Versions

Date	Version
01/08/2009	Initial version
16/02/2021	Updated

Who is this document aimed at?

This document is intended for Technical Integrator use and under a development support agreement. This document only applies to SIMS 7; the equivalent for SIMS 8 / SIMS Primary is the use of Technical Integrator APIs. See here for more information.

ESS will provide the report branding tool (ReportManager) to contracted Technical Integrators under contract or will offer a reporting branding service to non-contracted Technical Integrators on a daily rate as published on our Technical Integrator Guidance pages.
SIMS Support Units, Local Authorities, School Groups and MATs may also benefit from the information and are welcome to use the information within on an unsupported basis or may opt in to our development support services.

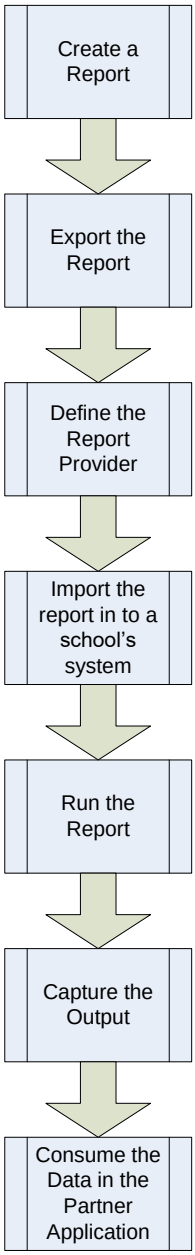
What is Command Reporter?

It is a command line application that will extract data from SIMS 7 and post the data to STDOUT. The application uses report definitions that exist within SIMS reporting tools.
Reports can be imported using a complementary tool CommandReportImporter which can import report definitions in to a school's SIMS 7 system for use either through SIMS or via CommandReporter.
The credentials of a SIMS user must be provided to enable access to data and data access is limited to the rights provided to that user by the school.
Command reporter is a very useful part of a developer's armoury but is not the answer to every project's needs; for example it cannot be used to write data back to SIMS 7.

GDPR

Please see here for guidance links with respect to data protection and GDPR. This document does not seek to offer guidance on what data is appropriate to extract and how that data may be used. It is however critical that all data exchanges are sanctioned by the school's data controller and comply with the requirements of the school's data protection officer.
Please note that it is most unlikely that each and every person within the school's SIMS system will have consented (informed consent under GDPR) for their data to be used for software development. If school's need to have access to SIMS with training data to remain legal, please contact parner.management@capita.co.uk.

What can Command Reporter Offer?



The most cost-effective way for Technical Integrators to get information out of SIMS is to use the Command Line Reporting Tools.

Whilst it is possible to get ESS to produce the report for Technical Integrators, it is often the case that requirements may change and so ESS would recommend that Technical Integrators consider becoming Technical Integrators which would allow them to produce and maintain their own reports without the need to book and pay for ESS staff to maintain the reports for them.

The reporting engine is designed for use by school staff and so should be relatively easy for Technical Integrators to use. The usual sticking point is the need for Technical Integrators to understand the data being returned to them and matching that against their needs. For example, the reporting engine can either provide a set of year groups that a child has been in over time or their current year group.

Further complexity is introduced by the need to break up data exports in to manageable chunks. For example , a report can be created that lists a student's parents, classes and assessments. If the average student has 2 parents (assuming numbers vary between 0 and 7), 10 classes and 100 assessments then the average student would have 2000 data rows returned. Such reports should be broken down to avoid this problem and be best done as 3 reports, one for parents, one for classes and a third for assessments. Technical Integrators would then join up the data as their needs require.

All reports are visible to our joint customers. This allows for data protection issues to be easily drawn to the customer's attention. ESS can not dictate what data Technical Integrator's extract but it is reasonable for us to demand that Technical Integrator's are transparent in the data that they extract and Technical Integrator must obviously be able to justify any data taken to the School.

Accessing Data

Technical Integrator applications take one of two forms:

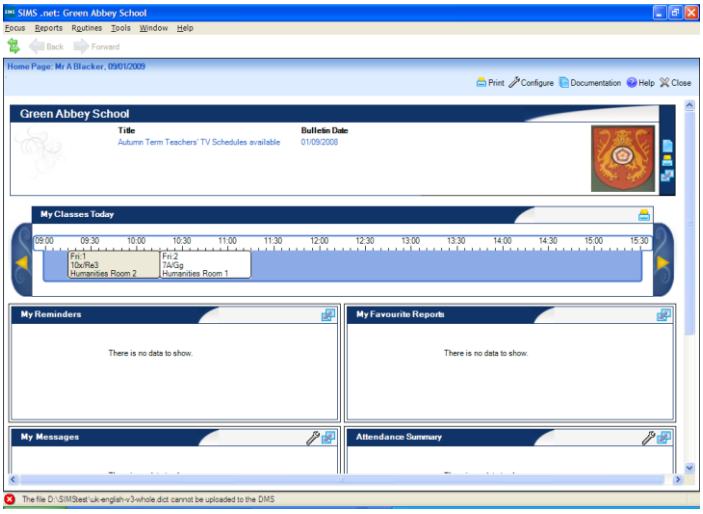
- User Present
  - User's own access rights apply
  - Developer needs to consider how their application will respond to random access right grants for different users.
- Service Account (User not present)
  - A new user is created
  - Granted the access recommended
    - If schools believe that the requested rights are incongruous with the needs of the system, they should review the need vs the grant before allowing access. If in doubt, sources of advice are the Technical Integrator & SIMS support.
    - The account should be tested before use and the password changed from the default. (This is an opportunity for the school's data controller to see what access the application has.
    - The password should be obscure and stored securely.
    - Schools should not pass the password to the Technical Integrator, it may be entered in to the Technical Integrator's system and stored securely.
    - Most users will need to be made members of the 'Third party reporter' permission group which allows access to IDs of entities within SIMS. It does not afford any access to personal data.

Technical Integrators would decide the appropriate model for their application but the service account model is usually simplest to maintain especially in a hosted configuration where school's SIMS servers are managed in a data centre by an LA, School Group or commercial provider such as ESS.

Creating Reports

Pre-Requisites

Access to a copy of SIMS installed on a machine.
An understanding of the data required by the Technical Integrator Application
An understanding of the data held in SIMS.



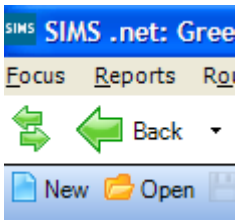
My First Report

For our example, A Technical Integrator wants to produce a report that lists:

Student
- Surname
- Forename
- Age
- Parents
  - Surname
  - Forename
  - Title

The report is wanted in year, registration group, surname & forename order. Typically data extracts where data is moved to an external system would assume the default order.

