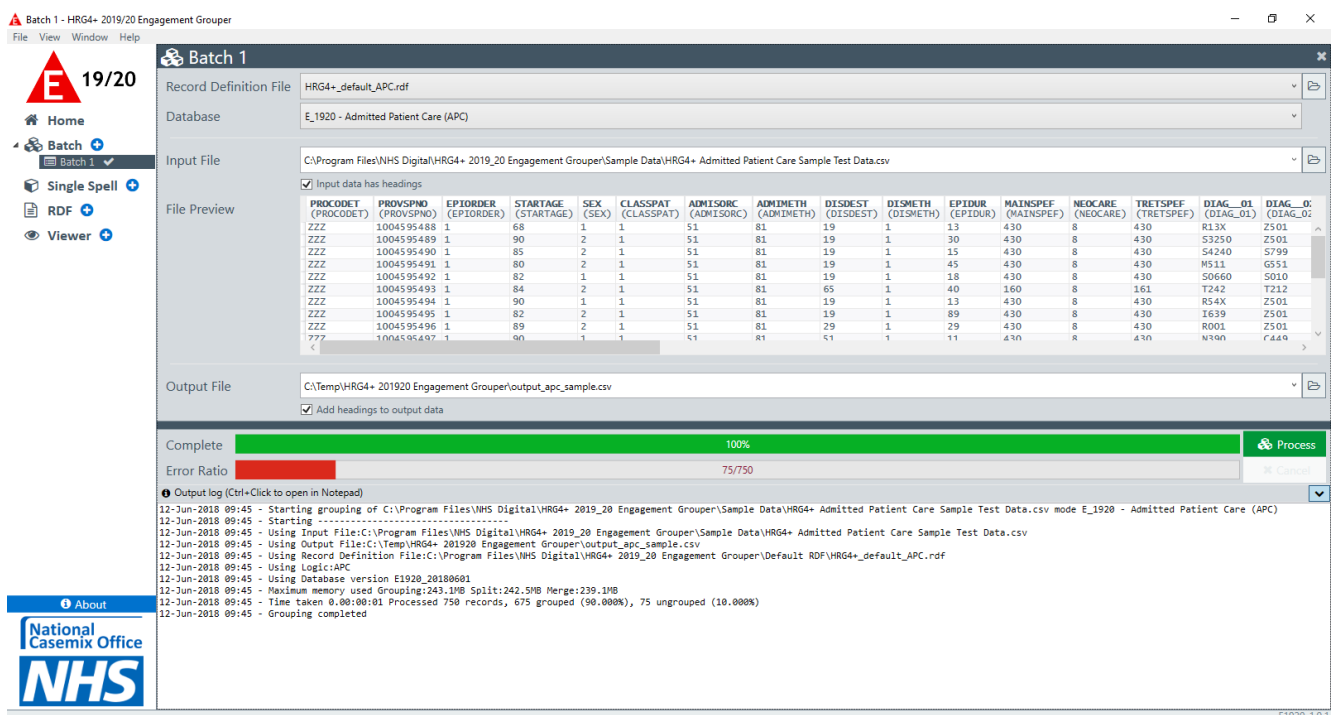
The Batch Screen contains a **File Preview** window which allows users to check their input file data against the RDF to see if there are any problems in the layout or content of the input file.

The next step is to select a file location to where the grouper output files are to be written. To select an output file location, click the  icon to the right of the **Output File** drop-down list. This will open the **Save Output File** dialog box allowing a user to search for the relevant location to where the grouper output files should be written. Go to the folder containing the input file and type `output_apc_sample` (or anything similarly appropriate) in the **File name** box and click **Save**. The filename of the output file is displayed in the **Output File** drop-down box.



Ensure that the **Add headings to output data** box is checked. This adds column headings to the output files. A full list of output headings can be found in the **Output Files** section.

Once everything has been selected, then the green **Process** button becomes active. To process the input file, click the **Process** button.



The **Complete** bar indicates to a user how far through the Grouper is in processing the file and the **Error Ratio** bar indicates the number of errors detected in grouping the data. If for any reason a user needs to stop grouping, then the **Cancel** button can be selected.

When finished, the **Output log** display area shows information about the grouping session, including the number of records grouped. These details can also be found in the file hrg.log. The log file can be opened from **Help** on the menu bar and selecting **View Log**.

To view the output files, open Windows Explorer and browse to the folder specified for the output file. Open the file `output_apc_sample_FCE.csv` in Microsoft Excel. The file is a copy of the input file with HRGs and other related columns appended.

## Command Line Initiation

The alternative way to process large files is via Command line. Command line refers to the character-based command shell user interface within Microsoft Windows, commonly known as the DOS Window. The Grouper can process a file using the command line with parameters shown below.

The parameters consist of a hyphen followed by a lower-case letter and, where applicable, a value (shown in italics). All parameters are mandatory except for the optional parameters shown enclosed in square brackets.

The command line takes the following form:

```
HRGGrouperc.exe -I Input_File -o Output_File -d RDF_File -l Grouping_Logic [-h] [-t] [-v] [-?] [> Log_File]
```

### Command line parameters:

|                                       |   |
|---------------------------------------|---|
| <code>-i <i>Input_File</i></code>     | The path and filename of the input file.  |
| <code>-o <i>Output_File</i></code>    | The path and filename of the <b>output</b> file.  |
| <code>-d <i>RDF_File</i></code>       | The path and filename of the record <b>definition</b> file.   |
| <code>-l <i>Grouping_Logic</i></code> | The grouping logic. The available values are: APC, ACC, EM, NAC, PCC, NRD, NCC.   |
| <code>-h</code>                       | Optional. Where present, indicates that the input file has a <b>header row</b> (field names). Omit this parameter where the first row in the file is a data row.                          |
| <code>-t</code>                       | Optional. Where present, stops generation of field names in the <b>top row</b> of the output file. If this parameter is omitted, then each of the output files will contain a header row. |
| <code>-v</code>                       | Optional. Increases verbosity of the log output.  |
| <code>-?</code>                       | Optional. Where present, directs the Grouper to list the available command line parameters. This parameter cannot be combined with other parameters.                                      |
| <code>&gt; <i>Log_File</i></code>     | Optional. Where present, the Grouper redirects the log output to a specified file. If not used, the log output is written to the screen.  |

Where there are spaces in paths or filenames for parameter values, the parameter value must be enclosed within double-quote characters.

## Running the Grouper

It is recommended to invoke the command line Grouper from a script (also known as a batch file). For example, to group some APC data (with headings) in C:\Temp\data\apc.csv using a suitable Record Definition File (APC.rdf) in the same directory, then a suitable script is:

```
@echo off
cd /d "c:\Program Files\NHS Digital\HRG4+ 2019_20 Engagement Grouper"
HRGGrouperc.exe -i "c:\Temp\data\apc.csv" -o "c:\Temp\data\output.csv" -
d "c:\Temp\data\apc.rdf" -l APC -h > "c:\Temp\data\hrg.log"
if %ERRORLEVEL% neq 0 echo Error in command, please check hrg.log
pause
```

Alternatively, as from Engagement 2019/20, it is possible to run the Grouper from a working directory by invoking hrggrouperc.exe as a fully qualified path:



```
@echo off
cd /d "c:\Temp\data"
"c:\Program Files\NHS Digital\HRG4+ 2019_20 Engagement
Grouper\HRGGrouperc.exe" -i "apc.csv" -o "output.csv" -d "apc.rdf" -l APC
-h > "hrg.log"
if %ERRORLEVEL% neq 0 echo Error in command, please check hrg.log
pause
```

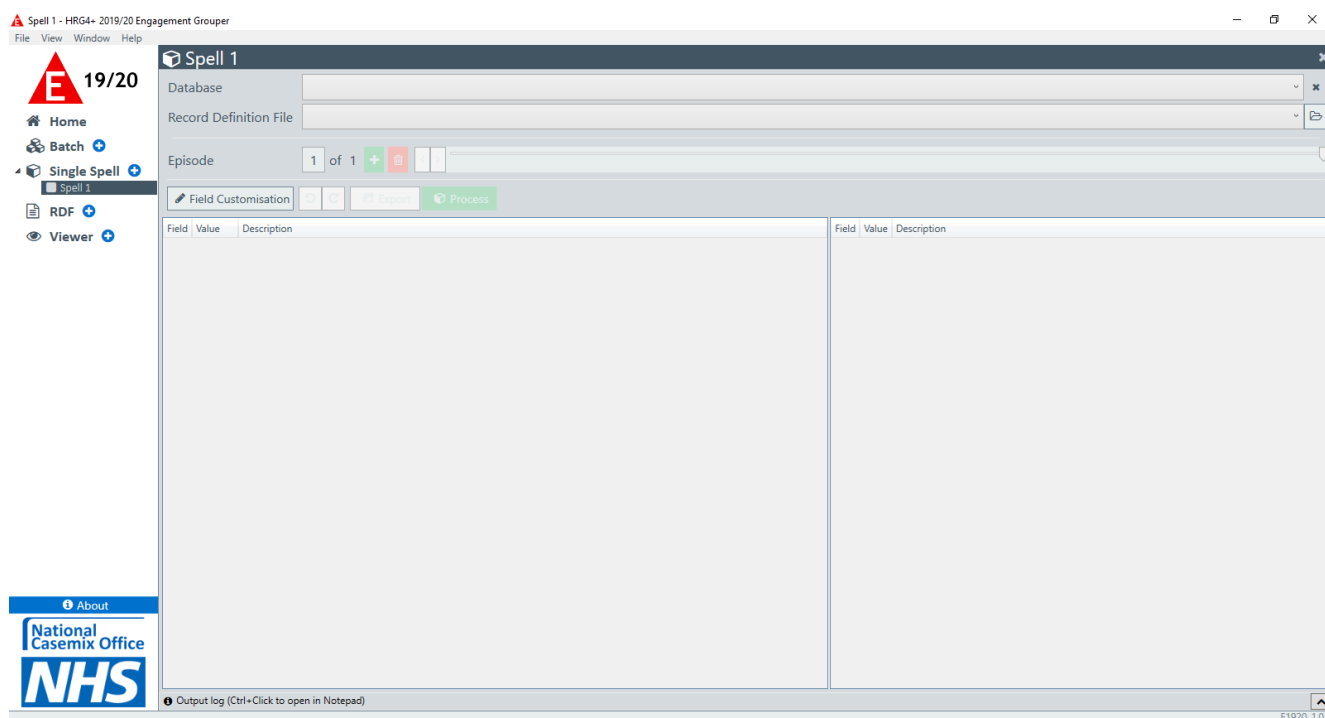
The penultimate statement of these scripts checks whether the Grouper run successfully completed and prints a message if the run failed.


## Single Spell Grouping

The Single Spell window is best used to help understand how outputs are derived for one particular spell or episode. By adding the input data manually, a user can see how the individual codes affect the output in real time. This can be useful when exploring how certain combinations of clinical codes lead to different HRGs being derived. It can also be useful to quickly find the descriptions of codes and ascertain which fields are mandatory (expressed in **bold** text).

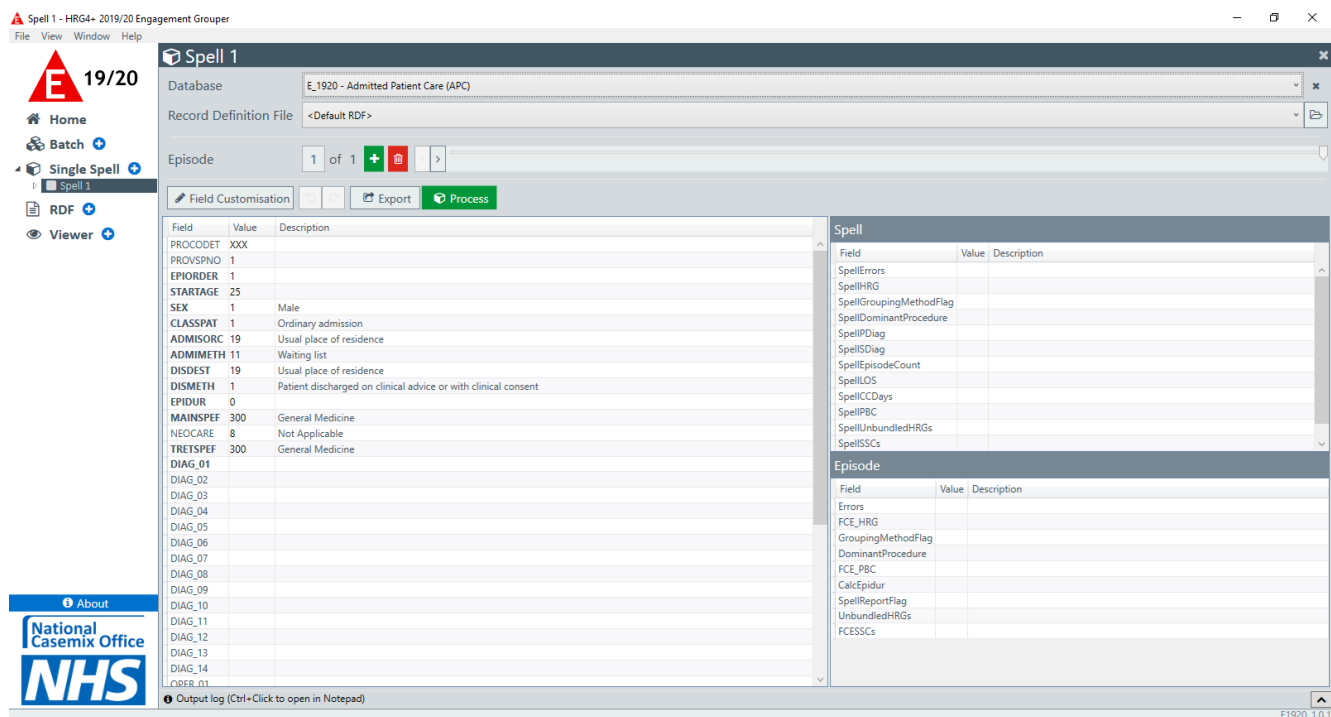
Opening a Single Spell screen can be done in several ways:

- Select the  icon next to **Single Spell** on the navigation pane;
- Select the '*Single Spell*' title hyperlink or the  icon on the main home screen;
- Select '**File**' on the menu bar, '**New**' and then '**Single Spell**'; or
- Use shortcut keys **Alt+S**



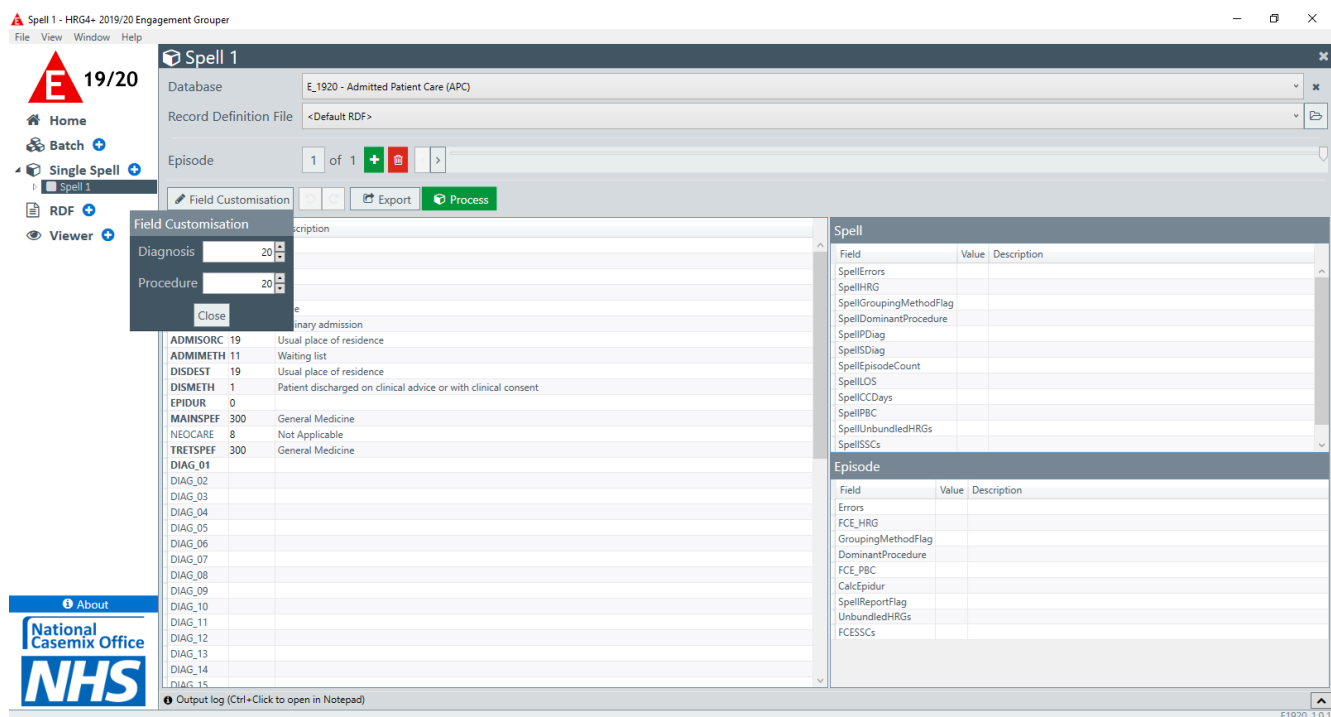
There are two ways to creating a record in Single Spell. The first way to add a record is to select database from the **Database** drop down list, which will automatically populate the screen with a set of default input fields to allow a user to group data. The second way is by selecting a **Record Definition File** by either dragging a Record Definition File directly into the Record Definition File box or using the browse folder  icon. Selecting a **Record Definition File** will automatically choose the relevant **Database**.

Select **E\_1920 – Admitted Patient Care (APC)** from the **Database** drop-down box. The Record Definition File drop down box will populate with a **<Default RDF>** and based on the Default RDF, the Single Spell window will populate with a set of input fields.

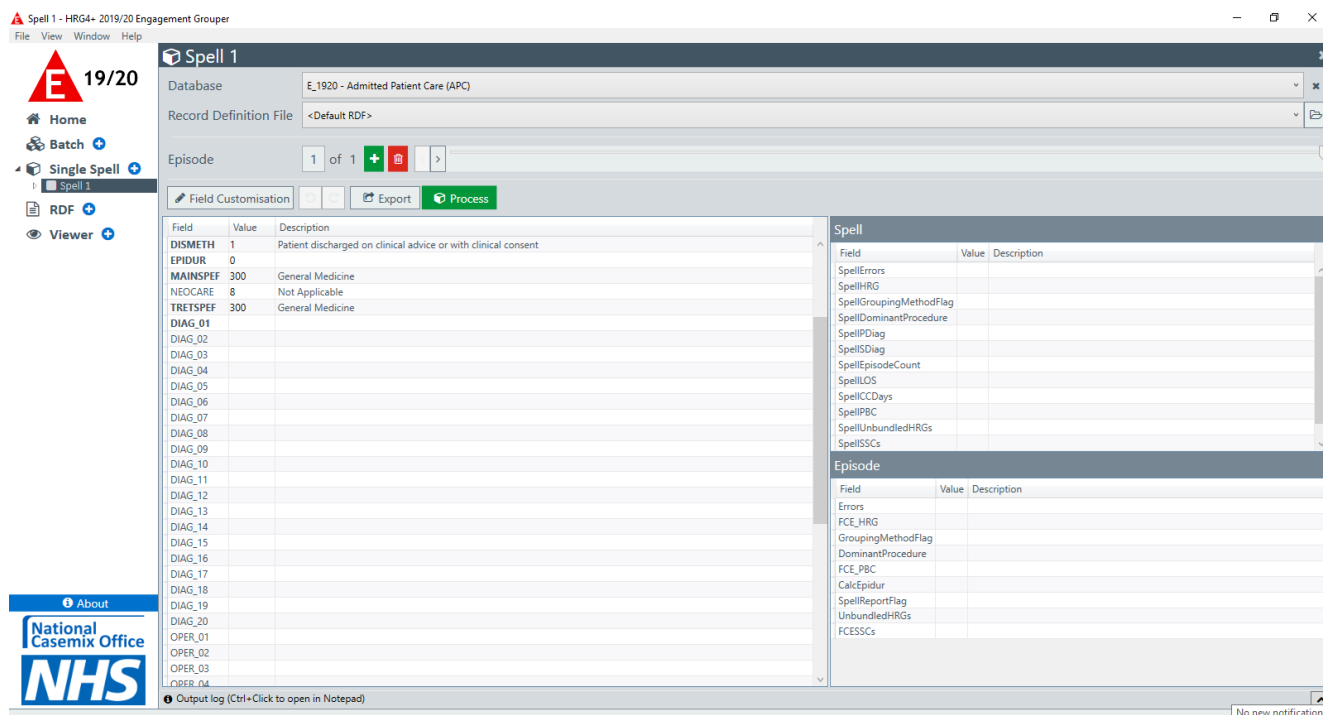


When using single spell, it may be appropriate to increase or decrease the number of variable fields for a particular database. A **'Field Customisation'** button has been introduced to allow users to easily increase certain fields without the need to create a bespoke Record Definition File.

Select the **'Field Customisation'** button and set the Diagnosis and Procedure fields to 20.



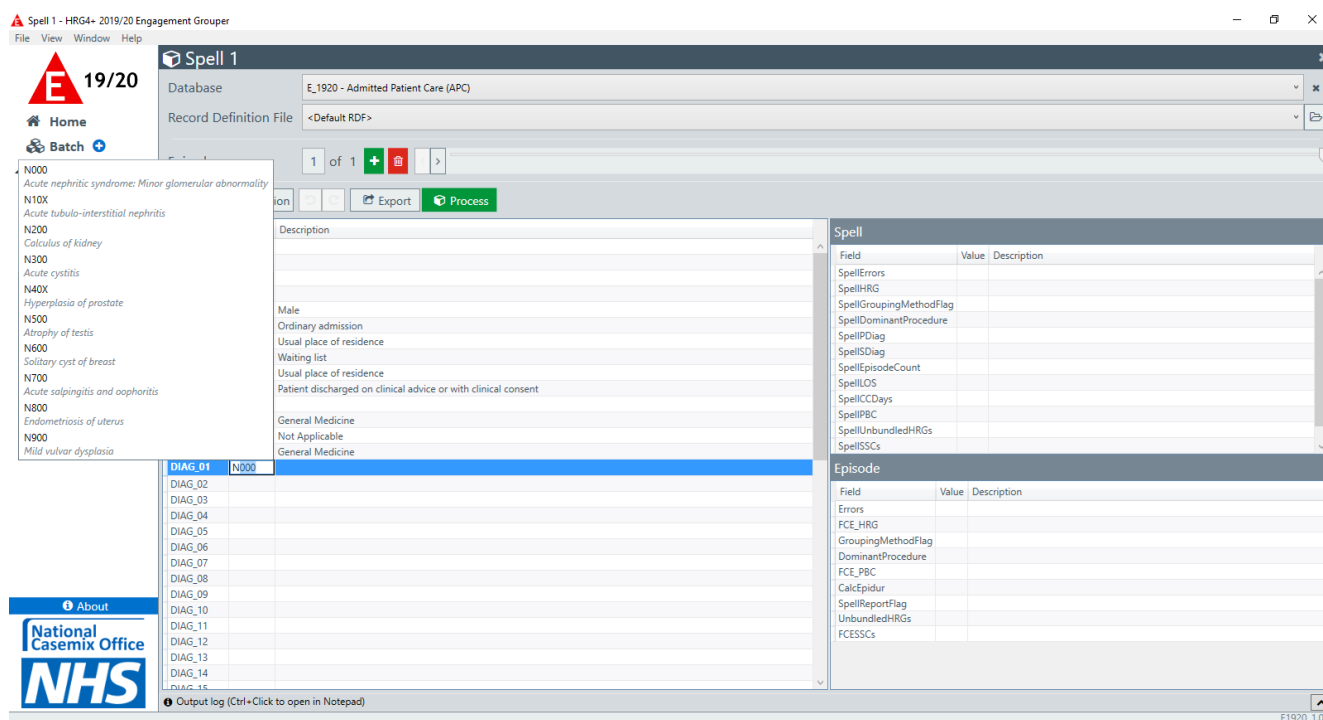
The input window should now display 20 diagnosis fields and 20 procedure fields.



