

# Grouper User Manual

## HRG4+ 2019/20 Consultation Grouper

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## Grouper Installation and Uninstallation

This guide details the prerequisite system requirements for installing the Grouper and provides a step-by-step guide for installing and uninstalling the Grouper.

### System Requirements

The Grouper has been developed on a platform that supports Window Server 2008 onwards. This is in line with a Cabinet Office letter published on 8 April 2014 advising that NHS organisations could apply for a 12-month support extension for XP with the understanding that they would have plans in place for migrating from Windows XP by 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 onto your computer, it must be running Operating System (OS) Windows 7/Windows Server 2008 R2 or a more recent Windows OS. The software can be run on Windows Vista, but this OS is considered unsupported as it is no longer covered under 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 are as follows:

- 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

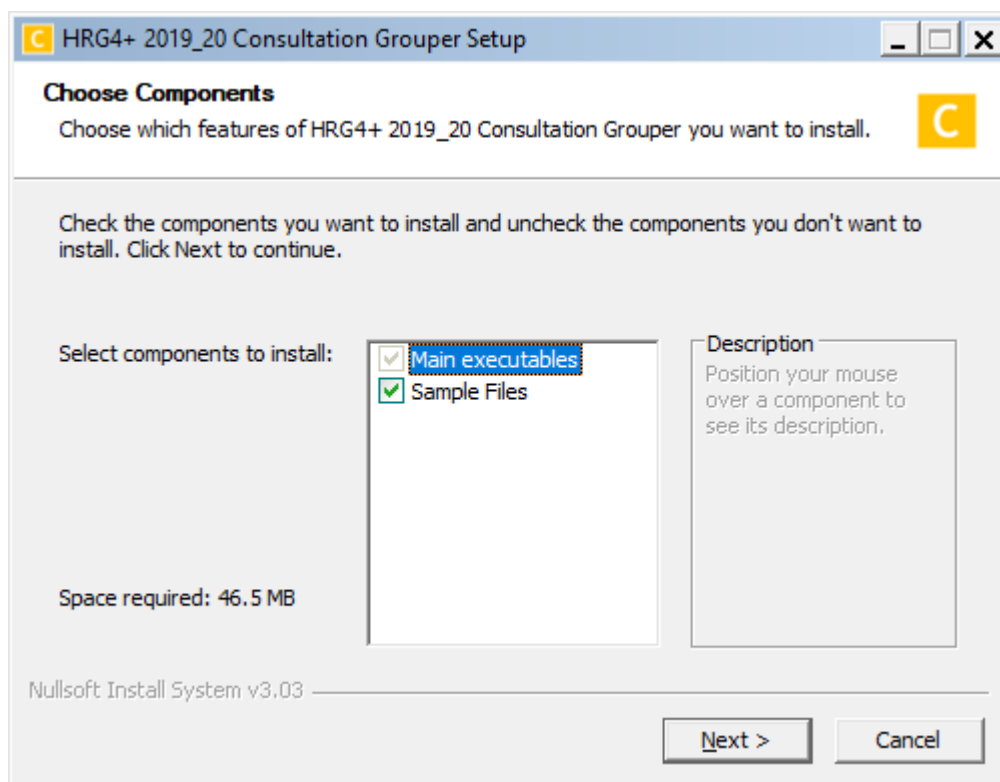
Previous OS are not supported, in line with the edict from the Cabinet Office.

### 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 can be found in the “Archived material” section.
- 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 on 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 secure 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:



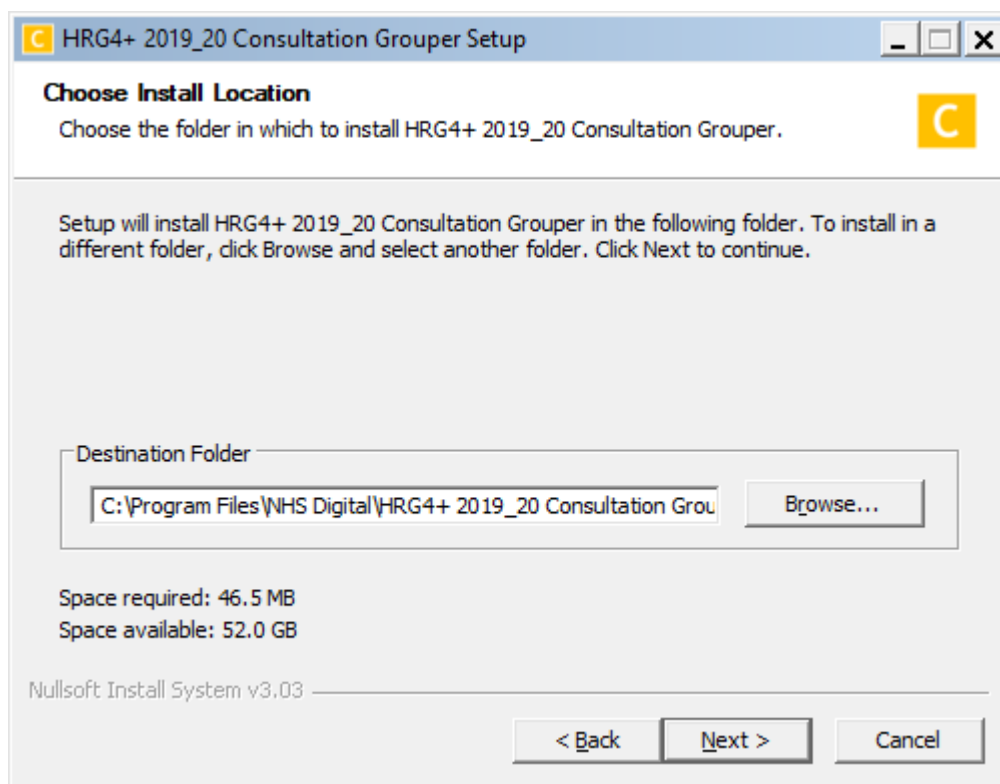
This screen allows the user to select the components to be installed. The **Main executables** component is selected for installation by default and cannot be unselected, but the user can choose whether to install a duplicate copy of the **Sample Files** as part of the installation process.

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 quick and easy way of testing the install – this is explained at the end of this section.

The sample files in the **Main executables** 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. By default, the destination folder is installed to “**C:\Programs Files\NHS Digital\HRG4+ 2019\_20 Consultation Grouper**”.

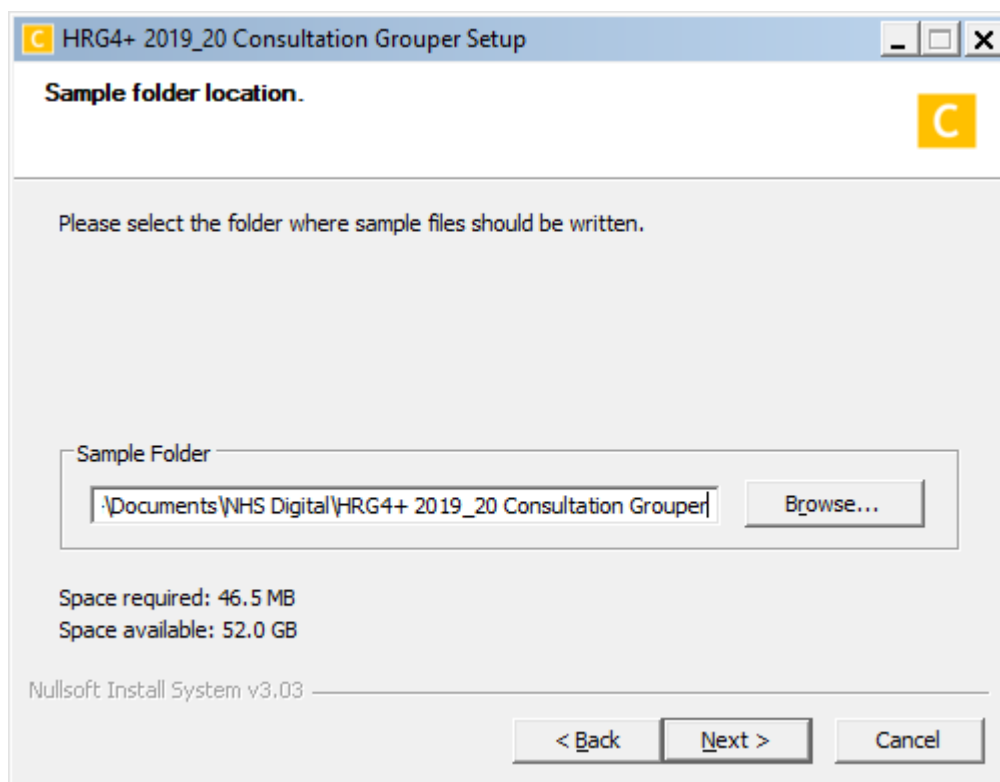
It is strongly recommended that you use this as the destination folder for the Grouper software, unless there is a need to install to another location.

The reason for this is that should an update to the same product be made available or should a user wish to reinstall the same product, the updated version will overwrite the previous version, thus avoiding unnecessary disk space being lost and ensuring all relevant files are in a same location.

If, however, you do wish to install to another location, then use the browse function and select another folder location. It is strongly advised 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 the Grouper, all you need to do is select the same location and provided there have been no name changes to the default folder location (e.g. *HRG4+ 2019\_20 Consultation Grouper*), the executable will simply overwrite the files as necessary.

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

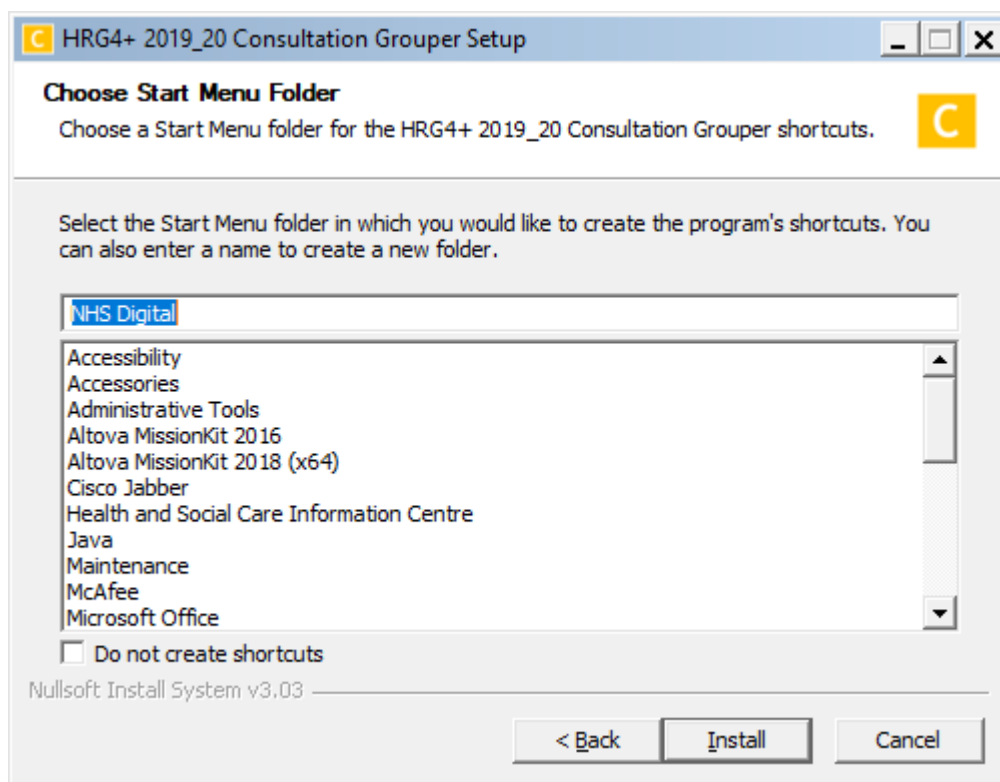


As stated above, users have the option (if selected) of installing a duplicate set of **Sample Files** as part of the installation process.

The default installation destination is set to a user's **Documents** folder. If you wish to install to another location, 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, this screen will not be shown as part of the installation process.

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

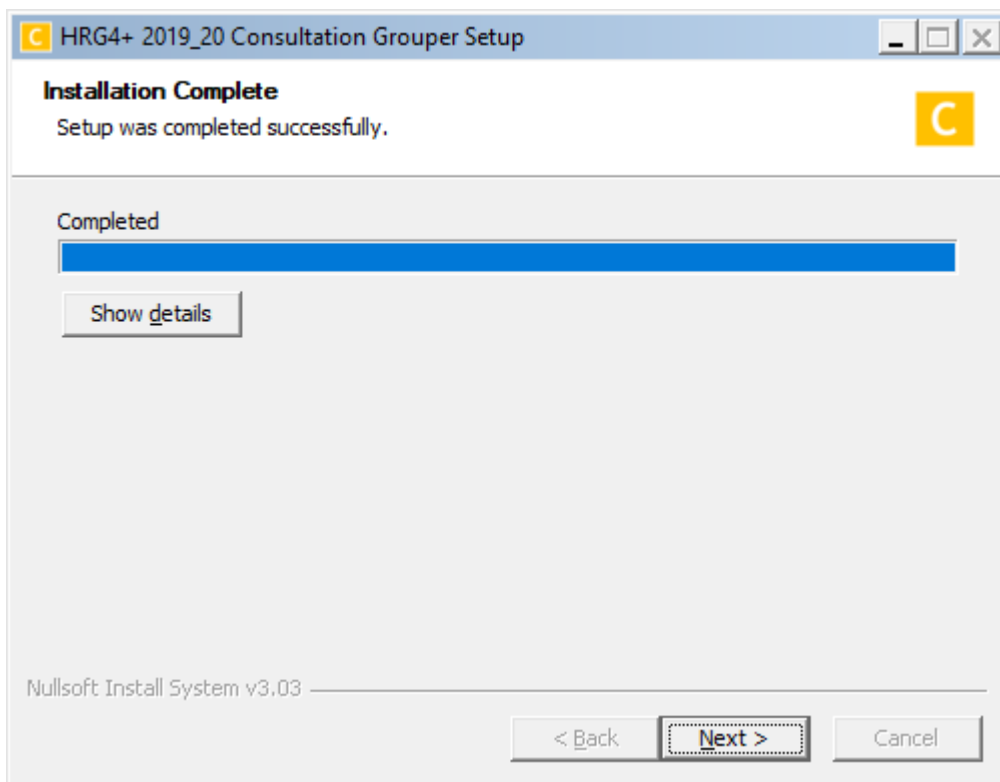


The next screen allows you to create a Grouper shortcut in the **Start Menu** folder. This defaults to a folder called *NHS Digital*, which is recommended, but a user can change the folder name if they wish, or depending on administrative rights, select an existing folder.

There is also an option not to create a shortcut by ticking the **Do not create shortcuts** tick 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, click the **Install** button to complete the installation process.



The installation screen shows the progress of the installation. Once installation has completed click **Next**.

Users will then see the following screen, which confirms 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 followed by **Finish**.

In the above example, this will open the **HRG4+ 2019\_20 Consultation Grouper**, allowing you to immediately begin using the Grouper.

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 selected as part of the install.

A simple test to ensure 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. If grouping is successful, the Grouper will show 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. Each sample data file is product specific and is specifically designed to result in this 90/10 ratio when run using the specific grouper for which it was created. If you do not obtain this result, but grouping has been successful, you may have altered the sample data in some way or you may be using sample data designed to work with a different grouper.

If running the sample data has not resulted in the expected 90/10 ratio, re-download a clean copy of the sample data and expected results for the grouper you are using from the National Casemix Office (NCO) website. If this does not resolve your issue, please contact the NCO at [enquiries@nhsdigital.nhs.uk](mailto:enquiries@nhsdigital.nhs.uk), stating the relevant Grouper name in the subject title. We will be happy to walk you through the testing process.

## Uninstalling the Grouper

The Grouper installation pack comes with an uninstall executable, i.e. Uninstall.exe.

Name	Date modified	Type	Size
Default RDF	11/01/2019 15:47	File folder	
en	11/01/2019 15:47	File folder	
PluginData	11/01/2019 15:47	File folder	
Plugins	11/01/2019 15:47	File folder	
Sample Data	11/01/2019 15:47	File folder	
About.dll	10/01/2019 11:24	Application extens...	22 KB
BatchGUI.dll	10/01/2019 11:24	Application extens...	46 KB
GrouperAutocomplete.dll	10/01/2019 11:24	Application extens...	16 KB
GrouperBatchApi.dll	10/01/2019 11:24	Application extens...	74 KB
GrouperCSharpAPI.dll	10/01/2019 11:24	Application extens...	36 KB
GrouperDatabaseVersionAPI.dll	10/01/2019 11:24	Application extens...	14 KB
GrouperDescriptions.dll	10/01/2019 11:24	Application extens...	15 KB
GrouperRdfMappings.dll	10/01/2019 11:24	Application extens...	24 KB
GrouperSchemaReader.dll	10/01/2019 11:24	Application extens...	32 KB
GUIShell.exe	10/01/2019 11:24	Application	407 KB
GUIShell.exe.config	10/01/2019 11:24	CONFIG File	4 KB
HomeGUI.dll	10/01/2019 11:24	Application extens...	23 KB
HRGGrouperc.exe	10/01/2019 11:24	Application	312 KB
HRGGrouperc.exe.config	10/01/2019 11:24	CONFIG File	1 KB
msvcp120.dll	21/12/2018 09:58	Application extens...	645 KB
msvcr120.dll	21/12/2018 09:58	Application extens...	941 KB
Newtonsoft.Json.dll	21/12/2018 10:00	Application extens...	514 KB
RdfGUI.dll	10/01/2019 11:24	Application extens...	57 KB
SharedGUIResources.dll	10/01/2019 11:24	Application extens...	565 KB
SingleSpellGUI.dll	10/01/2019 11:24	Application extens...	90 KB
System.Windows.Controls.Input.Toolkit.dll	21/12/2018 10:00	Application extens...	107 KB
Uninstall.exe	11/01/2019 15:47	Application	346 KB
ViewerGUI.dll	10/01/2019 11:24	Application extens...	46 KB
WPFToolkit.dll	21/12/2018 10:00	Application extens...	457 KB

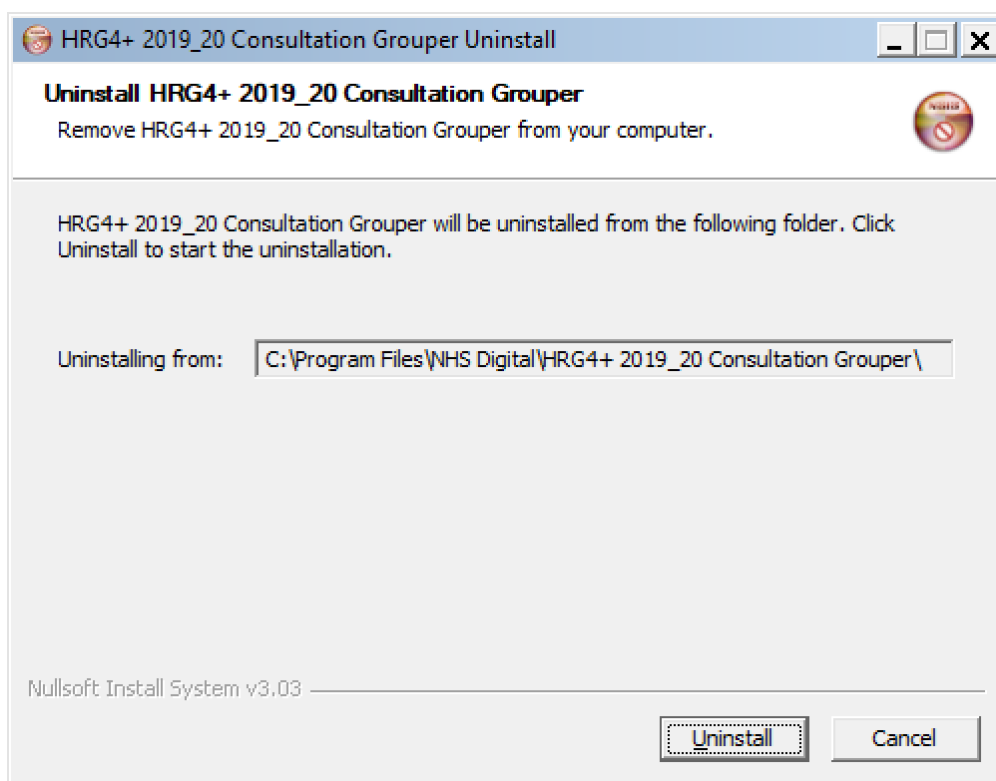
There is no need to uninstall the product if you are re-installing a fresh copy. Provided the file names have not been altered and the same destination folder is selected, the executable will overwrite the previous installation.