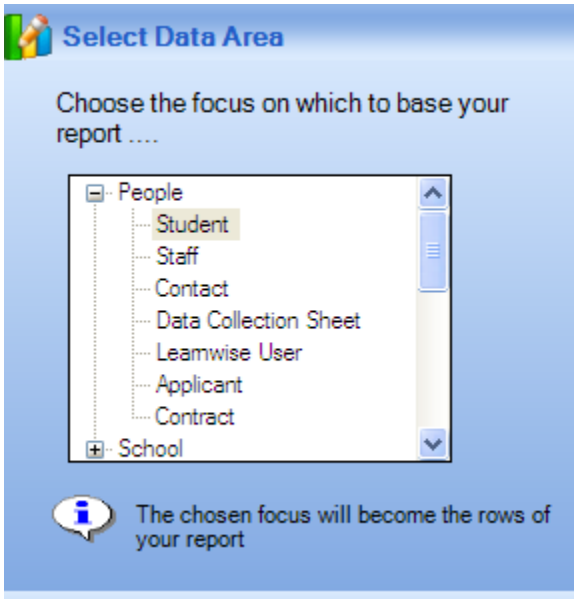
The report should include just students whose first name begins with 'J'. This has no obvious purpose other than to demonstrate simple filtering.

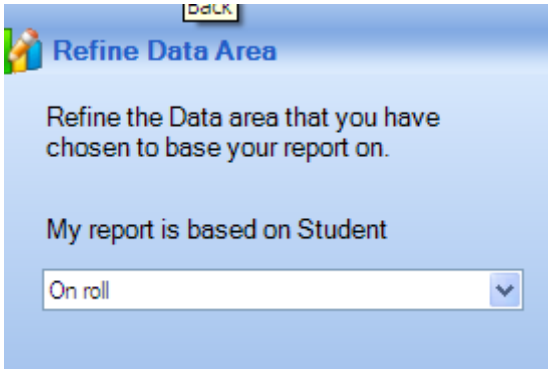


Focus | Reports | Design Report

Press Create a new report

Choose the focus

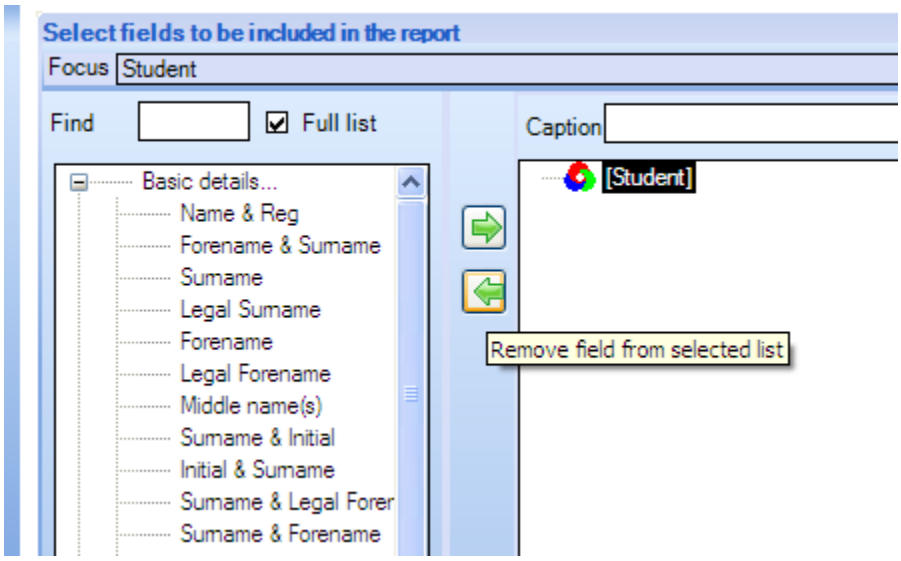




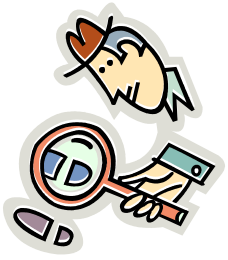
Different Focuses over a set of pre-defined useful filters such as on roll or leavers for 'students'

Select On-Roll and Press Next.

Double click on Surname or select Surname and press the right pointing arrow above. Repeat for Forename Repeat for Age – Scroll down or type in 'Age' in to the 'Find' Box above.