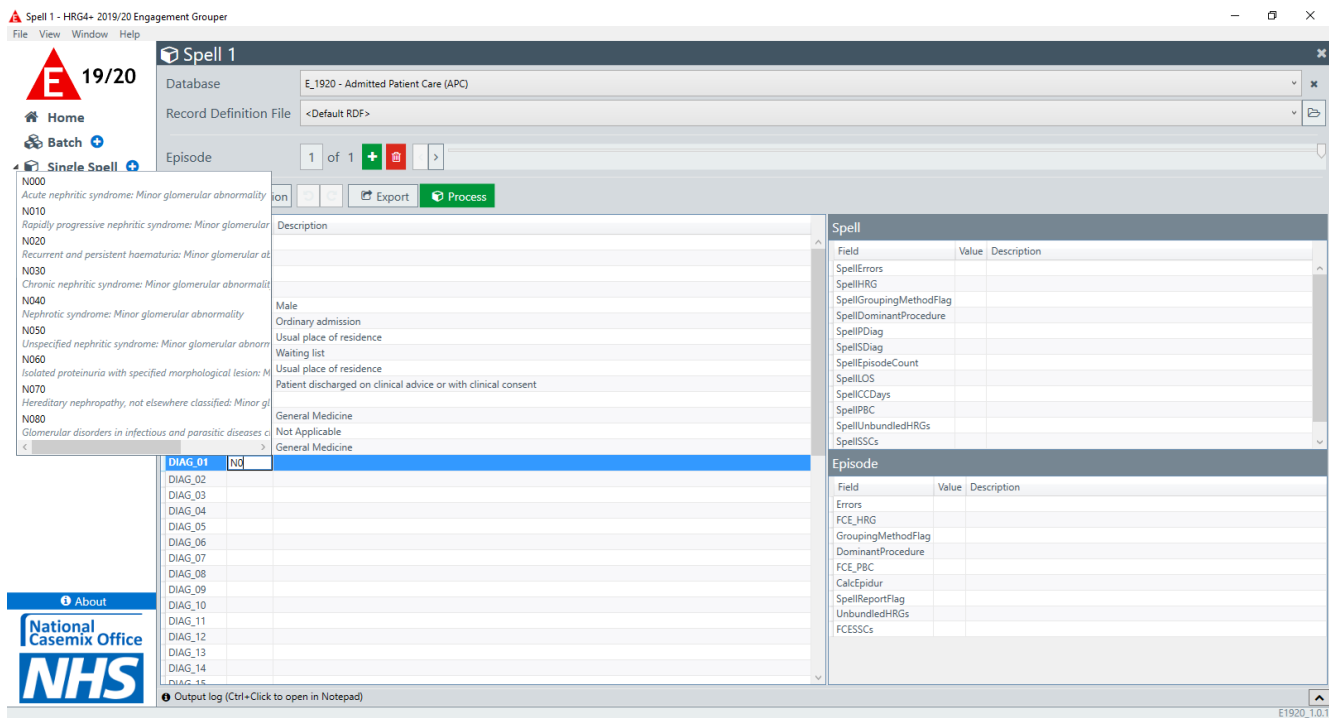
When a Database or Record Definition File is selected, certain fields in the input window are already populated with useful values to save some data input effort but users can edit these values and populate other fields as appropriate.

Particular input fields contain an auto complete function, meaning when a user starts typing in the cell, a list of 10 relevant codes will be displayed along with their description. If a user continues to type in the input cell, then the list of codes will narrow down based on pattern matching.

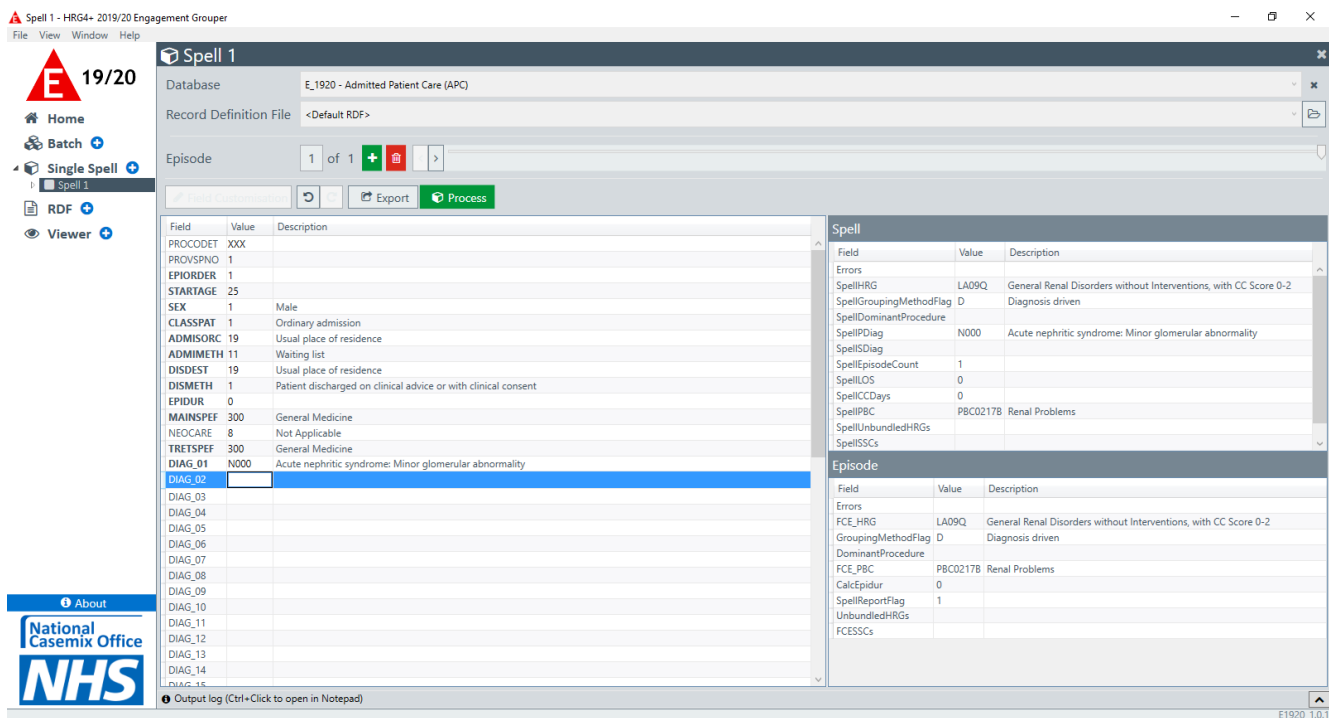
In the **Diag\_01** value cell, start typing **N**. You will see a list of 10 possible values appear which a user can choose from.



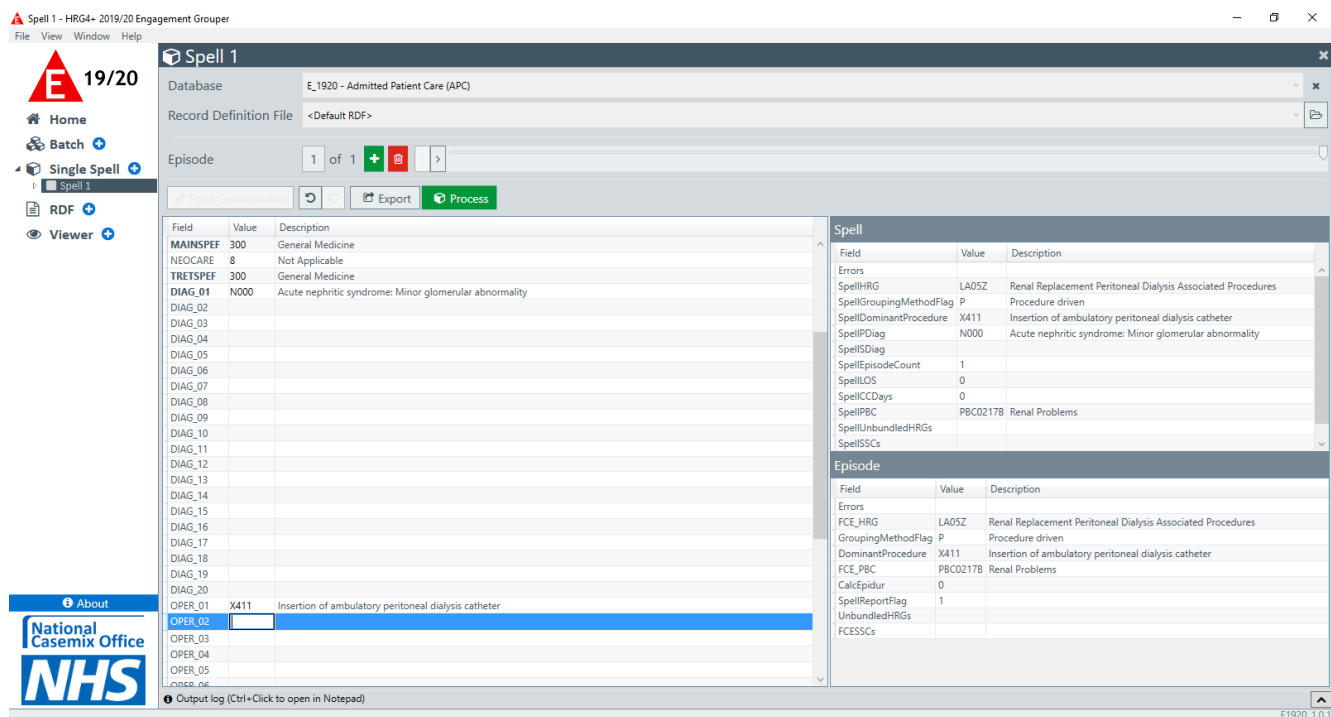
After **N**, type **0** and the list of 10 options will alter to possible values starting with **N0**.



Select value 'N000' (Acute nephritic syndrome: Minor glomerular abnormality). Once selected, the input values will automatically process and produce outputs in the Spell and Episode windows.



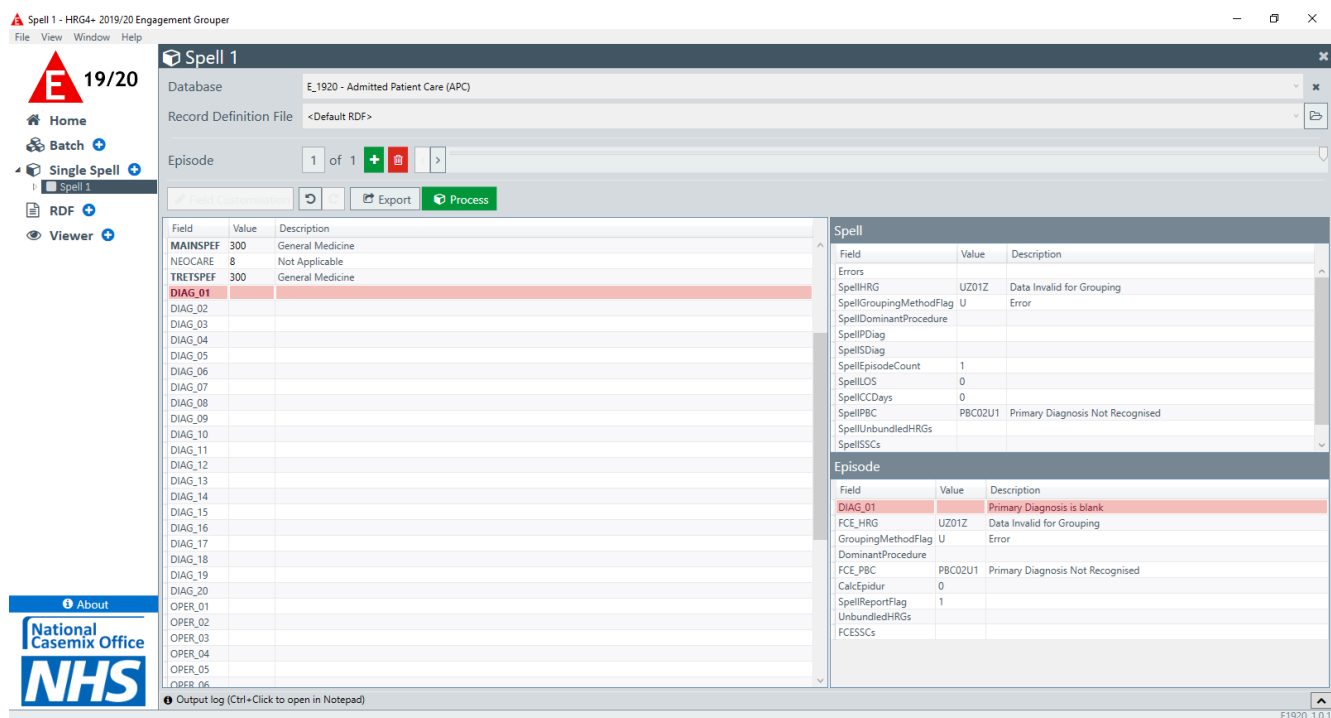
Now add code 'X411' (Insertion of ambulatory peritoneal dialysis catheter) to the OPER\_01 value cell.



Once entered, the Spell and Episode outputs change from Diagnosis driven grouping to Procedure driven grouping with the Episode and Spell HRGs changing.

In certain circumstances, a user may want to undo or redo an action performed in Single Spell. To undo a particular action, click the undo icon or use the shortcut keys **Ctrl+Z** and to redo a previous action, click the redo icon or use the shortcut keys **Ctrl+Y**. The undo and redo buttons store up to maximum of 5 changes.

Select the undo icon and the value **X411** is removed from the value field of OPER\_01 and selecting the undo icon again will remove the value **N000** from DIAG\_01 which causes the error message 'Primary Diagnosis is blank' to be generated.



Select the redo icon and the value **N000** is re-populated in the value field of DIAG\_01. Select the redo icon again and the value **X411** is re-populated in the value field of OPER\_01.

For particular fields in Single Spell, there is 'Drag and Drop' functionality, which allows users to drag a particular value from one field to another. The following fields contain the 'Drag and Drop' facility:

APC – Diagnosis and Procedure fields

NAC – Procedure fields

EM – Investigation and Treatment fields

PCC – Critical Care Activity Code, Diagnosis and Procedure fields

NCC – Critical Care Activity Code fields

Enter the following code **X428** (Other specified placement of other apparatus for compensation for renal failure) into the OPER\_02 value field and **T122** (Drainage of pleural cavity NEC) into the OPER\_03 value field.

Click in the OPER\_03 value field and highlight the value **T122**.

The screenshot shows the 'Spell 1' application window. The main area displays a table of fields and their values. The OPER\_03 field is highlighted in blue, and its value 'T122' is also highlighted in blue. The table shows the following data:

| Field    | Value | Description   |
|----------|-------|---|
| MAINSPEF | 300   | General Medicine  |
| NEOCARE  | 8     | Not Applicable  |
| TRETSPEF | 300   | General Medicine  |
| DIAG_01  | N000  | Acute nephritic syndrome: Minor glomerular abnormality                          |
| DIAG_02  |       |   |
| DIAG_03  |       |   |
| DIAG_04  |       |   |
| DIAG_05  |       |   |
| DIAG_06  |       |   |
| DIAG_07  |       |   |
| DIAG_08  |       |   |
| DIAG_09  |       |   |
| DIAG_10  |       |   |
| DIAG_11  |       |   |
| DIAG_12  |       |   |
| DIAG_13  |       |   |
| DIAG_14  |       |   |
| DIAG_15  |       |   |
| DIAG_16  |       |   |
| DIAG_17  |       |   |
| DIAG_18  |       |   |
| DIAG_19  |       |   |
| DIAG_20  |       |   |
| OPER_01  | X411  | Insertion of ambulatory peritoneal dialysis catheter                            |
| OPER_02  | X428  | Other specified placement of other apparatus for compensation for renal failure |
| OPER_03  | T122  | Drainage of pleural cavity NEC  |
| OPER_04  |       |   |
| OPER_05  |       |   |
| OPER_06  |       |   |

The right-hand pane shows a 'Spell' summary table with the following data:

| Field                   | Value    | Description   |
|-------------------------|----------|---|
| Errors                  |          |   |
| SpellHRG                | LA05Z    | Renal Replacement Peritoneal Dialysis Associated Procedures |
| SpellGroupingMethodFlag | P        | Procedure driven  |
| SpellDominantProcedure  | X411     | Insertion of ambulatory peritoneal dialysis catheter        |
| SpellIPDiag             | N000     | Acute nephritic syndrome: Minor glomerular abnormality      |
| SpellISDiag             |          |   |
| SpellEpisodeCount       | 1        |   |
| SpellLOS                | 0        |   |
| SpellCCDays             | 0        |   |
| SpellPBC                | PBC0217B | Renal Problems  |
| SpellUnbundledHRGs      |          |   |
| SpellSSCs               |          |   |

The bottom left corner of the window shows the 'National Casemix Office' and 'NHS' logos. The bottom right corner shows the version number 'E1920\_1.0.1'.

Using the cursor, select the actual value **T122** (highlighted blue) and drag to the OPER\_01 value field and drop it.

The screenshot shows the Spell 1 application window. The main window displays a list of episodes with columns for Field, Value, and Description. The episode OPER\_01 is highlighted, showing a value of T122 and a description of 'Drainage of pleural cavity NEC'. Below the episode list, there are buttons for 'Export' and 'Process'. On the right side, there are two detailed views: 'Spell' and 'Episode', both showing a table of fields, values, and descriptions. The 'Spell' view shows fields like SpellHRG (YD04Z), SpellGroupingMethodFlag (P), SpellDominantProcedure (T122), and SpellIPBC (PBC0217B). The 'Episode' view shows fields like FCE\_HRG (YD04Z), GroupingMethodFlag (P), DominantProcedure (T122), and FCE\_PBC (PBC0217B). The interface also includes a navigation pane on the left with options like Home, Batch, Single Spell, and Viewer, and a status bar at the bottom indicating 'Output log (Ctrl+Click to open in Notepad)'.

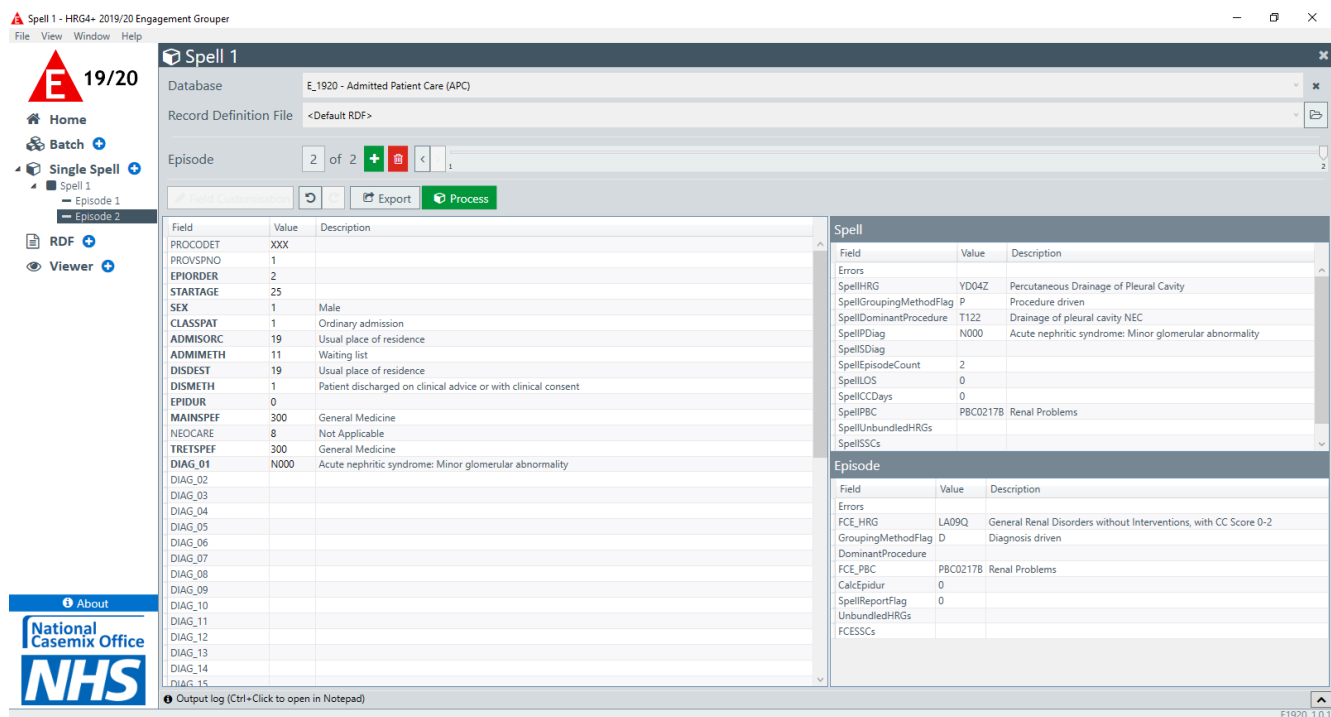
The OPER\_01 value (**X411**) moves to OPER\_02 and the OPER\_02 value (**X428**) moves to the OPER\_03.

When values are moved, Single Spell automatically re-processes the data, so in this example **T122** (Drainage of pleural cavity NEC) is now in the dominant procedure code and this is what is used in grouping logic and results in the information in the Episode and Spell output windows changing. Previously, the Spell and Episode HRG was **LA05Z** (Renal Replacement Peritoneal Dialysis Associated Procedures) but it has now changed to **YD04Z** (Percutaneous Drainage of Pleural Cavity).

For some of the databases, such as Admitted Patient Care, it is possible to build up a spell consisting of multiple episodes. Additional episodes can be added by clicking the **+** icon on the Single Spell window or by right-clicking on the particular Spell in the navigation pane and selecting 'New Episode'. Databases which do not support additional episodes will have this functionality disabled.

Add a new episode to the current Spell by clicking the **+** icon on the Single Spell window.

A new Episode window will open and certain information from the previous episode will be brought forward. This does not include non-primary diagnosis codes or procedure codes.



When the second episode is added, it automatically re-processes the input values again and depending on the information in the episodes, the information in the Episode and Spell windows may change.

A user can navigate between different episodes within a Spell by either clicking on the **Episode** numbers in the navigation pane, entering a specific episode number in the **Episode Number box** or use the **Slider bar**.

Single Spell allows information from other sources to be copied and pasted directly into the single spell window.

The first way of copying information, from an application such as Excel, is to select a row of data from a file, along with header information and paste directly into the Single Spell window.

This is known as '**smart pasting**' and uses the header information to identify which cells to paste the information into. This is a useful way of pasting information into Single Spell where the input fields in the Single Spell window are in a different order to the data being copied. The disadvantages to this method of copying and pasting is that the headers, from where the data is being copied, must be named exactly the same as the field names in the Single Spell window.

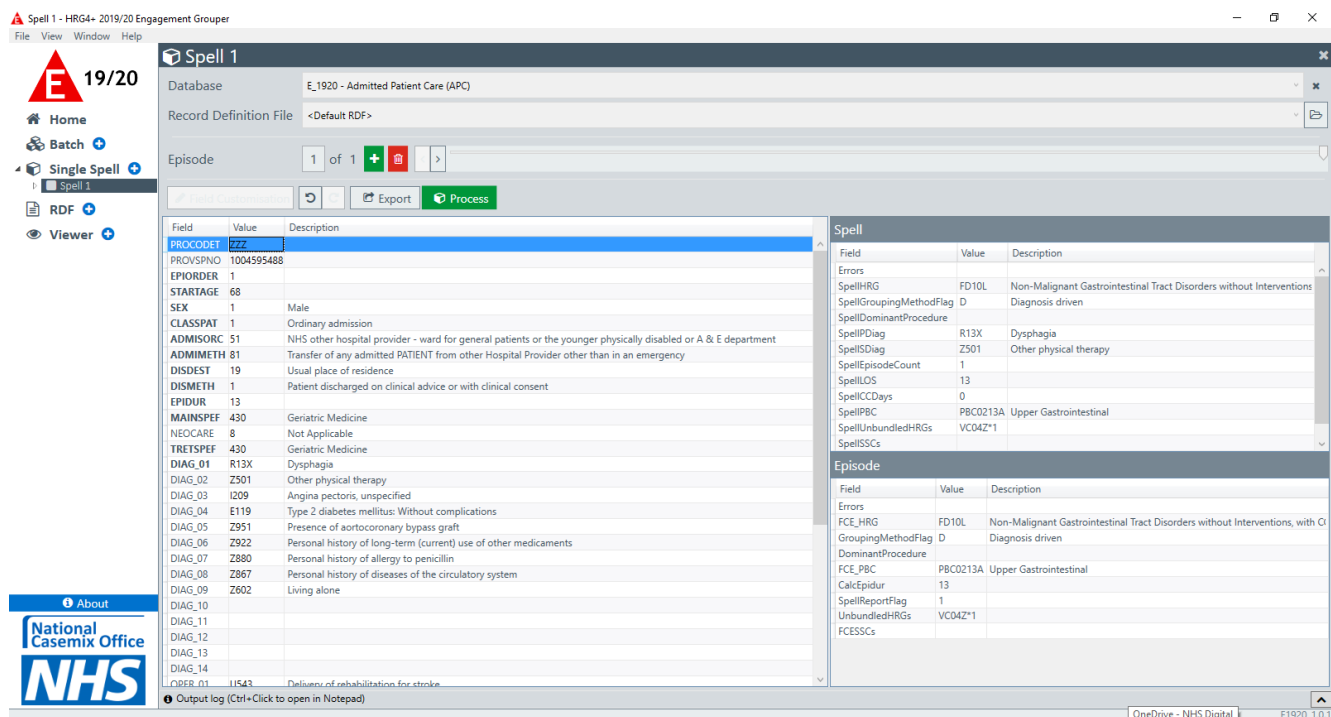
Open a new single spell window and select **E\_1920 – Admitted Patient Care (APC)** from the **Database** drop-down box.

Go to the HRG4+ Admitted Patient Care Sample Test Data.csv file and open.