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

If, however, you do need to uninstall the product, the only consideration before activating 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, the files listed above need to be contained in a separate sub-folder before activating the uninstaller.

If you are ready to uninstall, simply double-click **Uninstall.exe**. This will bring up an uninstall dialogue box.

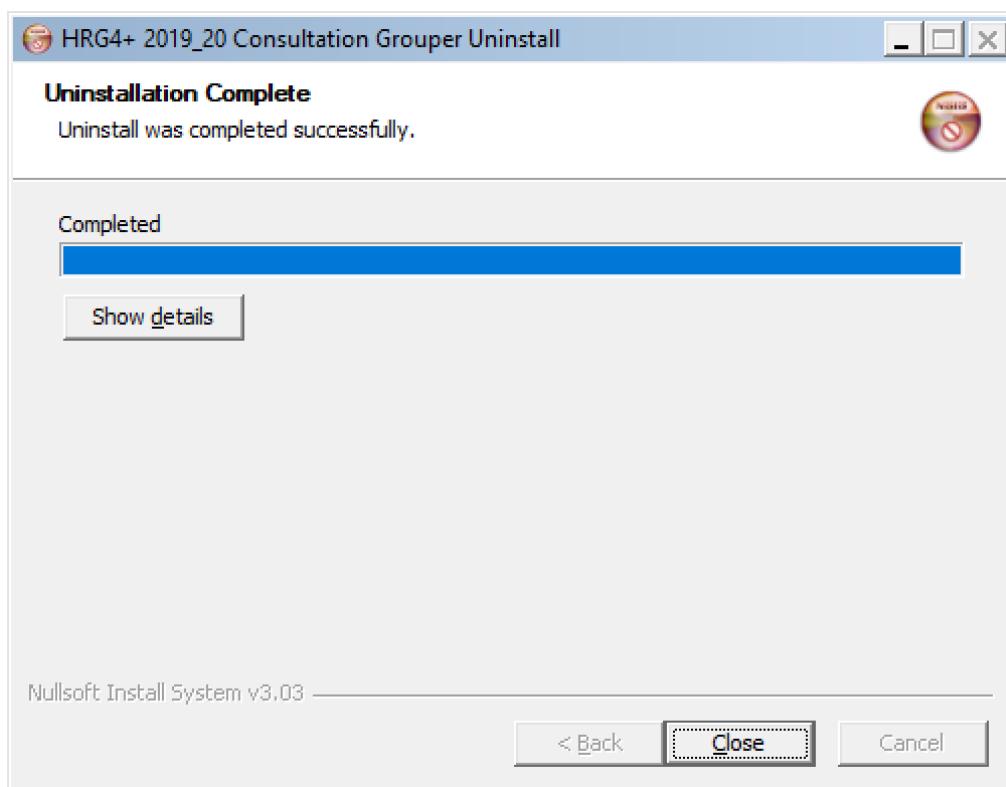


The uninstall screen confirms the folder and file path from which the software will be uninstalled.

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

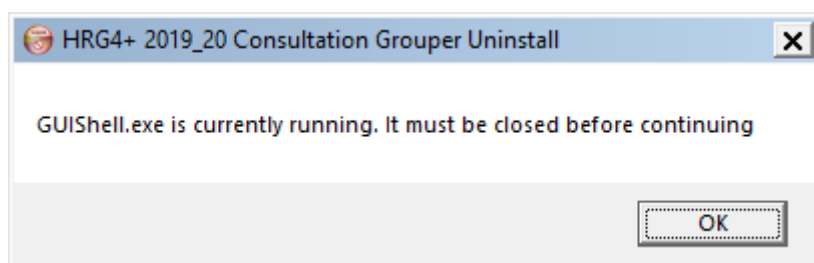
Whilst we strongly recommend that users use the default installation folder, we recognise that by giving users the flexibility to install the product as they wish, users may, in rare circumstances, wish to change the folder or file names, add files into the destination folders, or choose to not locate the Grouper files in a distinct sub-folder location. In these circumstances, where a user has deviated from the default, the uninstallation process will not execute correctly. This 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.

Any files remaining after the uninstallation process is complete will not have been created as part of the standard install or will have been altered. These legacy files/folders can be moved or individually deleted as deemed appropriate by the user.



The uninstallation screen shows the progress of the uninstallation. Once this process has completed, click **Close**.

If any of the Grouper files are open during the uninstallation process, the uninstallation will be halted and the following message will be displayed.



To continue the uninstallation process, close all open Grouper files and click **Ok** to restart the uninstallation process.

# 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, i.e. the same site from which the Grouper was downloaded.

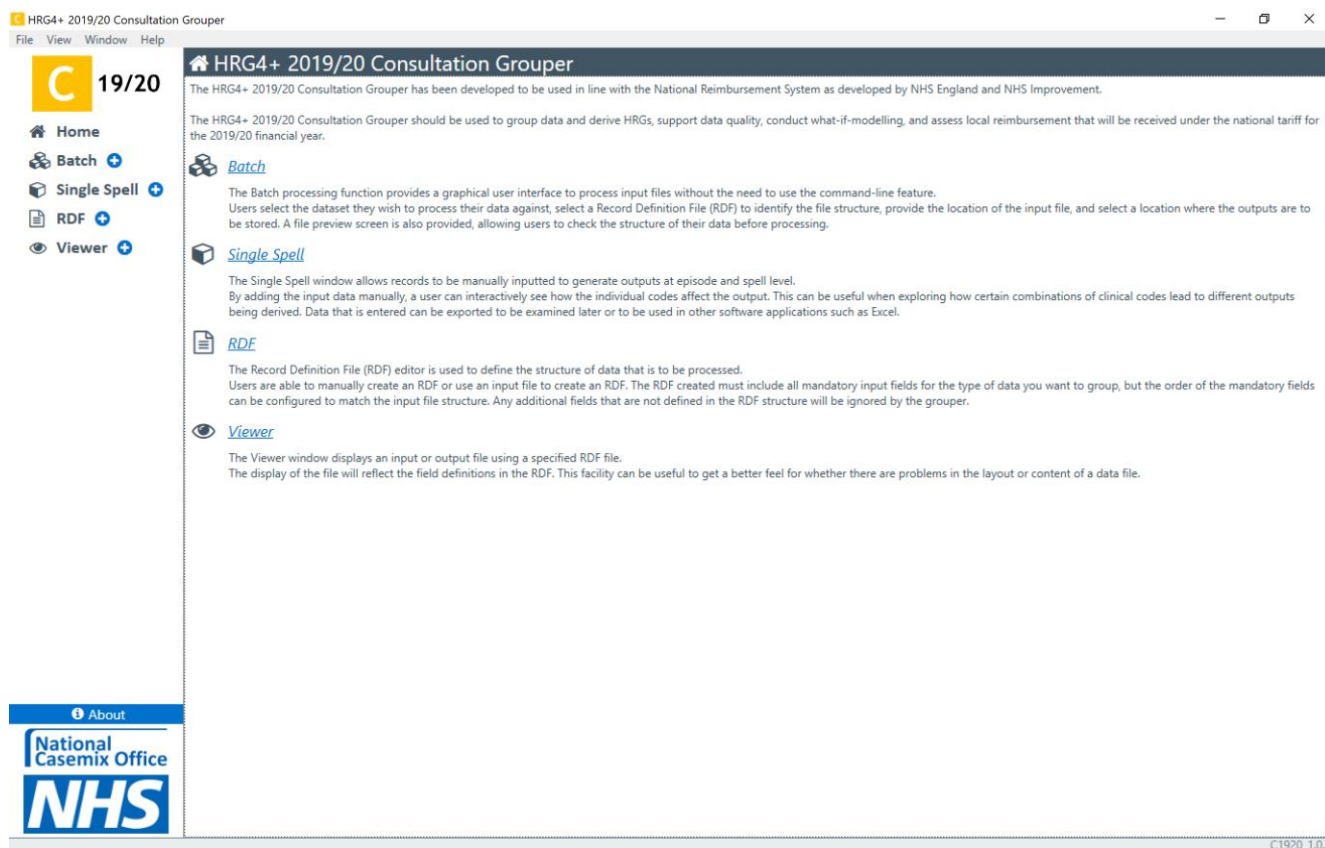
## Batch Processing

Large amounts of data can be grouped 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, ensure you have access to the sample data that is installed as part of the Grouper installation or downloaded from the National Casemix Office website.

If the sample data was not installed as part of the Grouper installation process, then download the “HRG4+ 2019/20 Consultation 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.

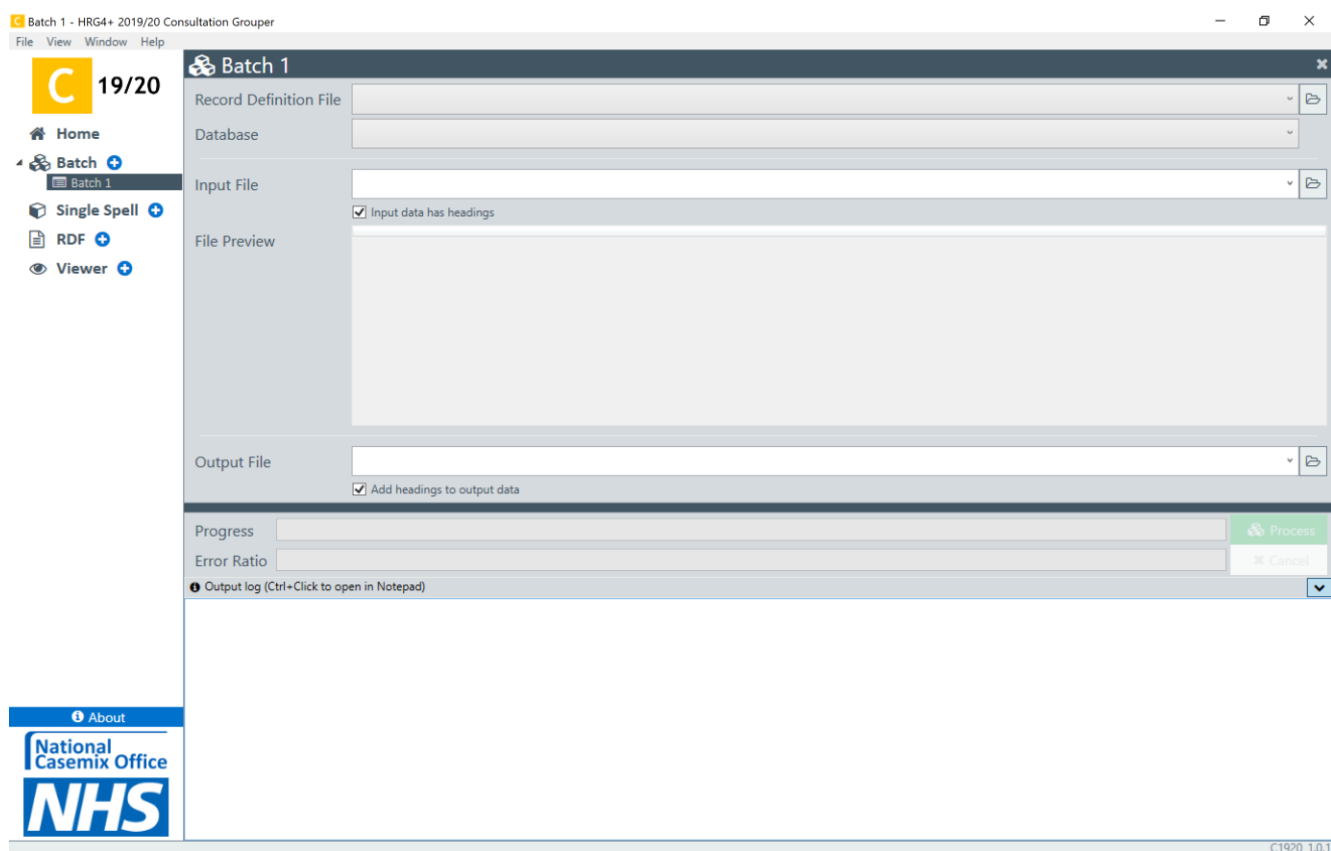
Open the Grouper application via the start menu or the GUIShell.exe within the installation folder.




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**.

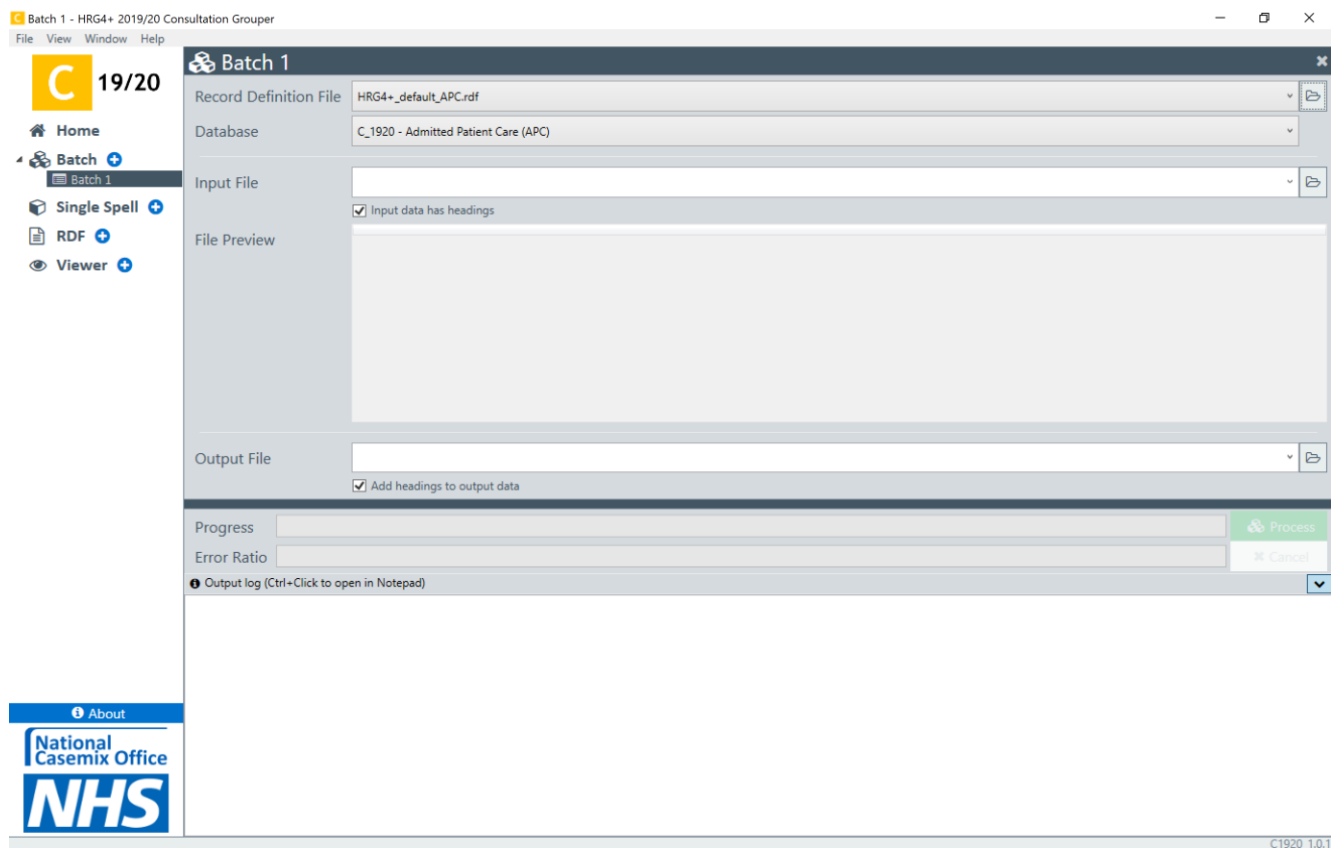


In order to group data, a **Record Definition File (RDF)** must be selected. An RDF tells the grouper the structure of the data you want to process, so input fields must match to the field position in the RDF. The Grouper comes with a set of sample RDFs; otherwise there is an RDF Editor within the Grouper that allows 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 simply be 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 simply be dragged and dropped from a file explorer window straight into the **Input File** drop-down box.