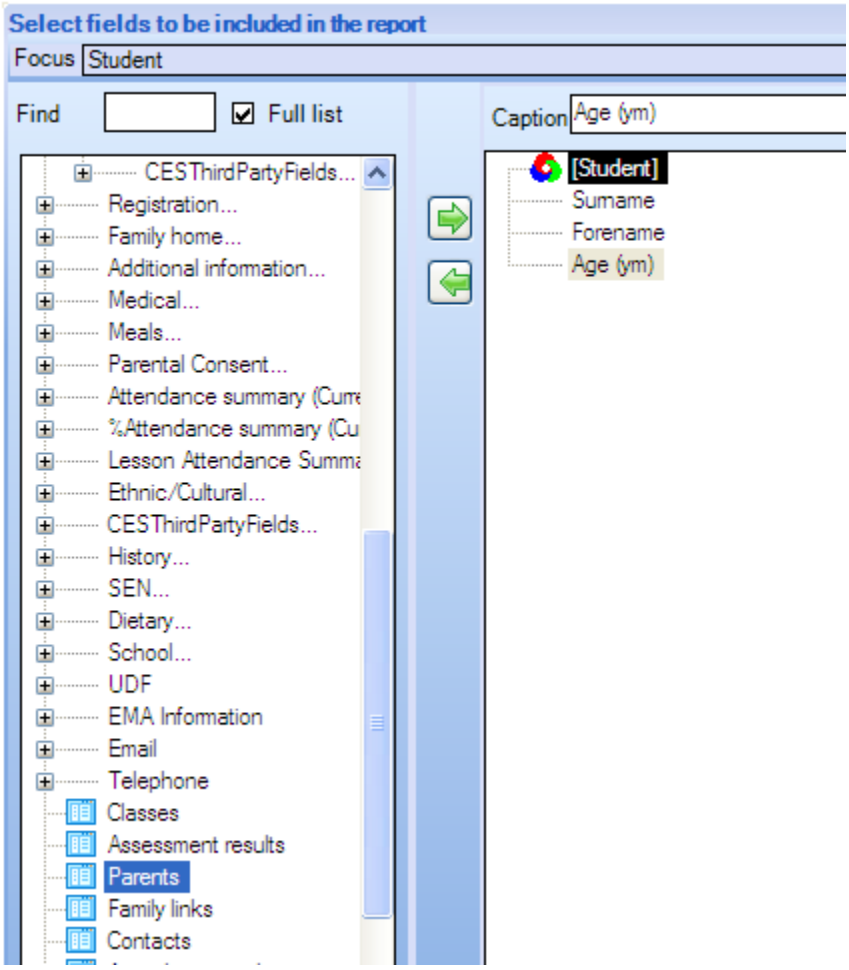


This highlights the need to understand the data. We have two versions of Surname and Forename, the legal variant and the names that the student (or other person for that matter) are known as. For example, and a bad one at that, might be the singer 'Madonna' whose birth name MSN suggests is 'Madonna Louise Ciccone', she was known as Nonnie at school and added the name Veronica at age 12. The school would likely put in 'Nonnie' into the forename, 'Madonna' into the 'Legal Forename' and 'Louise Veronica' in to middle names. Madonna's 'Legal Surname' may well still be her latest married name even if her preferred surname reverts to her maiden name.



Tip: There are a number of fields that can be retrieved in more than one way or have different variants of a similar concept. If reports are provided to Technical Integrator support then we will happily discuss the best field for Technical Integrators if the appropriate context is provided.

In short, if you wanted to discuss the child in the school, the Surname and Forename would be appropriate. If you want to submit exam entries then Legal Surname and Legal Forename would be appropriate.



Scroll down and find the Parents 'Sub Report'

Double Click on it to add it to the report.

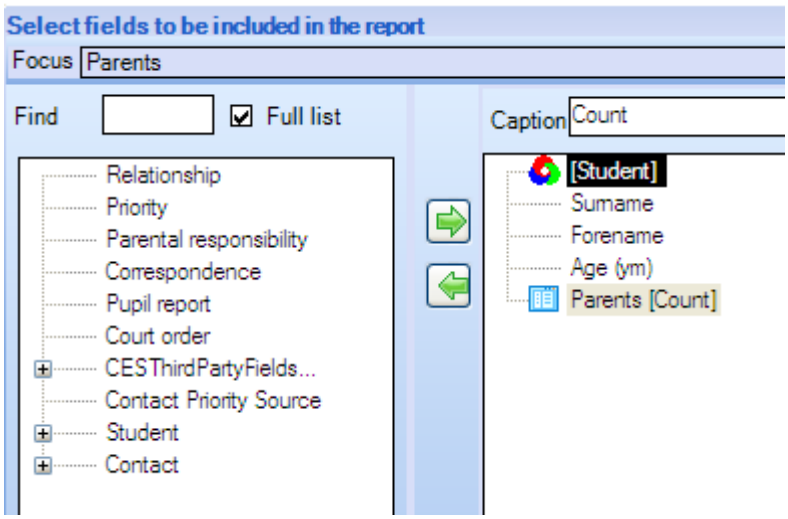
By default this will simply count the number of parents.

When Parents is selected on the right hand side panel then you can choose 'Parent' fields to add.

Simply Select a 'Student' Field if you wish to add additional 'Student' entries.

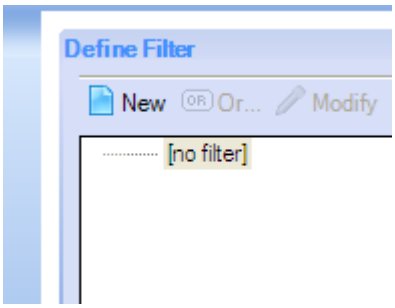
You can the select the contact (Parent) Surname and Forename by expanding the Contact.

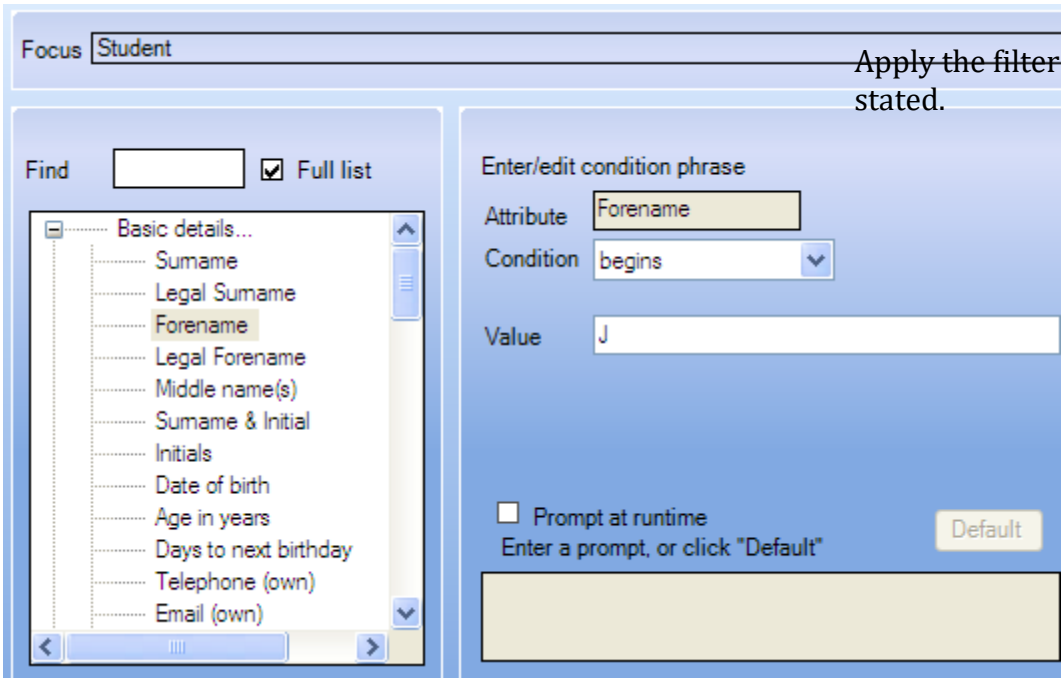
This will complete the fields to show in 'My First Report'



Click on Filter Students and this will allow us to filter students whose first names begin with 'J'. Critically this is a filter on the main report only. So for example if you listed a sub report of the students in the classes for the students included then ALL students would be in the sub-reports unless additional filters are applied.

Press New to add a filter.