Select the header row and the first line of data and copy:

|   | A       | B          | C        | D        | E   | F       | G       | H        | I       | J       | K      | L        | M       | N        | O       | P       | Q       | R       | S       |
|---|---------|------------|----------|----------|-----|---------|---------|----------|---------|---------|--------|----------|---------|----------|---------|---------|---------|---------|---------|
| 1 | PROCODE | PROVSPNO   | EPIORDEF | STARTAGI | SEX | CLASSPA | ADMISOR | ADMIMETH | DISDEST | DISMETH | EPIDUR | MAINSPEF | NEOCARE | TRETSPEI | DIAG_01 | DIAG_02 | DIAG_03 | DIAG_04 | DIAG_05 |
| 2 | ZZZ     | 1004595488 | 1        | 68       | 1   | 1       | 51      | 81       | 19      | 1       | 13     | 430      | 8       | 430      | R13X    | Z501    | I209    | E119    | Z951    |
| 3 | ZZZ     | 1004595489 | 1        | 90       | 2   | 1       | 51      | 81       | 19      | 1       | 30     | 430      | 8       | 430      | S3250   | Z501    | S700    | M1999   | M8199   |
| 4 | ZZZ     | 1004595490 | 1        | 85       | 2   | 1       | 51      | 81       | 19      | 1       | 15     | 430      | 8       | 430      | S4240   | S799    | Z501    | I951    | E871    |
| 5 | ZZZ     | 1004595491 | 1        | 80       | 2   | 1       | 51      | 81       | 19      | 1       | 45     | 430      | 8       | 430      | M511    | G551    | Z501    | I10X    | D759    |

Go back to the new opened APC Single Spell window, click anywhere in the single spell input window and right-click and select Paste. Alternatively, using the shortcut keys **Ctrl + V**, will paste the information into the single spell input window.



A user can just copy a row data or particular column of codes from applications such as Excel and paste them straight into a Single Spell window. Single Spell will recognise a string of codes and paste them appropriately transposing a row of codes automatically. This is the most simplicity way of pasting values into the Single Spell window, but it requires the user knowing the correct position to start pasting the copied values otherwise errors are likely to be generated.

Open a new single spell window and select **E\_1920 – Admitted Patient Care (APC)** from the **Database** drop-down box.

Go to the HRG4+ Admitted Patient Care Sample Test Data.csv file and open.

Select the second line of data and copy:

|   | A       | B          | C        | D        | E   | F       | G        | H        | I       | J       | K      | L        | M       | N        | O       | P       | Q       | R       | S       |
|---|---------|------------|----------|----------|-----|---------|----------|----------|---------|---------|--------|----------|---------|----------|---------|---------|---------|---------|---------|
| 1 | PROCODE | PROVSPNO   | EPIORDEF | STARTAGE | SEX | CLASSPA | ADMISORC | ADMIMETH | DISDEST | DISMETH | EPIDUR | MAINSPEF | NEOCARE | TRETSPFI | DIAG_01 | DIAG_02 | DIAG_03 | DIAG_04 | DIAG_05 |
| 2 | ZZZ     | 1004595488 | 1        | 68       | 1   | 1       | 51       | 81       | 19      | 1       | 13     | 430      | 8       | 430      | R13X    | Z501    | I209    | E119    | Z951    |
| 3 | ZZZ     | 1004595489 | 1        | 90       | 2   | 1       | 51       | 81       | 19      | 1       | 30     | 430      | 8       | 430      | S3250   | Z501    | S700    | M1999   | M8199   |
| 4 | ZZZ     | 1004595490 | 1        | 85       | 2   | 1       | 51       | 81       | 19      | 1       | 15     | 430      | 8       | 430      | S4240   | S799    | Z501    | I951    | E871    |
| 5 | ZZZ     | 1004595491 | 1        | 80       | 2   | 1       | 51       | 81       | 19      | 1       | 45     | 430      | 8       | 430      | M511    | G551    | Z501    | I10X    | D759    |

Go back to the new opened APC Single Spell window, right-click on the PROCODET field name and select Paste. Alternatively, using the shortcut keys **Ctrl + V**, will paste the information into the single spell input window.

The screenshot displays the Spell 2 application window. The main area is divided into two panes. The left pane shows a list of fields with their values and descriptions, such as PROCODET (zzz), PROVSPNO (1004595489), and various diagnosis codes (DIAG\_01 to DIAG\_14). The right pane shows a 'Spell' table with columns for Field, Value, and Description, listing details like SpellHRG (HE11H), SpellIPDiag (S3250), and SpellOS (30). Below the Spell table is an 'Episode' table with similar columns, showing FCE\_HRG (HE11H) and GroupingMethodFlag (D). The interface includes a menu bar (File, View, Window, Help), a toolbar with buttons for Home, Batch, Single Spell, RDF, and Viewer, and a status bar at the bottom indicating 'Output log (Ctrl+Click to open in Notepad)'.

Single Spell also contains functions to allow users to copy out or save information from Single Spell windows. This is useful, if the information from single spell, is needed for future use or is required for other purposes.

There are three different types of copying information from Single Spell windows and these are:

- **Copy** (Ctrl+C) – this will copy data in a transposed comma delimited format (CSV) for use in creating input files;
- **Copy Excel** (Ctrl+Shift+C) – this will copy data in a transposed tab delimited format (TSV) for use with excel and other external editors; and
- **Copy with descriptions** (Ctrl+Alt+C) – this copies a single spell table in a tab delimited format (TSV) preserving the layout and descriptions for use in excel and other editors.

Single Spell also contains an **'Export'** button which allows information from the Single Spell window to be saved as a html or csv file type. When saved as a html file type, the information is output in a similar layout to the single spell window, meaning the information can be printed off in a structured format.

Following on from the previous copy and paste example, select the **'Export'** button on the Single Spell window. The **Save As** dialog box will appear prompting the user to give the html file a name. Select an appropriate location and type `single_spell_apc_html` (or anything similarly appropriate) in the **File name** box and click **Save**. The html file will automatically open in your default web browser and display the information from the Single Spell window in a similar format.

| Input    |            |  | Spell Output            |          |   |
|----------|------------|--|-------------------------|----------|---|
| Field    | Value      | Description  | Field                   | Value    | Description   |
| PROCODET | ZZZ        |  | Errors                  |          |   |
| PROVSPNO | 1004595489 |  | SpellHRG                | HE11H    | Hip Fracture without Interventions, with CC Score 0-3 |
| EPIORDER | 1          |  | SpellGroupingMethodFlag | D        | Diagnosis driven                                      |
| STARTAGE | 90         |  | SpellDominantProcedure  |          |   |
| SEX      | 2          | Female   | SpellPDiag              | S3250    | Fracture of pubis: closed                             |
| CLASSPAT | 1          | Ordinary admission   | SpellSDiag              | Z501     | Other physical therapy                                |
| ADMISORC | 51         | NHS other hospital provider - ward for general patients or the younger physically disabled or A & E department | SpellEpisodeCount       | 1        |   |
| ADMIMETH | 81         | Transfer of any admitted PATIENT from other Hospital Provider other than in an emergency                       | SpellLOS                | 30       |   |
| DISDEST  | 19         | Usual place of residence   | SpellCCDays             | 0        |   |
| DISMETH  | 1          | Patient discharged on clinical advice or with clinical consent   | SpellPBC                | PBC0216X | Problems due to Trauma and Injuries                   |
| EPIDUR   | 30         |  | SpellUnbundledHRGs      | VC24Z*1  |   |
| MAINSPEF | 430        | Geriatric Medicine   | SpellSSCs               |          |   |
| NEOCARE  | 8          | Not Applicable   | SpellBP                 |          |   |
| TRETSPEF | 430        | Geriatric Medicine   | Episode Output          |          |   |
| DIAG_01  | S3250      | Fracture of pubis: closed  | Field                   | Value    | Description   |
| DIAG_02  | Z501       | Other physical therapy   | Errors                  |          |   |
| DIAG_03  | S700       | Contusion of hip   | FCE_HRG                 | HE11H    | Hip Fracture without Interventions, with CC Score 0-3 |
| DIAG_04  | M1999      | Arthritis, unspecified: Site unspecified   | GroupingMethodFlag      | D        | Diagnosis driven                                      |
| DIAG_05  | M8199      | Osteoporosis, unspecified: Site unspecified  | DominantProcedure       |          |   |
| DIAG_06  | I10X       | Essential (primary) hypertension   | FCE_PBC                 | PBC0216X | Problems due to Trauma and Injuries                   |
| DIAG_07  | Z850       | Personal history of malignant neoplasm of digestive organs   | CalcEpidur              | 30       |   |
| DIAG_08  | Z933       | Colostomy status   | SpellReportFlag         | 1        |   |
| DIAG_09  | Z602       | Living alone   | UnbundledHRGs           | VC24Z*1  |   |
| DIAG_10  |            |  | FCESSCs                 |          |   |
| DIAG_11  |            |  |                         |          |   |
| DIAG_12  |            |  |                         |          |   |


Outputting information from Single Spell to a html file format also allows users to print out the information when necessary. To print, right-click in the top blue bar named 'Episode 1' and select 'Print'.


In addition to saving information from Single Spell as a html file type, a user can also use the 'Export' button to save as a csv file type. When saved as a csv file type, the information is transposed, along with headers, in a format needed for grouping purposes.

Using the same Single Spell window, select the 'Export' button. The **Save As** dialog box will appear prompting the user to give the csv file a name. Change the **Save as type** to .csv (by default this is set to html). Select an appropriate location and type `single_spell_apc_csv` (or anything similarly appropriate) in the **File name** box and click **Save**. Navigate to the file location and open.

|   | A           | B        | C        | D        | E        | F   | G        | H        | I        | J       | K       | L      | M        | N       | O        | P       | Q       | R       | S       | T       |
|---|-------------|----------|----------|----------|----------|-----|----------|----------|----------|---------|---------|--------|----------|---------|----------|---------|---------|---------|---------|---------|
| 1 | SingleSpell | PROCODET | PROVSPNO | EPIORDER | STARTAGE | SEX | CLASSPAT | ADMISORC | ADMIMETH | DISDEST | DISMETH | EPIDUR | MAINSPEF | NEOCARE | TRETSPEF | DIAG_01 | DIAG_02 | DIAG_03 | DIAG_04 | DIAG_05 |
| 2 | Spell 1: Ep | ZZZ      | 1E+09    | 1        | 90       | 2   | 1        | 51       | 81       | 19      | 1       | 30     | 430      | 8       | 430      | S3250   | Z501    | S700    | M1999   | M8199   |

The information is displayed in a format that can be used for grouping purposes.

Episodes can be deleted by either using the  icon or right-clicking on an episode in the navigation pane and selecting **Delete Episode**. To close the entire Spell, right-click on the relevant Spell number in the navigation pane and select **Close**.

Delete Episode 2 from the current Spell by clicking the  icon on the Single Spell window.

Any errors are highlighted in red in both the Input and Output sections.

The screenshot shows the 'Spell 1' application window. At the top, it displays 'Database: E\_1920 - Admitted Patient Care (APC)' and 'Record Definition File: <Default RDF>'. Below this, it indicates 'Episode: 1 of 1' with navigation buttons. A toolbar contains 'Field Customisation', 'Export', and 'Process' buttons.

The main area is divided into two panels:

- Left Panel (Main Data Table):** A table with columns 'Field', 'Value', and 'Description'. The row for 'SEX' has a value of '3' and is circled in red.
- Right Panel (Spell Summary Table):** A table with columns 'Field', 'Value', and 'Description'. The row for 'SEX' has a value of '3' and the description 'Sex is invalid', which is also circled in red.

At the bottom left, there is a status bar that says 'Output log (Ctrl+Click to open in Notepad)'.

## Record Definition File (RDF)

The RDF tells the Grouper the structure of the data you want it to process. The field content of the RDF must include all mandatory input fields for the type of data you want to group. Although these fields are mandatory, you define their order. You can also include additional fields, which will be ignored by the Grouper.



The product comes with a set of standard RDFs that hold all the mandatory fields required to be able to group data. You can adapt your data to match the standard RDFs or create an RDF manually.

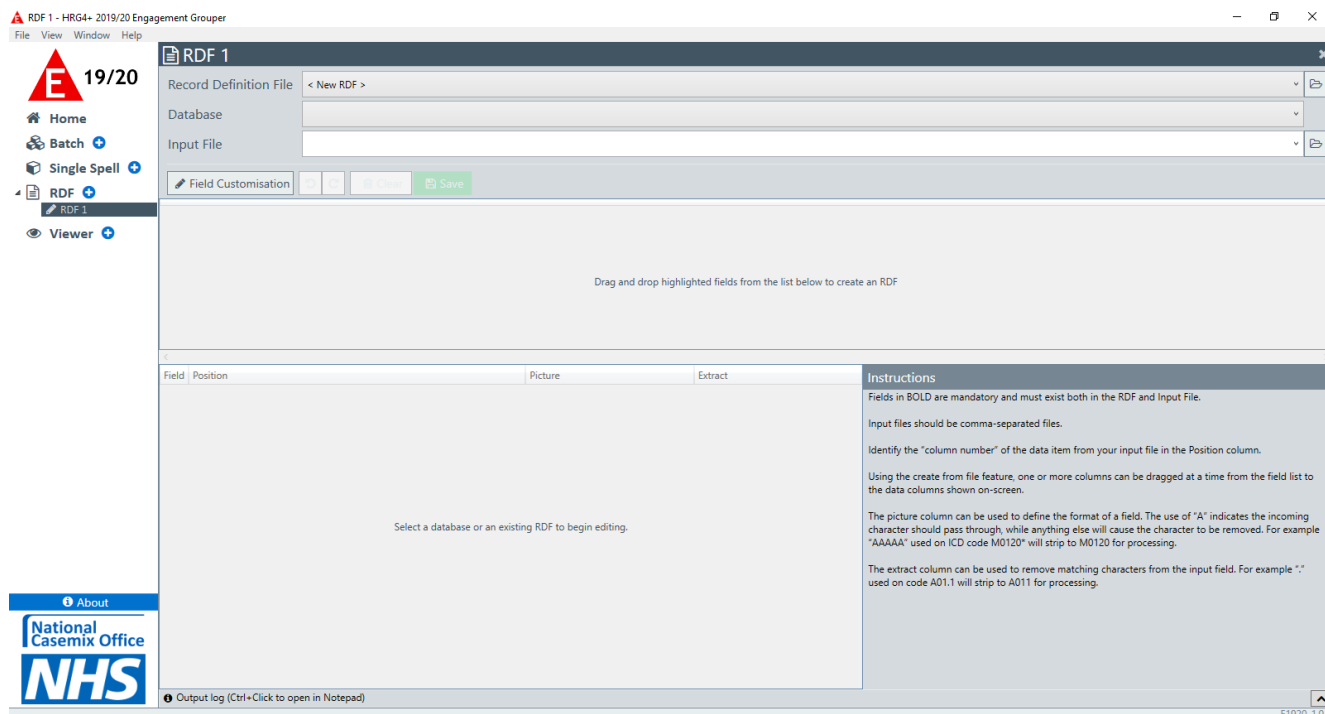
To create or modify an RDF the grouper has an interactive RDF module.

## RDF Module

The RDF module allows a user to create an RDF from scratch or to modify an existing RDF. This section explains the different ways of a user can create or modify an existing RDF.

The RDF screen can be opened in several ways:

- Select the  icon next to RDF on the navigation pane;
- Select the '*RDF*' title hyperlink or the  icon on the main home screen;
- Select '**File**' on the menu bar, '**New**' and then '**RDF**'; or
- Use shortcut keys **Alt+R**

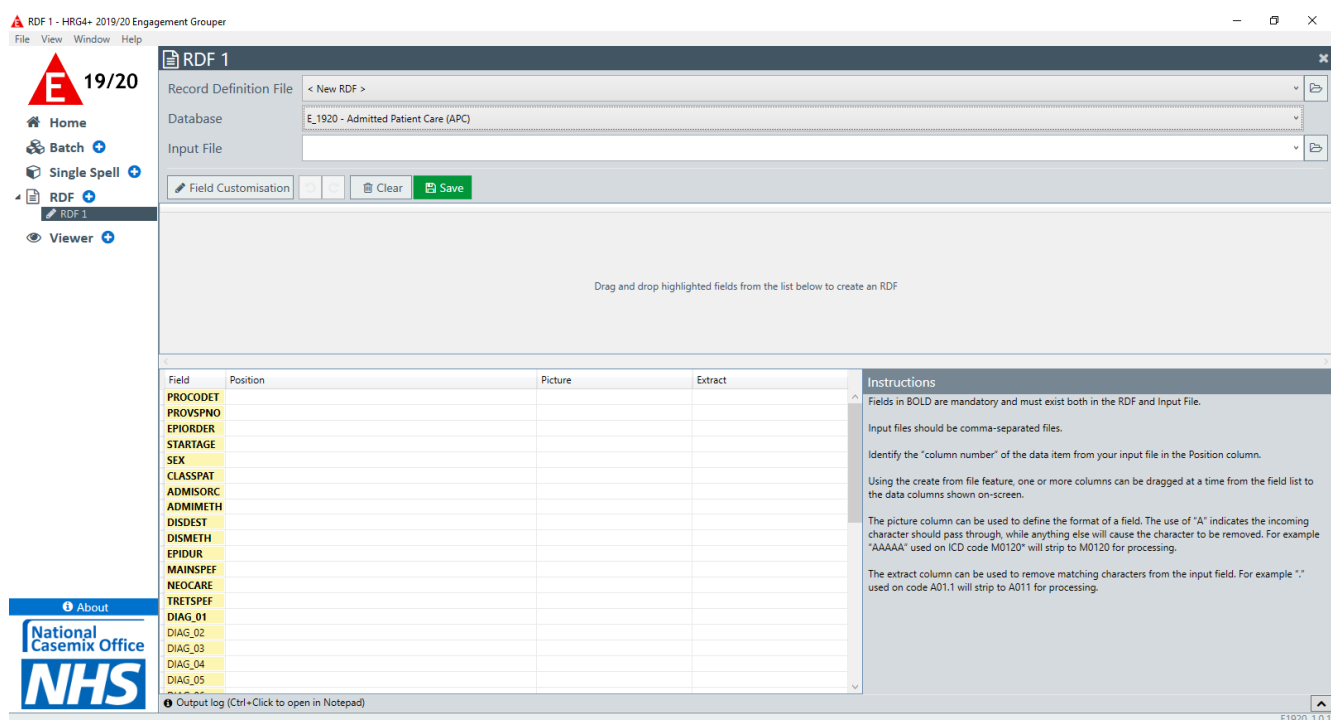


A user can create an RDF manually, in two ways. The first way is to create an RDF using an input file.


## Create a New RDF – Create from Input File

When the RDF screen is opened, the **Record Definition File** box is automatically set to **< New RDF >**.

The **Input** window box, which contains the columns headers **Field**, **Position**, **Picture** and **Extract**, indicates to users to either 'Select a database or an existing RDF to begin editing'. As this section is to create an RDF from an input file, select **E\_1920 – Admitted Patient Care (APC)** from the **Database** drop down list. An alternative database should be used when creating an RDF for other database input files.



When the database is selected, the **Input** window auto populates with a list of field names which are highlighted yellow. All field names highlighted bold are mandatory and must be assigned when creating an RDF.

The next step is to select an input file to use as a guide for creating an RDF. To select an input file, click the  icon to the right of the **Input File** drop-down list. This will open the **Open Input File** dialog box, allowing a user to search for the relevant input file (which should be format \*.CSV). The sample data are located in the application's installation folder in a sub-folder called `Sample Data`.

Open the file `HRG4+ Admitted Patient Care Sample Test Data.csv`. An alternative sample data file should be used for other database selections.

Alternatively, an input file can be simply dragged and dropped from a file explorer window, straight into the **Input File** drop-down box.

The screenshot shows the 'RDF 1' application window. At the top, it displays 'Record Definition File' as '< New RDF >', 'Database' as 'E\_1920 - Admitted Patient Care (APC)', and 'Input File' as 'C:\Program Files\NHS Digital\HRG4+ 2019\_20 Engagement Grouper\Sample Data\HRG4+ Admitted Patient Care Sample Test Data.csv'. Below this is a 'Field Customisation' section with 'Clear' and 'Save' buttons. The main area is a table with 24 columns. The first column is 'PROCODET', the second is 'PROVSPNO', and the next 14 columns are labeled 'EPIORDER', 'STARTAGE', 'SEX', 'CLASSPAT', 'ADMISORC', 'ADMIMETH', 'DISDEST', 'DISMETH', 'EPIDUR', 'MAINSPEF', 'NEOCARE', and 'TRETSPF'. The remaining 10 columns are labeled 'DIAG\_01' through 'DIAG\_10'. The table contains several rows of data, with the first row starting with 'ZZZ', '1004595488', '1', '68', '1', '1', '51', '81', '19', '1', '13', '430', '8', '430', 'R13X', 'Z501', 'I209', 'E119', 'Z951', 'Z922', 'Z880', 'Z867', 'Z602'. Below the table is a list of field names: PROCODET, PROVSPNO, EPIORDER, STARTAGE, SEX, CLASSPAT, ADMISORC, ADMIMETH, DISDEST, DISMETH, EPIDUR, MAINSPEF, NEOCARE, TRETSPF, DIAG\_01, DIAG\_02, DIAG\_03, DIAG\_04, DIAG\_05. To the right of the field list is an 'Instructions' panel with text: 'Fields in BOLD are mandatory and must exist both in the RDF and Input File. Input files should be comma-separated files. Identify the "column number" of the data item from your input file in the Position column. Using the create from file feature, one or more columns can be dragged at a time from the field list to the data columns shown on-screen. The picture column can be used to define the format of a field. The use of "A" indicates the incoming character should pass through, while anything else will cause the character to be removed. For example "AAAAA" used on ICD code M0120" will strip to M0120 for processing. The extract column can be used to remove matching characters from the input field. For example "." used on code A01.1 will strip to A011 for processing.'

The first 30 rows of the selected input file are displayed in the **Drag and Drop** window. Each field displayed in the **Drag and Drop** window is assigned a number (e.g. 1, 2, 3).

Depending on the database chosen, the number of repeating occurrences of certain fields can be increased or decreased using the **'Field Customisation'** button. For example, if the input file contains 20 diagnosis codes, the number of diagnosis fields can be increased to 20 using the toggle buttons rather than the default value of 14.

In addition to the **'Field Customisation'** button, a user can insert and delete non-mandatory fields. Extra fields can be added to the RDF using the blank row at the bottom of the Input window or highlighting a field row, right-click and select **Insert Row** (Ctrl + I). To delete a non-mandatory field, select the field row to be deleted and either selecting the **Delete** key or right-click and select **Remove Row** (Ctrl + Delete), the field will be removed from the field list. Mandatory fields cannot be deleted from an RDF.

To create an RDF, select each of the yellow highlighted field names and drag to the appropriate column in the **Drag and Drop** window i.e. PROCODET to column number 1, PROVSPNO to column 2 etc.

The screenshot shows the 'RDF 1' application window. At the top, there's a menu bar with 'File', 'View', 'Window', and 'Help'. Below that is a navigation pane with 'Home', 'Batch', 'Single Spell', 'RDF', and 'Viewer'. The main area is divided into several sections:
 



- Record Definition File:** < New RDF >
- Database:** E\_1920 - Admitted Patient Care (APC)
- Input File:** C:\Program Files\NHS Digital\HRG4+ 2019\_20 Engagement Grouper\Sample Data\HRG4+ Admitted Patient Care Sample Test Data.csv
- Field Customisation:** Buttons for 'Field Customisation', 'Clear', and 'Save'.
- Data Table:** A grid with columns numbered 1 to 23. The first column is 'Field' and the second is 'Position'. The 'Field' column contains codes like PROCODET, PROVSFNO, EPIORDER, STARTAGE, SEX, CLASSPAT, ADMISORC, ADMIMETH, DISDEST, DISMETH, EPIDUR, MAINSPEF, NEOCARE, TRETSPF, DIAG\_01, DIAG\_02, DIAG\_03, DIAG\_04, DIAG\_05. The 'Position' column contains numbers 1 through 23.
- Instructions Panel:** A text box on the right providing guidance:
  - Fields in BOLD are mandatory and must exist both in the RDF and Input File.
  - Input files should be comma-separated files.
  - Identify the "column number" of the data item from your input file in the Position column.
  - Using the create from file feature, one or more columns can be dragged at a time from the field list to the data columns shown on-screen.
  - The picture column can be used to define the format of a field. The use of "A" indicates the incoming character should pass through, while anything else will cause the character to be removed. For example "AAAAA" used on ICD code M0120\* will strip to M0120 for processing.
  - The extract column can be used to remove matching characters from the input field. For example "\*" used on code A01.1 will strip to A011 for processing.

Once a field is dragged into the **Drag and Drop** window, the **Position** number, in the **Input** window, will populate with the relevant field position number. Alternatively, a user can type the field number directly into the **Position** column.

Multiple fields can be selected by clicking with the mouse while holding down the **SHIFT** and/or **CTRL** keys. The selected fields can then be dragged to the **Drag and Drop** window.

If a field is erroneously assigned, it can be removed in a variety of ways. Fields are unassigned by clicking the **'x'** next to the field name in the drag and window or right-click on the field name and select **'Unassign'** or by selecting the field position from the **Position** column and pressing the **Delete** key. The field will then be removed from the file preview window. If you wish to clear all the field positions allocated, then the **'Clear'** button will reset all the field positions.

This screenshot is identical to the first one, but the 'Position' column in the data table is now populated with the numbers 1 through 23, corresponding to the field codes listed in the 'Field' column. This indicates that the fields have been successfully mapped to their respective positions.

In certain circumstances, actions performed on the RDF Editor screen may want to be undone or redone. The **Undo**  and **Redo**  buttons store up to maximum of 5 changes. In addition to the Undo and Redo buttons, the shortcut combination keys of **Ctrl+Z** (Undo) and **Ctrl+Y** (Redo) can be used.

When all highlighted fields have been assigned the RDF can be saved by selecting the **Save** button. The **Save As** dialog box will appear prompting the user to give the rdf file a name. Select an appropriate location and type `rdf_apc` (or anything similarly appropriate) in the **File name** box and click **Save**.