Batch 1 - HRG4+ 2019/20 Consultation Grouper

File View Window Help

Batch 1

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

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

Input File: C:\Program Files\NHS Digital\HRG4+ 2019\_20 Consultation 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)	EPIDUR (EPIDUR)	MAINSPEF (MAINSPEF)	NEOCARE (NEOCARE)
ZZZ	1004595488	1	68	1	1	51	81	19	1	13	430	8
ZZZ	1004595489	1	90	2	1	51	81	19	1	30	430	8
ZZZ	1004595490	1	85	2	1	51	81	19	1	15	430	8
ZZZ	1004595491	1	80	2	1	51	81	19	1	45	430	8
ZZZ	1004595492	1	82	1	1	51	81	19	1	18	430	8
ZZZ	1004595493	1	84	2	1	51	81	65	1	40	160	8
ZZZ	1004595494	1	90	1	1	51	81	19	1	13	430	8
ZZZ	1004595495	1	82	2	1	51	81	19	1	89	430	8
ZZZ	1004595496	1	89	2	1	51	81	29	1	29	430	8
ZZZ	1004595497	1	90	1	1	51	81	51	1	11	430	8
ZZZ	1004595498	1	82	2	1	51	81	19	1	70	430	8

Output File:

Add headings to output data

Progress:

Error Ratio:

Output log (Ctrl+Click to open in Notepad)

Process Cancel

About


National Casemix Office

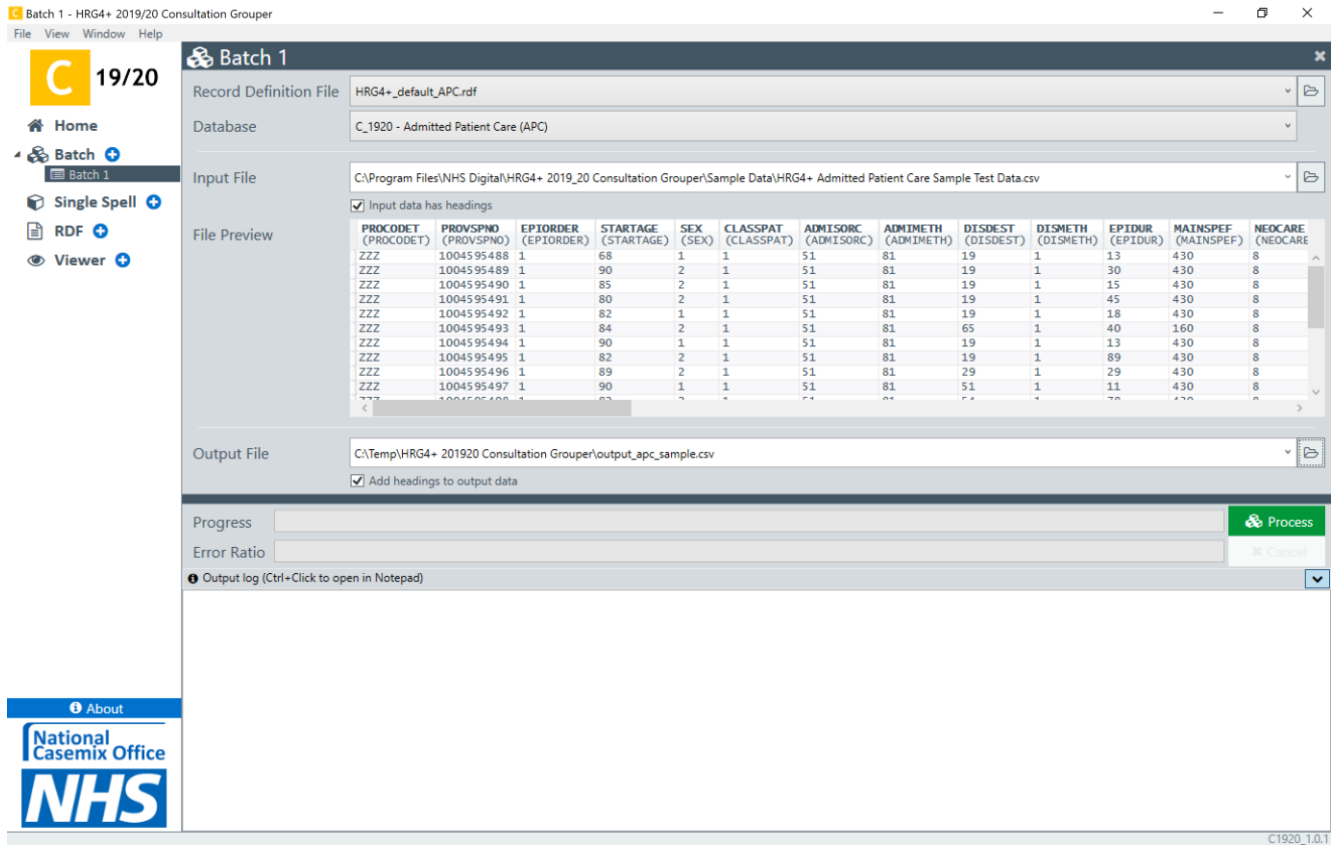
NHS

C1920\_1.0.1

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

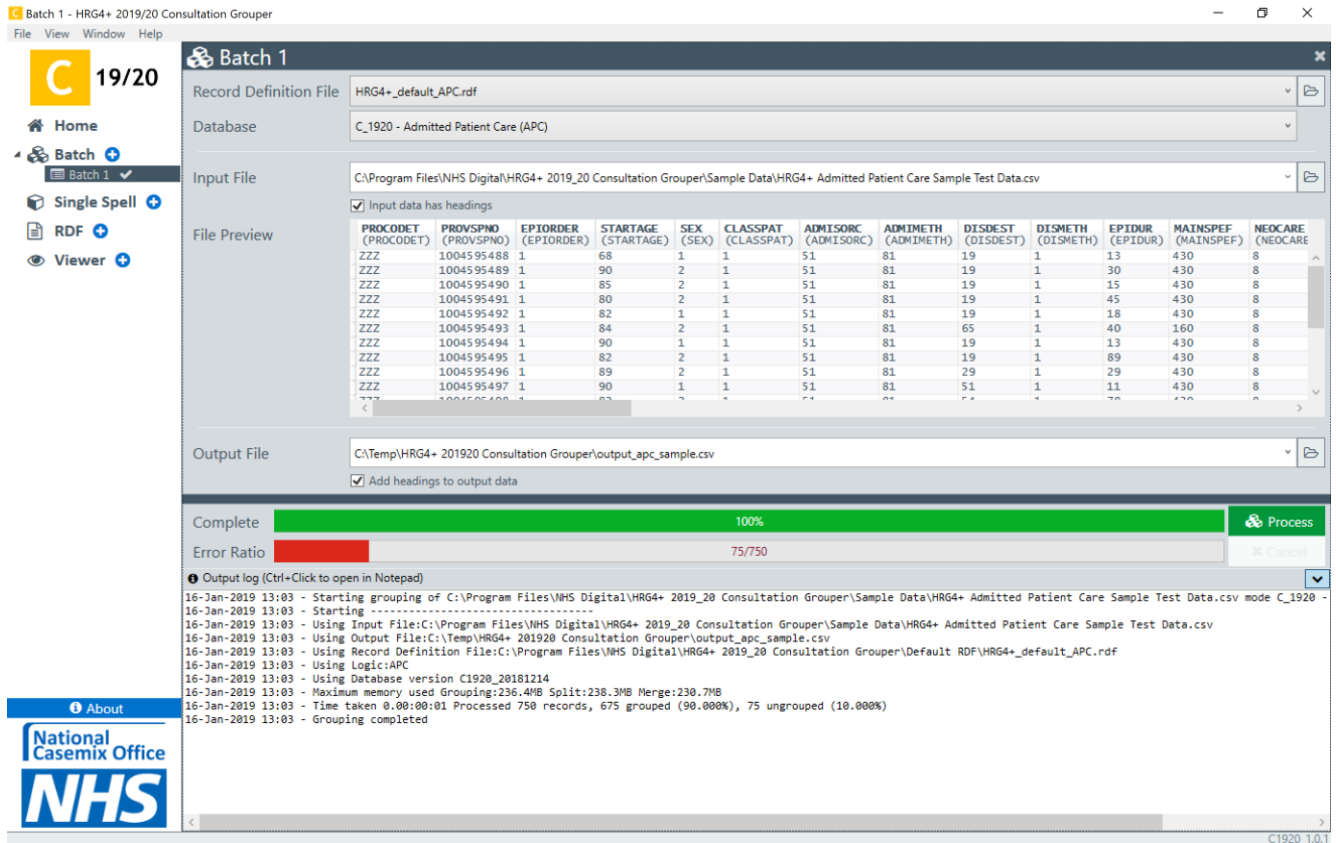
The Batch Screen contains a **File Preview** window that allows users to check their input file data against the RDF to see if there are any problems in the layout or content of the input file.

The next step is to select the file location to which 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 which 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, the green **Process** button becomes active. To process the input file, click **Process**.



The **Complete** bar indicates 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, 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`. To open the log file, select **Help** on the menu bar and then **View Log**.