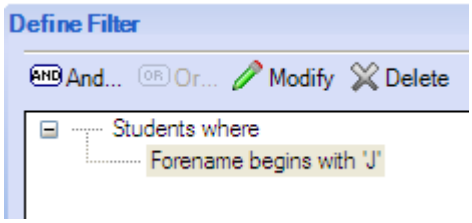


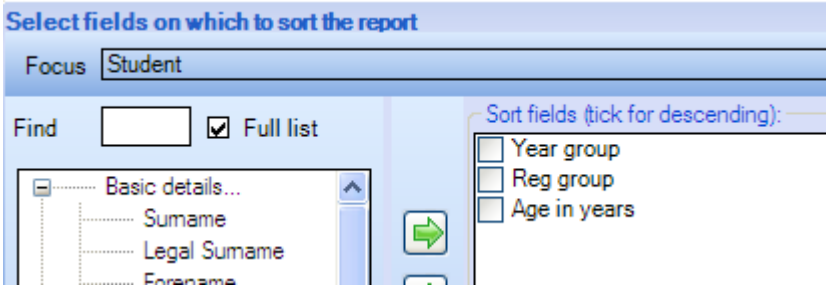


~~Apply the filter~~ a stated.

The filter is now complete

Click on 'Use the Default Sort Order'

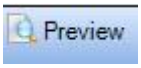


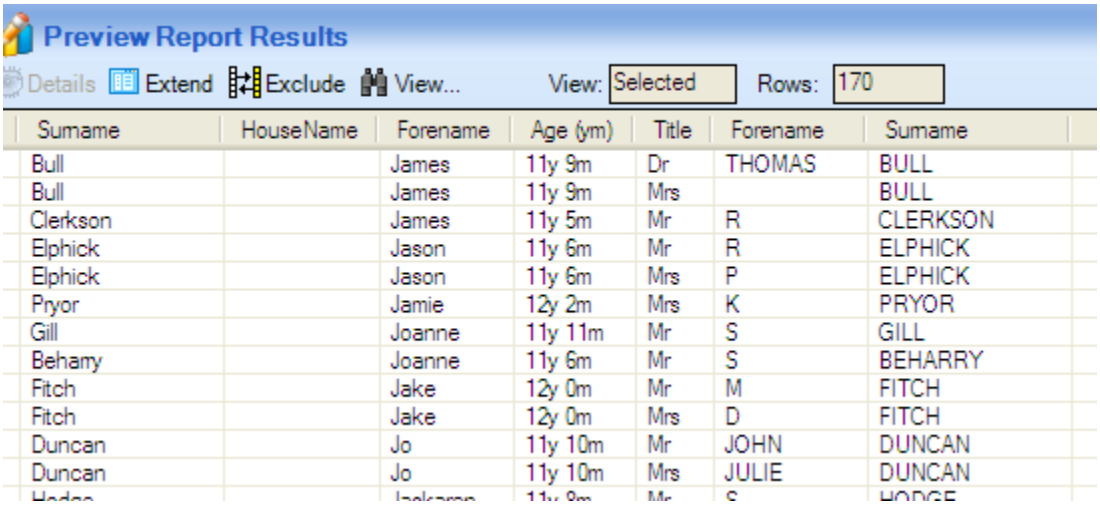


Select the sort order fields that you wish.

Finally Press Save and give your report a name.

To see the results of the report press 'Preview' and the results are shown below.



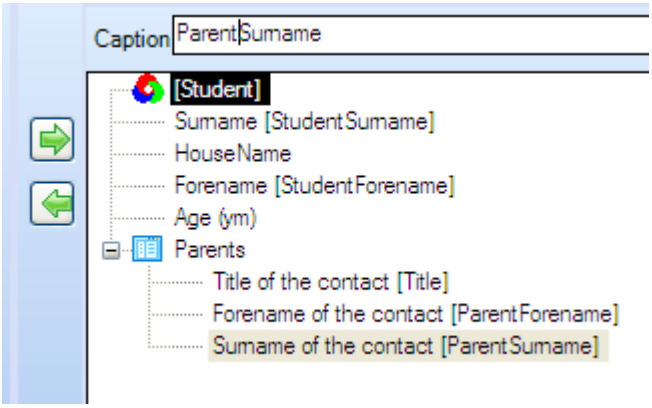


Surname	HouseName	Forename	Age (ym)	Title	Forename	Surname
Bull		James	11y 9m	Dr	THOMAS	BULL
Bull		James	11y 9m	Mrs		BULL
Clerkson		James	11y 5m	Mr	R	CLERKSON
Elphick		Jason	11y 6m	Mr	R	ELPHICK
Elphick		Jason	11y 6m	Mrs	P	ELPHICK
Pryor		Jamie	12y 2m	Mrs	K	PRYOR
Gill		Joanne	11y 11m	Mr	S	GILL
Beharry		Joanne	11y 6m	Mr	S	BEHARRY
Fitch		Jake	12y 0m	Mr	M	FITCH
Fitch		Jake	12y 0m	Mrs	D	FITCH
Duncan		Jo	11y 10m	Mr	JOHN	DUNCAN
Duncan		Jo	11y 10m	Mrs	JULIE	DUNCAN

Customising Reports for Command Line Reporter (CLR)

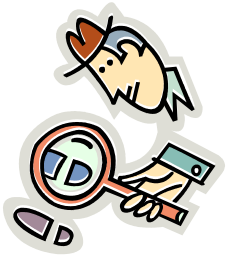
The goal of the CLR is to output XML for later consumption, however there a number of issues that can affect us.

Our report needs to be modified for use with command reporter. Visually, there is not a problem with having two surname columns, but this is less than helpful in XML.



Select the field to rename and simply change the caption to something appropriate, unique and preferably without spaces or other punctuation.

Further if we use an XML tag such as 'My Name' which has a space in it will be renamed to 'My_X0020Name' which may well be unexpected. The conclusion is that it is simplest to avoid spaces in Tag Names. Other punctuation such as Double Quote, Single Quote, @, > and < are also inappropriate for tag names.



Tip: There is a difference between the operation and output of the Command Reporter and of SIMS .Net. XML Tags ***MAY BE DIFFERENT*** when the same report is generated through CLR.

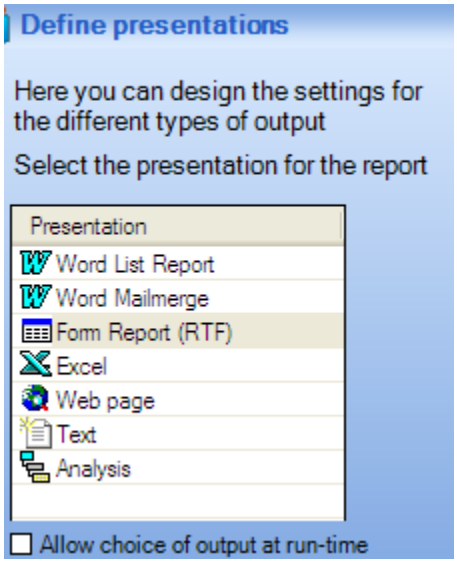
Tag Names for CLR will honour the Caption field and are predictable.