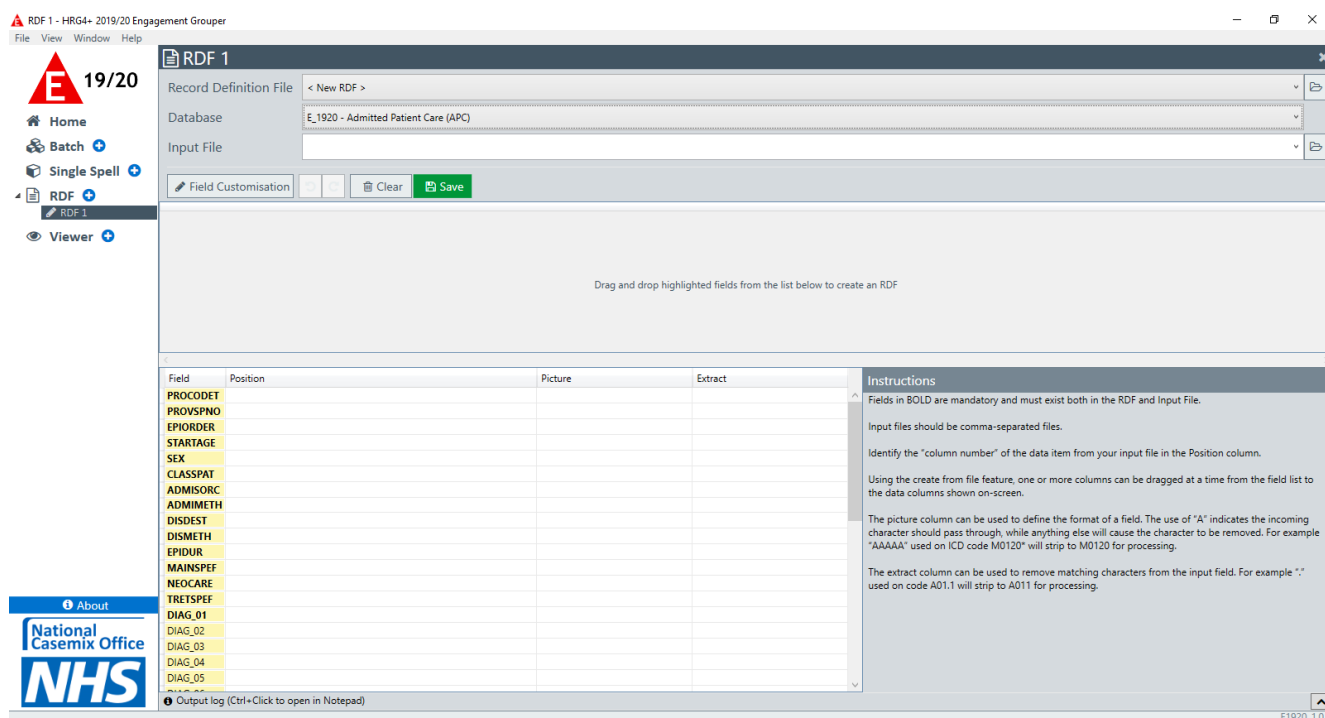
## Create an RDF manually – Database

An RDF can also be created manually by just using a specific database from the **Database** drop-down box. This method is reliant on the user knowing the structure of the data without the need to use it as a guide in the drag and drop window.

Open a new RDF window.

When the RDF screen is opened, the **Record Definition File** box is automatically set to **< New RDF >**.

Select **E\_1920 – Admitted Patient Care (APC)** from the **Database** drop down list.



| Field           | Position | Picture | Extract |
|-----------------|----------|---------|---------|
| <b>PROCODET</b> |          |         |         |
| <b>PROVSPNO</b> |          |         |         |
| <b>EPIORDER</b> |          |         |         |
| <b>STARTAGE</b> |          |         |         |
| <b>SEX</b>      |          |         |         |
| <b>CLASSPAT</b> |          |         |         |
| <b>ADMISORC</b> |          |         |         |
| <b>ADMIMETH</b> |          |         |         |
| <b>DISDEST</b>  |          |         |         |
| <b>DISMETH</b>  |          |         |         |
| <b>EPIDUR</b>   |          |         |         |
| <b>MAINSPEF</b> |          |         |         |
| <b>NEOCARE</b>  |          |         |         |
| <b>TRETSPEF</b> |          |         |         |
| <b>DIAG_01</b>  |          |         |         |
| <b>DIAG_02</b>  |          |         |         |
| <b>DIAG_03</b>  |          |         |         |
| <b>DIAG_04</b>  |          |         |         |
| <b>DIAG_05</b>  |          |         |         |

**Instructions**

Fields in **BOLD** are mandatory and must exist both in the RDF and Input File.

Input files should be comma-separated files.

Identify the "column number" of the data item from your input file in the Position column.

Using the create from file feature, one or more columns can be dragged at a time from the field list to the data columns shown on-screen.

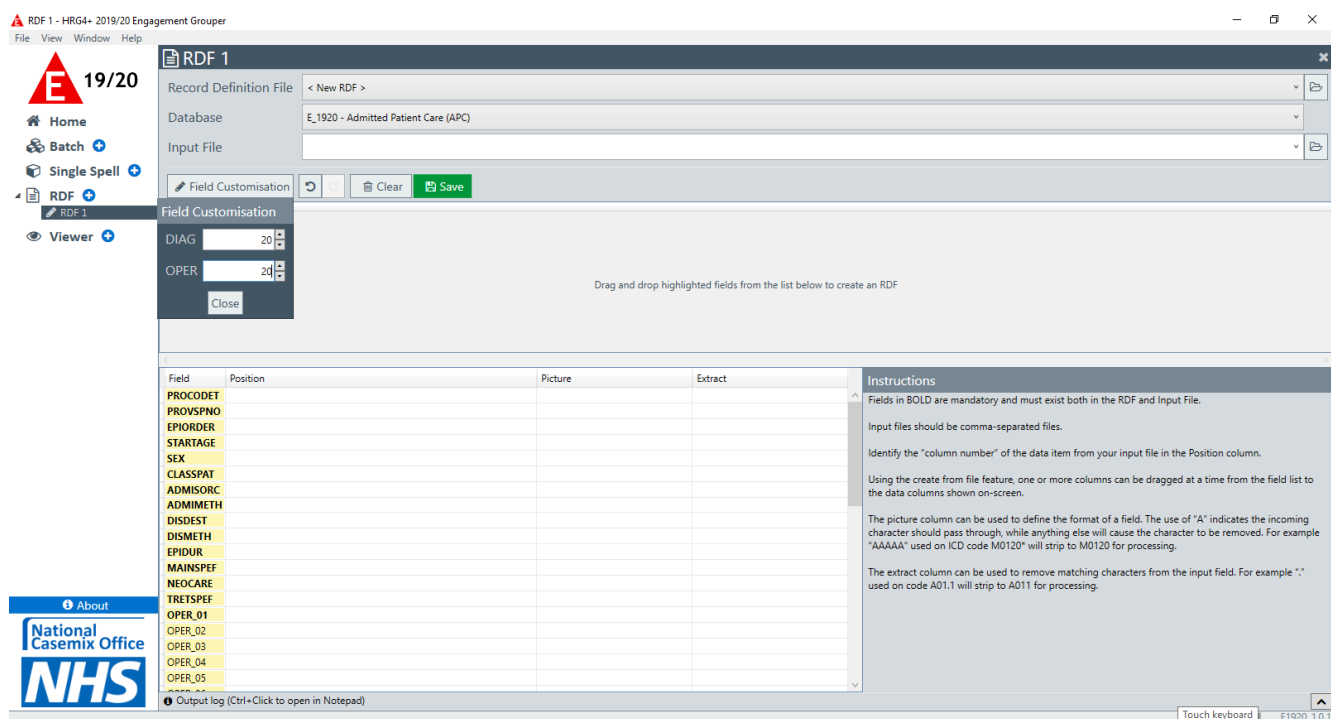
The picture column can be used to define the format of a field. The use of "A" indicates the incoming character should pass through; while anything else will cause the character to be removed. For example "AAAAA" used on ICD code M0120\* will strip to M0120 for processing.

The extract column can be used to remove matching characters from the input field. For example "." used on code A01.1 will strip to A011 for processing.

The **Input** window auto populates with a list of field names which are highlighted yellow. All field names highlighted bold are mandatory and must be assigned when creating an RDF. As no input file is used in this method of creating an RDF, the **Drag and Drop** window remains blank.

Depending on the database chosen, the number of repeating occurrences of certain fields can be increased or decreased using the '**Field Customisation**' button. For example, if the input file contains 20 diagnosis codes, the number of diagnosis fields can be increased to 20 using the toggle buttons rather than the default value of 14.



Select the '**Field Customisation**' button and set the Diagnosis and Procedure fields to 20.



When altering the number of variable fields for a particular database, the field ordering changes so in the above example, diagnosis and procedure fields move to the bottom of the field list.

To create the RDF, type the field numbers directly into the **Position** column, in the Input window, to specify the order of the input file that will be processed.

If a field is erroneously assigned, it can be removed in a variety of ways. Fields are unassigned by clicking the 'x' next to the field name in the drag and window or right-click on the field name and select **Unassign** or by selecting the field position from the **Position** column and pressing the **Delete** key. The field will then be removed from the file preview window. If you wish to clear all the field positions allocated, then the **Clear** button will reset all the field positions.


In certain circumstances, actions performed on the RDF Editor screen may want to be undone or redone. The **Undo**  and **Redo**  buttons store up to maximum of 5 changes. In addition to the Undo and Redo buttons, the shortcut combination keys of **Ctrl+Z** (Undo) and **Ctrl+Y** (Redo) can be used.

When all highlighted fields have been assigned the RDF can be saved by selecting the **Save** button. The **Save As** dialog box will appear prompting the user to give rdf file a name. Select an appropriate location and type `rdf_apc` (or anything similarly appropriate) in the **File name** box and click **Save**.

## Edit an Existing RDF

In addition to creating an RDF manually, a user can edit an already existing RDF.

Open a new RDF window.

When the RDF screen is opened, the **Record Definition File** box is automatically set to **< New RDF >**. To select an existing RDF to edit, click the browse folder  icon to the right of the **Record Definition File** drop-down list. This will open the **Open RDF File** dialog box,

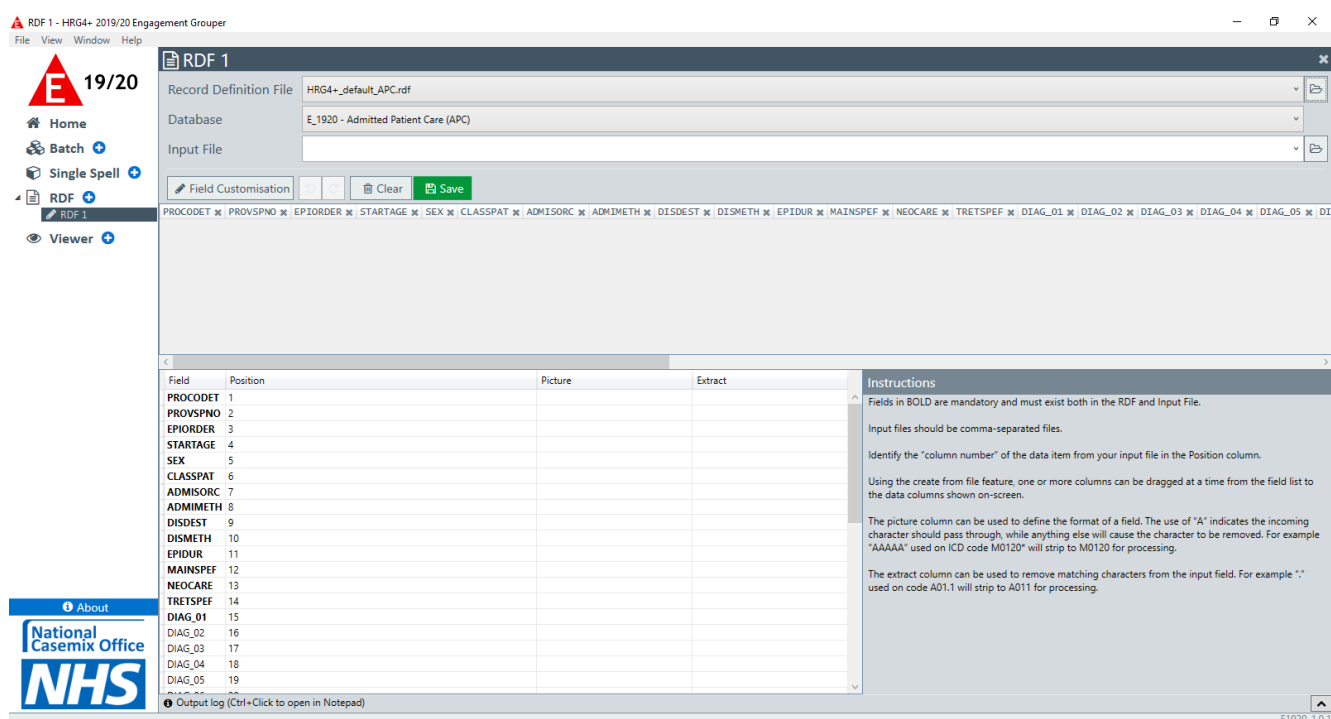
allowing a user to search for the relevant RDF to edit (which should be format \*.RDF). The sample RDFs are located in the application's installation folder in a sub-folder called Default RDF.

Open the file HRG4+\_default\_APC.rdf. An alternative RDF should be used for editing other RDFs.

Alternatively, simply drag and drop the relevant **RDF** into the **Record Definition File** drop-down box.

The **Database** drop-down box will automatically populate with the relevant database depending on the mandatory fields contained in the selected RDF.



Once the RDF is selected, the **Drag and Drop** window will display all the fields stated in the RDF and the **Input** window will display the RDF field names and their assigned position numbers.



Depending on the data type, the number of repeating occurrences of certain fields can be increased or decreased using the **'Field Customisation'** button. For example, if the input file contains 20 diagnosis codes, the number of diagnosis fields can be increased to 20 using the toggle buttons rather than the default value of 14.

In addition to the **'Field Customisation'** button, a user can insert and delete non-mandatory fields. Extra fields can be added to the RDF using the blank row at the bottom of the Input window or highlighting a field row, right-click and select **Insert Row** (Ctrl + I). To delete a non-mandatory field, select the field row to be deleted and either selecting the **Delete** key or right-click and select **Remove Row** (Ctrl + Delete), the field will be removed from the field list. Mandatory fields cannot be deleted from an RDF.

If a field is erroneously assigned, it can be removed in a variety of ways. Fields are unassigned by clicking the **'x'** next to the field name in the drag and window or right-click on the field name and select **'Unassign'** or by selecting the field position from the **Position** column and pressing the **Delete** key. The field will then be removed from the file preview window. If you wish to clear all the field positions allocated, then the **'Clear'** button will reset all the field positions.

In certain circumstances, actions performed on the RDF Editor screen may want to be undone or redone. The **Undo**  and **Redo**  buttons store up to maximum of 5 changes. In addition to the Undo and Redo buttons, the shortcut combination keys of **Ctrl+Z** (Undo) and **Ctrl+Y** (Redo) can be used.

When all the highlighted fields have been assigned the RDF can be saved by selecting the **Save** button. The **Save As** dialog box will appear prompting the user to give rdf file a name. Select an appropriate location and type `rdf_apc` (or anything similarly appropriate) in the **File name** box and click **Save**.

## RDF Input Window

The RDF Input window contains four columns, which are

| Name        | Description  |
|-------------|--|
| Field Name  | A field name abbreviation for internal use; it cannot be modified.   |
| Field Title | A field description which can be edited to display a locally-defined field name.   |
| Field No    | The field column number in the input file.   |
| Picture     | <p>Specifies whether specific character positions in the field are used or ignored during processing. It must be specified as a string of "A" and "." where "A" means keep the character in that position and "." means ignore the character in that position.</p> <p>For example: "AAA.A" means ignore the 4th character and process characters in positions 1,2,3 and 5 as if it is a 4-character code, so that W58.1 gets processed as W581.</p> <p>Note that it is no longer necessary to use Picture to remove full stops from procedure and diagnosis codes because these now get removed automatically.</p> |
| Extract     | Allows you to specify that specific characters (in any position) in the field are ignored during processing. For example, "." (without quote marks) will remove all full stops from the field.   |

## Picture

Picture is a feature within the RDF that can be used to specify the inclusion or exclusion of specific character positions from input fields. It allows the user to provide filtering instructions for each field by describing a character template. During processing the application will apply this template to the field by selectively ignoring characters in specific positions within a field.

An "A" character indicates a character position to be included in grouping and a full-stop indicates a character position to be ignored in grouping. This 'picture' is then imposed on the field before grouping, meaning that the modified version of the field contents is processed by the Grouper.

| Field    | Position | Picture | Extract |
|----------|----------|---------|---------|
| PROCODET |          |         |         |
| EPIORDER |          |         |         |
| STARTAGE |          |         |         |
| SEX      |          |         |         |
| CLASSPAT |          |         |         |
| ADMISORC |          |         |         |
| ADMIMETH |          |         |         |
| DISDEST  |          |         |         |
| DISMETH  |          |         |         |
| EPIDUR   |          |         |         |
| MAINSPEF |          |         |         |
| NEOCARE  |          |         |         |
| TRETSPEF |          |         |         |
| DIAG_01  |          |         |         |
| DIAG_02  |          |         |         |
| DIAG_03  |          |         |         |
| DIAG_04  |          |         |         |

To use Picture, enter a character template in the 'Picture' column of the Record Definition File using the RDF module.

- Characters should not be separated by spaces
- Quotation marks should not be used
- Can be used with alpha and numeric fields
- Where the number of characters in the field exceeds the number of characters specified in Picture, the application will implement the Picture on the left-most portion of the field. For this reason, care should be taken when using Picture with variable length fields as this may lead to unpredictable results.
- Picture is applied prior to data validation.
- Picture applies to file processing only; it does not affect single-spell grouping.

**Example 1** AAA.AA Characters 1, 2, 3, 5 and 6 are used. Character 4 is ignored

**Example 2** .A.AAA Characters 2, 4, 5 and 6 are used. Characters 1 and 3 are ignored

**Example 3** .A. Character 2 is used. Characters 1 and 3 are ignored

**Example 4** AA Characters 1 and 2 are used (Note that full stops are not required if consecutive characters from the beginning of the field are the only characters required).

## Extract

Extract is a feature of the RDF that can be used to make the Grouper ignore specific characters in input fields, irrespective of character position.

Entering one or more characters in the 'Extract' column of the RDF using the RDF module will instruct the grouper that any occurrence of any of these characters in that field should be ignored in grouping. (Note: Commas cannot be excluded because the input data files are comma-separated).

| Field    | Position | Picture | Extract |
|----------|----------|---------|---------|
| PROCODET |          |         |         |
| EPIORDER |          |         |         |
| STARTAGE |          |         |         |
| SEX      |          |         |         |
| CLASSPAT |          |         |         |
| ADMISORC |          |         |         |
| ADMIMETH |          |         |         |
| DISDEST  |          |         |         |
| DISMETH  |          |         |         |
| EPIDUR   |          |         |         |
| MAINSPEF |          |         |         |
| NEOCARE  |          |         |         |
| TRETSPEF |          |         |         |
| DIAG_01  |          |         |         |
| DIAG_02  |          |         |         |
| DIAG_03  |          |         |         |
| DIAG_04  |          |         |         |

The application does not consider a series of characters as a string of characters to be ignored as a single entity. Each character entered is ignored wherever it appears in the input field.

- The characters specified will be ignored wherever they appear in the input data field.
- There is no relation between the position of a character in the extract field and the input field.
- All occurrences of the characters are affected.
- Extract is applied prior to data validation.
- Extract applies to file processing only and it does not affect single spell.

### Extract Field Examples

The examples below are shown in quotation marks (“”) to help identify the examples. Quotation marks should not be entered when using the Extract function (Unless a user wishes to „ignore” quotation marks).

#### Example 1

Entering an Extract character of “.” informs the application that all occurrences of a decimal place or full-stop should be ignored when processing that field. This is a convenient way to remove decimal points from a field in the input file. An input field containing the character string “abc...d” will be interpreted by the application as “abcd”.

#### Example 2



Entering the characters “+\$\$” in this field informs the application that any occurrences of both the “+” character and the “\$” character are to be ignored by the application when processing that field. An input field containing the character string “46+\$\$++” will be interpreted by the application as “46”.

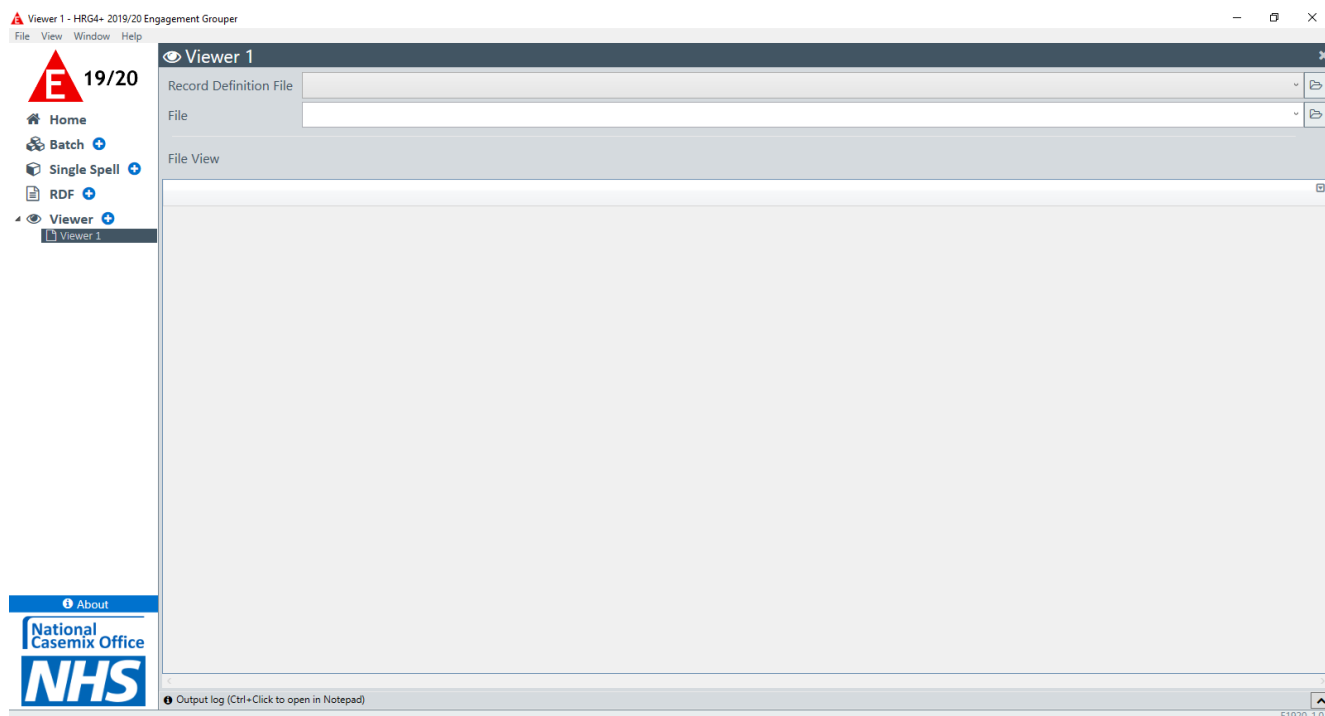
## Viewer


The Grouper provides a file viewer which can be used to view input or output files. The file viewer allows users to filter on columns and select data which is then opened in single spell.


Selecting a **Record Definition File** and a **File** will display the file data organised into the columns specified in the RDF and can be used as an aid to see if there are problems in the layout or content of a data file.