To view the output files, open Windows Explorer and navigate to the location 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>d</b> efinition file.
<code>-l <i>Grouping_Logic</i></code>	The grouping <b>l</b> ogic. 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>h</b> eader row (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>t</b> op row 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 Consultation 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, from Consultation 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 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
```

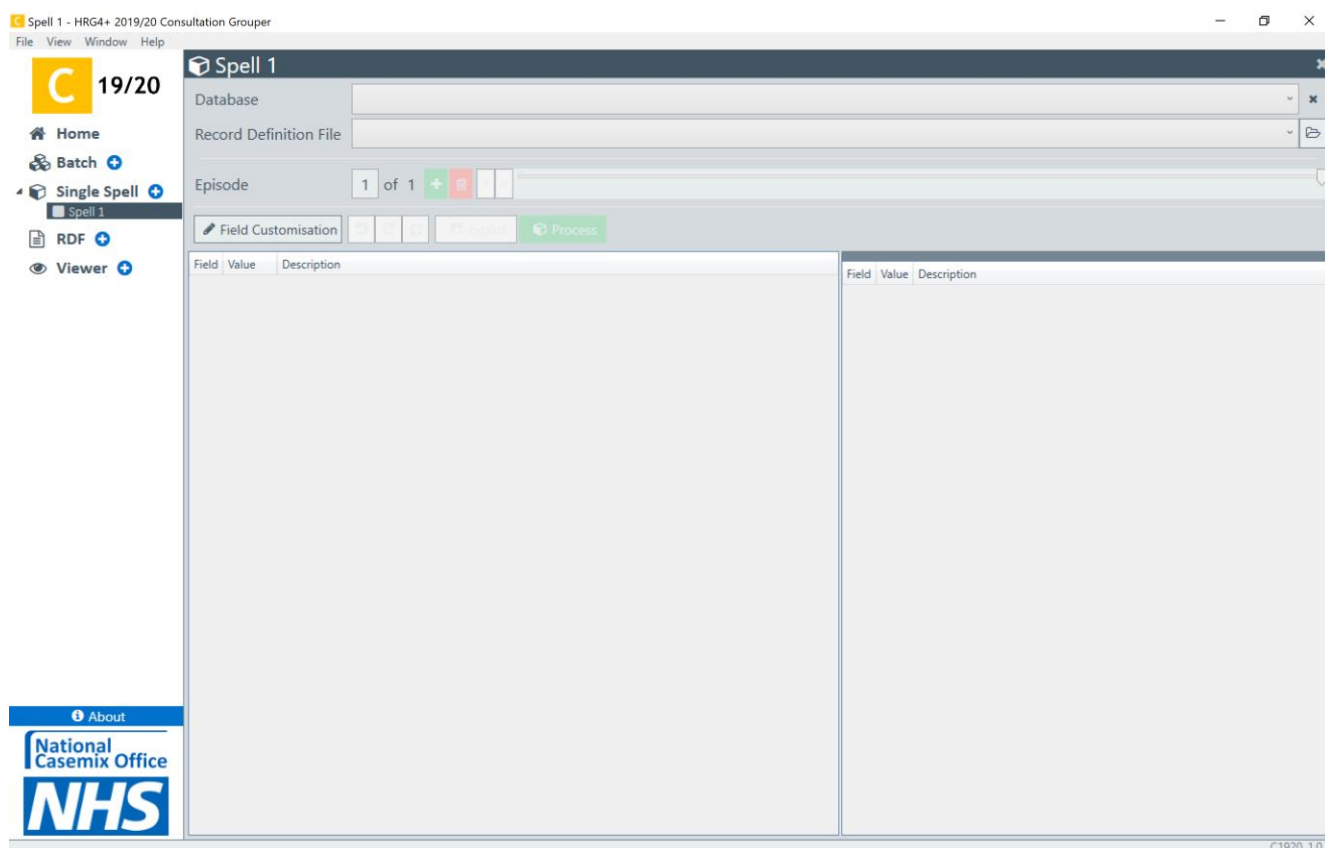
The penultimate statement of these scripts checks whether the Grouper run was successfully completed and prints a message if the run failed.


## 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**).

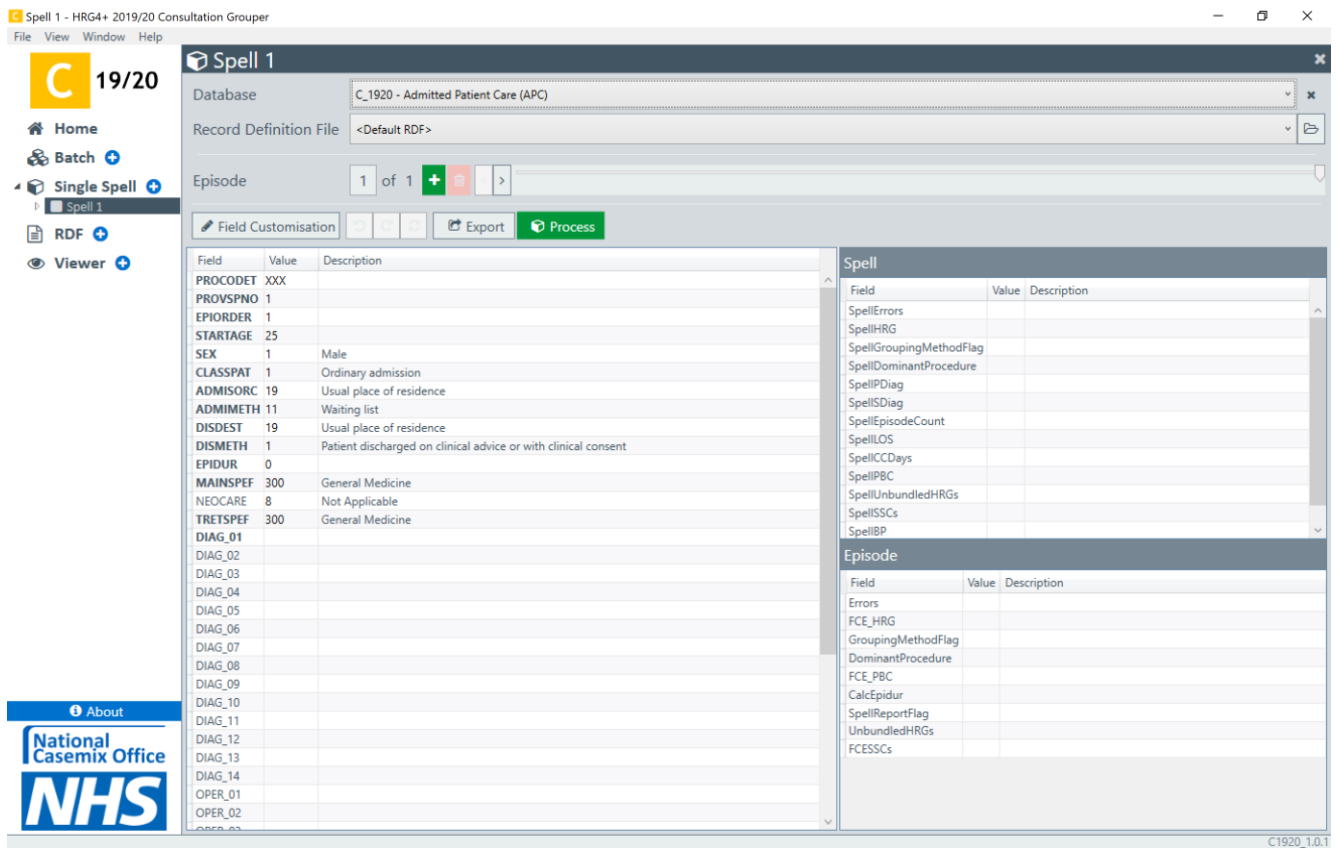
Opening a Single Spell screen can be done in several ways:

- 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**.



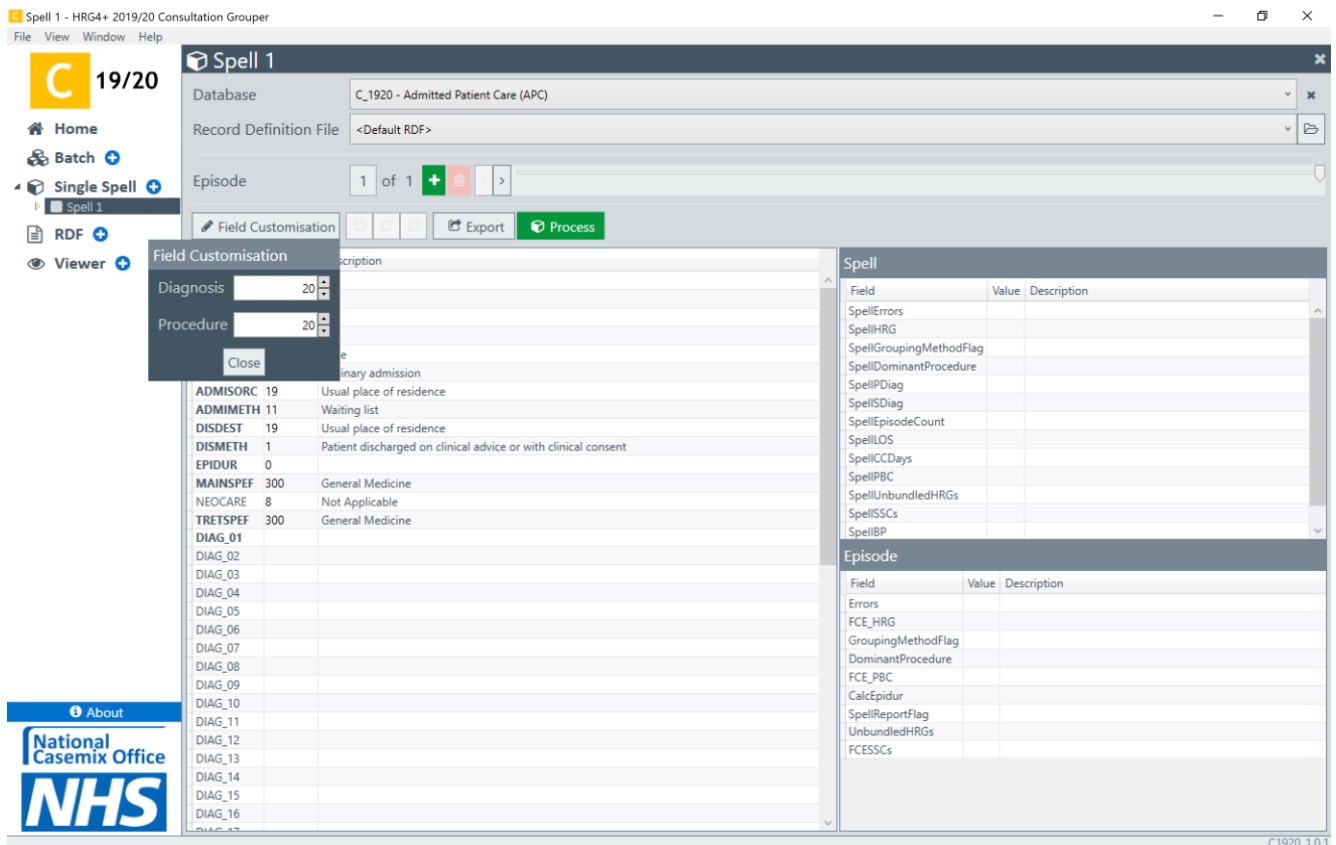
There are two ways to create a record in Single Spell. The first way to add a record is to select database from the **Database** drop-down list, which will automatically populate the screen with a set of default input fields to allow a user to group data. The second way is by selecting a **Record Definition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

Select **C\_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.

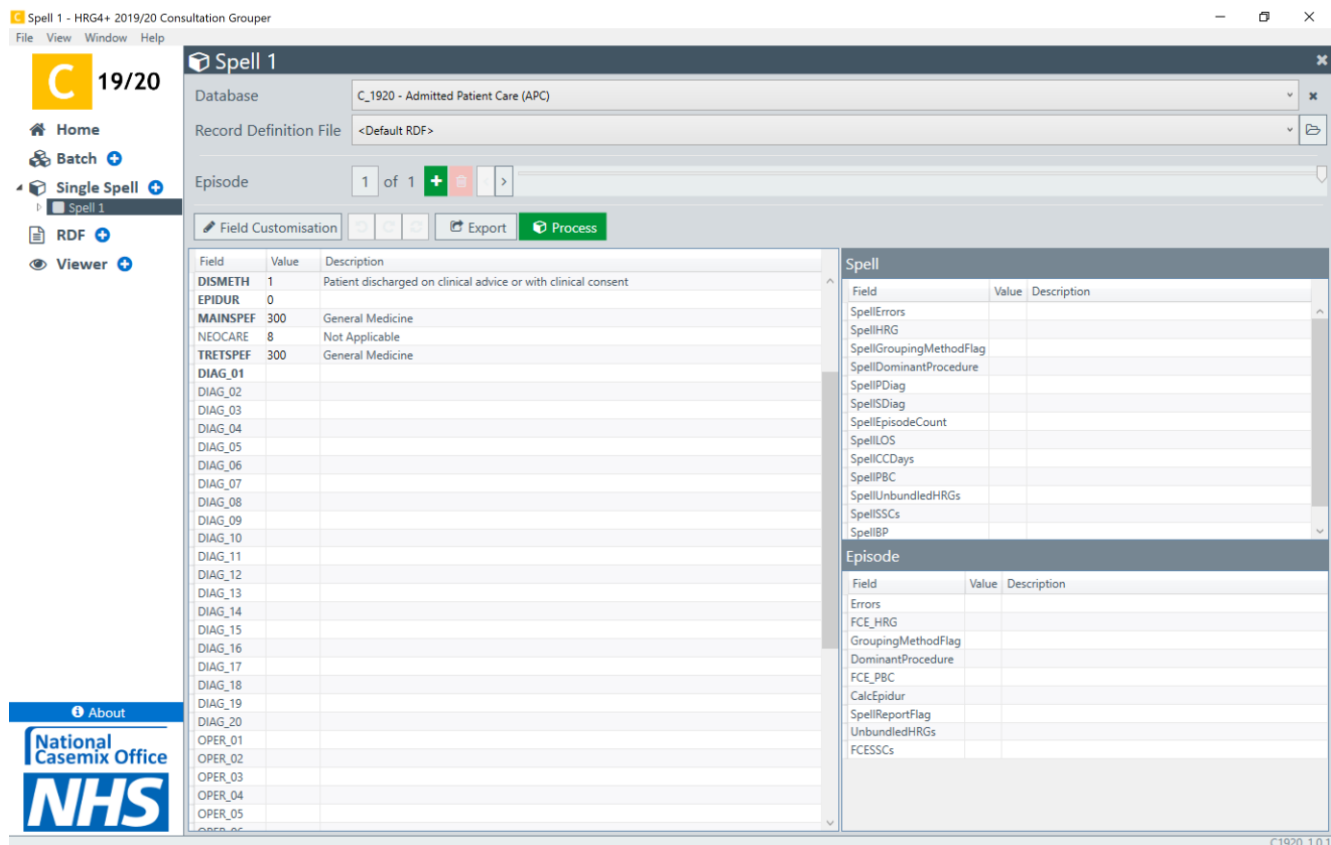


When using single spell, it may be appropriate to increase or decrease the number of variable fields for a database. A **Field Customisation** button has been introduced to allow users to easily increase certain fields without the need to create a bespoke Record Definition File.

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



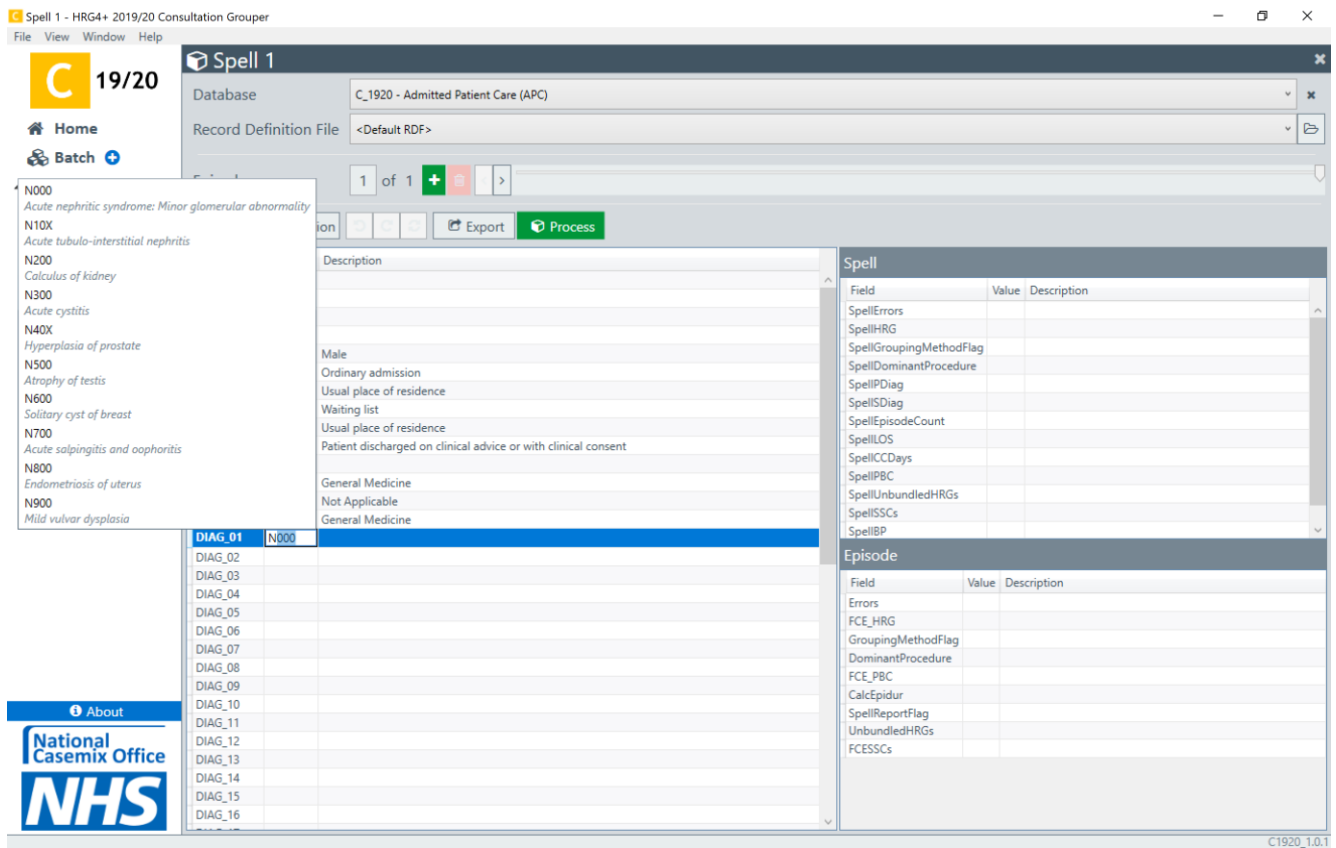
The input window should now display 20 diagnosis fields and 20 procedure fields.



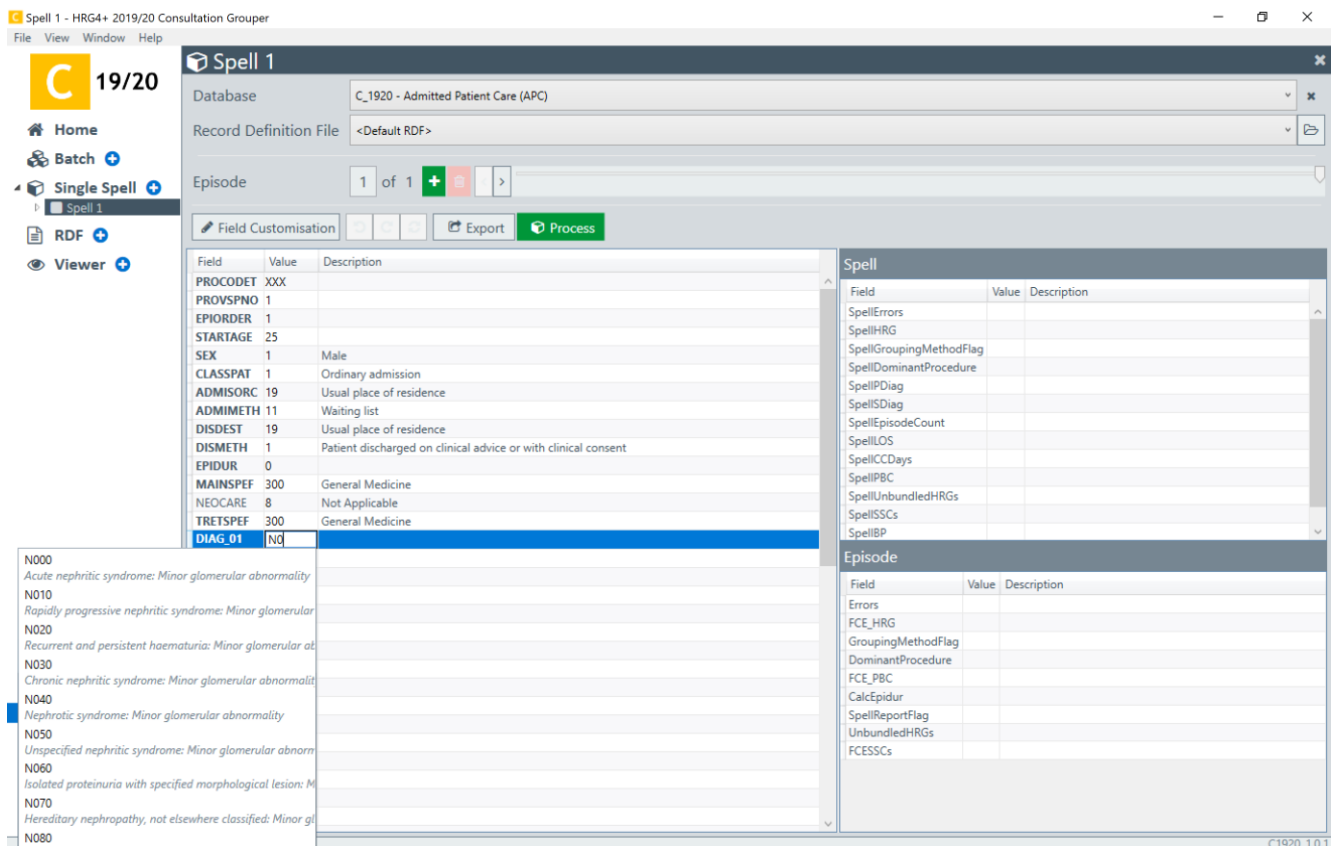
When a Database or Record Definition File is selected, certain fields in the input window are already populated with useful values to save some data input effort, but users can edit these values and populate other fields as appropriate.

Particular input fields contain an auto-complete function, meaning that 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, the list of codes will narrow based on pattern matching.

In the **Diag\_01** value cell, type “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 “NO”.



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.

Spell 1 - HRG4+ 2019/20 Consultation Grouper

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

Record Definition File: <Default RDF>

Episode: 1 of 1

Field	Value	Description
PROCODET	XXX	
PROVSPNO	1	
EPIORDER	1	
STARTAGE	25	
SEX	1	Male
CLASSPAT	1	Ordinary admission
ADMISORC	19	Usual place of residence
ADMIMETH	11	Waiting list
DISDEST	19	Usual place of residence
DISMETH	1	Patient discharged on clinical advice or with clinical consent
EPIDUR	0	
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		

Field	Value	Description
Errors		
SpellHRG	LA09Q	General Renal Disorders without Interventions, wit
SpellGroupingMethodFlag	D	Diagnosis driven
SpellDominantProcedure		
SpellPDiag	N000	Acute nephritic syndrome: Minor glomerular abno
SpellSDiag		
SpellEpisodeCount	1	
SpellLOS	0	
SpellCCDays	0	
SpellPBC	PBC0217B	Renal Problems
SpellUnbundledHRGs		
SpellSSCs		
SpellBP		

Field	Value	Description
Errors		
FCE_HRG	LA09Q	General Renal Disorders without Interventions, with CC Scc
GroupingMethodFlag	D	Diagnosis driven
DominantProcedure		
FCE_PBC	PBC0217B	Renal Problems
CalcEpidur	0	
SpellReportFlag	1	
UnbundledHRGs		
FCESSCs		

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

Spell 1 - HRG4+ 2019/20 Consultation Grouper

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

Record Definition File: <Default RDF>




Episode: 1 of 1

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		
OPER_03		
OPER_04		
OPER_05		
OPER_06		
OPER_07		

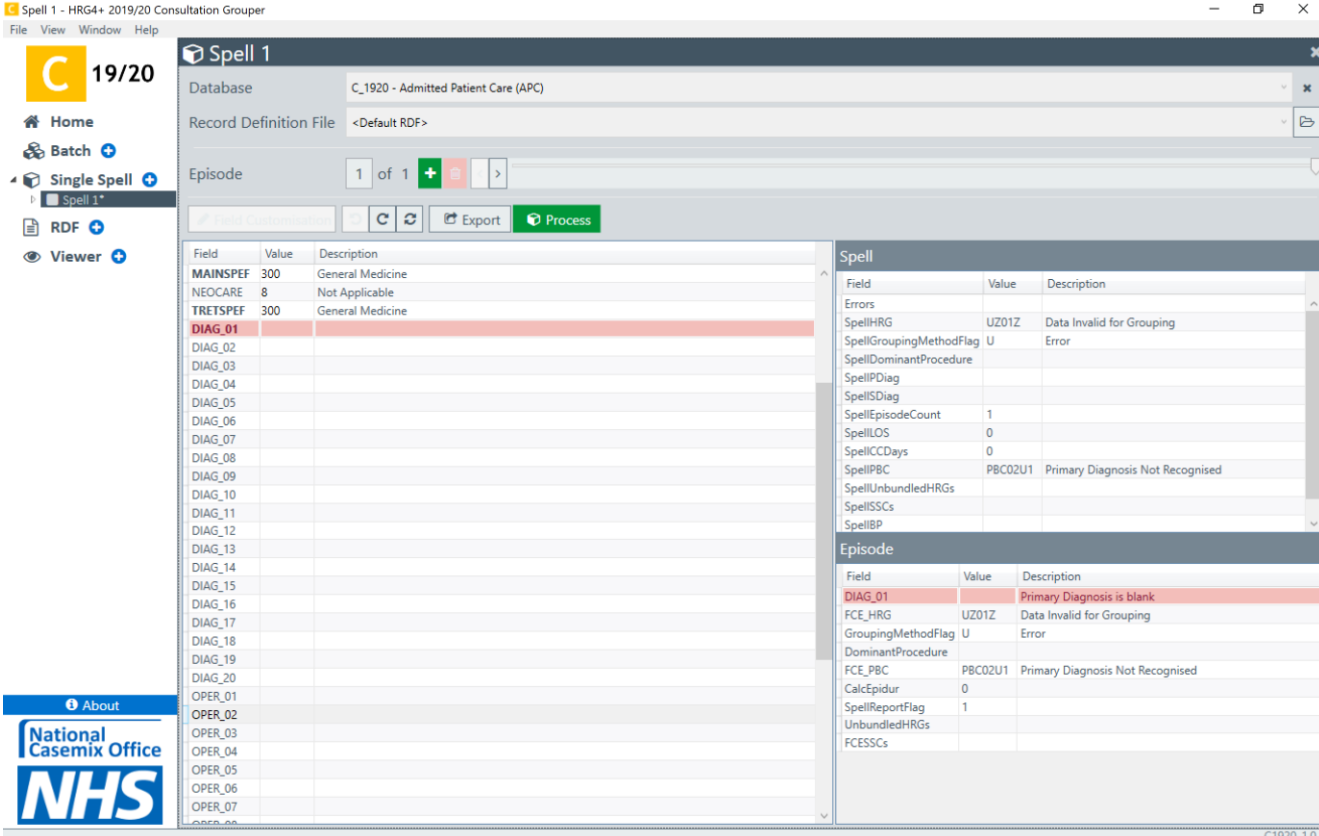
Field	Value	Description
Errors		
SpellHRG	LA05Z	Renal Replacement Peritoneal Dialysis Associated I
SpellGroupingMethodFlag	P	Procedure driven
SpellDominantProcedure	X411	Insertion of ambulatory peritoneal dialysis cathete
SpellPDiag	N000	Acute nephritic syndrome: Minor glomerular abno
SpellSDiag		
SpellEpisodeCount	1	
SpellLOS	0	
SpellCCDays	0	
SpellPBC	PBC0217B	Renal Problems
SpellUnbundledHRGs		
SpellSSCs		
SpellBP		

Field	Value	Description
Errors		
FCE_HRG	LA05Z	Renal Replacement Peritoneal Dialysis Associated Procedu
GroupingMethodFlag	P	Procedure driven
DominantProcedure	X411	Insertion of ambulatory peritoneal dialysis catheter
FCE_PBC	PBC0217B	Renal Problems
CalcEpidur	0	
SpellReportFlag	1	
UnbundledHRGs		
FCESSCs		

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**. To redo a previous action, click the redo  icon or use the shortcut keys **Ctrl+Y**. The undo and redo buttons store up to a maximum of 5 changes. Where a user makes a number of changes to the input values in the Single Spell window and wants to return to the values when Single Spell was first opened, then selecting the Reset button  will reset the Single Spell window back to its default values for a specific database.

Select the undo icon and the value “**X411**” is removed from the value field of OPER\_01. 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.



The screenshot shows the 'Single Spell' application window. The main area displays a list of fields with their values and descriptions. The 'DIAG\_01' field is highlighted in red, indicating an error. The error message 'Primary Diagnosis is blank' is visible in the 'Spell' panel on the right. The 'OPER\_01' field is also visible, showing a blank value field.

Field	Value	Description
MAINSPEF	300	General Medicine
NEOCARE	8	Not Applicable
TRETSPEF	300	General Medicine
DIAG_01		Primary Diagnosis is blank
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		
OPER_02		
OPER_03		
OPER_04		
OPER_05		
OPER_06		
OPER_07		
OPER_08		

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 procedure 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**.

Spell 1 - HRG4+ 2019/20 Consultation Grouper

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

Record Definition File: <Default RDF>

Episode: 1 of 1

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		
OPER_07		

Field	Value	Description
SpellHRG	LA05Z	Renal Replacement Peritoneal Dialysis Associated I
SpellGroupingMethodFlag	P	Procedure driven
SpellDominantProcedure	X411	Insertion of ambulatory peritoneal dialysis cathete
SpellPDiag	N000	Acute nephritic syndrome: Minor glomerular abno
SpellSDiag		
SpellEpisodeCount	1	
SpellLOS	0	
SpellCCDays	0	
SpellPBC	PBC0217B	Renal Problems
SpellUnbundledHRGs		
SpellSSCs		
SpellBP		

Field	Value	Description
FCE_HRG	LA05Z	Renal Replacement Peritoneal Dialysis Associated Procedu
GroupingMethodFlag	P	Procedure driven
DominantProcedure	X411	Insertion of ambulatory peritoneal dialysis catheter
FCE_PBC	PBC0217B	Renal Problems
CalcEpidur	0	
SpellReportFlag	1	
UnbundledHRGs		
FCESSCs		

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

Spell 1 - HRG4+ 2019/20 Consultation Grouper

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

Record Definition File: <Default RDF>

Episode: 1 of 1

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	T122	Drainage of pleural cavity NEC
OPER_02	X411	Insertion of ambulatory peritoneal dialysis catheter
OPER_03	X428	Other specified placement of other apparatus for compensation for renal failure
OPER_04		
OPER_05		
OPER_06		
OPER_07		

Field	Value	Description
SpellHRG	YD04Z	Percutaneous Drainage of Pleural Cavity
SpellGroupingMethodFlag	P	Procedure driven
SpellDominantProcedure	T122	Drainage of pleural cavity NEC
SpellPDiag	N000	Acute nephritic syndrome: Minor glomerular abno
SpellSDiag		
SpellEpisodeCount	1	
SpellLOS	0	
SpellCCDays	0	
SpellPBC	PBC0217B	Renal Problems
SpellUnbundledHRGs		
SpellSSCs		
SpellBP		

Field	Value	Description
FCE_HRG	YD04Z	Percutaneous Drainage of Pleural Cavity
GroupingMethodFlag	P	Procedure driven
DominantProcedure	T122	Drainage of pleural cavity NEC
FCE_PBC	PBC0217B	Renal Problems
CalcEpidur	0	
SpellReportFlag	1	
UnbundledHRGs		
FCESSCs		

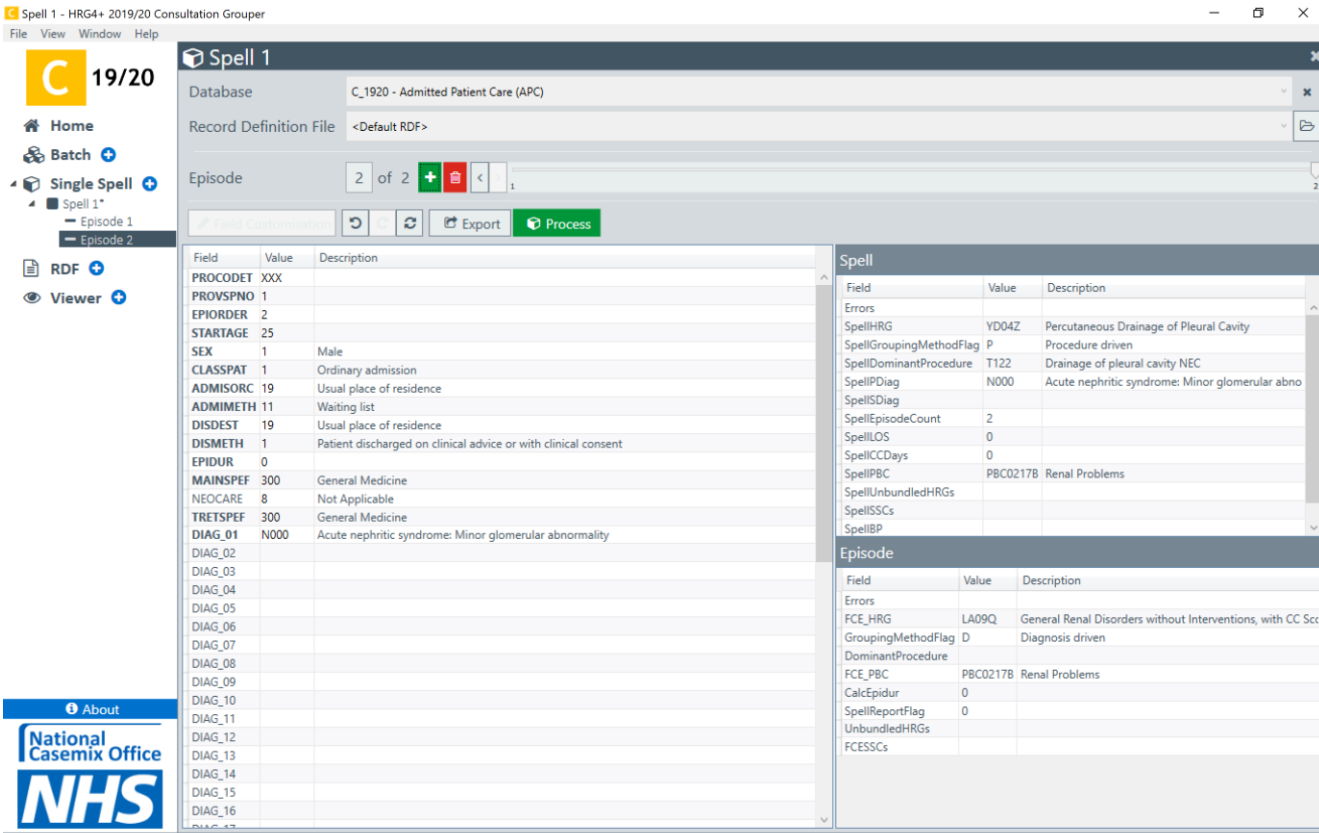
The OPER\_01 value (X411) moves to OPER\_02 and the OPER\_02 value (X428) moves to the OPER\_03.

When values are moved, Single Spell automatically re-processes the data, so in this example **T122** (Drainage of pleural cavity NEC) becomes the dominant procedure code, resulting 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 this has now changed to **YD04Z** (Percutaneous Drainage of Pleural Cavity) as a result of the change in dominant procedure.