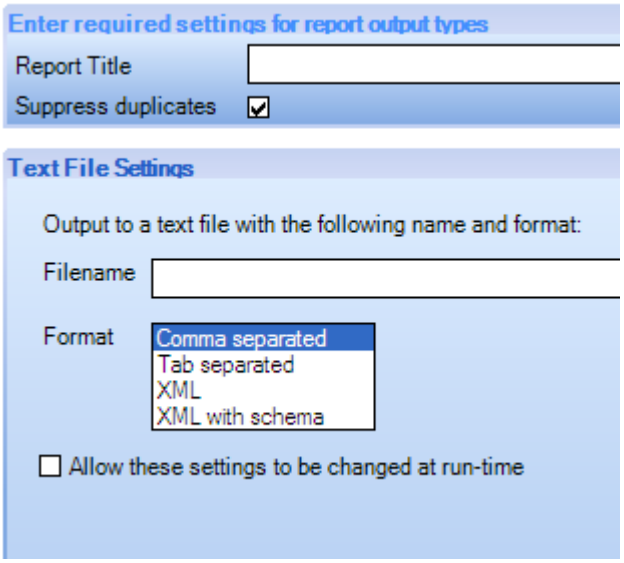
Duplicate Tag Names (Captions) will cause CLR to error whilst SIMS .Net makes a guess at what will be OK.

Output Formats

Click on Default Output (Bottom Left)

Select Text for your output.





Choose XML with Schema and provide a default file name for output.

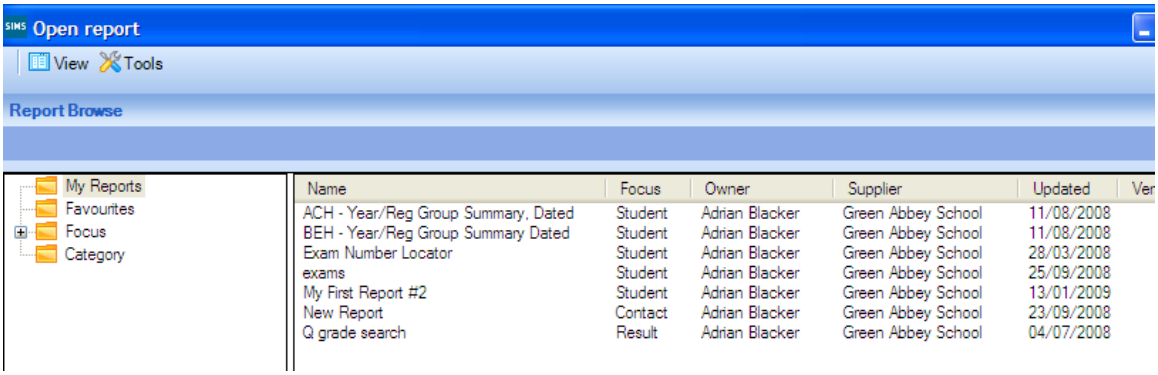
If this is being shipped to a customer, bear in mind that c:\MyCompanyReport.XML may at least default to a drive that will exist.

Command Reporter will allow you to capture the output without writing to the hard disk.

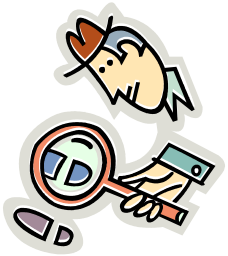
Your report is now complete and can be used.
Please note that output settings are largely ignored by the command reporter and tag names are different to the ones produced using the SIMS user interface (UI). Some reports that work in the UI will not work from command reporter, for example duplicate tag names cause an error.

Typically these issues form minor annoyances during development and should not impact deployed products.

Exporting a Report

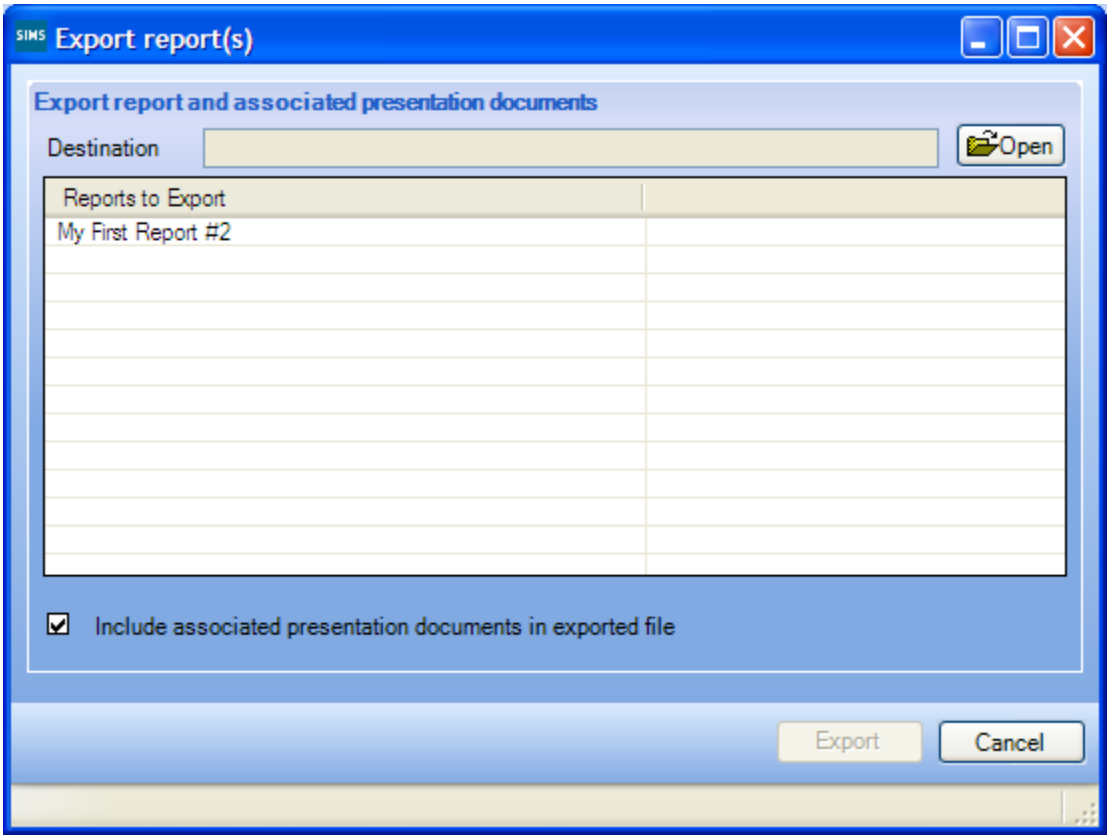


Open a report via the Report Designer. Either by pressing the open button or choosing the menu 'Design Reports'



Tip: This Window allows users to drag and drop reports into Favourites. This technique can be used to select a set of reports that are for a different focus and exporting them in a single file.