Opening a Viewer screen can be done in several ways:

- Select the  icon next to **Viewer** on the navigation pane;
- Select the '**Viewer**' title hyperlink or the  icon on the main home screen;
- Select '**File**' on the menu bar, '**New**' and then '**Viewer**'; or
- Use shortcut keys **Alt+V**

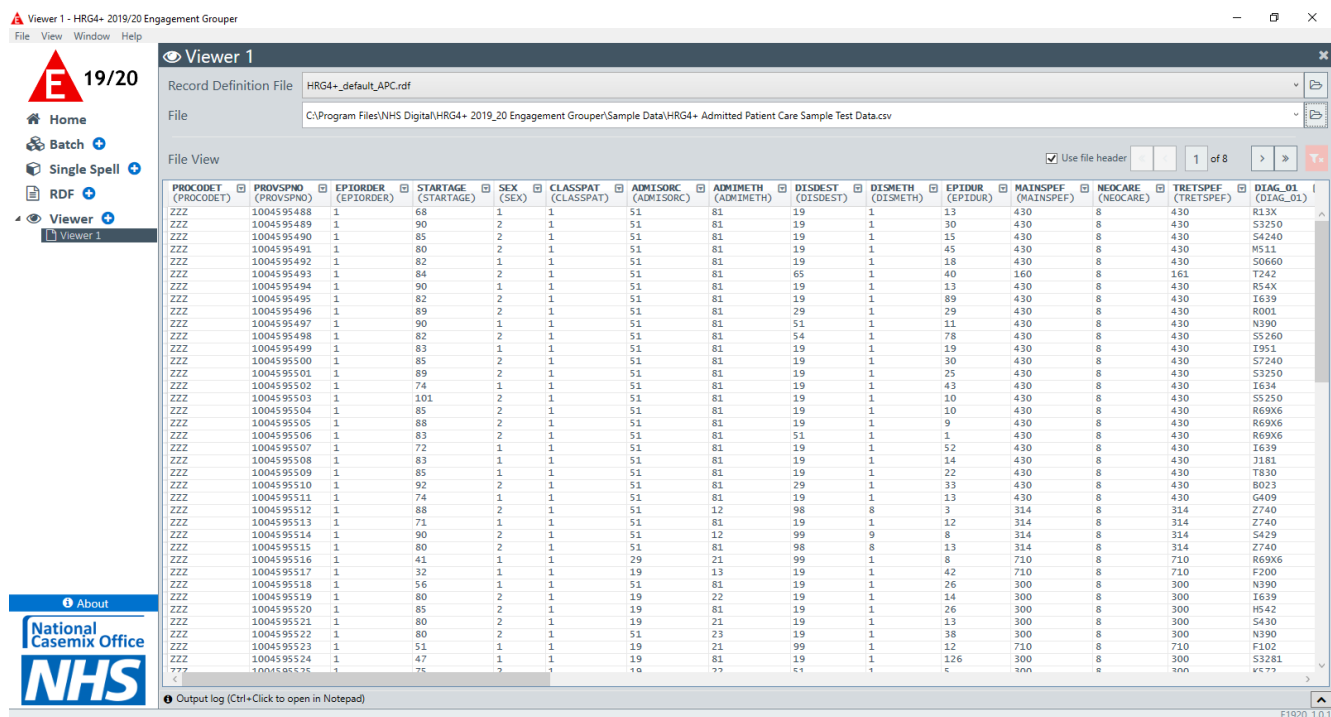


To view a file, you can either drag a file directly into the **File** drop down box or using the browse folder  icon, navigate to the appropriate file to be viewed.

It is advised that a user selects an appropriate **Record Definition File**, as some functionality within the Viewer requires the use of the fields defined in the Record Definition File. To select a Record Definition File, you can either drag a file directly into the **Record Definition File** drop down box or using the browse folder  icon, navigate to the appropriate Record Definition File.

For the **Record Definition File**, navigate to the Default RDF folder, installed with the Grouper and select the `HRG4+_default_APC.rdf` or alternatively drag and drop the `HRG4+_default_APC.rdf` directly into the **Record Definition File** drop down box.





For the **File**, navigate to the Sample Data folder, installed with the Grouper and select the `HRG4+ Admitted Patient Care Sample Test Data.csv` or alternatively drag and drop the `HRG4+ Admitted Patient Care Sample Test Data.csv` directly into the **File** drop down box.



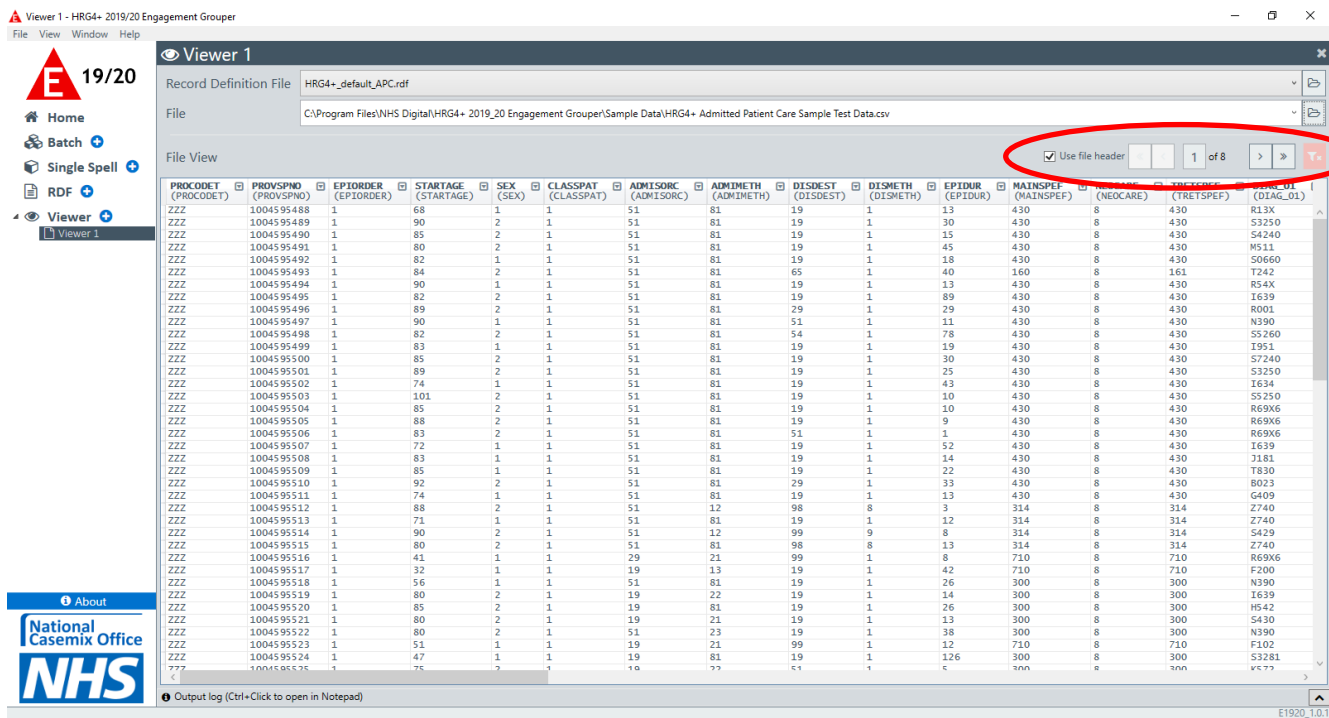
When a file is selected, the data will be displayed in the **File View** window. Depending on the number of rows of data in your file, the Viewer will display the data over a number of pages.

The **'Use file header'** tick box allows a user to specify whether the first row in the file being viewed is a header row. When this is ticked, file headers are surrounded by rounded brackets, underneath the bolded Record Definition File headers and these will remain visible when navigating between the different pages.

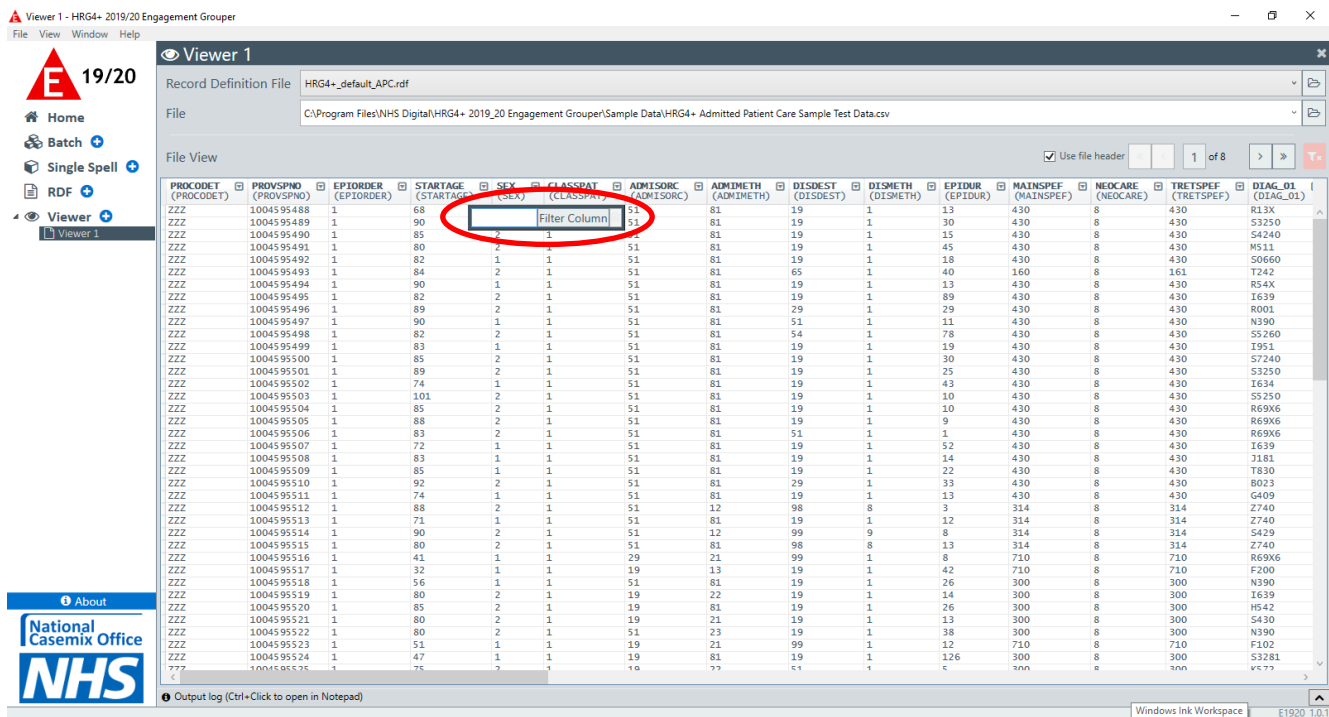
Users can use the navigation buttons to move between pages in the Viewer window.

-  Moves the user to the next page of the file
-  Moves the user to the last page of the file
-  Moves the user to the previous page of the file
-  Moves the user to the first page of the file


A user can also use the page number box to manually enter a specific page number to view.



Filters have been introduced into the Viewer, allowing users to filter on specific columns in the File View window. In the top row of the File View window, each column contains a small drop-down arrow, which when clicked, a pop-up box appears allowing users to filter on a particular value.



Users can filter on a particular value or use the Wildcards of \* and ?.

The asterisk (\*) in a wildcard matches any character zero or more times. For example, click the  button in the DIAG\_01 column and enter F\*. This will return all diagnosis codes that start with F.

Viewer 1  
Record Definition File: HRG4+\_default\_APC.rdf  
File: C:\Program Files\NHS Digital\HRG4+ 2019\_20 Engagement Grouper\Sample Data\HRG4+ Admitted Patient Care Sample Test Data.csv

File View

| EPIORDER (EPIORDER) | STARTAGE (STARTAGE) | SEX (SEX) | CLASSPAT (CLASSPAT) | ADMISORC (ADMISORC) | ADMIMETH (ADMIMETH) | DISDEST (DISDEST) | DISMETH (DISMETH) | EPIDUR (EPIDUR) | MAINSPEF (MAINSPEF) | NEOCARE (NEOCARE) | TRETSPEF (TRETSPEF) | DIAG_01 (DIAG_01) | DIAG_02 (DIAG_02) | DIAG_03 (DIAG_03) |
|---------------------|---------------------|-----------|---------------------|---------------------|---------------------|-------------------|-------------------|-----------------|---------------------|-------------------|---------------------|-------------------|-------------------|-------------------|
| 1                   | 32                  | 1         | 1                   | 19                  | 13                  | 19                | 1                 | 42              | 710                 | 8                 | 710                 | F200              |                   |                   |
| 1                   | 51                  | 1         | 1                   | 19                  | 21                  | 99                | 1                 | 12              | 710                 | 8                 | 710                 | F102              |                   |                   |
| 1                   | 19                  | 2         | 1                   | 51                  | 21                  | 19                | 1                 | 1               | 710                 | 8                 | 710                 | F341              | Z630              |                   |
| 1                   | 23                  | 1         | 1                   | 19                  | 21                  | 19                | 1                 | 0               | 710                 | 8                 | 710                 | F430              |                   |                   |
| 1                   | 21                  | 2         | 1                   | 53                  | 28                  | 19                | 1                 | 13              | 710                 | 8                 | 710                 | F603              |                   |                   |
| 1                   | 30                  | 1         | 1                   | 29                  | 21                  | 29                | 1                 | 4               | 710                 | 8                 | 710                 | F29K              | F709              |                   |
| 1                   | 45                  | 1         | 1                   | 51                  | 21                  | 19                | 1                 | 3               | 710                 | 8                 | 710                 | F432              |                   |                   |
| 1                   | 39                  | 1         | 1                   | 19                  | 28                  | 19                | 1                 | 48              | 710                 | 8                 | 710                 | F203              |                   |                   |
| 1                   | 42                  | 1         | 1                   | 19                  | 13                  | 19                | 1                 | 1               | 710                 | 8                 | 710                 | F329              | F101              |                   |
| 1                   | 17                  | 2         | 1                   | 19                  | 28                  | 19                | 1                 | 56              | 711                 | 8                 | 711                 | F502              |                   |                   |
| 1                   | 17                  | 2         | 1                   | 19                  | 12                  | 53                | 1                 | 111             | 711                 | 8                 | 711                 | F500              |                   |                   |
| 1                   | 14                  | 2         | 1                   | 51                  | 81                  | 53                | 1                 | 165             | 711                 | 8                 | 711                 | F440              |                   |                   |
| 7                   | 33                  | 2         | 1                   | 19                  | 21                  | 98                | 8                 | 1               | 710                 | 8                 | 710                 | F313              | F431              | F500              |
| 8                   | 33                  | 2         | 1                   | 19                  | 21                  | 98                | 8                 | 4               | 710                 | 8                 | 710                 | F313              | F431              | F500              |
| 9                   | 33                  | 2         | 1                   | 19                  | 21                  | 98                | 8                 | 18              | 710                 | 8                 | 710                 | F313              | F431              | F500              |
| 1                   | 43                  | 1         | 1                   | 19                  | 22                  | 98                | 8                 | 1               | 300                 | 8                 | 300                 | F103              | F102              | K703              |
| 2                   | 43                  | 1         | 1                   | 19                  | 22                  | 19                | 1                 | 4               | 300                 | 8                 | 300                 | F103              | F102              | K703              |
| 1                   | 49                  | 2         | 1                   | 19                  | 21                  | 19                | 1                 | 1               | 300                 | 8                 | 300                 | F412              | R298              | R478              |
| 1                   | 32                  | 1         | 1                   | 19                  | 13                  | 19                | 1                 | 42              | 710                 | 8                 | 710                 | F200              |                   |                   |
| 1                   | 51                  | 1         | 1                   | 19                  | 21                  | 99                | 1                 | 12              | 710                 | 8                 | 710                 | F102              | Z630              |                   |

Output log (Ctrl+Click to open in Notepad)

The question mark (?) in a wildcard matches a single character once. The question mark can also be used more than once. For example, click the button in the MAINSPEF column and enter ??0. This will return all main speciality codes where it is 3 characters and the last character is a 0.

Viewer 1  
Record Definition File: HRG4+\_default\_APC.rdf  
File: C:\Program Files\NHS Digital\HRG4+ 2019\_20 Engagement Grouper\Sample Data\HRG4+ Admitted Patient Care Sample Test Data.csv

File View

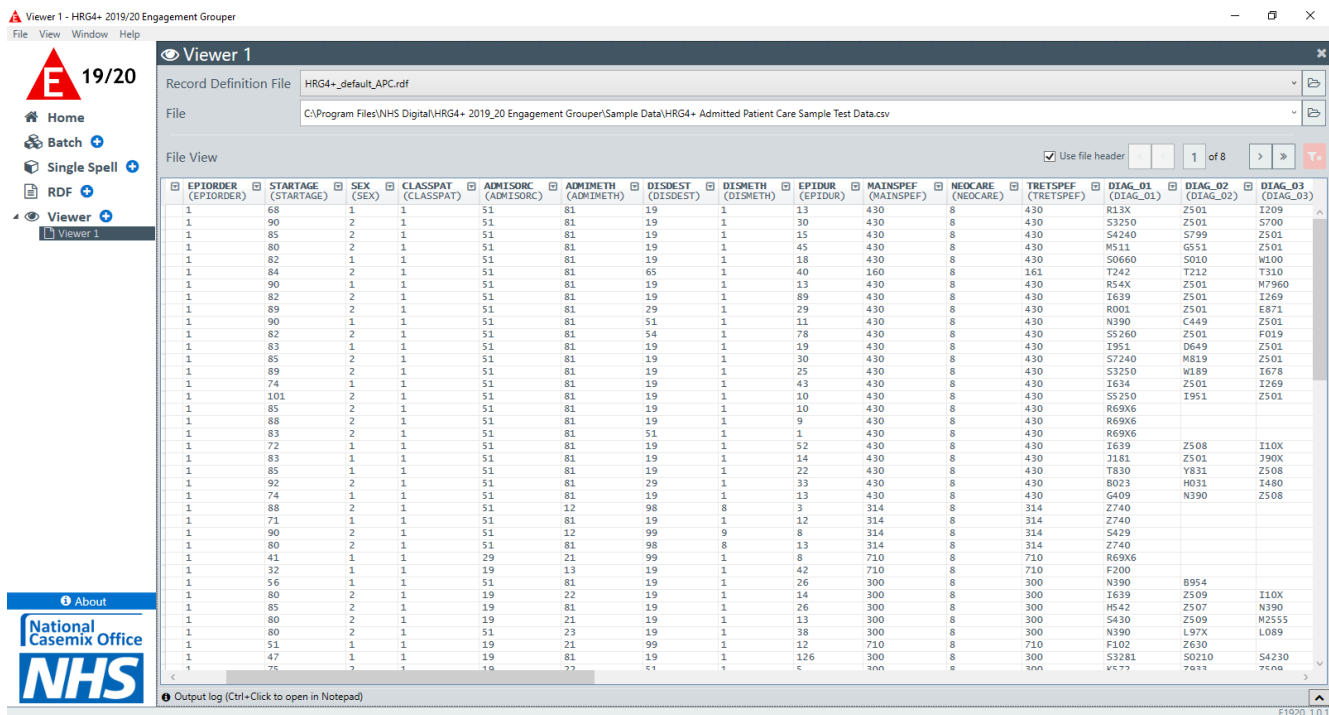
| EPIORDER (EPIORDER) | STARTAGE (STARTAGE) | SEX (SEX) | CLASSPAT (CLASSPAT) | ADMISORC (ADMISORC) | ADMIMETH (ADMIMETH) | DISDEST (DISDEST) | DISMETH (DISMETH) | EPIDUR (EPIDUR) | MAINSPEF (MAINSPEF) | NEOCARE (NEOCARE) | TRETSPEF (TRETSPEF) | DIAG_01 (DIAG_01) | DIAG_02 (DIAG_02) | DIAG_03 (DIAG_03) |
|---------------------|---------------------|-----------|---------------------|---------------------|---------------------|-------------------|-------------------|-----------------|---------------------|-------------------|---------------------|-------------------|-------------------|-------------------|
| 1                   | 32                  | 1         | 1                   | 19                  | 13                  | 19                | 1                 | 42              | 710                 | 8                 | 710                 | F200              |                   |                   |
| 1                   | 51                  | 1         | 1                   | 19                  | 21                  | 99                | 1                 | 12              | 710                 | 8                 | 710                 | F102              |                   |                   |
| 1                   | 19                  | 2         | 1                   | 51                  | 21                  | 19                | 1                 | 1               | 710                 | 8                 | 710                 | F341              | Z630              |                   |
| 1                   | 23                  | 1         | 1                   | 19                  | 21                  | 19                | 1                 | 0               | 710                 | 8                 | 710                 | F430              |                   |                   |
| 1                   | 21                  | 2         | 1                   | 53                  | 28                  | 19                | 1                 | 13              | 710                 | 8                 | 710                 | F603              |                   |                   |
| 1                   | 30                  | 1         | 1                   | 29                  | 21                  | 29                | 1                 | 4               | 710                 | 8                 | 710                 | F29K              | F709              |                   |
| 1                   | 45                  | 1         | 1                   | 51                  | 21                  | 19                | 1                 | 3               | 710                 | 8                 | 710                 | F432              |                   |                   |
| 1                   | 39                  | 1         | 1                   | 19                  | 28                  | 19                | 1                 | 48              | 710                 | 8                 | 710                 | F203              |                   |                   |
| 1                   | 42                  | 1         | 1                   | 19                  | 13                  | 19                | 1                 | 1               | 710                 | 8                 | 710                 | F329              | F101              |                   |
| 7                   | 33                  | 2         | 1                   | 19                  | 21                  | 98                | 8                 | 1               | 710                 | 8                 | 710                 | F313              | F431              | F500              |
| 8                   | 33                  | 2         | 1                   | 19                  | 21                  | 98                | 8                 | 4               | 710                 | 8                 | 710                 | F313              | F431              | F500              |
| 9                   | 33                  | 2         | 1                   | 19                  | 21                  | 98                | 8                 | 18              | 710                 | 8                 | 710                 | F313              | F431              | F500              |
| 1                   | 43                  | 1         | 1                   | 19                  | 22                  | 98                | 8                 | 1               | 300                 | 8                 | 300                 | F103              | F102              | K703              |
| 2                   | 43                  | 1         | 1                   | 19                  | 22                  | 19                | 1                 | 4               | 300                 | 8                 | 300                 | F103              | F102              | K703              |
| 1                   | 49                  | 2         | 1                   | 19                  | 21                  | 19                | 1                 | 1               | 300                 | 8                 | 300                 | F412              | R298              | R478              |
| 1                   | 32                  | 1         | 1                   | 19                  | 13                  | 19                | 1                 | 42              | 710                 | 8                 | 710                 | F200              |                   |                   |
| 1                   | 51                  | 1         | 1                   | 19                  | 21                  | 99                | 1                 | 12              | 710                 | 8                 | 710                 | F102              | Z630              |                   |

Output log (Ctrl+Click to open in Notepad)

A user can filter on blanks by leaving the 'Filter Column' blank.

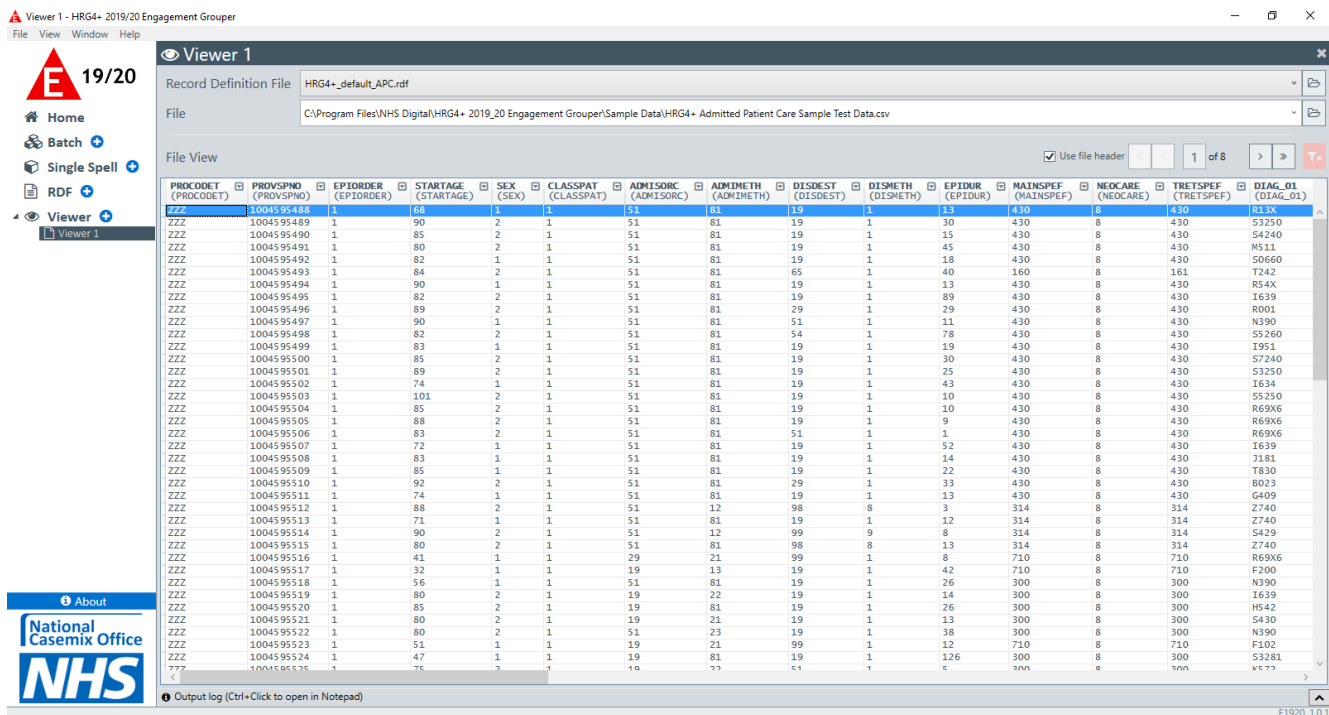
Filters can be cleared by clicking on the small drop-down arrow on columns where filters are applied and clicking on the bin icon or where multiple filters have been applied, clicking on the (Clear All Filter) icon will removal all filters that are applied to the data.

Click the 'Clear All Filter' icon and the Viewing window will reset to its original state.



While the use of the Viewer has limited values for manipulating large files (due to the display limitations) one specific area of development has been to introduce cross-functionality, whereby a user can now double click on a row of data in the File Viewer window which will then open a new Single Spell window with the information populated in the relevant fields.

Double click the first line of data of the HRG4+ Admitted Patient Care Sample Test Data.csv in the File View window.



This will then open a new Single Spell window, with the data shown in the View File window will, populated in the relevant fields.