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 that 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.



The screenshot shows the 'Spell 1' window for the 'C\_1920 - Admitted Patient Care (APC)' database. The 'Episode' section shows '2 of 2' episodes, with a '+' icon to add more. The 'Spell' section displays the following details:

Field	Value	Description
SpellHRG	YD04Z	Percutaneous Drainage of Pleural Cavity
SpellGroupingMethodFlag	P	Procedure driven
SpellDominantProcedure	T122	Drainage of pleural cavity NEC
SpellPDiag	N000	Acute nephritic syndrome: Minor glomerular abno
SpellSDiag		
SpellEpisodeCount	2	
SpellLOS	0	
SpellCCDays	0	
SpellPBC	PBC0217B	Renal Problems
SpellUnbundledHRGs		
SpellSSCs		
SpellBP		

The 'Episode' section shows the following details:

Field	Value	Description
FCE_HRG	LA09Q	General Renal Disorders without Interventions, with CC Scc
GroupingMethodFlag	D	Diagnosis driven
DominantProcedure		
FCE_PBC	PBC0217B	Renal Problems
CalcEpidur	0	
SpellReportFlag	0	
UnbundledHRGs		
FCESSCs		

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 by using 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 it directly into the Single Spell window.

This is known as “**smart pasting**”, and it 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 disadvantage 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.

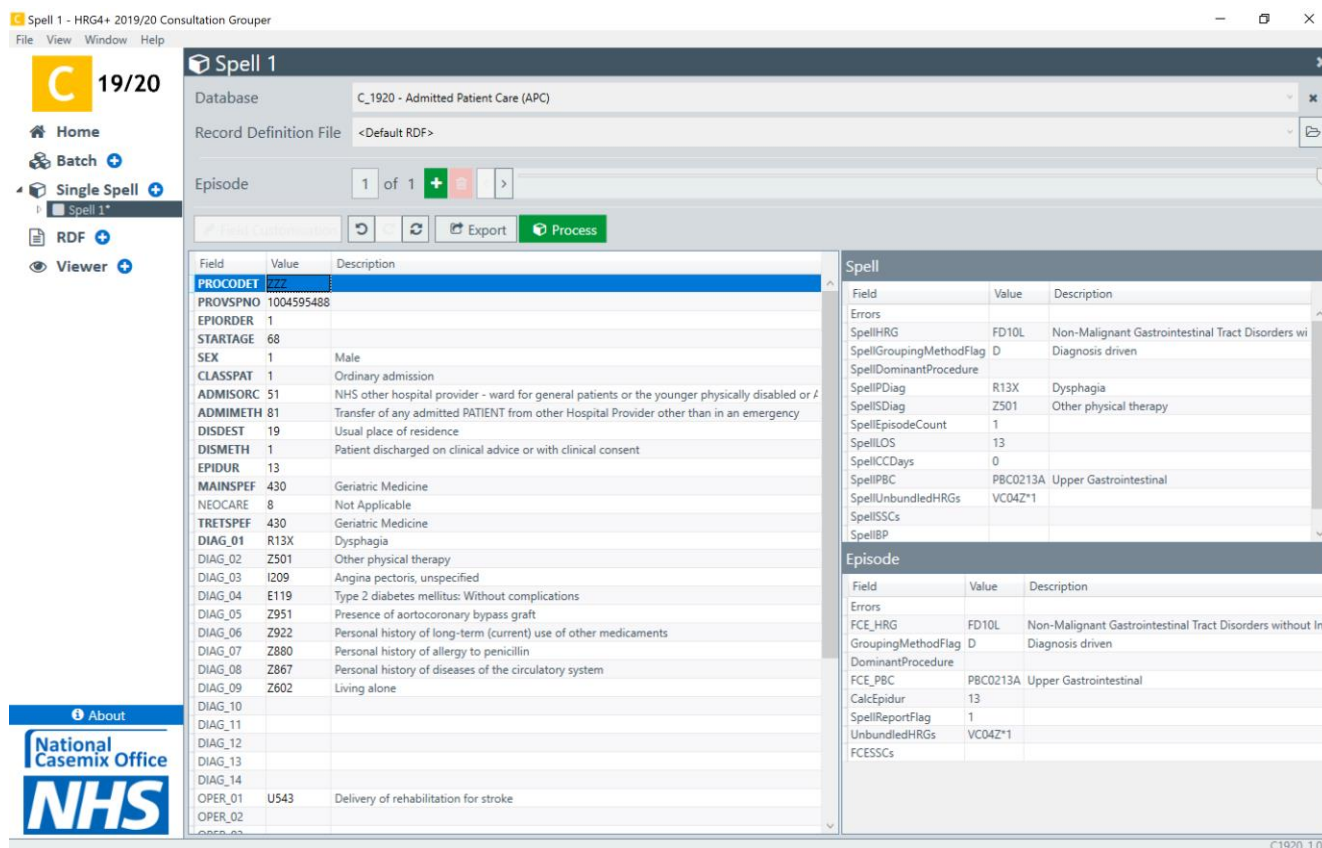
Open a new Single Spell window and select **C\_1920 – Admitted Patient Care (APC)** from the **Database** drop-down box.

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

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 newly opened APC Single Spell window, click anywhere in the Single Spell input window, 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 copy a row of data or a 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 simplest 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 **C\_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 it.

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	STARTAGI	SEX	CLASSPA	ADMISOR	ADMIMETH	DISDEST	DISMETH	EPIDUR	MAINSPEF	NEOCARE	TRETSPEF	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 newly 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.

Single Spell also contains functions to allow users to copy 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.

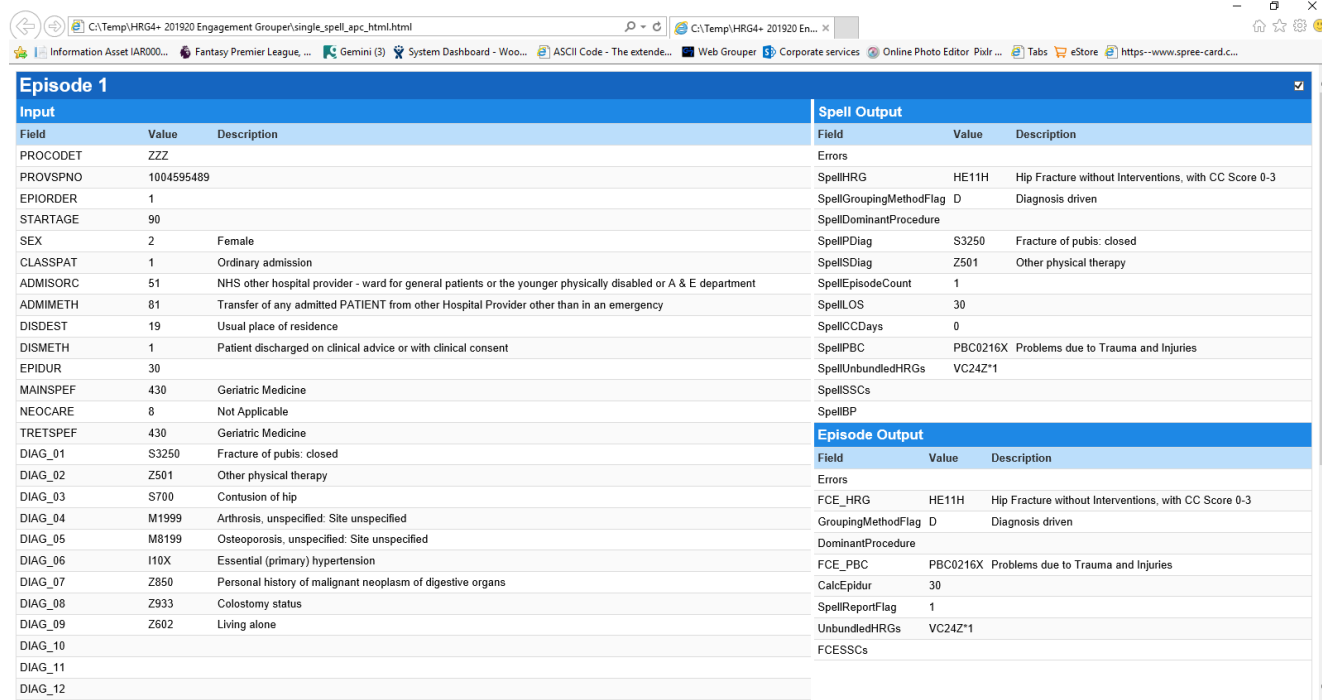
There are three different methods for copying information from Single Spell windows:

- **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 that 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 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.




Outputting information from Single Spell to an html file format also allows users to print 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 an html file type, a user can use the **Export** button to save it 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	PROCODE	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 by 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.

**Spell 1**

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

Record Definition File: <Default RDF>

Episode: 1 of 1

Field Customisation: [Refresh] [Export] [Process]

Field	Value	Description
PROCODET	XXX	
PROVSPNO	1	
EPIORDER	1	
STARTAGE	25	
<b>SEX</b>	<b>3</b>	
CLASSPAT	1	Ordinary admission
ADMISORC	19	Usual place of residence
ADMIMETH	11	Waiting list
DISDEST	19	Usual place of residence
DISMETH	1	Patient discharged on clinical advice or with clinical consent
EPIDUR	0	
MAINSPEF	300	General Medicine
NEOCARE	8	Not Applicable
TRETSPEF	300	General Medicine
DIAG_01	E119	Type 2 diabetes mellitus: Without complications
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		
OPER_01		
OPER_02		
OPER_03		

Field	Value	Description
Errors		
SpellHRG	UZ01Z	Data Invalid for Grouping
SpellGroupingMethodFlag	U	Error
SpellDominantProcedure		
SpellPDiag	E119	Type 2 diabetes mellitus: Without complications
SpellSDiag		
SpellEpisodeCount	1	
SpellLOS	0	
SpellCCDays	0	
SpellPBC	PBC0204A	Diabetes
SpellUnbundledHRGs		
SpellSSCs		
SpellBP		

Field	Value	Description
SEX	3	Sex is invalid
FCE_HRG	UZ01Z	Data Invalid for Grouping
GroupingMethodFlag	U	Error
DominantProcedure		
FCE_PBC	PBC0204A	Diabetes
CalcEpidur	0	
SpellReportFlag	1	
UnbundledHRGs		
FCESSCs		

## 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, the user defines their order. The user may include additional fields, but these 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.

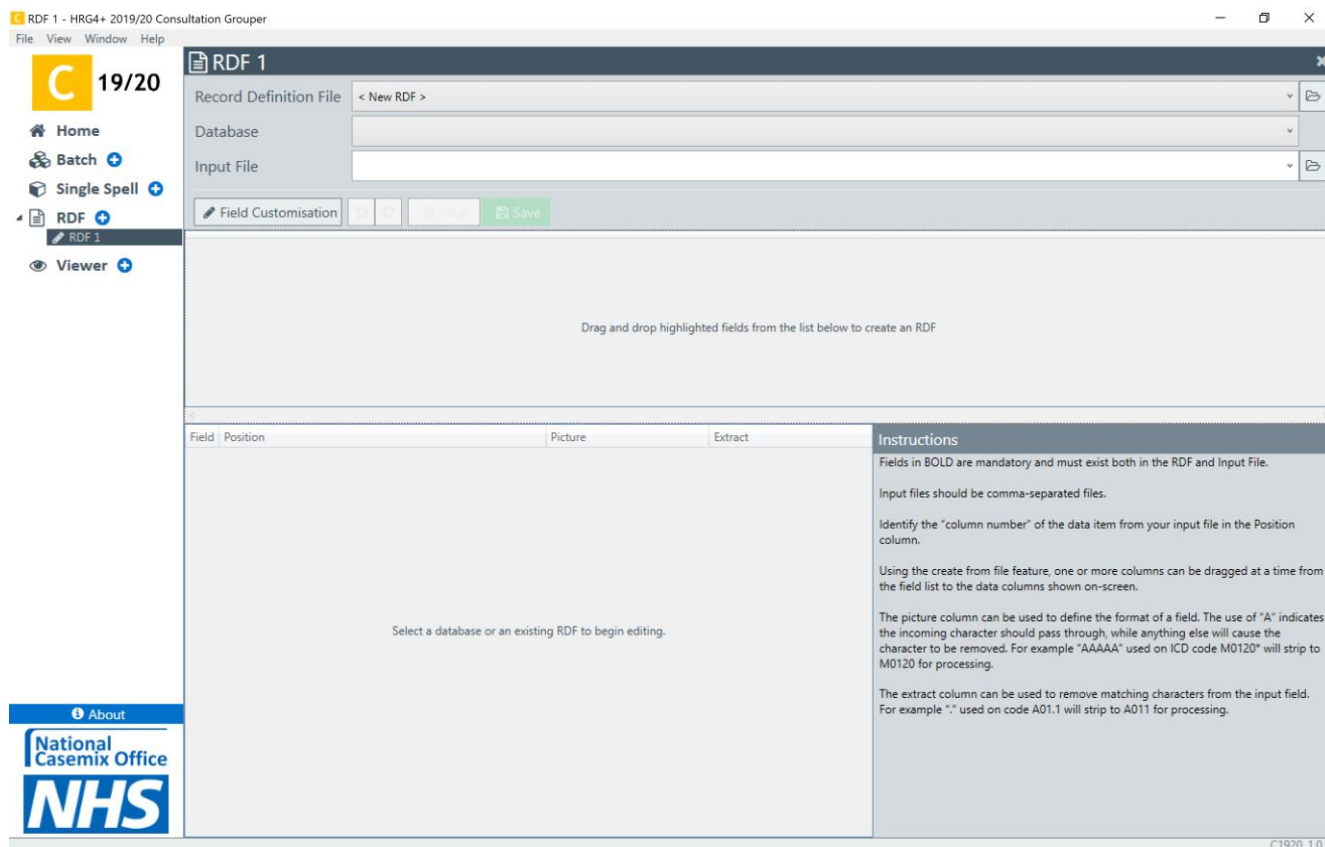
To create or modify an RDF, the Grouper has an interactive RDF module.

## 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 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**, prompts the user to “*Select a database or an existing RDF to begin editing*”. As we are creating an RDF from an input file in this section, select **C\_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.

Field	Position	Picture	Extract
<b>PROCDET</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>			
DIAG_02			
DIAG_03			
DIAG_04			
DIAG_05			
DIAG_06			
DIAG_07			

**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.

When the database is selected, the **Input** window auto-populates with a list of field names, which are highlighted yellow. All field names in bold are mandatory and must be assigned a position 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 simply be dragged and dropped from a file explorer window straight into the **Input File** drop-down box.

RDF 1 - HRG4+ 2019/20 Consultation Grouper

File View Window Help

**C** 19/20

Home

Batch

Single Spell

RDF

RDF 1

Viewer

Record Definition File < New RDF >

Database C:\1920 - Admitted Patient Care (APC)

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

Field Customisation Clear Save

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
PROCODET	PROVSPNO	EPIORDER	STARTAGE	SEX	CLASSPAT	ADMISORC	ADMIMETH	DISDEST	DISMETH	EPIDUR	MAINSPEF	NEOCARE	TRETSPEF	DIAG_01	DIAG_02	DIAG_03	DIAG_04	DIAG_05	DIAG_06
ZZZ	1004595488	1	68	1	1	51	81	19	1	13	430	8	430	R13X	Z501	I209	E119	Z951	Z92
ZZZ	1004595489	1	90	2	1	51	81	19	1	30	430	8	430	S3250	Z501	S700	M1999	M8199	I10
ZZZ	1004595490	1	85	2	1	51	81	19	1	15	430	8	430	S4240	S799	Z501	I951	E871	I10
ZZZ	1004595491	1	80	2	1	51	81	19	1	45	430	8	430	M511	G551	Z501	I10X	D759	
ZZZ	1004595492	1	82	1	1	51	81	19	1	18	430	8	430	S0660	S010	W100	Z501	M4792	M51
ZZZ	1004595493	1	84	2	1	51	81	65	1	40	160	8	161	T242	T212	T310	X100	J440	Z75
ZZZ	1004595494	1	90	1	1	51	81	19	1	13	430	8	430	R54X	Z501	M7960	M2555	I10X	I48
ZZZ	1004595495	1	82	2	1	51	81	19	1	89	430	8	430	I639	Z501	I269	R91X	Z867	
ZZZ	1004595496	1	89	2	1	51	81	29	1	29	430	8	430	R001	Z501	E871	M2546	R54X	I10
ZZZ	1004595497	1	90	1	1	51	81	51	1	11	430	8	430	N390	C449	Z501	F03X	I482	I10

Field Position Picture Extract

PROCODET

PROVSPNO

EPIORDER

STARTAGE

SEX

CLASSPAT

ADMISORC

ADMIMETH

DISDEST

DISMETH

EPIDUR

MAINSPEF

NEOCARE

TRETSPEF

DIAG\_01

DIAG\_02

DIAG\_03

DIAG\_04

DIAG\_05

DIAG\_06

DIAG\_07

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.

C1920\_1.0.1

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 position, 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 by highlighting a field row, right-clicking and selecting **Insert Row** (Ctrl + I). To delete a non-mandatory field, select the field row to be deleted and either select 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 field names highlighted in yellow and drag it to the appropriate column in the **Drag and Drop** window, i.e. PROCODET to column number 1, PROVSPNO to column 2, etc.

RDF 1 - HRG4+ 2019/20 Consultation Grouper

File View Window Help

**C** 19/20

Home

Batch

Single Spell

RDF

RDF 1\*

Viewer

About

National Casemix Office

NHS

RDF 1

Record Definition File < New RDF >

Database C:\1920 - Admitted Patient Care (APC)

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

Field Customisation Clear Save

PROCODET	PROVSPNO	EPIORDER	STARTAGE	SEX	CLASSPAT	ADMISORC	ADMIMETH	DISDEST	DISMETH	EPIDUR	MAINSPEF	NEOCARE	TRETSPEF	DIAG_01	DIAG_02	DIAG_03	DIAG_04	DIAG_05	DIAG_06	DIAG_07
ZZZ	1004595488	1	68	1	1	51	81	19	1	13	430	8	430	R13X	Z501	I209	E119	Z951	Z	
ZZZ	1004595489	1	90	2	1	51	81	19	1	30	430	8	430	S3250	Z501	S700	M1999	M8199	I	
ZZZ	1004595490	1	85	2	1	51	81	19	1	15	430	8	430	S4240	S799	Z501	I951	E871	I	
ZZZ	1004595491	1	80	2	1	51	81	19	1	45	430	8	430	M511	G551	Z501	I10X	D759	I	
ZZZ	1004595492	1	82	1	1	51	81	19	1	18	430	8	430	S0660	S010	W100	Z501	M4792	M	
ZZZ	1004595493	1	84	2	1	51	81	65	1	40	160	8	161	T242	T212	T310	X100	J440	Z	