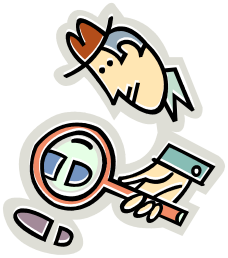
Select one or more reports and either right click or press Tools | Export. NB: You can only multi select within the sub-tree and hence the tip above.



Press Open and select a file name and location for your export.

e.g. My First Report #2.RptDef

The press export to complete the task.



Tip: The output from a report export is a .RptDef file. These are encrypted files which effectively prevents them being changed in transit.

Changing the Supplier of a Report

The Technical Integrator Support Team will supply Technical Integrators with a utility, ReportManager.exe. This utility opens a .RptDef file and allows the reports within them to have their 'Supplier' Changed.

ESS insist that Technical Integrators follow this protocol and change the supplier name for Technical Integrator reports to reflect the origin of the report. By Default the supplier would be the name of the training data school. Names cannot include 'ESS' or 'SIMS' or other names that refer to our companies or products.

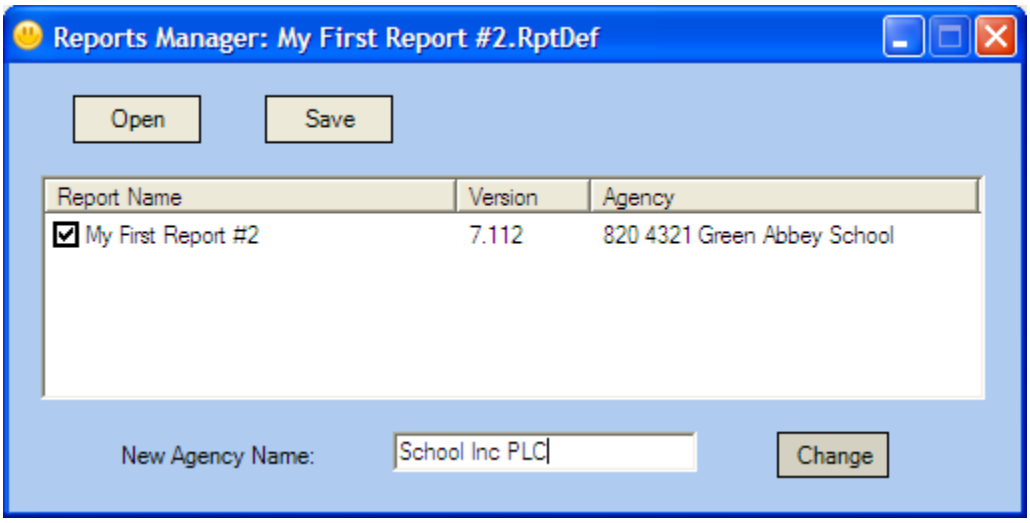
If Your Company is 'School Inc PLC' then we recommend that you change the supplier to 'School Inc PLC'.

The reason for the requirement is so that schools can identify report providers and this helps with a school's GDPR commitments.

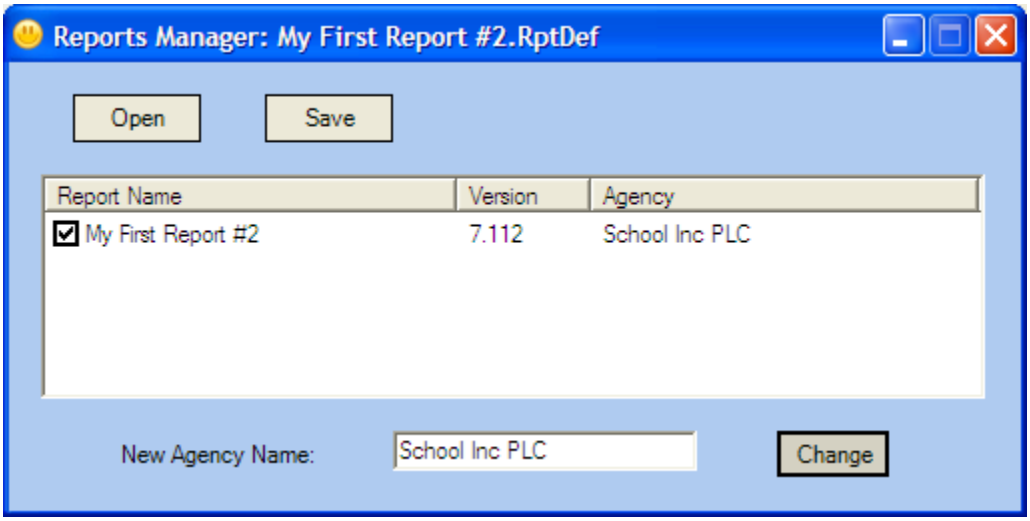
Report Manager is only available to Technical Integrators with appropriate contracts with ESS.

ESS will offer a chargeable service to change the supplier of other reports if Technical Integrators or non-Technical Integrators fall outside of the criteria.

Locate Report Manager.exe
Run it
File Open the Report File (.rptdef) that you wish to import into a school.
Select all of the Reports
Enter the Supplier Name



Press Change



Save the file
Don't forget to use the new file (or overwrite the old one).

Importing a report

Pre-Requisites

The school must have a working installation of SIMS.
Technical Integrator will install their software on to this machine, probably the SQL server, but this is a matter for the Technical Integrator.
Locate the copy of SIMS .Net – See Installation Guide and SIMS .INI
Make the Technical Integrator Software prompt the user for their SIMS user name and password or better still use NT authentication. NB: Not all schools will be able to use NT authentication at this time, hence there is a need to support SQL/SIMS and NT authentication.

My Cheap and Cheerful Application

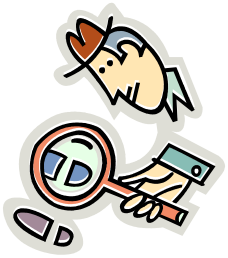
We have a standard give away for Technical Integrators of a c# project that encapsulates all of the processes needed here. Base level Technical Integrators will be provided with the batch files below.

"c:\program files\sims\sims .net\commandreportimporter" /user=user99 /password=abcd /REPORT:demo.rptdef

Or

"c:\program files\sims\sims .net\commandreportimporter" /TRUSTED /REPORT:"c:\My Application\demo.rptdef"

This will import all of the reports in a file demo.rptdef from the appropriate location. It is usually best to provide the full path when this is done in code.