Spell 1 - HRG4+ 2019/20 Engagement Grouper

File View Window Help

**E** 19/20

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Spell 1

Database: E\_1920 - Admitted Patient Care (APC)

Record Definition File: HRG4+..default\_APC.rdf

Episode: 1 of 1

Field Customisation Export Process

| Field    | Value      | Description  |
|----------|------------|--|
| PROCODET | ZZZ        |  |
| PROVSPNO | 1004595488 |  |
| EPIORDER | 1          |  |
| STARTAGE | 68         |  |
| SEX      | 1          | Male   |
| CLASSPAT | 1          | Ordinary admission   |
| ADMISORC | 51         | NHS other hospital provider - ward for general patients or the younger physically disabled or A & E department |
| ADMIMETH | 81         | Transfer of any admitted PATIENT from other Hospital Provider other than in an emergency                       |
| DISDEST  | 19         | Usual place of residence   |
| DISMETH  | 1          | Patient discharged on clinical advice or with clinical consent   |
| EPIDUR   | 13         |  |
| MAINSPEF | 430        | Geriatric Medicine   |
| NEOCARE  | 8          | Not Applicable   |
| TRETSPEF | 430        | Geriatric Medicine   |
| DIAG_01  | R13X       | Dysphagia  |
| DIAG_02  | Z501       | Other physical therapy   |
| DIAG_03  | I209       | Angina pectoris, unspecified   |
| DIAG_04  | E119       | Type 2 diabetes mellitus: Without complications  |
| DIAG_05  | Z951       | Presence of aortocoronary bypass graft   |
| DIAG_06  | Z922       | Personal history of long-term (current) use of other medicaments   |
| DIAG_07  | Z880       | Personal history of allergy to penicillin  |
| DIAG_08  | Z867       | Personal history of diseases of the circulatory system   |
| DIAG_09  | Z602       | Living alone   |
| DIAG_10  |            |  |
| DIAG_11  |            |  |
| DIAG_12  |            |  |
| DIAG_13  |            |  |
| DIAG_14  |            |  |
| OPER_01  | I1543      | Delivery of rehabilitation for stroke  |

| Field                   | Value    | Description  |
|-------------------------|----------|--|
| Errors                  |          |  |
| SpellHRG                | FD10L    | Non-Malignant Gastrointestinal Tract Disorders without Interventions |
| SpellGroupingMethodFlag | D        | Diagnosis driven   |
| SpellDominantProcedure  |          |  |
| SpellPDiag              | R13X     | Dysphagia  |
| SpellSDiag              | Z501     | Other physical therapy   |
| SpellEpisodeCount       | 1        |  |
| SpellLOS                | 13       |  |
| SpellCCDays             | 0        |  |
| SpellPBC                | PBC0213A | Upper Gastrointestinal   |
| SpellUnbundledHRGs      | VCD4Z*1  |  |
| SpellSSCs               |          |  |

| Field              | Value    | Description  |
|--------------------|----------|--|
| Errors             |          |  |
| FCE_HRG            | FD10L    | Non-Malignant Gastrointestinal Tract Disorders without Interventions, with O |
| GroupingMethodFlag | D        | Diagnosis driven   |
| DominantProcedure  |          |  |
| FCE_PBC            | PBC0213A | Upper Gastrointestinal   |
| CalcEpidur         | 13       |  |
| SpellReportFlag    | 1        |  |
| UnbundledHRGs      | VCD4Z*1  |  |
| FCESSCs            |          |  |

Output log (Ctrl+Click to open in Notepad)

E1920\_1.0.1

This feature only works where a relevant Record Definition File is selected with the selected File.

## Input File Preparation

This section provides guidance about preparing input files for processing with the Grouper.

### Note

Unless otherwise stated, the values in each field are validated against enumerated sets of values – generally based on NHS Data Dictionary definitions.

### File Format

Input data must be in comma-separated value (CSV) format using the American Standard Code for Information Interchange (ASCII) character set, excluding the non-printing ASCII characters. The input file must not include qualifiers, such as quotes, surrounding the fields.

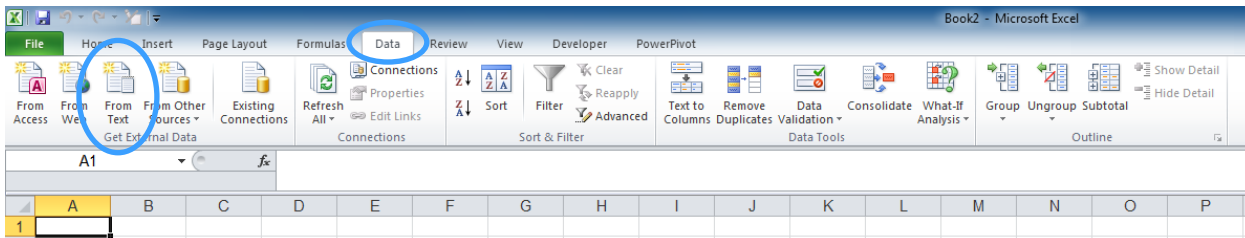
### Using Excel for File Preparation

If some of the records end with empty fields then a file structure issue can arise when saving a text file using Microsoft Excel. To prevent this issue arising, ensure that the final (rightmost) column of data is populated for every record in the file with dummy data such as "x".

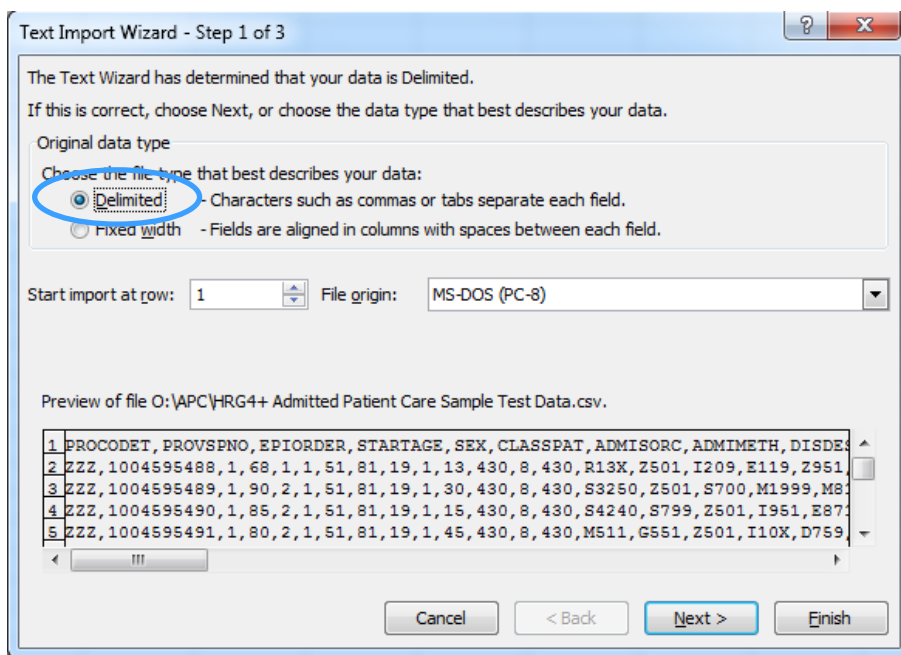
Please be aware that unless properly imported, opening a CSV in Excel will cause changes to the data. A common occurrence is for leading zeros to be stripped when a CSV file is opened in Excel. For code types such as critical care unit function codes, the field length is set and the Grouper expects a specific number of characters. With leading zeros stripped the field length is short of the expected amount and the Grouper will produce an output HRG of UZ01Z and give an explanation in the output Quality file.

To open a CSV in Excel whilst retaining the correct values please follow the below guide:

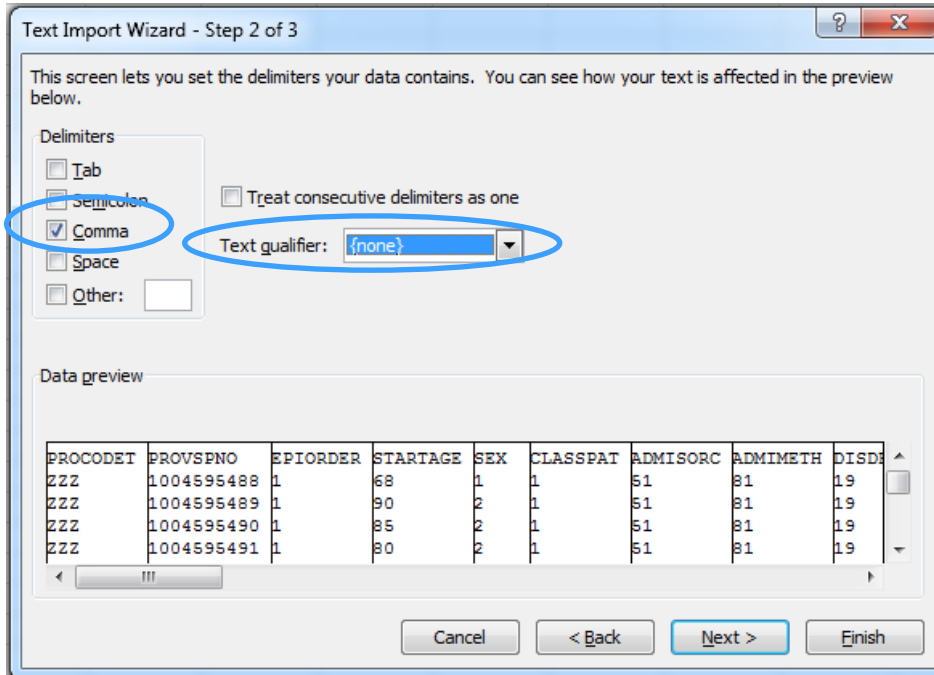
1. Open Excel. Click on the “Data” tab and click “From Text” in the ribbon.



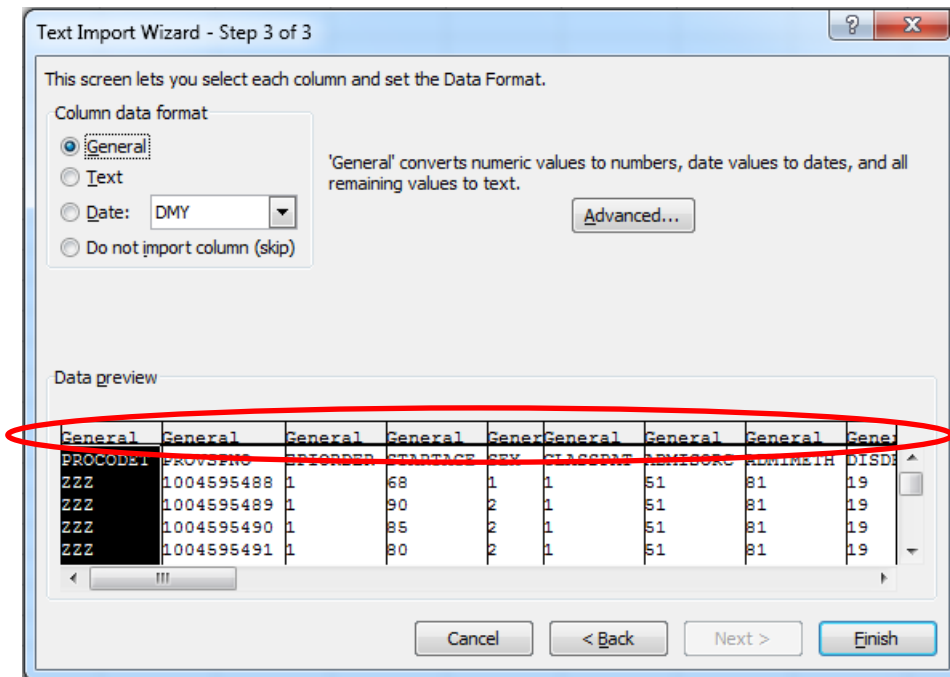
2. Navigate to your input file. In the Text Import Wizard select “Delimited” in step 1/3



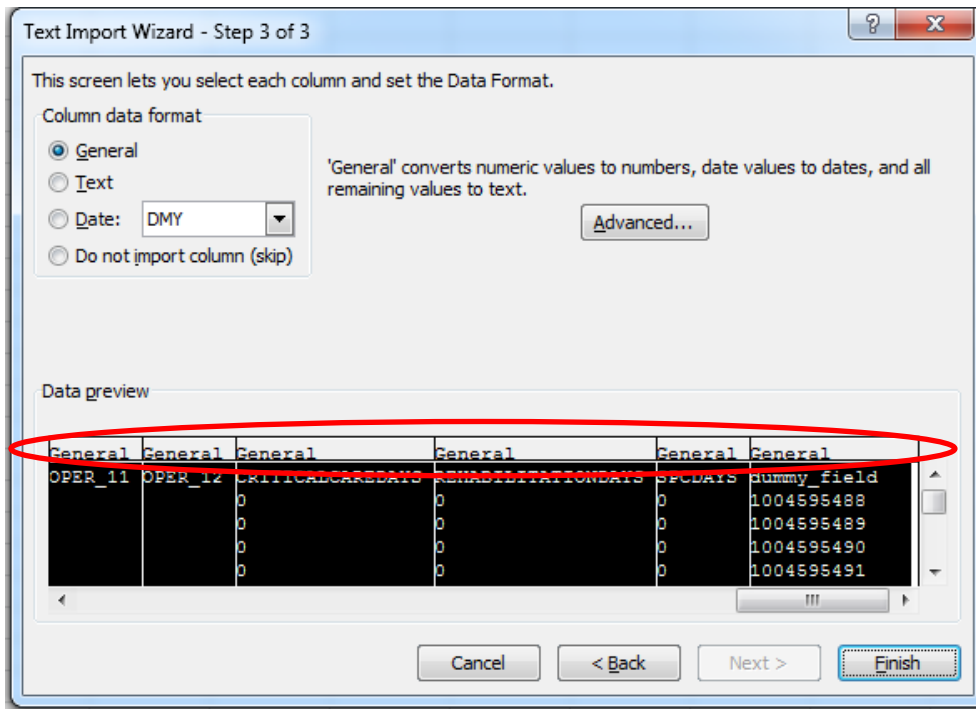
3. Then select “Comma” delimited in step 2/3



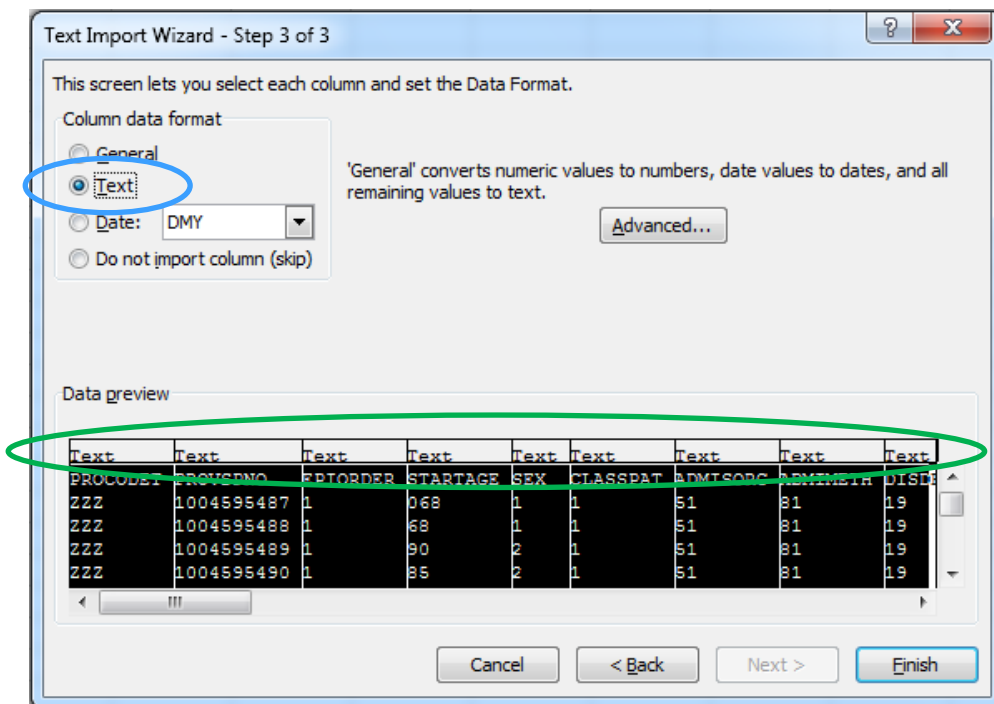
4. In step 3/3 notice Excel wants to pull the data into cells formatted as “general” not “text”.



It is essential to highlight all columns to change the format option to text. To do this scroll all the way to the right and press “shift” and click on the last column. This will select all columns.



Then choose the “Text” option.



Finally click “Finish” and choose what cell you want to pull the data into. This will ensure the data is imported as text for all columns.

It is recommended that you pull the data into cell A1 if you intend to save as CSV and run through the Grouper.

For more information on which fields have leading zeros please see the notes column in the below dataset tables.

## Admitted Patient Care (APC)

The Grouper sorts APC data prior to processing so that records with the same Provider Code and Provider Spell Number are placed in Episode Number order.

The field list below shows the fields required by the Grouper. The field order of the input file is defined by the Record Definition File used for the grouping session; there is no significance to the order in which the fields are listed below.

| Grouper Field Name | CDS/DD Field Name                                    | Mandation | Auto Complete | Notes   |
|--------------------|--|-----------|---------------|---|
| PROCODET           | ORGANISATION CODE (CODE OF PROVIDER)                 | Optional  | No            | A value must be supplied but is not validated. For NHS organisations use the first 3 characters for non-NHS organisations use all 5 characters.                   |
| PROVSPNO           | HOSPITAL PROVIDER SPELL NUMBER (or alternative)      | Optional  | No            | A value must be supplied but is not validated. It is possible to use an alternative spell identifier as PROVSPNO, in place of the Hospital Provider Spell Number. |
| EPIORDER           | EPISODE NUMBER                                       | Mandatory | No            | Duplicates within a spell will create an error. EPIORDER values 98 and 99 are invalid for grouping.   |
| STARTAGE           | Derived  | Mandatory | No            | Whole years rounded down: START DATE (EPISODE) – PERSON BIRTH DATE  |
| SEX                | PERSON GENDER CODE CURRENT                           | Mandatory | Yes           | Must be same for all episodes in a spell.   |
| CLASSPAT           | PATIENT CLASSIFICATION CODE                          | Mandatory | Yes           | Must be the same for all episodes within a spell.   |
| ADMISORC           | SOURCE OF ADMISSION CODE (HOSPITAL PROVIDER SPELL)   | Mandatory | Yes           | Must be the same for all episodes within a spell.   |
| ADMIMETH           | ADMISSION METHOD CODE (HOSPITAL PROVIDER SPELL)      | Mandatory | Yes           | Must be the same for all episodes within a spell.   |
| DISDEST            | DISCHARGE DESTINATION CODE (HOSPITAL PROVIDER SPELL) | Mandatory | Yes           | Must be populated with a valid value. The grouper uses the code from the last episode.  |

| <b>Grouper Field Name</b> | <b>CDS/DD Field Name</b>                        | <b>Mandation</b> | <b>Auto Complete</b> | <b>Notes</b>   |
|---------------------------|---|------------------|----------------------|--|
| DISMETH                   | DISCHARGE METHOD CODE (HOSPITAL PROVIDER SPELL) | Mandatory        | Yes                  | Must be populated with a valid value. The grouper uses the code from the last episode.   |
| EPIDUR                    | Derived   | Mandatory        | No                   | Range: 0-99999. Whole days: END DATE (EPISODE) – START DATE (EPISODE)  |
| MAINSPEF                  | CARE PROFESSIONAL MAIN SPECIALTY CODE           | Mandatory        | Yes                  | Must be populated with a valid value.  |
| NEOCARE                   | NEONATAL LEVEL OF CARE CODE                     | Optional         | Yes                  | May be blank.  |
| TRETSPEF                  | ACTIVITY TREATMENT FUNCTION CODE                | Mandatory        | Yes                  | Must be populated with a valid value.  |
| DIAG_01                   | PRIMARY DIAGNOSIS (ICD)                         | Mandatory        | Yes                  | Valid ICD-10 code. If this field is blank an error will be generated.  |
| DIAG_02 - DIAG_99         | SECONDARY DIAGNOSIS (ICD)                       | Optional         | Yes                  | As above, but blank allowed.   |
| OPER_01 - OPER_99         | PRIMARY PROCEDURE (OPCS) and PROCEDURE (OPCS)   | Optional         | Yes                  | Valid OPCS-4 codes or blank.   |
| CRITICALCARE<br>REDAYS    | Derived   | Optional         | No                   | <p>Range: 0-99999 or blank.</p> <p>Count of distinct days within the episode when the patient was in Critical Care.</p> <p>If the patient was in Critical Care on the last day of an episode, that was not the last episode of the spell, then that day in critical care should be assigned to the next episode.</p> |

| Grouper Field Name | CDS/DD Field Name                          | Mandation | Auto Complete | Notes   |
|--------------------|--|-----------|---------------|---|
| REHABILITATIONDAYS | LENGTH OF STAY ADJUSTMENT (REHABILITATION) | Optional  | No            | <p>Range: 0-99999 or blank.</p> <p>This field only should be populated with days that meet the following Data Dictionary definition and will result in a length of stay adjustment.</p> <p>The total number of days within a Consultant Episode (Hospital Provider) that a discrete period of ACTIVITY such as Rehabilitation occurred, which requires an adjustment to the total length of stay for National Tariff Payment System purposes.</p> <p>Where several discrete periods of applicable activity for the same LENGTH OF STAY ADJUSTMENT REASON occur within one Consultant Episode (Hospital Provider), the number of days under the same LENGTH OF STAY ADJUSTMENT REASON should be totalled and reported in a single LENGTH OF STAY ADJUSTMENT.</p> |

| Grouper Field Name | CDS/DD Field Name                                      | Mandation | Auto Complete | Notes   |
|--------------------|--|-----------|---------------|---|
| SPCDAYS            | LENGTH OF STAY ADJUSTMENT (SPECIALIST PALLIATIVE CARE) | Optional  | No            | <p>Range: 0-99999 or blank.</p> <p>This field only should be populated with days that meet the following Data Dictionary definition and will result in a length of stay adjustment.</p> <p>The total number of days within a Consultant Episode (Hospital Provider) that a discrete period of ACTIVITY such as Specialist Palliative Care occurred, which requires an adjustment to the total length of stay for National Tariff Payment System purposes.</p> <p>Where several discrete periods of applicable activity for the same LENGTH OF STAY ADJUSTMENT REASON occur within one Consultant Episode (Hospital Provider), the number of days under the same LENGTH OF STAY ADJUSTMENT REASON should be totalled and reported in a single LENGTH OF STAY ADJUSTMENT.</p> |

## Non-Admitted Consultations (NAC)

Non-admitted consultations are outpatient attendances or attendances by patients for nursing care on a ward (ward attenders). Since 1 April 2005 the Outpatient Attendance CDS has contained both of these types of data.

The field list below shows the fields required by the Grouper. The field order of the input file is defined by the Record Definition File used for the grouping session; there is no significance to the order in which the fields are listed below.

| Grouper Field name | CDS/DD Field Name                             | Mandation | Auto Complete | Notes  |
|--------------------|---|-----------|---------------|--|
| STARTAGE           | Derived                                       | Mandatory | No            | Whole years rounded down: APPOINTMENT DATE – PERSON BIRTH DATE |
| SEX                | PERSON GENDER CODE CURRENT                    | Mandatory | Yes           | Must be populated with a valid value.                          |
| MAINSPEF           | CARE PROFESSIONAL MAIN SPECIALTY CODE         | Mandatory | Yes           | Must be populated with a valid value.                          |
| TRETSPEF           | ACTIVITY TREATMENT FUNCTION CODE              | Mandatory | Yes           | Must be populated with a valid value.                          |
| FIRSTATT           | FIRST ATTENDANCE CODE                         | Mandatory | Yes           | Must be populated with a valid value.                          |
| OPER_01 - OPER_99  | PRIMARY PROCEDURE (OPCS) and PROCEDURE (OPCS) | Optional  | Yes           | Valid OPCS-4 codes or blank.                                   |

Each row of the input file represents a single attendance.

### Diagnosis Codes

Diagnostic coding is excluded from the HRG4+ algorithm for non-admitted consultations.

## Emergency Medicine (EM)

The field list below shows the fields required by the Grouper. The field order of the input file is defined by the Record Definition File used for the grouping session; there is no significance to the order in which the fields are listed below.

| Grouper Field Name  | CDS/DD Field Name  | Mandation | Auto Complete | Notes  |
|---------------------|--|-----------|---------------|--|
| AGE                 | Derived  | Mandatory | No            | Whole years rounded down: ARRIVAL DATE – PERSON BIRTH DATE<br>Validated, but not used in grouping.   |
| AEPATIENTGROUP      | A AND E PATIENT GROUP  | Optional  | Yes           | Valid A and E patient group code, but blank allowed.   |
| INV_01 - INV_99     | ACCIDENT AND EMERGENCY INVESTIGATION – FIRST and ACCIDENT AND EMERGENCY INVESTIGATION – SECOND | Optional  | Yes           | Valid national code component (always 2 characters) or blank.<br>The “Local Sub-Analysis” part <u>should not</u> be submitted.<br>Leading zeroes must be included where they form part of the national code component. |
| TREAT_01 - TREAT_99 | ACCIDENT AND EMERGENCY TREATMENT – FIRST and ACCIDENT AND EMERGENCY TREATMENT – SECOND         | Optional  | Yes           | Valid national code component (2 or 3 characters) or blank.<br>The “Local Sub-Analysis” part <u>should not</u> be submitted.<br>Leading zeroes must be included where they form part of the national code component.   |

Each row of the input file represents one Accident and Emergency Attendance.