ZZZ	1004595494	1	90	1	1	51	81	19	1	13	430	8	430	R54X	Z501	M7960	M2555	I10X	I	
ZZZ	1004595495	1	82	2	1	51	81	19	1	89	430	8	430	I639	Z501	I269	R91X	Z867	I	
ZZZ	1004595496	1	89	2	1	51	81	29	1	29	430	8	430	R001	Z501	E871	M2546	R54X	I	
ZZZ	1004595497	1	90	1	1	51	81	51	1	11	430	8	430	N390	C449	Z501	F03X	I482	I	

Field	Position	Picture	Extract
PROCODET	1		
PROVSPNO	2		
EPIORDER			
STARTAGE			
SEX			
CLASSPAT			
ADMISORC			
ADMIMETH			
DISDEST			
DISMETH			
EPIDUR			
MAINSPEF			
NEOCARE			
TRETSPEF			
DIAG_01			
DIAG_02			
DIAG_03			
DIAG_04			
DIAG_05			
DIAG_06			
DIAG_07			

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.

C1920\_1.0.1

Once a field is dragged into the **Drag and Drop** window, the **Position** column in the **Input** window will be populated 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 drop window; by right-clicking on the field name and selecting **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, select the **Clear** button to reset all the field positions.

The screenshot shows the RDF Editor interface. The main workspace contains a table for field customisation with the following columns: Field, Position, Picture, and Extract. The table lists various fields such as PROCODET, PROVSPNO, EPIORDER, STARTAGE, SEX, CLASSPAT, ADMISORC, ADMIMETH, DISDEST, DISMETH, EPIDUR, MAINSPEF, NEOCARE, TRETSPPEF, and several DIAG\_01-07 fields. The 'Instructions' panel on the right provides guidance on field requirements and formatting.

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 a maximum of 5 changes. Alternatively, 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 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 **C\_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>			
<b>DIAG_06</b>			
<b>DIAG_07</b>			

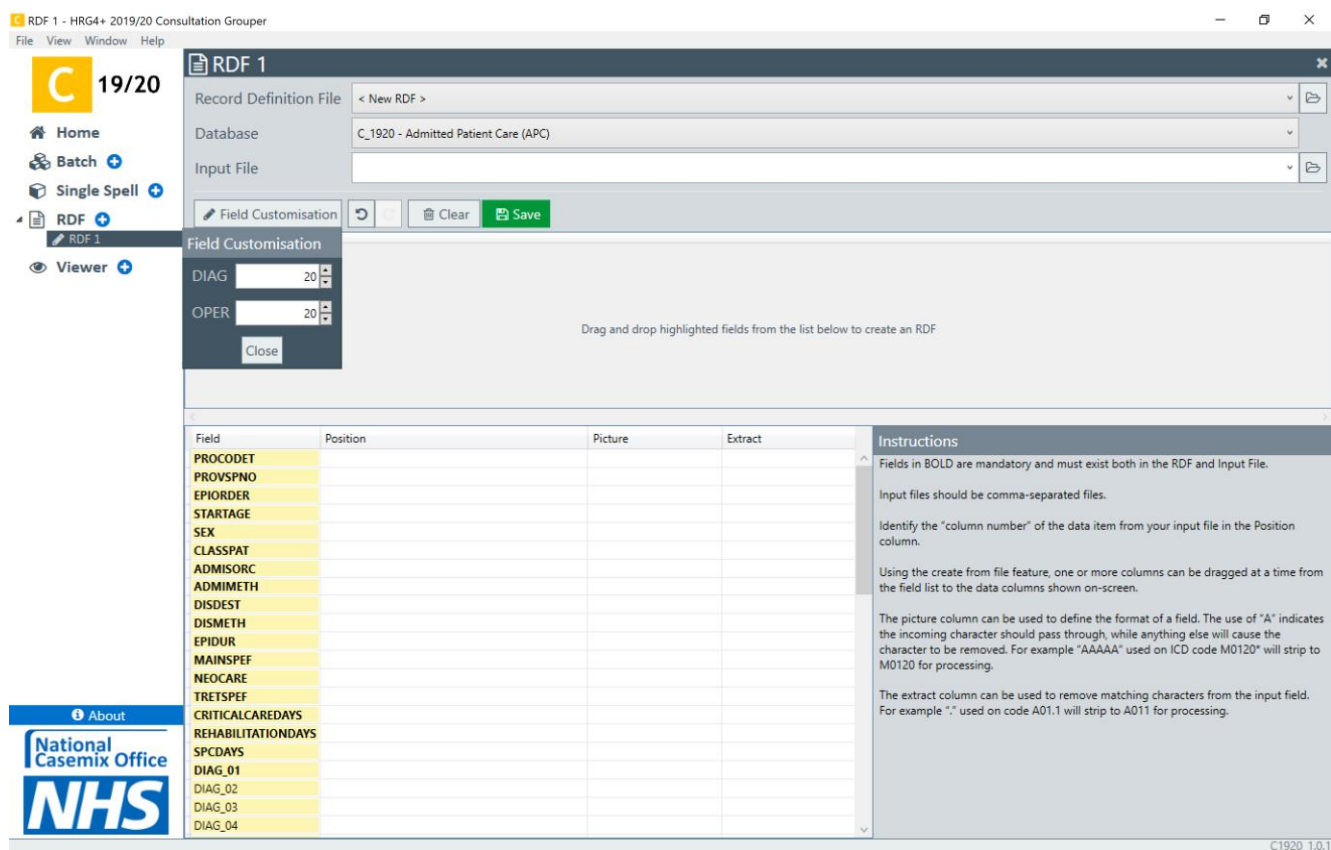
**Instructions**

- 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 in bold are mandatory and must be assigned a position 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 drop window; by right-clicking on the field name and selecting **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, select the **Clear** button to 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 a maximum of 5 changes. Alternatively, 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**.

## 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.

The screenshot shows the 'RDF 1' application window. The top menu bar includes 'File', 'View', 'Window', and 'Help'. The main interface has a left sidebar with navigation options: Home, Batch, Single Spell, RDF (selected), and Viewer. The main area is titled 'RDF 1' and contains the following fields:

- Record Definition File: HRG4+\_default\_APC.rdf
- Database: C\_1920 - Admitted Patient Care (APC)
- Input File: (empty)

Below these fields are buttons for 'Field Customisation', 'Clear', and 'Save'. A list of fields is displayed below the buttons:

Field	Position	Picture	Extract
PROCODET	1		
PROVSPNO	2		
EPIORDER	3		
STARTAGE	4		
SEX	5		
CLASSPAT	6		
ADMISORC	7		
ADMIMETH	8		
DISDEST	9		
DISMETH	10		
EPIDUR	11		
MAINSPEF	12		
NEOCARE	13		
TRETSPPEF	14		
DIAG_01	15		
DIAG_02	16		
DIAG_03	17		
DIAG_04	18		
DIAG_05	19		
DIAG_06	20		
DIAG_07	21		

On the right side, there is an 'Instructions' panel with the following 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.

At the bottom left, there is an 'About' button and the 'National Casemix Office' and 'NHS' logos. The bottom right corner shows the version number 'C1920\_1.0.1'.

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 by highlighting a field row, right-clicking and selecting **Insert Row** (Ctrl + I). To delete a non-mandatory field, select the field row to be deleted and either select 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.

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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 drop window; by right-clicking on the field name and selecting **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, select the **Clear** button to 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 a maximum of 5 changes. Alternatively, 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 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**.

## RDF Input Window

The RDF Input window contains four columns, which are as follows:

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			
PROVSPNO			
EPIORDER			
STARTAGE			
SEX			
CLASSPAT			
ADMISORC			
ADMIMETH			
DISDEST			
DISMETH			
EPIDUR			
MAINSPEF			
NEOCARE			
TRETSPEF			
DIAG_01			
DIAG_02			
DIAG_03			
DIAG_04			
DIAG_05			
DIAG_06			
DIAG_07			

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.
- Picture 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

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ignored in grouping. (Note: Commas cannot be excluded because the input data files are comma-separated).

Field	Position	Picture	Extract
PROCODET			
PROVSPNO			
EPIORDER			
STARTAGE			
SEX			
CLASSPAT			
ADMISORC			
ADMIMETH			
DISDEST			
DISMETH			
EPIDUR			
MAINSPEF			
NEOCARE			
TRETSPEF			
DIAG_01			
DIAG_02			
DIAG_03			
DIAG_04			
DIAG_05			
DIAG_06			
DIAG_07			

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; it does not affect single spell grouping.

### 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".

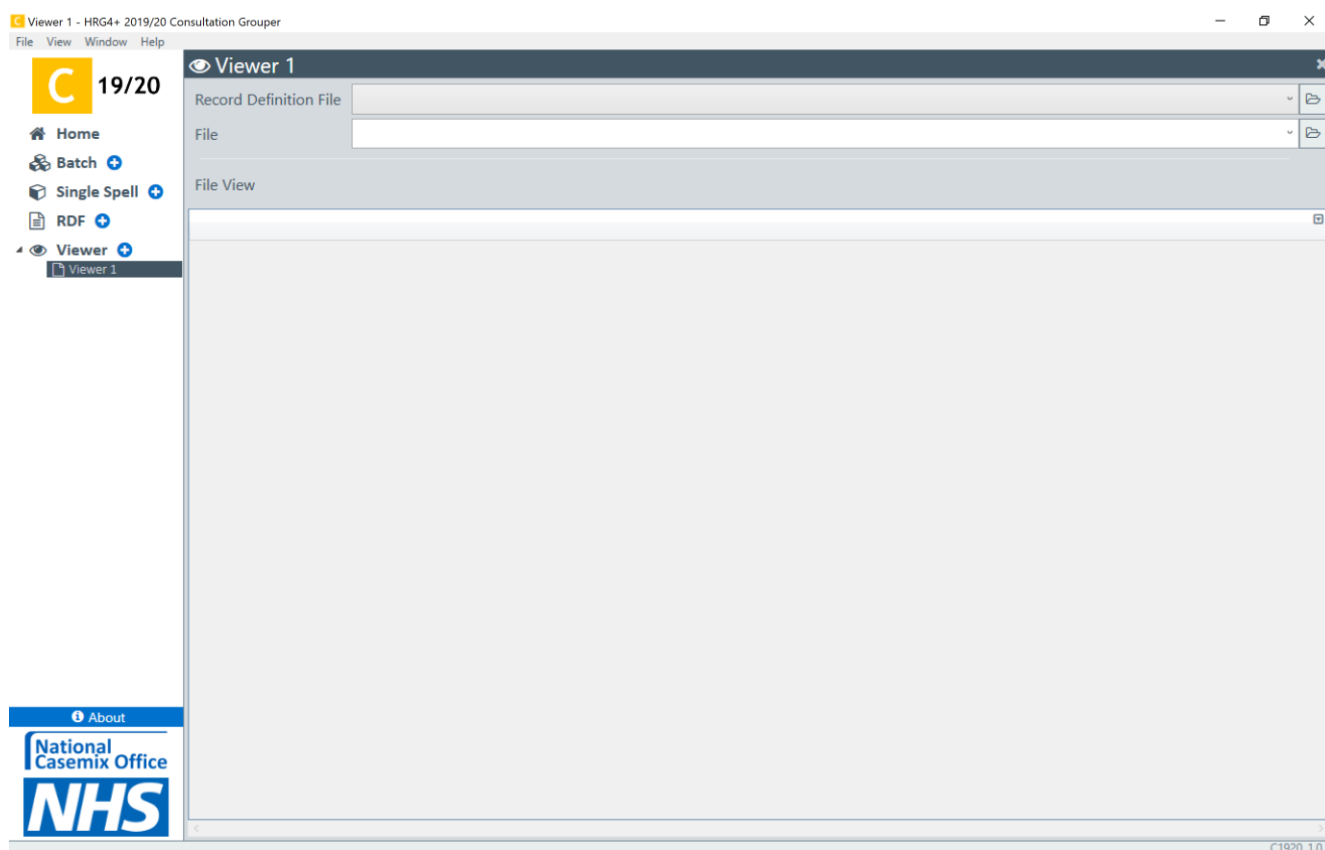
## Viewer


The Grouper provides a file viewer that can be used to view input or output files. The Viewer allows users to filter on columns and select data that are 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 use the browse folder  icon to navigate to the appropriate file to be viewed.

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

To select the **Record Definition File**, navigate to the Default RDF folder installed with the Grouper and select the file `HRG4+_default_APC.rdf` or alternatively drag and drop the file `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 file **HRG4+ Admitted Patient Care Sample Test Data.csv** or alternatively drag and drop the file **HRG4+ Admitted Patient Care Sample Test Data.csv** directly into the **File** drop-down box.

<b>PROCODET</b> (PROCODET)	<b>PROVSPND</b> (PROVSPND)	<b>EPIORDER</b> (EPIORDER)	<b>STARTAGE</b> (STARTAGE)	<b>SEX</b> (SEX)	<b>CLASSPAT</b> (CLASSPAT)	<b>ADMISORC</b> (ADMISORC)	<b>ADMIMETH</b> (ADMIMETH)	<b>DISDEST</b> (DISDEST)	<b>DISMETH</b> (DISMETH)	<b>EPTIDUR</b> (EPTIDUR)	<b>MAINSPEF</b> (MAINSPEF)	<b>NEOC</b> (NEOC)
ZZZ	1004595488	1	68	1	1	51	81	19	1	13	430	8
ZZZ	1004595489	1	90	2	1	51	81	19	1	30	430	8
ZZZ	1004595490	1	85	2	1	51	81	19	1	15	430	8
ZZZ	1004595491	1	80	2	1	51	81	19	1	45	430	8
ZZZ	1004595492	1	82	1	1	51	81	19	1	18	430	8
ZZZ	1004595493	1	84	2	1	51	81	65	1	40	160	8
ZZZ	1004595494	1	90	1	1	51	81	19	1	13	430	8
ZZZ	1004595495	1	82	2	1	51	81	19	1	89	430	8
ZZZ	1004595496	1	89	2	1	51	81	29	1	29	430	8
ZZZ	1004595497	1	90	1	1	51	81	51	1	11	430	8
ZZZ	1004595498	1	82	2	1	51	81	54	1	78	430	8
ZZZ	1004595499	1	83	1	1	51	81	19	1	19	430	8
ZZZ	1004595500	1	85	2	1	51	81	19	1	30	430	8
ZZZ	1004595501	1	89	2	1	51	81	19	1	25	430	8
ZZZ	1004595502	1	74	1	1	51	81	19	1	43	430	8
ZZZ	1004595503	1	101	2	1	51	81	19	1	10	430	8
ZZZ	1004595504	1	85	2	1	51	81	19	1	10	430	8
ZZZ	1004595505	1	88	2	1	51	81	19	1	9	430	8
ZZZ	1004595506	1	83	2	1	51	81	51	1	1	430	8
ZZZ	1004595507	1	72	1	1	51	81	19	1	52	430	8
ZZZ	1004595508	1	83	1	1	51	81	19	1	14	430	8
ZZZ	1004595509	1	85	1	1	51	81	19	1	22	430	8
ZZZ	1004595510	1	92	2	1	51	81	29	1	33	430	8
ZZZ	1004595511	1	74	1	1	51	81	19	1	13	430	8
ZZZ	1004595512	1	88	2	1	51	12	98	8	3	314	8
ZZZ	1004595513	1	71	1	1	51	81	19	1	12	314	8
ZZZ	1004595514	1	90	2	1	51	12	99	9	8	314	8
ZZZ	1004595515	1	80	2	1	51	81	98	8	13	314	8
ZZZ	1004595516	1	41	1	1	29	21	99	1	8	710	8
ZZZ	1004595517	1	32	1	1	19	13	19	1	42	710	8
ZZZ	1004595518	1	56	1	1	51	81	19	1	26	300	8
ZZZ	1004595519	1	80	2	1	19	22	19	1	14	300	8
ZZZ	1004595520	1	85	2	1	19	81	19	1	26	300	8
ZZZ	1004595521	1	80	2	1	19	21	19	1	13	300	8
ZZZ	1004595522	1	80	2	1	51	23	19	1	38	300	8
ZZZ	1004595523	1	51	1	1	19	21	99	1	12	710	8
ZZZ	1004595524	1	47	1	1	19	81	19	1	126	300	8
ZZZ	1004595525	1	75	2	1	19	22	51	1	5	300	8
ZZZ	1004595526	1	70	1	1	19	22	51	1	4	300	8
ZZZ	1004595527	1	90	1	1	19	21	51	1	42	300	8

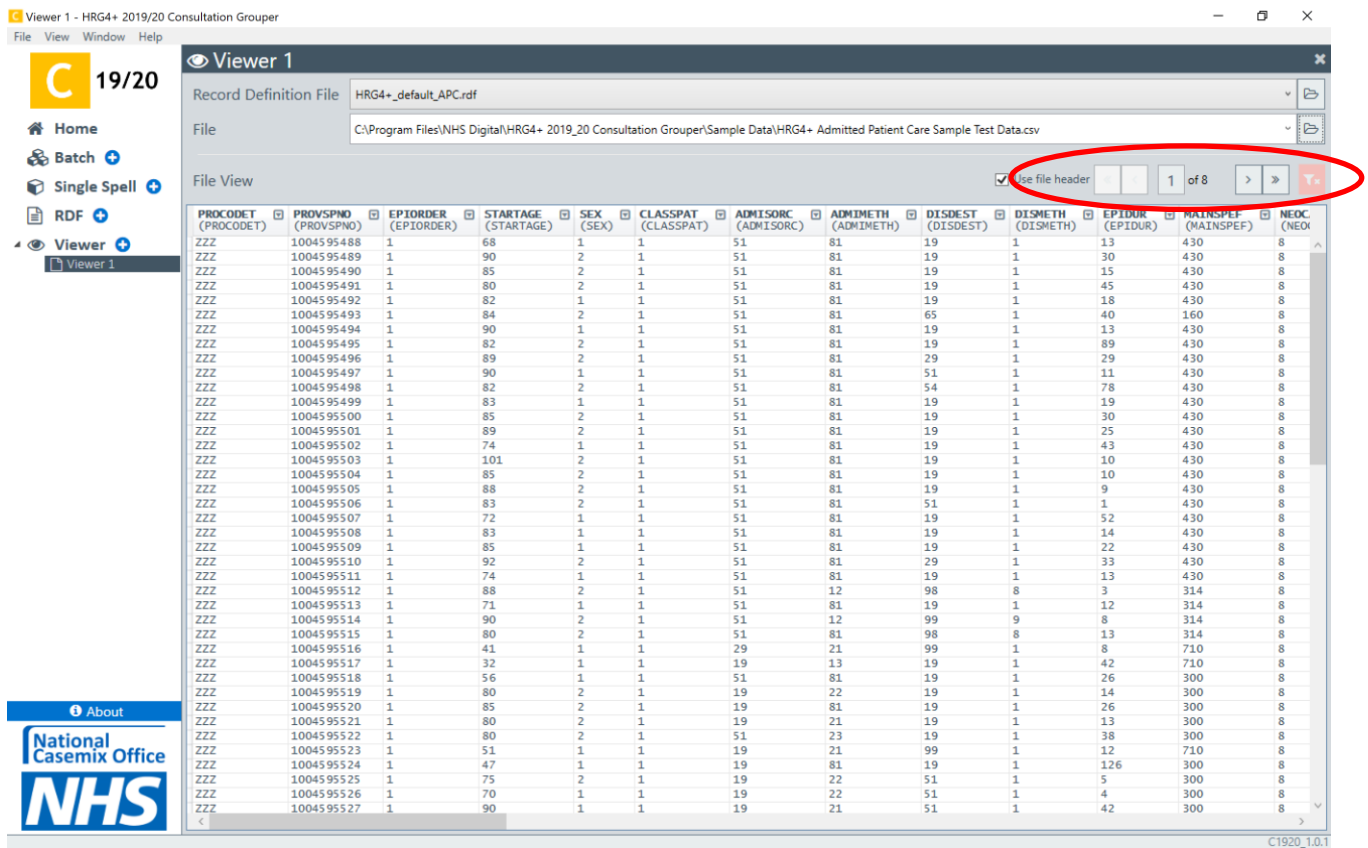
When a file is selected, the data will be displayed in the **File View** window. Depending on the number of rows of data in your file, the Viewer will display the data over a number of pages.

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, the file headers (surrounded by rounded brackets) underneath the Record Definition File headers in bold remain visible when navigating between the different pages.

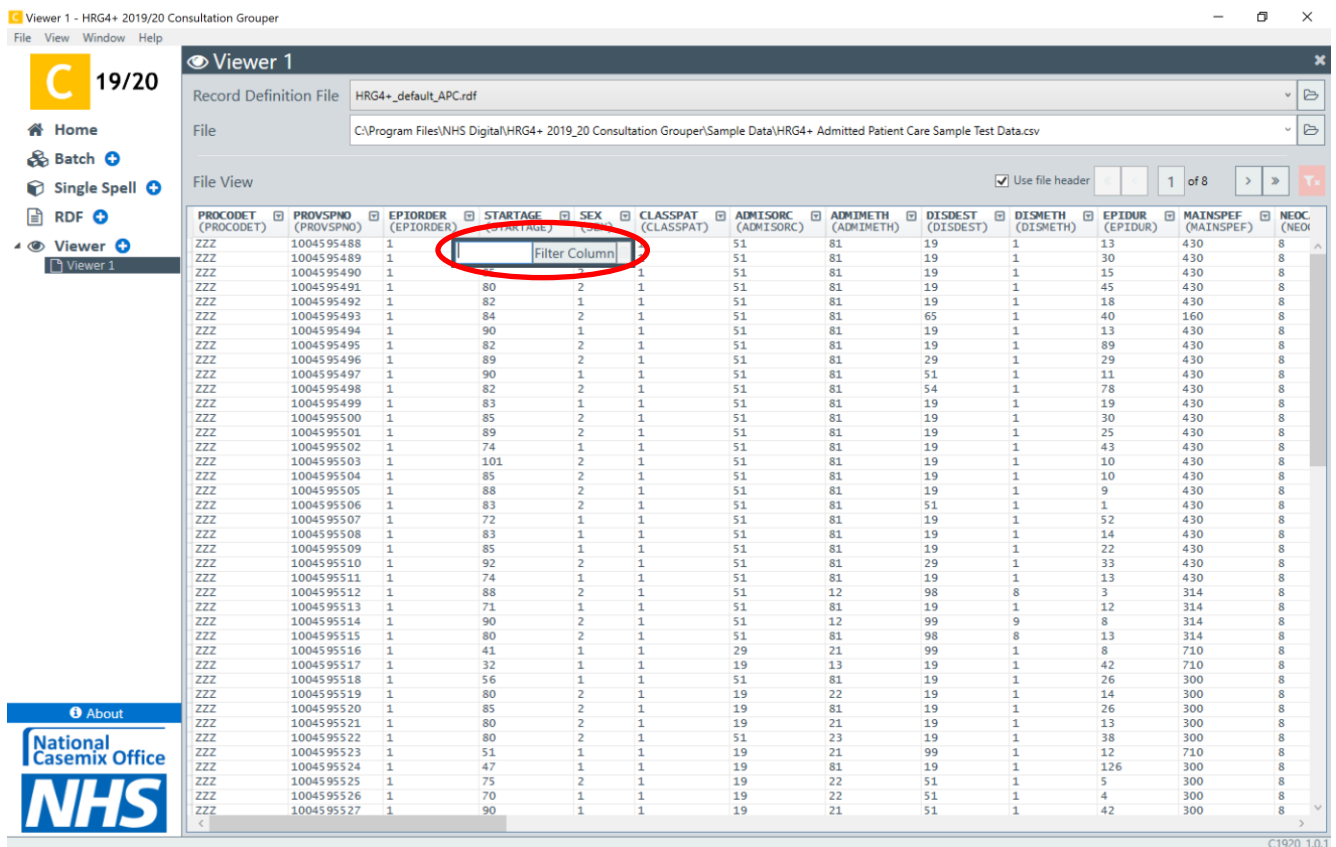