Tip: Consider importing your report definition each time. It is quick and keeps your system up to date.

If problems exist, get the school to delete your reports through SIMS .Net and try again. There is no CommandReportDeleter.exe!

Running My Report

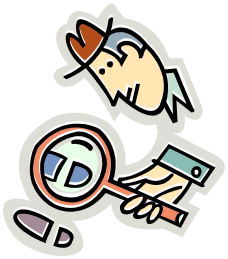
Pre-Requisites

As per Report Import AND
The required report must also be imported.
(We are almost there at the finish line!)

"C:\PROGRAM FILES\SIMS\SIMS .NET\COMMANDREPORTER" /QUIET /user=user909 /password=abcd /REPORT:"demo"

OR

"C:\PROGRAM FILES\SIMS\SIMS .NET\COMMANDREPORTER" /OUTPUT:"C:\MyOutputFolder\TEST.XML" /QUIET /TRUSTED /REPORT:"demo"



Tip: Technical Integrators will be provided with a c# sample application. One of the main achievements of the sample application is that it does not write any output to the hard drive. It uses STDOUT and captures the output stream directly in to the application.

Technical Integrators need to take great care to ensure that they only write files to a secure location, for example 'My Documents'. Any files that are created need to be 'managed' appropriately.

Files should never be written to the SIMS .Net folder which may be shared between different schools on a multi-database Citrix / Terminal Server configuration.

Technical Integrators would be responsible for any data security breaches caused by their application leaving sensitive data files behind, hence the recommendation above not to create export files

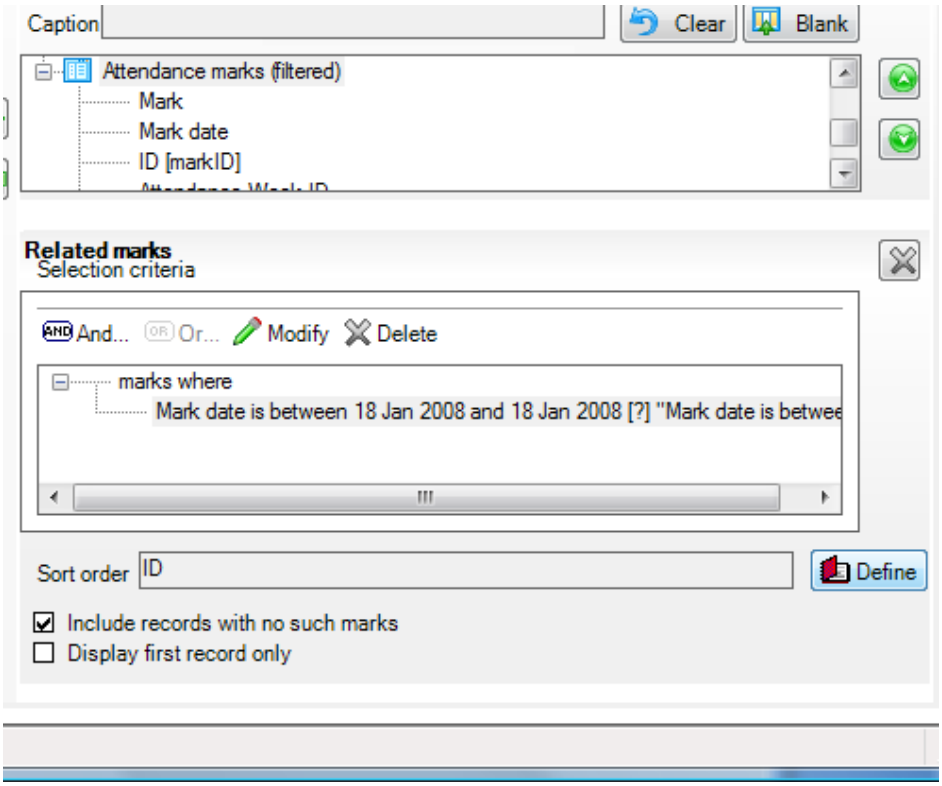
ESS cannot take responsibility for the data extracted by Technical Integrators or the use to which the data is put.

Report Parameters

/QUIET	The /QUIET directive prevents the output from including additional information and corrupting the resultant XML.
/OUTPUT:<File>	Redirects the output to a file, NB: The name of the file name .csv, .xml
/Report:<Report Name>	Please note that Technical Integrators must ensure that they give their reports names that will not clash with the schools own. Hence 'Schools Inc PLC: Data Extract 001 - Dated 10012009' may be a good choice.
/PARAMDEF	Tells the CLR to output the report parameter definition. This can be used to customise output at run time. For example extracting the SMITHS one day and the JONES'S the next. It is often easier to post process a larger set of results.
/PARAMS /PARAMFILE	Is used to pass in a modified PARAMDEF in to the report. See /PARAMDEF above.

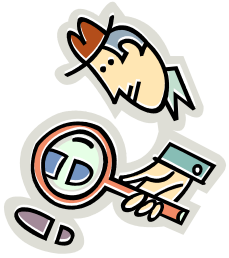
Sub Reports

The little red book on the right hand side allows sub reports to be filtered as required. See below.



Sub Reports can also be filtered.

Concluding Tips



Make sure the user has the right to the data that you wish to export.
Use XML output to STDOUT
Use /QUIET Mode to avoid confusion
Avoid using UDF (User defined fields) they don't travel well!
Development Cycles lead to regular releases. Provide your reports to ESS and we can check for change over upgrades before the release ships.

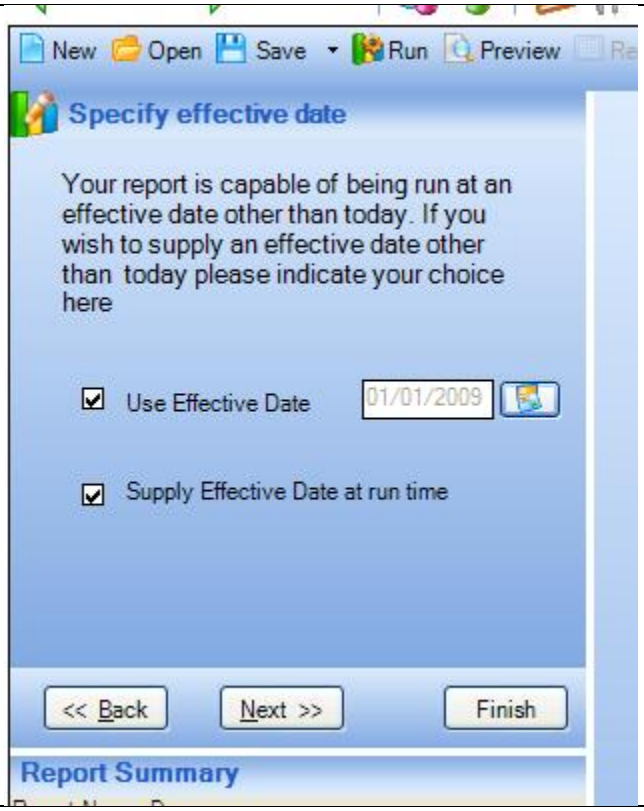
The use of 'display first record' only can significiantly impact on report performance and may impact on the set of master records returned.