## Renal Dialysis (NRD)

Renal Dialysis HRGs are generated using fields from the National Renal Dataset.

The field list below shows the fields required by the Grouper. The field order of the input file is defined by the Record Definition File used for the grouping session; there is no significance to the order in which the fields are listed below.

| Grouper Field Name | DD Field Name                                    | Mandation | Auto Complete | Notes  |
|--------------------|--|-----------|---------------|--|
| RENALMOD           | RENAL TREATMENT MODALITY CODE                    | Mandatory | Yes           | Leading zeros are significant.   |
| RENALSITE          | RENAL TREATMENT PRIMARY SUPERVISION CODE         | Mandatory | Yes           | Leading zeros are significant.   |
| RENALACCESS        | RENAL DIALYSIS ACCESS TYPE                       | Optional  | Yes           | Leading zeros are significant.   |
| HBV                | HEPATITIS B ANTIGEN STATUS (RENAL CARE)          | Optional  | No            | Accepted values are NEG, POS and UNK.  |
| HCV                | HEPATITIS C ANTIBODY STATUS (RENAL CARE)         | Optional  | No            | Accepted values are NEG, POS and UNK.  |
| HIV                | HUMAN IMMUNODEFICIENCY VIRUS STATUS (RENAL CARE) | Optional  | No            | Accepted values are NEG, POS and UNK.  |
| AGE                | Derived  | Mandatory | No            | The age of the patient in whole years at the start date of the session.<br>Range: 0-130. |

Each row of the input file represents either one haemodialysis session or one day of peritoneal dialysis.

## Adult Critical Care (ACC)

The field list below shows the fields required by the Grouper. The field order of the input file is defined by the Record Definition File used for the grouping session; there is no significance to the order in which the fields are listed below.

| Grouper Field Name | CDS/DD Field Name                    | Mandation | Auto Complete | Notes                          |
|--------------------|--------------------------------------|-----------|---------------|--------------------------------|
| CCUF               | CRITICAL CARE UNIT FUNCTION          | Mandatory | Yes           | Leading zeros are significant. |
| BCSD               | BASIC CARDIOVASCULAR SUPPORT DAYS    | Optional  | No            | Range: 0-99999.                |
| ACSD               | ADVANCED CARDIOVASCULAR SUPPORT DAYS | Optional  | No            | Range: 0-99999.                |
| BRSD               | BASIC RESPIRATORY SUPPORT DAYS       | Optional  | No            | Range: 0-99999.                |
| ARSD               | ADVANCED RESPIRATORY SUPPORT DAYS    | Optional  | No            | Range: 0-99999.                |
| RSD                | RENAL SUPPORT DAYS                   | Optional  | No            | Range: 0-99999.                |
| NSD                | NEUROLOGICAL SUPPORT DAYS            | Optional  | No            | Range: 0-99999.                |
| DSD                | DERMATOLOGICAL SUPPORT DAYS          | Optional  | No            | Range: 0-99999.                |
| LSD                | LIVER SUPPORT DAYS                   | Optional  | No            | Range: 0-99999.                |
| CCL2D              | CRITICAL CARE LEVEL 2 DAYS           | Optional  | No            | Range: 0-99999.                |
| CCL3D              | CRITICAL CARE LEVEL 3 DAYS           | Optional  | No            | Range: 0-99999.                |

|                   |                                 |          |    |  |
|-------------------|---------------------------------|----------|----|--|
| CC_Start_Date     | CRITICAL CARE<br>START DATE     | Optional | No | Format is YYYYMMDD. e.g. 1 April<br>2018 = 20180401. |
| CC_Discharge_Date | CRITICAL CARE<br>DISCHARGE DATE | Optional | No | Format is YYYYMMDD. e.g. 1 April<br>2018 = 20180401. |

Critical Care Start Date and Critical Care Discharge Date fields are used to calculate critical care days in the Grouper output file. They are not used in HRG derivation.

Each row of the input file represents one Adult Critical Care Period.

## Paediatric Critical Care (PCC)

The Grouper sorts Paediatric Critical Care data prior to grouping so that records with the same provider code and local identifier are placed in activity date order.

The field list below shows the fields required by the Grouper. The field order of the input file is defined by the Record Definition File used for the grouping session; there is no significance to the order in which the fields are listed below.

| Grouper Field Name | CDS/DD Field Name                               | Mandation | Auto Complete | Notes   |
|--------------------|---|-----------|---------------|---|
| PROCODET           | ORGANISATION CODE (CODE OF PROVIDER)            | Optional  | No            | A value must be supplied but is not validated. For NHS organisations use the first 3 characters for non-NHS organisations use all 5 characters. |
| CCLocalID          | CRITICAL CARE LOCAL IDENTIFIER                  | Optional  | No            | This and the provider field are the key that keeps records for the same patient together. They must be supplied.                                |
| CCDate             | ACTIVITY DATE (CRITICAL CARE)                   | Mandatory | No            | Format is YYYYMMDD. e.g. 1 April 2018 = 20180401.   |
| DISDATE            | CRITICAL CARE DISCHARGE DATE                    | Mandatory | No            | Format is YYYYMMDD. e.g. 1 April 2018 = 20180401.   |
| DISMETH            | DISCHARGE METHOD CODE (HOSPITAL PROVIDER SPELL) | Mandatory | Yes           | Must be populated with a valid value. The grouper uses the code from the last episode.  |
| CCUF               | CRITICAL CARE UNIT FUNCTION                     | Mandatory | No            | Leading zeros are significant.  |
| CCAC_01            | CRITICAL CARE ACTIVITY CODE                     | Optional  | Yes           | Valid CCAC code from list in Paediatric Critical Care Minimum Dataset (PCCMDS).   |
| CCAC_02 - CCAC_20  | CRITICAL CARE ACTIVITY CODE                     | Optional  | Yes           | Valid CCAC code from list in Paediatric Critical Care Minimum Dataset (PCCMDS).   |
| OPER_01 - OPER_20  | HIGH COST DRUGS (OPCS)                          | Optional  | Yes           | Valid OPCS-4 codes or blank. The PCC MDS specifies two appropriate procedure codes only.  |

| <b>Grouper Field Name</b> | <b>CDS/DD Field Name</b>                                    | <b>Mandation</b> | <b>Auto Complete</b> | <b>Notes</b>                        |
|---------------------------|---|------------------|----------------------|-------------------------------------|
| DIAG_01 - DIAG_99         | PRIMARY DIAGNOSIS (ICD)<br>and<br>SECONDARY DIAGNOSIS (ICD) | Optional         | Yes                  | Valid ICD-10 codes or can be blank. |

Each paediatric critical care day is represented by a data row in the input file. Where a child moves between units with different Critical Care Unit Function Codes, a new critical care period starts; this may result in the generation of more than one critical care record for the day of transfer and consequently more than one HRG for that day.

## Neonatal Critical Care (NCC)

The Grouper sorts Neonatal Critical Care prior to grouping so that records with the same provider code and local identifier are placed in activity date order.

The field list below shows the fields required by the Grouper. The field order of the input file is defined by the Record Definition File used for the grouping session; there is no significance to the order in which the fields are listed below.

| Grouper Field Name | CDS/DD Field Name                               | Mandation | Auto Complete | Notes   |
|--------------------|---|-----------|---------------|---|
| PROCODET           | ORGANISATION CODE (CODE OF PROVIDER)            | Optional  | No            | A value must be supplied but is not validated. For NHS organisations use the first 3 characters for non-NHS organisations use all 5 characters. |
| CCLocalID          | CRITICAL CARE LOCAL IDENTIFIER                  | Optional  | No            | This and the provider field are the key that keeps records for the same patient together. They must be supplied.                                |
| CCDate             | ACTIVITY DATE (CRITICAL CARE)                   | Mandatory | No            | Format is YYYYMMDD. e.g. 1 April 2018 = 20180401.   |
| DISDATE            | CRITICAL CARE DISCHARGE DATE                    | Mandatory | No            | Format is YYYYMMDD. e.g. 1 April 2018 = 20180401.   |
| CCUF               | CRITICAL CARE UNIT FUNCTION                     | Mandatory | Yes           | Leading zeros are significant.  |
| AGE_DAYS           | Derived   |           |               | Whole days rounded down: ACTIVITY DATE (CRITICAL CARE) - PERSON BIRTH DATE  |
| DISMETH            | DISCHARGE METHOD CODE (HOSPITAL PROVIDER SPELL) | Mandatory | No            | Must be populated with a valid value. The grouper uses the code from the last episode.  |
| GestLen            | GESTATION LENGTH (AT DELIVERY)                  | Mandatory | No            | Must be populated with a valid value. These are 10 to 49 inclusive (whole numbers only).  |
| PERWT              | PERSON WEIGHT                                   | Mandatory | No            | Kilograms, to 3 decimal places.<br>Range: greater than zero kg and less than 10 kg.<br>Leading zeroes are accepted.                             |

| <b>Grouper Field Name</b> | <b>CDS/DD Field Name</b>       | <b>Mandation</b> | <b>Auto Complete</b> | <b>Notes</b>  |
|---------------------------|--------------------------------|------------------|----------------------|---|
| CCAC_01                   | CRITICAL CARE<br>ACTIVITY CODE | Optional         | Yes                  | Valid CCAC code from list in Neonatal Critical Care Minimum Dataset (NCCMDS). |
| CCAC_02 - CCAC_20         | CRITICAL CARE<br>ACTIVITY CODE | Optional         | Yes                  | Valid CCAC code from list in Neonatal Critical Care Minimum Dataset (NCCMDS). |

Each neonatal critical care day is represented by a data row in the input file. Where a baby moves between units with different Critical Care Unit Function Codes, a new critical care period starts; this may result in the generation of more than one critical care record for the day of transfer and consequently more than one HRG for that day.

## Output Files

In the text below and the tables in the following pages, the output file name supplied by the user during processing is referred to as `[name]`; the remainder of the file name is a standard suffix that is appended by the Grouper.

A single input file produces a number of output files. User requirements determine which files are used; some users may not require certain output files. In most cases an output field appears in more than one file thus enabling users to select the files that best suit their needs.

Output files are produced as comma-separated text. These files may be opened with Microsoft Excel, but very large files may exceed the maximum number of rows for Excel. In these cases, an error message such as “File not loaded completely” will be displayed when attempting to open the file. The output files may be opened with a variety of applications, including Windows Notepad.

### Relational Outputs

Relational output files can be identified by the presence of “`_rel`” as part of the filename. They are characterised by the following features:

- They include row number references in order to allow files to be linked.
- Where items are repeated (e.g. unbundled HRGs, error messages) this is represented by the addition of rows rather than columns – the data is normalised.

The relational output files are supplied to support users who wish to import the Grouper output into a relational database; other users may choose to ignore them – and vice versa.

### RowNo Field

**RowNo** is an identifier that can be used to link rows in output files to rows in other output files. This is particularly useful in the case of the relational output files. Use of a system generated row number avoids problems using input values where they may not be unique.

Note that, depending on the file’s role in a relationship with another file, **RowNo** may not contain consecutive values i.e. there may be values missing; this is by design. For example, the **RowNo** values in the `[name]_spell_rel.csv` file will contain non-consecutive values where the input data contains multi-episode spells.

### Iteration Field

**Iteration** appears in some relational output files where it is used to distinguish between occurrences within the same key value. There is no significance to the numerical values of ‘Iteration’; the values are assigned in order, being numbered 1, 2, 3 etc.

## Admitted Patient Care (APC)

There are thirteen output files.

| File Name/Field Name | Description  |
|----------------------|--|
| [name].csv           | A list of all the other output files.  |
| [name]_sort.csv      | A copy of the input data after it has been sorted by Provider Code, Spell Number and Episode Number prior to grouping.   |
| <input data>         | All of the input data, including any non-mandatory fields.   |
| RowNo                | The generated row number of the record after sorting. This will match the equivalent fields in other output files from the same grouper run.   |
| [name]_FCE.csv       | Contains both episode and spell output fields.<br>The spell fields are repeated for each episode in the spell; care must be taken to avoid double-counting when using spell fields.  |
| <input data>         | All of the input data, including any non-mandatory fields.   |
| RowNo                | Matches the run generated row number.  |
| FCE_HRG              | The episode HRG.   |
| GroupingMethodFlag   | The grouping method used for the spell. P=Procedure driven, D=Diagnosis driven, M=Multiple trauma, G=Global exception, U=Error.  |
| DominantProcedure    | The dominant procedure.  |
| FCE_PBC              | Programme Budgeting Code for the episode.  |
| CalcEpidur           | The calculated episode duration. This is the input Episode duration minus the number of days in the input fields CRITICALCAREDDAYS, REHABILITATIONDDAYS and SPCDDAYS.<br>If the sum of these deductions is larger than the episode duration, then CalcEpidur will be zero. |
| ReportingEPIDUR      | Only populated in Reference Costs Groupers.<br>For ordinary admissions (Patient Classification = 1) if CalcEpidur is zero days ReportingEPIDUR is set to one day. Otherwise ReportingEPIDUR is the same as CalcEpidur.   |
| FCETrimpoint         | Only populated in Reference Costs Groupers.<br>The trimpoint for the episode HRG.  |
| FCEExcessBeddays     | Only populated in Reference Costs Groupers.<br>The number of days by which CalcEpidur exceeds the trimpoint.   |
| SpellReportFlag      | Populated with 1 if the episode contains the grouping variable used for deriving the spell HRG (Dominant Episode) or 0 for other episodes in the spell.  |
| FCESSC_Ct            | Not populated (redundant field).   |
| FCESSCs1 to FCESSCs7 | Not populated (redundant field).   |
| SpellHRG             | The spell HRG.   |

| File Name/Field Name    |                          | Description   |
|-------------------------|--------------------------|---|
|                         | SpellGroupingMethod Flag | The grouping method used for the spell. P=Procedure driven, D=Diagnosis driven, M=Multiple trauma, G=Global exception, U=Error.   |
|                         | SpellDominant Procedure  | The dominant procedure for the spell.   |
|                         | SpellPDiag               | The primary diagnosis used when spell grouping.   |
|                         | SpellSDiag               | The first secondary diagnosis used when spell grouping.   |
|                         | SpellEpisodeCount        | The number of episodes in the spell.  |
|                         | SpellLOS                 | The spell duration used for grouping. This is the total of the CalcEpidur fields for the episodes in the spell.   |
|                         | ReportingSpellLOS        | Only populated in Reference Costs Groupers.<br>The total of the ReportingEPIDUR fields for the episodes in the spell.   |
|                         | SpellTrimpoint           | Only populated in Reference Costs Groupers.<br>The trimpoint for the spell HRG.   |
|                         | SpellExcessBeddays       | Only populated in Reference Costs Groupers.<br>The number of days by which the SpellLOS exceeds the trimpoint.  |
|                         | SpellCCDays              | The number of critical care days in the spell.  |
|                         | SpellPBC                 | Programme Budgeting Code for the spell.   |
|                         | UnbundledHRGs            | Variable number of fields containing unbundled HRGs (episode level).<br><br>If days are reported in the REHABILITATION DAYS or SPCDAYS the unbundled HRGs will also be followed by an asterisk representing the number of days. To note only certain HRGs are eligible for “* multipliers” and these are output on each instance of the unbundled code generated within the episode and therefore where multiple HRGs are output the number of days will be recorded against each HRG. Care is therefore required in using the “* multiplier” to tell you anything other than the discrete number of days recorded and used for LOS adjustment. |
| <b>[name]_spell.csv</b> |                          | Contains one row per spell.   |
|                         | RowNo                    | Matches the run generated row number.   |
|                         | PROCODET                 | The organisation code from the input file.  |
|                         | PROVSPNO                 | The hospital provider spell number from the input file.   |
|                         | SpellHRG                 | The spell HRG.  |
|                         | SpellGroupingMethod Flag | The grouping method used for the spell HRG derivation. P=Procedure driven, D=Diagnosis driven, M=Multiple trauma, G=Global exception, U=Error and B=Burns (2nd or 3rd degree)   |
|                         | SpellDominant Procedure  | The dominant procedure for the spell.   |

| File Name/Field Name      | Description   |
|---------------------------|---|
| SpellPDiag                | The primary diagnosis used for spell grouping.  |
| SpellSDiag                | The first secondary diagnosis used for spell grouping.  |
| SpellEpisodeCount         | The number of episodes in the spell.  |
| SpellLOS                  | The spell duration used for grouping.   |
| ReportingSpellLOS         | Only populated in Reference Costs Groupers.<br>The total of the ReportingEPIDUR fields for the episodes in the spell.   |
| SpellTrimpoint            | Only populated in Reference Costs Groupers.<br>The trimpoint for the spell HRG.   |
| SpellExcessBeddays        | Only populated in Reference Costs Groupers.<br>The number of days by which the SpellLOS exceeds the trimpoint.  |
| SpellCCDays               | The number of critical care days in the spell.  |
| SpellPBC                  | Programme Budgeting Code for the spell.   |
| SpellSSC_Ct               | Not populated (redundant field).  |
| SpellSSCs1 to SpellSSCs7  | Not populated (redundant field).  |
| SpellBP_Ct                | Number of distinct BPTs produced for the spell.   |
| SpellBP1 to SpellBP7      | Candidate Best Practice Tariff codes for the spell.   |
| SpellFlag_Ct              | Not populated (redundant field).  |
| SpellFlag1 to SpellFlag7  | Not populated (redundant field).  |
| UnbundledHRGs             | Variable number of fields containing unbundled HRGs (episode level).<br><br>If days are reported in the REHABILITATION DAYS or SPCDAYS the unbundled HRGs will also be followed by an asterisk representing the number of days. To note only certain HRGs are eligible for “* multipliers” and these are output on each instance of the unbundled code generated within the episode and therefore where multiple HRGs are output the number of days will be recorded against each HRG. Care is therefore required in using the “* multiplier” to tell you anything other than the discrete number of days recorded and used for LOS adjustment. |
| <b>[name]_quality.csv</b> | Contains a row for each episode that contains an error.   |
| <input data>              | All of the input data, including any non-mandatory fields.  |
| RowNo                     | Matches the run generated row number.   |
| Error Message             | A variable number of fields, each consisting of Code Type, Code and Error Message, separated by pipe (   ) symbols.   |
| <b>[name]_FCE_rel.csv</b> | Episode-level output in relational form.  |
| RowNo                     | Matches the run generated row number.   |
| FCE_HRG                   | The episode HRG.  |

| File Name/Field Name        | Description   |
|-----------------------------|---|
| GroupingMethodFlag          | The grouping method used for the spell HRG derivation. P=Procedure driven, D=Diagnosis driven, M=Multiple trauma, G=Global exception, U=Error and B=Burns (2nd or 3rd degree)                                       |
| DominantProcedure           | The dominant procedure.   |
| FCE_PBC                     | Programme Budgeting Code for the episode.   |
| CalcEpidur                  | The calculated episode duration. This is the input Episode duration minus the number of days in the input fields CRITICALCAREDDAYS, REHABILITATIONDDAYS and SPCDDAYS.   |
| ReportingEPIDUR             | Only populated in Reference Costs Groupers. For ordinary admissions (Patient Classification = 1) if CalcEpidur is zero days ReportingEPIDUR is set to one day. Otherwise ReportingEPIDUR is the same as CalcEpidur. |
| FCETrimpoint                | Only populated in Reference Costs Groupers. The trimpoint for the episode HRG.  |
| FCEExcessBeddays            | Only populated in Reference Costs Groupers. The number of days by which CalcEpidur exceeds the trimpoint.   |
| SpellReportFlag             | Identifies the dominant episode.  |
| <b>[name]_spell_rel.csv</b> | Spell-level output in relational form; one row per spell.   |
| RowNo                       | Matches the run generated row number.   |
| PROCDET                     | The organisation code from the input file.  |
| PROVSPNO                    | The hospital provider spell number from the input file.   |
| SpellHRG                    | The spell HRG.  |
| SpellGroupingMethod Flag    | The grouping method used for the spell HRG derivation. P=Procedure driven, D=Diagnosis driven, M=Multiple trauma, G=Global exception, U=Error and B=Burns (2nd or 3rd degree)                                       |
| SpellDominant Procedure     | The dominant procedure for the spell.   |
| SpellPDiag                  | The primary diagnosis used when spell grouping.   |
| SpellSDiag                  | The first secondary diagnosis used when spell grouping.   |
| SpellEpisodeCount           | The number of episodes in the spell.  |
| SpellLOS                    | The spell duration used for grouping.   |
| ReportingSpellLOS           | Only populated in Reference Costs Groupers. The total of the ReportingEPIDUR fields for the episodes in the spell.  |
| SpellTrimpoint              | Only populated in Reference Costs Groupers. The trimpoint for the spell HRG.  |
| SpellExcessBeddays          | Only populated in Reference Costs Groupers. The number of days by which the SpellLOS exceeds the trimpoint.   |
| SpellCCDays                 | The number of critical care days in the spell.  |

| File Name/Field Name           | Description  |
|--------------------------------|--|
| SpellPBC                       | Programme Budgeting Code for the spell.  |
| <b>[name]_quality_rel.csv</b>  | Relational format includes a row for each error for each episode.                                      |
| RowNo                          | Matches the run generated row number.  |
| Iteration                      | The ordinal number of the quality message.   |
| Code Type                      | The type of code that has failed validation.   |
| Code                           | The value of the code that has failed validation. Blank where the code is missing from the input data. |
| Error Message                  | Description of the error.  |
| <b>[name]_flag_rel.csv</b>     | This file is populated by Payment Groupers only.   |
| RowNo                          | Matches the run generated row number.  |
| PROCDET                        | The organisation code from the input file.   |
| PROVSPNO                       | The hospital provider spell number from the input file.  |
| Iteration                      | The ordinal number of the BP Flag.   |
| SpellFlag                      | Includes all distinct Best Practice Tariff (BPT) codes and other flags generated for the spell.        |
| <b>[name]_FCE_flag_rel.csv</b> | Not currently populated.   |
| RowNo                          | Blank.   |
| Iteration                      | Blank.   |
| FCEFlag                        | Blank.   |
| <b>[name]_ub_rel.csv</b>       | The unbundled HRGs. There are no entries for episodes that do not have any unbundled HRGs.             |
| RowNo                          | Matches the run generated row number.  |
| Iteration                      | The ordinal number of the unbundled HRG.   |
| UnbundledHRGs                  | Variable number of unbundled HRGs output in a relational format for each episode within a spell.       |
| <b>[name]_summary.csv</b>      | A single-row file containing details about the grouping session.                                       |
| Grouper Version                | Version of the Grouper that produced the output files.   |
| Database Version               | The Grouper's internal HRG database version.   |
| FCE Count                      | The number of episodes submitted.  |
| Spell Count                    | The number of spells submitted.  |
| FCE Error Count                | The number of episodes having errors.  |
| Spell Error Count              | The number of spells having errors.  |
| Run Start Date/Time            | The date and time that the grouping session started.   |
| Run End Date/Time              | The date and time that the grouping session finished.  |
| Input Filename                 | The path and filename of the input file.   |
| Output Filename                | The path and filename selected by the user.  |
| RDF path and name              | The path and filename of the Record Definition File used for grouping.                                 |

| File Name/Field Name     | Description   |
|--------------------------|---|
| <b>[name]_report.csv</b> | An aggregated report file.<br>This file is populated by Reference Costs Groupers only.  |
| Type                     | Contains one of three values: APC-E – Episode level aggregates, APC-S – Spell level aggregates, APC-U – Unbundled HRG aggregates. |
| Provider                 | The PROCEDET input field.   |
| HRG                      | The FCE_HRG, SpellHRG or UB_HRG output fields as appropriate for the Type.  |
| TretSpef                 | The TRETSPPEF input field. For APC-S type it is the TRETSPPEF of the dominant episode in the spell.                               |
| ClassPat                 | The CLASSPAT input field. For APC-S type it is the CLASSPAT of the first episode in the spell.                                    |
| AdmiMeth                 | The ADMIMETH input field. For APC-S type it is the ADMIMETH of the first episode in the spell.                                    |
| TrimPoint                | The appropriate trimpoint as provided as part of the RC design.   |
| Mean LOS                 | The mean of the input EPIDUR.   |
| Adj Mean LOS             | The mean of the output CalcEPIDUR.  |
| Inlier Beddays           | The sum of the output CalcEPIDUR or SpellLOS minus the output FCEExcessBedDays or SpellExcessBeddays as appropriate.              |
| Excess Beddays           | The sum of the output FCEExcessBeddays or SpellExcessBeddays as appropriate.  |
| Count                    | The count of episodes, spells or records.   |

## Non-Admitted Consultations (NAC)

There are nine output files.