Users can use the navigation buttons to move between pages in the Viewer window.

-  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.




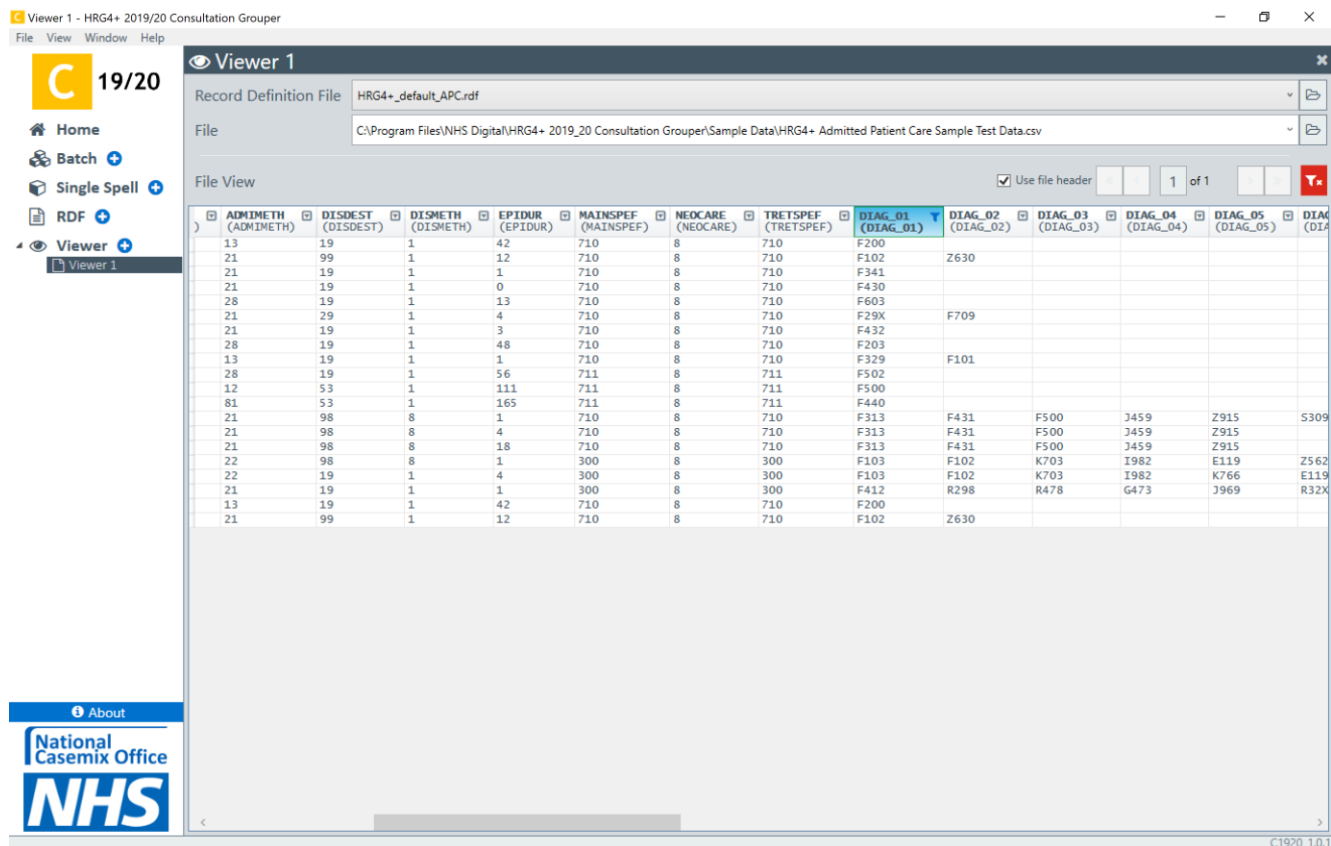
Filters have been introduced into the Viewer that allow users to filter on specific columns in the File View window. In the top row of the File View window, each column contains a small drop-down arrow, which when clicked, opens a pop-up box that allows users to filter on a particular value.




Users can filter on a particular value or use the wildcard characters \* and ?.

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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.



	ADMIMETH (ADMIMETH)	DISDEST (DISDEST)	DISMETH (DISMETH)	EPIDUR (EPIDUR)	MAINSPEF (MAINSPEF)	NEOCARE (NEOCARE)	TRETSPF (TRETSPF)	DIAG_01 (DIAG_01)	DIAG_02 (DIAG_02)	DIAG_03 (DIAG_03)	DIAG_04 (DIAG_04)	DIAG_05 (DIAG_05)	DIAG_06 (DIAG_06)
13	19	1	42	710	8	710	F200						
21	99	1	12	710	8	710	F102	Z630					
21	19	1	1	710	8	710	F341						
21	19	1	0	710	8	710	F430						
28	19	1	13	710	8	710	F603						
21	29	1	4	710	8	710	F29X	F709					
21	19	1	3	710	8	710	F432						
28	19	1	48	710	8	710	F203						
13	19	1	1	710	8	710	F329	F101					
28	19	1	56	711	8	711	F502						
12	53	1	111	711	8	711	F500						
81	53	1	165	711	8	711	F440						
21	98	8	1	710	8	710	F313	F431	F500	J459	Z915	S309	
21	98	8	4	710	8	710	F313	F431	F500	J459	Z915		
21	98	8	18	710	8	710	F313	F431	F500	J459	Z915		
22	98	8	1	300	8	300	F103	F102	K703	I982	E119	Z562	
22	19	1	4	300	8	300	F103	F102	K703	I982	K766	E119	
21	19	1	1	300	8	300	F412	R298	R478	G473	I969	R32X	
13	19	1	42	710	8	710	F200						
21	99	1	12	710	8	710	F102	Z630					

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 specialty codes where the code is three characters and the last character is a 0.

The screenshot shows the Grouper Viewer 1 application interface. The window title is "Viewer 1 - HRG4+ 2019/20 Consultation Grouper". The interface includes a menu bar (File, View, Window, Help), a toolbar with icons for Home, Batch, Single Spell, RDF, and Viewer, and a sidebar with the NHS logo and "National Casemix Office" text. The main area displays a "File View" of a CSV file. The table has the following columns: ADMIMETH (ADMIMETH), DISDEST (DISDEST), DISMETH (DISMETH), EPIDUR (EPIDUR), MAINSPEF (MAINSPEF), NEOCARE (NEOCARE), TRETSPF (TRETSPF), DIAG\_01 (DIAG\_01), DIAG\_02 (DIAG\_02), DIAG\_03 (DIAG\_03), DIAG\_04 (DIAG\_04), DIAG\_05 (DIAG\_05), and DIAG\_06 (DIAG\_06). The data rows contain numerical values for the first seven columns and alphanumeric codes for the diagnostic columns.

ADMIMETH (ADMIMETH)	DISDEST (DISDEST)	DISMETH (DISMETH)	EPIDUR (EPIDUR)	MAINSPEF (MAINSPEF)	NEOCARE (NEOCARE)	TRETSPF (TRETSPF)	DIAG_01 (DIAG_01)	DIAG_02 (DIAG_02)	DIAG_03 (DIAG_03)	DIAG_04 (DIAG_04)	DIAG_05 (DIAG_05)	DIAG_06 (DIAG_06)
13	19	1	42	710	8	710	F200					
21	99	1	12	710	8	710	F102	Z630				
21	19	1	1	710	8	710	F341					
21	19	1	0	710	8	710	F430					
28	19	1	13	710	8	710	F603					
21	29	1	4	710	8	710	F29X	F709				
21	19	1	3	710	8	710	F432					
28	19	1	48	710	8	710	F203					
13	19	1	1	710	8	710	F329	F101				
21	98	8	1	710	8	710	F313	F431	F500	J459	Z915	S309
21	98	8	4	710	8	710	F313	F431	F500	J459	Z915	
21	98	8	18	710	8	710	F313	F431	F500	J459	Z915	
22	98	8	1	300	8	300	F103	F102	K703	I982	E119	Z562
22	19	1	4	300	8	300	F103	F102	K703	I982	K766	E119
21	19	1	1	300	8	300	F412	R298	R478	G473	J969	R32X
13	19	1	42	710	8	710	F200					
21	99	1	12	710	8	710	F102	Z630				

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

Individual 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, all filters can be cleared by clicking on the (Clear All Filter) icon.

Click the clear all filter icon to reset the viewing window to its original state.

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)	DIAG_04 (DIAG_04)	DIAG_05 (DIAG_05)	D (D)
81	19	1	13	430	8	430	R13X	Z501	I209	E119	Z951	Z
81	19	1	30	430	8	430	S3250	Z501	S700	M1999	M8199	I
81	19	1	15	430	8	430	S4240	S799	Z501	I951	E871	I
81	19	1	45	430	8	430	M511	G551	Z501	I10X	D759	I
81	19	1	18	430	8	430	S0660	S010	W100	Z501	M4792	M
81	65	1	40	160	8	161	T242	T212	T310	X100	J440	Z
81	19	1	13	430	8	430	R54X	Z501	M7960	M2555	I10X	I
81	19	1	89	430	8	430	I639	Z501	I269	R91X	Z867	I
81	29	1	29	430	8	430	R001	Z501	E871	M2546	R54X	I
81	51	1	11	430	8	430	N390	C449	Z501	F03X	I482	I
81	54	1	78	430	8	430	S5260	Z501	F019	Z602	N390	Z
81	19	1	19	430	8	430	I951	D649	Z501	N179	I120	L
81	19	1	30	430	8	430	S7240	M819	Z501	Z507	I10X	I
81	19	1	25	430	8	430	S3250	W189	I678	R42X	E039	F
81	19	1	43	430	8	430	I634	Z501	I269	J22X	J459	I
81	19	1	10	430	8	430	S5250	I951	Z501	I10X	M139	Z
81	19	1	10	430	8	430	R69X6					
81	19	1	9	430	8	430	R69X6					
81	51	1	1	430	8	430	R69X6					
81	19	1	52	430	8	430	I639	Z501	I10X	I484	E119	N
81	19	1	14	430	8	430	J181	Z501	J90X	G440	C61X	K
81	19	1	22	430	8	430	T830	Y831	Z501	R31X	R33X	K
81	29	1	33	430	8	430	B023	H031	I480	Z501	I10X	M
81	19	1	13	430	8	430	G409	N390	Z501	D649	I678	J
12	98	8	3	314	8	314	Z740					
81	19	1	12	314	8	314	Z740					
12	99	9	8	314	8	314	S429					
81	98	8	13	314	8	314	Z740					
21	99	1	8	710	8	710	R69X6					
13	19	1	42	710	8	710	F200					
81	19	1	26	300	8	300	N390	B954				
22	19	1	14	300	8	300	I639	Z501	I10X	L989	M069	M
81	19	1	26	300	8	300	H542	Z501	N390	H919		
21	19	1	13	300	8	300	S430	Z501	M2555	I10X	J449	M
23	19	1	38	300	8	300	N390	L97X	L089	I10X	M199	
21	99	1	12	710	8	710	F102	Z530				
81	19	1	126	300	8	300	S3281	S0210	S4230	S3240	Z501	Z
22	51	1	5	300	8	300	K572	Z933	Z501	I10X	I481	Z
22	51	1	4	300	8	300	R262	Z501	R638	H109	I10X	E
21	51	1	42	300	8	300	S300	Z501	N390	S018	W192	I

While the use of the Viewer has limited value 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 to open a new Single Spell window with the information already 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 or right-click on the row of data and select “Open in single spell”.

Viewer 1 - HRG4+ 2019/20 Consultation Grouper

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

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

File View:  Use file header | 1 of 8

PROCODET (PROCODET)	PROVSPNO (PROVSPNO)	EPIORDER (EPIORDER)	STARTAGE (STARTAGE)	SEX (SEX)	CLASSPAT (CLASSPAT)	ADMISORC (ADMISORC)	ADMIMETH (ADMIMETH)	DISDEST (DISDEST)	DISMETH (DISMETH)	EPIDUR (EPIDUR)	MAINSPEF (MAINSPEF)	NEOC (NEOC)
ZZZ	1004595488	1	68	1	1	51	81	19	1	13	430	8
ZZZ	1004595489	1	90	2	1	51	81	19	1	30	430	8
ZZZ	1004595490	1	85	2	1	51	81	19	1	15	430	8
ZZZ	1004595491	1	80	2	1	51	81	19	1	45	430	8
ZZZ	1004595492	1	82	1	1	51	81	19	1	18	430	8
ZZZ	1004595493	1	84	2	1	51	81	65	1	40	160	8
ZZZ	1004595494	1	90	1	1	51	81	19	1	13	430	8
ZZZ	1004595495	1	82	2	1	51	81	19	1	89	430	8
ZZZ	1004595496	1	89	2	1	51	81	29	1	29	430	8
ZZZ	1004595497	1	90	1	1	51	81	51	1	11	430	8
ZZZ	1004595498	1	82	2	1	51	81	54	1	78	430	8
ZZZ	1004595499	1	83	1	1	51	81	19	1	19	430	8
ZZZ	1004595500	1	85	2	1	51	81	19	1	30	430	8
ZZZ	1004595501	1	89	2	1	51	81	19	1	25	430	8
ZZZ	1004595502	1	74	1	1	51	81	19	1	43	430	8
ZZZ	1004595503	1	101	2	1	51	81	19	1	10	430	8
ZZZ	1004595504	1	85	2	1	51	81	19	1	10	430	8
ZZZ	1004595505	1	88	2	1	51	81	19	1	9	430	8
ZZZ	1004595506	1	83	2	1	51	81	51	1	1	430	8
ZZZ	1004595507	1	72	1	1	51	81	19	1	52	430	8
ZZZ	1004595508	1	83	1	1	51	81	19	1	14	430	8
ZZZ	1004595509	1	85	1	1	51	81	19	1	22	430	8
ZZZ	1004595510	1	92	2	1	51	81	29	1	33	430	8
ZZZ	1004595511	1	74	1	1	51	81	19	1	13	430	8
ZZZ	1004595512	1	88	2	1	51	12	98	8	3	314	8
ZZZ	1004595513	1	71	1	1	51	81	19	1	12	314	8
ZZZ	1004595514	1	90	2	1	51	12	99	9	8	314	8
ZZZ	1004595515	1	80	2	1	51	81	98	8	13	314	8
ZZZ	1004595516	1	41	1	1	29	21	99	1	8	710	8
ZZZ	1004595517	1	32	1	1	19	13	19	1	42	710	8
ZZZ	1004595518	1	56	1	1	51	81	19	1	26	300	8
ZZZ	1004595519	1	80	2	1	19	22	19	1	14	300	8
ZZZ	1004595520	1	85	2	1	19	81	19	1	26	300	8
ZZZ	1004595521	1	80	2	1	19	21	19	1	13	300	8
ZZZ	1004595522	1	80	2	1	51	23	19	1	38	300	8
ZZZ	1004595523	1	51	1	1	19	21	99	1	12	710	8
ZZZ	1004595524	1	47	1	1	19	81	19	1	126	300	8
ZZZ	1004595525	1	75	2	1	19	22	51	1	5	300	8
ZZZ	1004595526	1	70	1	1	19	22	51	1	4	300	8
ZZZ	1004595527	1	90	1	1	19	21	51	1	42	300	8

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

Spell 1 - HRG4+ 2019/20 Consultation Grouper

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

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

Episode: 1 of 1

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 disab
ADMIMETH	81	Transfer of any admitted PATIENT from other Hospital Provider other than in an emerge
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	U543	Delivery of rehabilitation for stroke
OPER_02		
OPER_03		

Field	Value	Description
Errors		
SpellHRG	FD10L	Non-Malignant Gastrointestinal Tract Disorders wi
SpellGroupingMethodFlag	D	Diagnosis driven