Addendum to CLR Guidance #1

Running Reports on an effective date.

Some focuses allow an effective date to be defined. It allows for the effective date to be specified at run time.

If Technical Integrators wish to utilise this feature then they need to define a report as follows:

<table>
<tr><td> 
</td><td>NB: Not all foci allow an effective date to be specified.

This is an example with the student focus.

Select an effective date that you wish the report to work for.

Choose a unique date that you will be able to find later.

Check the supply later box.

Create the report as before.

Save the report.</td></tr>
<tr><td>The command reporter can now be used to export the report parameters</td><td>CommandReporter /Trusted /REPORT:DEMO /PARAMDEF /QUIET /OUTPUT:MYPARAMS.XML</td></tr>
<tr><td colspan="2"><?xml version="1.0" encoding="us-ascii"?><ReportParameters><xs:schema id='ReportParameters' xmlns:xs='http://www.w3.org/2001/XMLSchema' xmlns:msdata='urn:schemas-microsoft-com:xml-msdata' attributeFormDefault='qualified' elementFormDefault='qualified'></td></tr>
</table>


```
                    <xs:element name='ReportParameters'
msdata:IsDataSet='true' msdata:Locale='en-GB' msdata:EnforceConstraints='true'>
                        <xs:complexType>
                            <xs:choice maxOccurs='unbounded'>
                                <xs:element name='Parameter'>
                                    <xs:complexType>
                                        <xs:sequence>
                                            <xs:element
name='Name' type='xs:string' minOccurs='0' msdata:Ordinal='0' />
                                            <xs:element
name='Type' type='xs:string' minOccurs='0' msdata:Ordinal='1' />
                                            <xs:element
name='PromptText' type='xs:string' minOccurs='0' msdata:Ordinal='2' />
                                            <xs:element
name='Values' minOccurs='0' maxOccurs='unbounded'>

                    <xs:complexType>

                    <xs:choice>

                    <xs:element name='Logical' type='xs:string' minOccurs='0'
maxOccurs='1' />

                    <xs:element name='String' type='xs:string' minOccurs='0'
maxOccurs='1' />

                    <xs:element name='Integer' type='xs:string' minOccurs='0'
maxOccurs='1' />

                    <xs:element name='Date' type='xs:dateTime' minOccurs='0'
maxOccurs='1' />

                    <xs:element name='ValidValue' minOccurs='0'
maxOccurs='unbounded'>

                        <xs:complexType>

                            <xs:sequence>

                                <xs:element name='Id' type='xs:string'
minOccurs='1' />

                                <xs:element name='Code' type='xs:string'
minOccurs='1' />
```



```
                                    <xs:element name='Description'
type='xs:string' minOccurs='1' />
                                </xs:sequence>
                            </xs:complexType>
                        </xs:element>
                        <xs:element name='IntegerRange' minOccurs='0'
maxOccurs='1'>
                            <xs:complexType>
                                <xs:sequence>
                                    <xs:element name='Min' type='xs:string'
minOccurs='1' />
                                    <xs:element name='Max' type='xs:string'
minOccurs='1' />
                                </xs:sequence>
                            </xs:complexType>
                        </xs:element>
                        <xs:element name='DateRange' minOccurs='0'
maxOccurs='1'>
                            <xs:complexType>
                                <xs:sequence>
                                    <xs:element name='Start'
type='xs:dateTime' minOccurs='1' />
                                    <xs:element name='End'
type='xs:dateTime' minOccurs='1' />
                                </xs:sequence>
```



```
                        </xs:complexType>

                    </xs:element>

                    </xs:choice>

                    </xs:complexType>

                    </xs:element>
                                                        </xs:sequence>
                                                        <xs:attribute
name='id' form='unqualified' type='xs:string' use='required' />
                                                        <xs:attribute
name='subreportfilter' form='unqualified' type='xs:string' use='required' />

                                                    </xs:complexType>
                                                </xs:element>
                                            </xs:choice>
                                        </xs:complexType>
                                    </xs:element>
                                </xs:schema><Parameter id="EffectiveDate"
subreportfilter="FALSE"
bypass="FALSE"><Name>EffectiveDate</Name><Type>Date</Type><Values><Dat
e>01/01/2009 00:00:00</Date></Values></Parameter></ReportParameters>
```

There are 2 ways in which Technical Integrators can modify the effective date. It is possible to parse the xml but it far easier if the document is simply saved as a resource string and the effective date replaced with a KNOWN STRING. When the date is known to make a substitution then the known sting can simply be replaced. Please note that it is a date time format and not just a date.

Addendum to CLR Guidance #2

How to recognise entities

Many SIMS entities have GUIDs (Globally unique identifiers available. For example:

Student:	External ID
Staff:	External ID
Applicant:	External ID
BaseGroup:	External ID

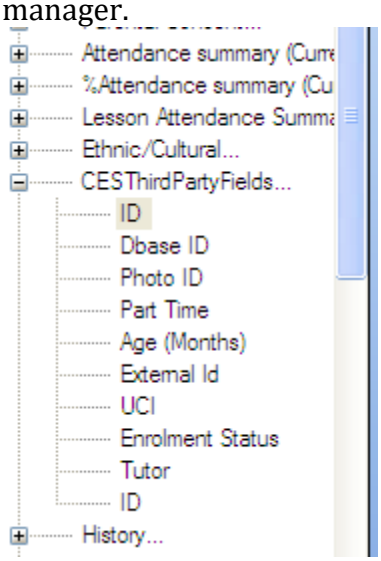
These are the best form of identification because they will work across schools. The ID's however are not part of the data transfer mechanisms between schools does not include the external ID and so entities will get a new ID.

Re-Linking to SIMS Entities

SIMS Internal calls use Internal Primary keys rather than external IDs, Hence it may be wise to take both if you wish to send data back.

Access to Identity Fields

Users must be members of the Third Party Reporting access group within system manager.



There are a number of sections entitled CES Third Party Fields and you will find available identifiers under the heading and in some cases additional options

Add these to your report in the normal way.