| File Name/Field Name         | Description  |
|------------------------------|--|
| <b>[name].csv</b>            | A list of other output files.  |
| <b>[name]_attend.csv</b>     | The main grouped output file.  |
| <input data>                 | All of the input data, including any non-mandatory fields.   |
| RowNo                        | The generated row number of the record.  |
| NAC_HRG                      | The attendance HRG.  |
| GroupingMethodFlag           | The grouping method used for the HRG derivation.<br>P=Procedure driven, G=Global exception, O=Outpatient default and U=Error   |
| DominantProcedure            | The dominant procedure.  |
| AttendanceHRG                | Only populated in Payment Groupers.<br>The alternative attendance HRG is provided to support the National Reimbursement System when the Outpatient Core (non-WF*) HRG does not have a mandatory tariff and is equivalent to the SUS_HRG. |
| AttendSSC_Ct                 | Not populated (redundant field).   |
| AttendSSC1 to AttendSSC5     | Not populated (redundant field).   |
| AttendBP_Ct                  | The count of distinct BPT flags produced for the attendance.   |
| AttendBP1 to AttendBP5       | Not populated (redundant field).   |
| AttendFlag_Ct                | Not populated (redundant field).   |
| AttendFlag1 to AttendFlag5   | Not populated (redundant field).   |
| UnbundledHRGs                | A variable number of fields containing unbundled HRGs appended to the end of each record.  |
| <b>[name]_quality.csv</b>    | Contains a row for each attendance that contains errors.   |
| <input data>                 | All of the input data, including any non-mandatory fields.   |
| RowNo                        | Matches the run generated row number.  |
| Error Message                | A variable number of fields, consisting of Code Type, Code and Error Message, separated by pipe (   ) symbols.   |
| <b>[name]_attend_rel.csv</b> | Output in relational form.   |
| <input data>                 | All of the input data, including any non-mandatory fields.   |
| RowNo                        | Matches the run generated row number.  |
| NAC_HRG                      | The attendance HRG.  |
| GroupingMethodFlag           | The grouping method used for the HRG derivation.<br>P=Procedure driven, G=Global exception, O=Outpatient default and U=Error   |

| File Name/Field Name          |                        | Description  |
|-------------------------------|------------------------|--|
|                               | DominantProcedure      | The dominant procedure.  |
|                               | AttendanceHRG          | Only populated in Payment Groupers.<br>The alternative attendance HRG is provided to support the National Reimbursement System when the Outpatient Core (non-WF*) HRG does not have a mandatory tariff and is equivalent to the SUS_HRG. |
| <b>[name]_quality_rel.csv</b> |                        | All error messages in relational form.   |
|                               | RowNo                  | Matches the run generated row number.  |
|                               | Iteration              | The ordinal number of the quality message.   |
|                               | Code Type              | The type of code that has failed validation.   |
|                               | Code                   | The code that failed validation. Blank if code missing from input data.  |
|                               | Error Message          | Description of the error.  |
| <b>[name]_flag_rel.csv</b>    |                        | This file is not currently populated.  |
|                               | RowNo                  |  |
|                               | Iteration              |  |
|                               | AttendFlag             |  |
| <b>[name]_ub_rel.csv</b>      |                        | The unbundled HRGs. There are no entries for attendances without unbundled HRGs.   |
|                               | RowNo                  | Matches the run generated row number.  |
|                               | Iteration              | The ordinal number of the unbundled HRG.   |
|                               | UnbundledHRGs          | The unbundled HRGs. There is no significance to the output order.  |
| <b>[name]_summary.csv</b>     |                        | A single-row file containing details about the grouping session.   |
|                               | Grouper Version        | The version of the Grouper that produced the output files.   |
|                               | Database Version       | The Grouper's internal HRG database version.   |
|                               | Attendance Count       | The number of records submitted.   |
|                               | Attendance Error Count | The number of records having errors.   |
|                               | Run Start Date/Time    | The date and time that the grouping session started.   |
|                               | Run End Date/Time      | The date and time that the grouping session finished.  |
|                               | Input Filename         | The path and filename of the input file.   |
|                               | Output Filename        | The path and filename selected by the user.  |
|                               | RDF path and name      | The path and filename of the Record Definition File used for grouping.   |
| <b>[name]_report.csv</b>      |                        | An aggregated report file.<br>This file is populated by Reference Costs Groupers only.   |
|                               | Type                   | Contains one of two values: NAC – Attendance aggregates, NAC-U – Unbundled HRG aggregates.   |
|                               | Provider               | Blank.   |

| File Name/Field Name | Description  |
|----------------------|--|
| HRG                  | The NAC_HRG or UB_HRG output fields as appropriate for the Type. |
| TretSpef             | The TRETSPPEF input field.                                       |
| ClassPat             | Blank.   |
| AdmiMeth             | Blank.   |
| TrimPoint            | Blank.   |
| Mean LOS             | Blank.   |
| Adj Mean LOS         | Blank.   |
| Inlier Beddays       | Blank.   |
| Excess Beddays       | Blank.   |
| Count                | The count of attendances or records.                             |

## Emergency Medicine (EM)

There are six output files.

| File Name/Field Name          | Description  |
|-------------------------------|--|
| <b>[name].csv</b>             | A list of other output files.  |
| <b>[name]_attend.csv</b>      | The main grouped output file.  |
| <input data>                  | All of the input data, including any non-mandatory fields.   |
| RowNo                         | The generated row number of the record.  |
| EM_HRG                        | The attendance HRG.  |
| <b>[name]_quality.csv</b>     | Contains a row for each input record that contains errors.   |
| <input data>                  | All of the input data including any non-mandatory fields.  |
| RowNo                         | Matches the run generated row number.  |
| Error Message                 | A variable number of fields, consisting of Code Type, Code and Error Message, separated by pipe (   ) symbols. |
| <b>[name]_quality_rel.csv</b> | All error messages in relational form.   |
| RowNo                         | Matches the run generated row number.  |
| Iteration                     | The ordinal number of the quality message.   |
| Code Type                     | The type of code that has failed validation.   |
| Code                          | The code that failed validation. Blank if code missing from input data.  |
| Error Message                 | Description of the error.  |
| <b>[name]_summary.csv</b>     | A single-row file containing details about the grouping session.   |
| Grouper Version               | The version of the Grouper that produced the output files.   |
| Database Version              | The Grouper's internal HRG database version.   |
| Attendance Count              | The number of records submitted.   |
| Attendance Error Count        | The number of records having errors.   |
| Run Start Date/Time           | The date and time that the grouping session started.   |
| Run End Date/Time             | The date and time that the grouping session finished.  |
| Input Filename                | The path and filename of the input file.   |
| Output Filename               | The path and filename selected by the user.  |
| RDF path and name             | The path and filename of the Record Definition File used for grouping.   |
| <b>[name]_report.csv</b>      | An aggregated report file.<br>This file is populated by Reference Costs Groupers only.                         |
| Type                          | Contains the value EM.   |
| Provider                      | Blank.   |
| HRG                           | The EM_HRG.  |
| TretSpef                      | Blank.   |
| ClassPat                      | Blank.   |
| AdmiMeth                      | Blank.   |

| <b>File Name/Field Name</b> | <b>Description</b>        |
|-----------------------------|---------------------------|
| TrimPoint                   | Blank.                    |
| Mean LOS                    | Blank.                    |
| Adj Mean LOS                | Blank.                    |
| Inlier Beddays              | Blank.                    |
| Excess Beddays              | Blank.                    |
| Count                       | The count of attendances. |

## Renal Dialysis (NRD)

There are six output files

| File Name/Field Name          | Description  |
|-------------------------------|--|
| <b>[name].csv</b>             | A list of other output files.  |
| <b>[name]_renal.csv</b>       | The main grouped output file.  |
| <input data>                  | All of the input data, including any non-mandatory fields.   |
| RowNo                         | The generated row number of the record.  |
| NRD_HRG                       | The HRG for the dialysis record.   |
| <b>[name]_quality.csv</b>     | Contains one row for each record that contains errors.   |
| <input data>                  | All of the input data, including any non-mandatory fields.   |
| RowNo                         | Matches the run generated row number.  |
| Error Message                 | A variable number of fields, consisting of Code Type, Code and Error Message, separated by pipe (   ) symbols. |
| <b>[name]_quality_rel.csv</b> | All error messages in relational form.   |
| RowNo                         | Matches the run generated row number.  |
| Iteration                     | The ordinal number of the quality message.   |
| Code Type                     | The type of code that has failed validation.   |
| Code                          | The code that failed validation. Blank if code missing from input data.  |
| Error Message                 | Description of the error.  |
| <b>[name]_summary.csv</b>     | A single-row file containing details about the grouping session.   |
| Grouper Version               | The version of the Grouper that produced the output files.   |
| Database Version              | The Grouper's internal HRG database version.   |
| NRD Record Count              | The number of records submitted.   |
| NRD Record Error Count        | The number of records having errors.   |
| Run Start Date/Time           | The date and time that the grouping session started.   |
| Run End Date/Time             | The date and time that the grouping session finished.  |
| Input Filename                | The path and filename of the input file.   |
| Output Filename               | The path and filename selected by the user.  |
| RDF path and name             | The path and filename of the Record Definition File used for grouping.   |
| <b>[name]_report.csv</b>      | An aggregated report file.<br>This file is populated by Reference Costs Groupers only.                         |
| Type                          | Contains the value NRD.  |
| Provider                      | Blank.   |
| HRG                           | The NRD_HRG.   |
| TretSpef                      | Blank.   |
| ClassPat                      | Blank.   |

| <b>File Name/Field Name</b> | <b>Description</b>    |
|-----------------------------|-----------------------|
| AdmiMeth                    | Blank.                |
| TrimPoint                   | Blank.                |
| Mean LOS                    | Blank.                |
| Adj Mean LOS                | Blank.                |
| Inlier Beddays              | Blank.                |
| Excess Beddays              | Blank.                |
| Count                       | The count of records. |

## Adult Critical Care (ACC)

There are six output files.

| File Name/Field Name          | Description   |
|-------------------------------|---|
| <b>[name].csv</b>             | A list of other output files.   |
| <b>[name]_acc.csv</b>         | The main grouped output file.   |
| <input data>                  | All of the input data, including any non-mandatory fields.  |
| RowNo                         | The generated row number of the record.   |
| ACC_HRG                       | The unbundled HRG for the Adult Critical Care period.   |
| Calc_CC_Days                  | The number of Critical Care days calculated as:<br>CC Discharge Date - CC Start Date + 1<br>This will be set to -1 if there are problems with the dates.  |
| CC_Warning_Flag               | Flag to indicate the result of validation of dates and respiratory support day's fields. Failure does not prevent HRG derivation. Blank indicates passing validation. F indicates date validation failure; applied if any of the following are true:<br>Calc_CC_Days = -1. (This indicates that CC Discharge Date is before CC Start Date, or CC Start Date or CC Discharge Date is blank, is not a valid date or does not match the required format.)<br>CCL2 Days + CCL3 Days > Calc_CC_Days<br>ARSD + BRSD > Calc_CC_Days<br>ARSD + BRSD > CCL2 Days + CCL3 Days |
| <b>[name]_quality.csv</b>     | Contains a row for each input record that contains errors.  |
| <input data>                  | All of the input data, including any non-mandatory fields.  |
| RowNo                         | Matches the run generated row number.   |
| Error Message                 | A variable number of fields, consisting of Code Type, Code and Error Message, separated by pipe (   ) symbols.  |
| <b>[name]_quality_rel.csv</b> | All error messages in relational form.  |
| RowNo                         | Matches the run generated row number.   |
| Iteration                     | The ordinal number of the quality message.  |
| Code Type                     | The type of code that has failed validation.  |
| Code                          | The code that failed validation. Blank if code missing from input data.   |
| Error Message                 | Description of the error.   |
| <b>[name]_summary.csv</b>     | A single-row file containing details about the grouping session.  |
| Grouper Version               | The version of the Grouper that produced the output files.  |
| Database Version              | The Grouper's internal HRG database version.  |
| ACC Period Count              | The number of records submitted.  |
| ACC Period Error Count        | The number of records having errors.  |

| <b>File Name/Field Name</b> | <b>Description</b>   |
|-----------------------------|--|
| Run Start Date/Time         | The date and time that the grouping session started.                                   |
| Run End Date/Time           | The date and time that the grouping session finished.                                  |
| Input Filename              | The path and filename of the input file.   |
| Output Filename             | The path and filename selected by the user.  |
| RDF path and name           | The path and filename of the Record Definition File used for grouping.                 |
| <b>[name]_report.csv</b>    | An aggregated report file.<br>This file is populated by Reference Costs Groupers only. |
| Type                        | Contains the value ACC.  |
| Provider                    | Blank.   |
| HRG                         | The ACC_HRG.   |
| TretSpef                    | Blank.   |
| ClassPat                    | Blank.   |
| AdmiMeth                    | Blank.   |
| TrimPoint                   | Blank.   |
| CC Days                     | The output Calc_CC_Days field.   |
| Adj Mean LOS                | Blank.   |
| Inlier Beddays              | Blank.   |
| Excess Beddays              | Blank.   |
| Count                       | The count of periods.  |

## Paediatric Critical Care (PCC)

There are seven output files.

| File Name/Field Name          | Description  |
|-------------------------------|--|
| <b>[name].csv</b>             | A list of other output files.  |
| <b>[name]_sort.csv</b>        | A copy of the input data after it has been sorted.   |
| <input data>                  | All of the input data, including any non-mandatory fields.   |
| RowNo                         | The generated row number of the record after sorting.  |
| <b>[name]_pcc.csv</b>         | The main grouped output file.  |
| <input data>                  | All of the input data including any non-mandatory fields.  |
| RowNo                         | Matches the run generated row number.  |
| PCC_HRG                       | The unbundled HRG for the Paediatric Critical Care day.  |
| <b>[name]_quality.csv</b>     | Contains one row for each record that contains errors.   |
| <input data>                  | All of the input data, including any non-mandatory fields.   |
| RowNo                         | Matches the run generated row number.  |
| Error Message                 | A variable number of fields, consisting of Code Type, Code and Error Message, separated by pipe (   ) symbols. |
| <b>[name]_quality_rel.csv</b> | All error messages in relational form.   |
| RowNo                         | Matches the run generated row number.  |
| Iteration                     | The ordinal number of the quality message.   |
| Code Type                     | The type of code that has failed validation.   |
| Code                          | The code that failed validation. Blank if code missing from input data.  |
| Error Message                 | Description of the error.  |
| <b>[name]_summary.csv</b>     | A single-row file containing details about the grouping session.   |
| Grouper Version               | The version of the Grouper that produced the output files.   |
| Database Version              | The Grouper's internal HRG database version.   |
| PCC Record Count              | The number of records submitted.   |
| PCC Record Error Count        | The number of records having errors.   |
| Run Start Date/Time           | The date and time that the grouping session started.   |
| Run End Date/Time             | The date and time that the grouping session finished.  |
| Input Filename                | The path and filename of the input file.   |
| Output Filename               | The path and filename selected by the user.  |
| RDF path and name             | The path and filename of the Record Definition File used for grouping.   |
| <b>[name]_report.csv</b>      | An aggregated report file.<br>This file is populated by Reference Costs Groupers only.                         |
| Type                          | Contains the value PCC.  |
| Provider                      | The PROCEDET input field.  |

---

| <b>File Name/Field Name</b> | <b>Description</b>                    |
|-----------------------------|---------------------------------------|
| HRG                         | The PCC_HRG.                          |
| TretSpef                    | Blank.                                |
| ClassPat                    | Blank.                                |
| AdmiMeth                    | Blank.                                |
| TrimPoint                   | Blank.                                |
| CC Days                     | Always 1, for single day PCC records. |
| Adj Mean LOS                | Blank.                                |
| Inlier Beddays              | Blank.                                |
| Excess Beddays              | Blank.                                |
| Count                       | The count of records.                 |

## Neonatal Critical Care (NCC)

There are seven output files.

| File Name/Field Name          | Description  |
|-------------------------------|--|
| <b>[name].csv</b>             | A list of other output files.  |
| <b>[name]_sort.csv</b>        | A copy of the input data after it has been sorted.   |
| <input data>                  | All of the input data, including any non-mandatory fields.   |
| RowNo                         | Generated row number of the record after sorting.  |
| <b>[name]_ncc.csv</b>         | The main grouped output file.  |
| <input data>                  | All of the input data, including any non-mandatory fields.   |
| RowNo                         | Matches the run generated row number.  |
| NCC_HRG                       | The unbundled HRG for the Neonatal Critical Care day.  |
| <b>[name]_quality.csv</b>     | Contains one row for each record that contains errors.   |
| <input data>                  | All of the input data, including any non-mandatory fields.   |
| RowNo                         | Matches the run generated row number.  |
| Error Message                 | A variable number of fields, consisting of Code Type, Code and Error Message, separated by pipe (   ) symbols. |
| <b>[name]_quality_rel.csv</b> | All error messages in relational form.   |
| RowNo                         | Matches the run generated row number.  |
| Iteration                     | The ordinal number of the quality message.   |
| Code Type                     | The type of code that has failed validation.   |
| Code                          | The code that failed validation. Blank if code missing from input data.  |
| Error Message                 | Description of the error.  |
| <b>[name]_summary.csv</b>     | A single-row file containing details about the grouping session.   |
| Grouper Version               | The version of the Grouper that produced the output files.   |
| Database Version              | The Grouper's internal HRG database version.   |
| NCC Record Count              | The number of records submitted.   |
| NCC Record Error Count        | The number of records having errors.   |
| Run Start Date/Time           | The date and time that the grouping session started.   |
| Run End Date/Time             | The date and time that the grouping session finished.  |
| Input Filename                | The path and filename of the input file.   |
| Output Filename               | The path and filename selected by the user.  |
| RDF path and name             | The path and filename of the Record Definition File used for grouping.   |
| <b>[name]_report.csv</b>      | An aggregated report file.<br>This file is populated by Reference Costs Groupers only.                         |
| Type                          | Contains the value NCC.  |
| Provider                      | The PROCEDET input field.  |

---

| <b>File Name/Field Name</b> | <b>Description</b>                    |
|-----------------------------|---------------------------------------|
| HRG                         | The NCC_HRG.                          |
| TretSpef                    | Blank.                                |
| ClassPat                    | Blank.                                |
| AdmiMeth                    | Blank.                                |
| TrimPoint                   | Blank.                                |
| CC Days                     | Always 1, for single day NCC records. |
| Adj Mean LOS                | Blank.                                |
| Inlier Beddays              | Blank.                                |
| Excess Beddays              | Blank.                                |
| Count                       | The count of records.                 |

## Errors and Validation

As part of the grouping process the Grouper carries out validation checks on many of the mandatory input fields. Where one or more fields fail validation, the Grouper derives the HRG UZ01Z (Data Invalid for Grouping).

For single-episode spells, where the episode fails validation, the error HRG is derived at both episode and spell level.

For multi-episode spells that contain a mixture of episodes that pass validation and episodes that fail validation, the error HRG is derived for each episode that fails validation and at spell level.

Details of all errors are reported in the output quality file. The listings in the Output Files section of this document include a description of the quality file for each of the data types processed by the Grouper. The Input File Preparation section provides further information about valid values for various input fields.

Details of clinical coding validation can be found in the chapter summary documentation for chapter **UZ Undefined Groups** which is available for download from the Casemix website.

### Error Message Format

Error messages in the quality file are displayed in three sections, separated by a pipe character:

```
Code Type|Code|Error Message
```

Code Type identifies the field or field type

Code is the unrecognised value. Where an error is due to the absence of a code, this section is left blank.

Error Description explains the nature of the error

An example error message is:

```
DIAG_01|P102|UZ03 - Diagnosis Conflicts with Age
```

### Error Types

There are three types of errors:

**Field Validation Errors** are generated where field values are missing or are outside of the accepted range of values. Example error messages of this type are:

```
DIAG_01||Primary Diagnosis is blank
```

```
DIAG_01|R69X6|Primary Diagnosis is invalid
```

```
OPER_02|C992|Procedure is invalid
```

**Spell Validation Errors** result from cross checks across records in a spell. For example, where consistency checks for sex or age fail:

```
SEX||Sex is inconsistent in spell
```

```
STARTAGE||Age rises by more than expected in the spell
```

**Clinical Coding Errors** are mainly due to the use of clinical codes that violate clinical coding convention or are not useful resource indicators for HRG grouping.

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Clinical coding errors produce error messages that contain the error category codes described in the following section.

## Error Categories

Error Categories are used mainly for clinical coding errors. Critical care grouping error descriptions also include error category codes.

### UZ01 Invalid Primary Diagnosis

Diagnosis code is present but should not be used in a primary position according to clinical coding conventions.

DIAG\_01|Z509|UZ01 - Invalid Primary Diagnosis

*(Z509: Care involving use of rehabilitation procedure, unspecified)*

### UZ02 Poorly Coded Primary Diagnosis

Diagnosis code is valid as a primary diagnosis but is too vague to determine the resource use.

DIAG\_01|T140|UZ02 - Poorly Coded Primary Diagnosis

*(T140: Superficial injury of unspecified body region)*

### UZ03 Diagnosis Conflicts with Age

A paediatric primary diagnosis has been recorded for an adult patient (age 19 years and over).

DIAG\_01|P704|UZ03 - Diagnosis Conflicts with Age

*(P704: Other neonatal hypoglycaemia)*

### UZ04 Diagnosis Conflicts with Anatomical Site

Indicates an invalid combination of primary diagnosis and anatomical site. This only applies to specific musculoskeletal codes entered at 5th digit level.

DIAG\_01|M7217|UZ04 - Diagnosis Conflicts with Anatomical Site

*(M7217: Knuckle pads: Ankle and foot)*

### UZ05 Invalid procedure for Casemix grouping purposes

Indicates invalid dominant procedure (e.g. an anatomical site) and includes the entire Y (methods of operations) and Z (anatomical sites) codes and also a number of codes in the main body system chapters.

OPER\_02|Y841|UZ05 - Invalid procedure for Casemix grouping purposes

OPER\_02|W450|UZ05 - Invalid procedure for Casemix grouping purposes

*(Y841: Gas and air analgesia in labour)*

*(W540: Conversion from previous prosthetic replacement of articulation of bone NEC)*

### **UZ06 Poorly coded procedure for Casemix grouping purposes**

Indicates a dominant or unbundled procedure that is too vague and unspecific to determine resource use from an HRG design perspective.

OPER\_02|A579|UZ06 - Poorly coded procedure for Casemix grouping purposes

OPER\_01|U019|UZ06 - Poorly coded procedure for Casemix grouping purposes

*(A579: Unspecified operations on spinal nerve root)*

*(U019: Unspecified diagnostic imaging of whole body)*

### **UZ11 Neonatal Critical Care Error**

This is a general purpose grouping error for Neonatal Critical Care, generated when the input record does not meet any of the criteria in the neonatal critical care grouping algorithm.

### **UZ13 ACC Grouping Error**

This is a general purpose grouping error for Adult Critical Care, generated when the input record does not meet any of the criteria in the adult critical care grouping algorithm.

### **UZ14 Renal (NRD) Error**

This is a general error for grouping renal activity using the national renal dataset and is generated when conditions in the grouping algorithm have not been met.

### **UZ15 Burns Error**

Indicates where a burns primary diagnosis code of unspecified body region or total body surface area (TBSA) is recorded, or burns diagnosis code recorded, in any position, with no subsequent TBSA code present.

### **UZ21 CCAC Inappropriate in NCC**

Generated when the Critical Care Activity Code is inappropriate for the Neonatal Critical Care HRG algorithm.

## **Notes**

When one error is found in a record the Grouper does not stop the validation process. The grouping software aims to identify all errors and output them together.

In Admitted Patient Care errors cascade up to the next level. If an episode HRG is UZ01Z then the spell HRG will be UZ01Z. If an unbundled HRG is UZ01Z then both the episode and the spell HRGs will be UZ01Z. Errors do not cascade downwards, so if one episode gets UZ01Z then it will not stop the other episode HRGs from being generated.

In Admitted Patient Care data Specialised Service Codes and Best Practice Tariff codes are suppressed if the spell HRG is UZ01Z

In Admitted Patient Care data the primary diagnosis is always validated.

All clinical codes are validated against the Grouper's internal database of codes.

Codes used that are not on this list will result in the generation of a UZ01Z HRG.

ICD10 codes that are not on the list are classified as invalid but will not result in a specific error message. These will be output in the DQ report as follows;

```
DIAG_XX|XXXX|Diagnosis is invalid
```

OPCS codes that are not on the list are similarly classified as invalid but will not result in a specific error message. These will be output in the DQ report as follows;

```
OPER_XX|XXXX|Procedure is invalid
```

## The Documentation Suite

Below is a list of the various documents which are available to download from the National Casemix Office website <https://digital.nhs.uk/National-casemix-office/downloads-grouper-and-tools>.

This documentation suite provides a comprehensive resource to enable users to understand design concepts and logic, as well as practical use of the Grouper.

- The **Casemix Companion** is a starting point and general reference guide for anyone interested in learning about the casemix classification system used by the NHS in England. The document provides an introduction to HRGs, groupers, HRG4+ design concepts and grouping logic, and it contains links to additional resources.
- The **Grouper User Manual** provides instructions on how to prepare and group data using the Grouper software application. Sample data with expected results is provided. This document is updated with every grouper release.
- The **Summary of Changes** document provides an overview of the main differences between the current grouper design and its relevant predecessor.
- The **Chapter Summaries** document provides an overview of the scope, composition and relevant grouping logic of individual HRG subchapters, and it highlights significant changes to the latest HRG design.
- The **Code to Group Workbook** is a spreadsheet that embodies the casemix design. It provides details of the constituent elements that contribute to HRG grouping, and it contains reference data such as the ICD-10 and OPCS-4 codes utilised in the design, the procedure and diagnosis hierarchies pertinent to a specific design, and the Complication and Comorbidities lists for HRG subchapters. The spreadsheet also includes information on Programme Budgeting Category (PBC) mapping, as well as a comprehensive list of HRG codes and labels.
- The **Best Practice Guide** is a spreadsheet that contains details about how the grouper allocates specific identification flags relating to best practice. Best Practice Flags usually result in an adjustment to the tariff. The spreadsheet also provides details of these specific tariff adjustments.