SpellDominantProcedure		
SpellPDiag	R13X	Dysphagia
SpellSDiag	Z501	Other physical therapy
SpellEpisodeCount	1	
SpellLOS	13	
SpellCCDays	0	
SpellPBC	PBC0213A	Upper Gastrointestinal
SpellUnbundledHRGs	VC04Z*1	
SpellSSCs		
SpellBP		

Field	Value	Description
Errors		
FCE_HRG	FD10L	Non-Malignant Gastrointestinal Tract Disorders without In
GroupingMethodFlag	D	Diagnosis driven
DominantProcedure		
FCE_PBC	PBC0213A	Upper Gastrointestinal
CalcEpidur	13	
SpellReportFlag	1	
UnbundledHRGs	VC04Z*1	
FCESSCs		

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.

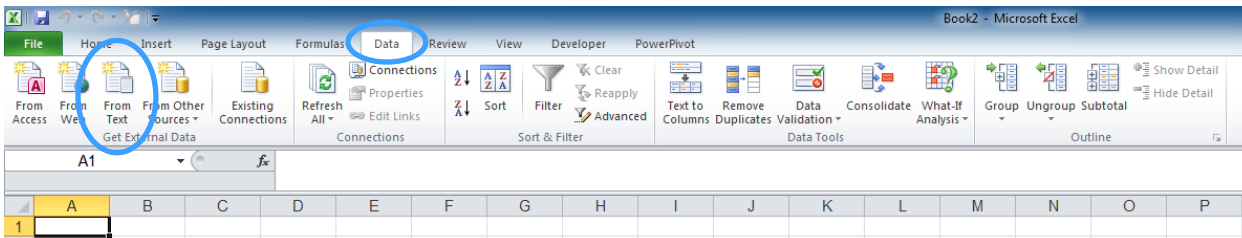
### Using Excel for File Preparation

If some of the records end with empty fields, 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”.

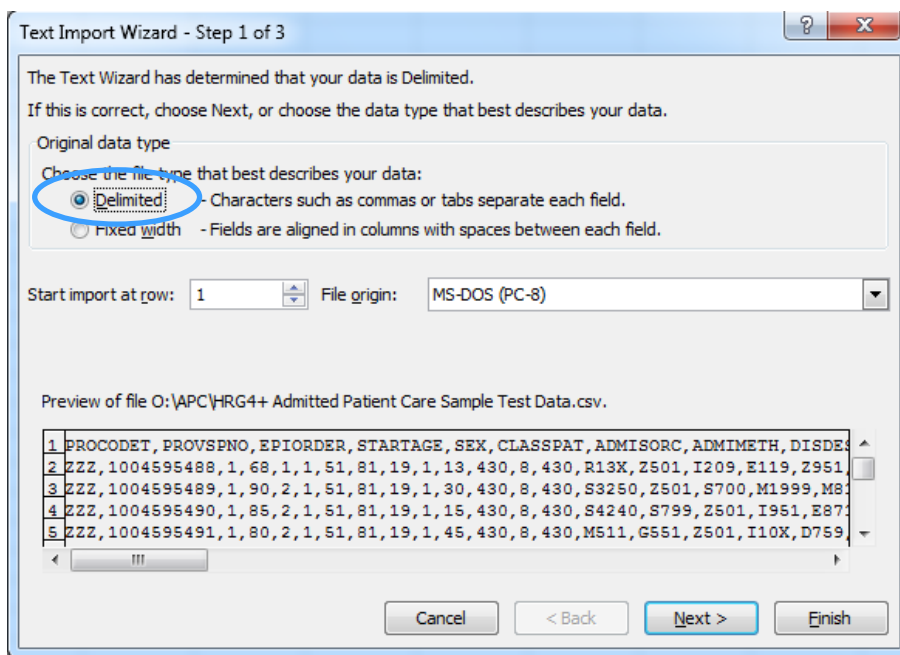
Please be aware that unless properly imported, opening a CSV in Excel will cause changes to the data. A common occurrence is for leading zeros to be stripped away when a CSV file is opened in Excel. For code types such as critical care unit function codes, the field length is set and the Grouper expects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

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

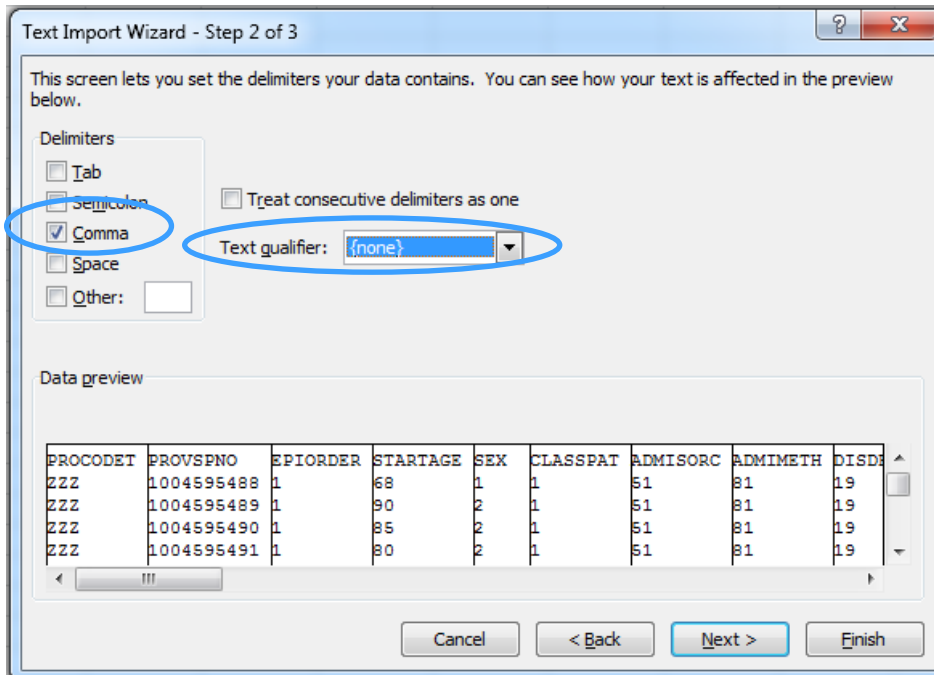
1. Open Excel. Click on the **Data** tab and click **From Text** in the ribbon.



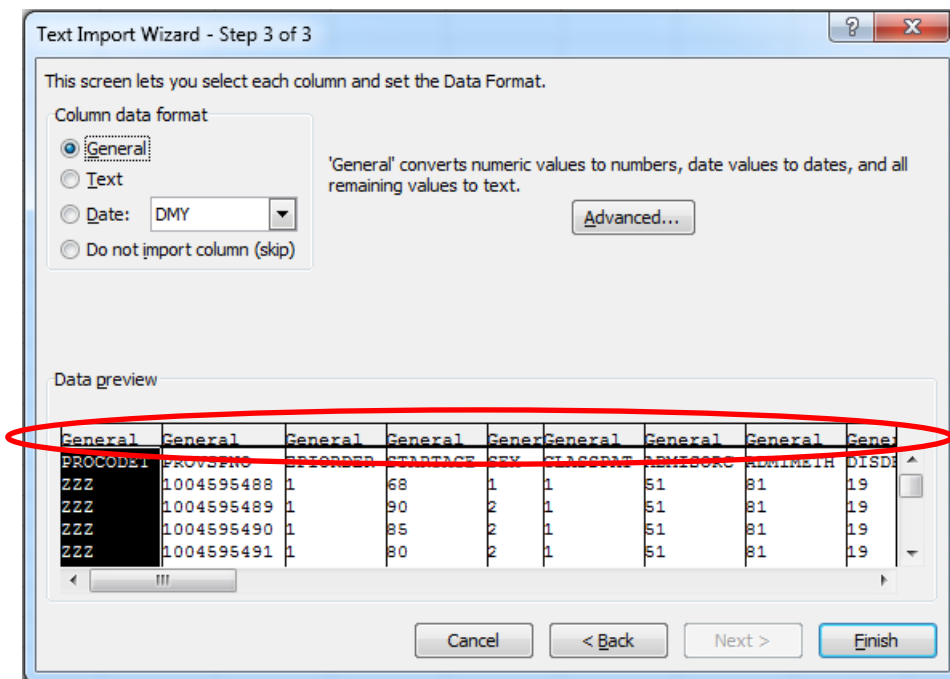
2. Navigate to your input file. In the Text Import Wizard, select **Delimited** in step 1/3.



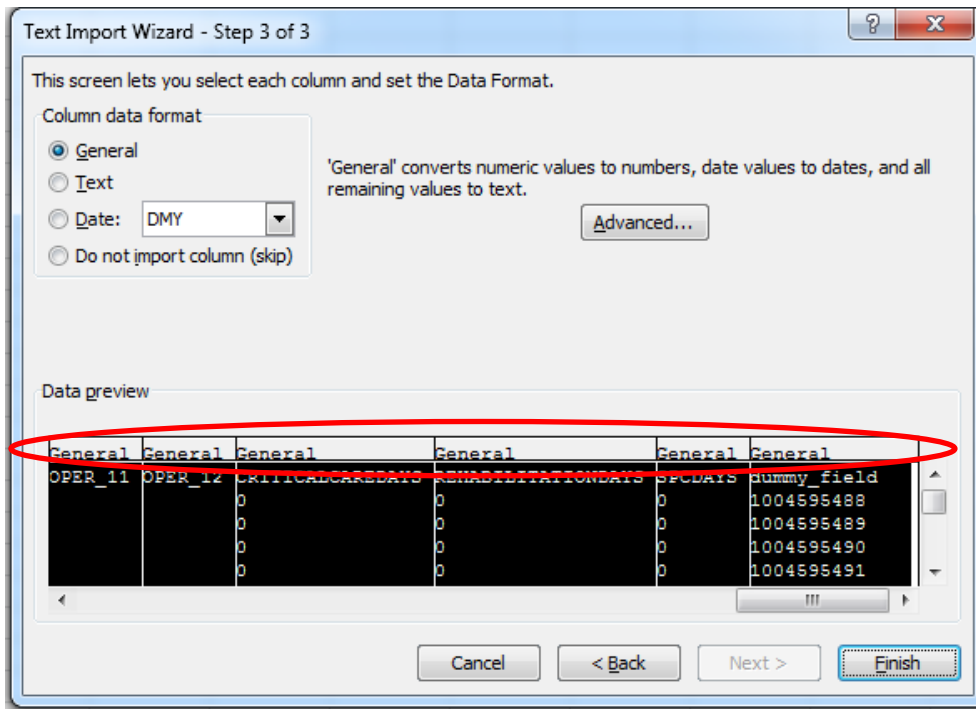
3. Then tick the **Comma** tick box under “Delimiters” in step 2/3.



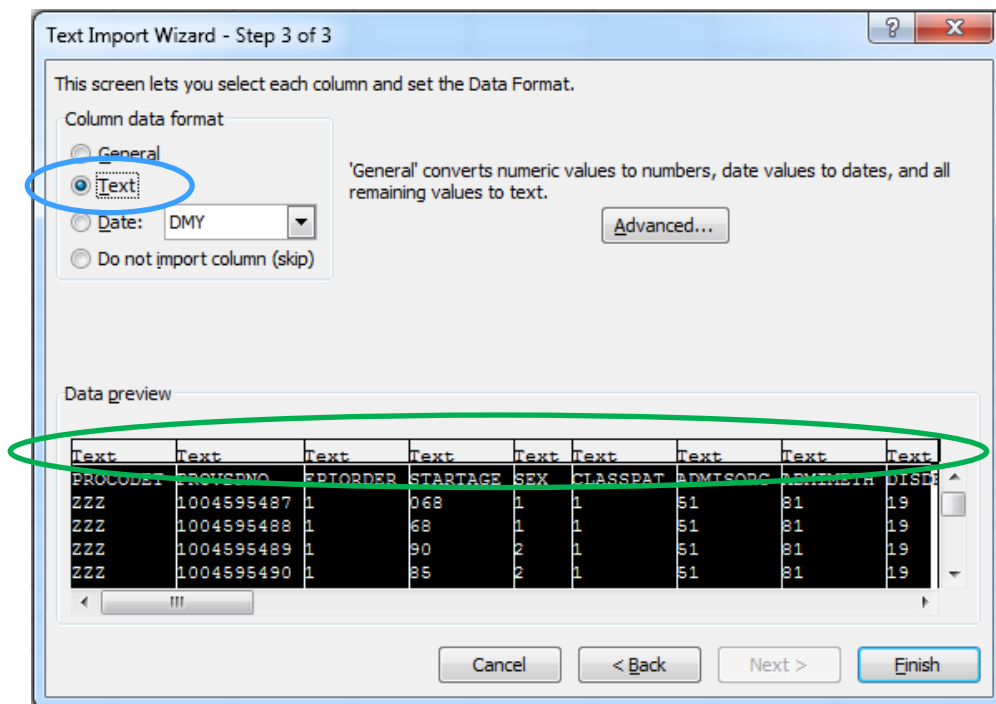
4. In step 3/3, notice Excel wants to pull the data into cells formatted as “General”, not “Text”. You will need to change this, but first...



It is essential that the user highlight all columns when changing the format option to text. To do this, scroll all the way to the right and press the **Shift** key and click on the last column. This will select all columns.



Then select the **Text** radio button.



Finally click **Finish** and choose which 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 the file as a CSV file to run through the Grouper.

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

## 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)	Mandatory	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)	Mandatory	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 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 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. The “Local Sub-Analysis” part <u>should not</u> be submitted. 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. The “Local Sub-Analysis” part <u>should not</u> be submitted. 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. 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 START DATE	Optional	No	Format is YYYYMMDD. e.g. 1 April 2018 = 20180401.
CC_Discharge_Date	CRITICAL CARE DISCHARGE DATE	Optional	No	Format is YYYYMMDD. e.g. 1 April 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) and 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. Range: greater than zero kg and less than 10 kg. 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 ACTIVITY CODE	Optional	Yes	Valid CCAC code from list in Neonatal Critical Care Minimum Dataset (NCCMDS).
CCAC_02 - CCAC_20	CRITICAL CARE 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
<b>[name].csv</b>	A list of all the other output files.
<b>[name]_sort.csv</b>	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.
<b>[name]_FCE.csv</b>	Contains both episode and spell output fields. 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. If the sum of these deductions is larger than the episode duration, then CalcEpidur will be zero.
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	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.
SpellGroupingMethod Flag	The grouping method used for the spell. P=Procedure driven, D=Diagnosis driven, M=Multiple trauma, G=Global exception, U=Error.

File Name/Field Name	Description
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. 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.
SpellPBC	Programme Budgeting Code for the spell.
UnbundledHRGs	Variable number of fields containing unbundled HRGs (episode level).  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.
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 for spell grouping.
SpellSDiag	The first secondary diagnosis used for spell grouping.
SpellEpisodeCount	The number of episodes in the spell.

File Name/Field Name	Description
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.
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).  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.
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)

File Name/Field Name	Description
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.
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.
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.
SpellPBC	Programme Budgeting Code for the spell.
<b>[name]_quality_rel.csv</b>	Relational format includes a row for each error for each episode.

File Name/Field Name	Description
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.
<b>[name]_report.csv</b>	An aggregated report file. This file is populated by Reference Costs Groupers only.

File Name/Field Name	Description
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. P=Procedure driven, G=Global exception, O=Outpatient default and U=Error
DominantProcedure	The dominant procedure.
AttendanceHRG	Only populated in Payment Groupers. 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. 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. 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. 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.

<b>File Name/Field Name</b>	<b>Description</b>
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. 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. 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: CC Discharge Date - CC Start Date + 1 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: 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.) CCL2 Days + CCL3 Days > Calc_CC_Days ARSD + BRSD > Calc_CC_Days 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. 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. 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. 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 Summaries document included in the documentation suite for the relevant Grouper. See the section on Subchapter **UZ Undefined Groups**. The Grouper Documentation Suite is available for download from the National Casemix Office 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 conventions or standards or are not useful resource indicators for HRG grouping.

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 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 containing a 5th digit.

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 all Y (methods of operations) and Z (anatomical sites) OPCS-4 codes as well as 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)*

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### **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 where a burns diagnosis code is 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, the spell HRG will be UZ01Z. If an unbundled HRG is UZ01Z, both the episode and the spell HRGs will be UZ01Z. Errors do not cascade downwards, so if UZ01Z is generated for one episode, it will not prevent a different HRG from being generated for another related episode.

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.

ICD-10 codes that are not on the list are classified as invalid but will not result in a specific error message. This error will generate the following error message in the DQ report:

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

OPCS-4 codes that are not on the list are similarly classified as invalid but will not result in a specific error message. This error will generate the following error message in the DQ report:

```
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/services/national-casemix-office/downloads-grouper-and-tools>.

This documentation suite provides a comprehensive resource intended to help users understand HRG design concepts and logic as well as use 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. This 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 made in the latest HRG design.
- The **Code to Group Workbook** is an Excel workbook 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 (CC) lists for HRG subchapters. The workbook 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.