



SLS-DSU

SCOTTISH LONGITUDINAL STUDY
DEVELOPMENT & SUPPORT UNIT

SLS Application Guidance Document

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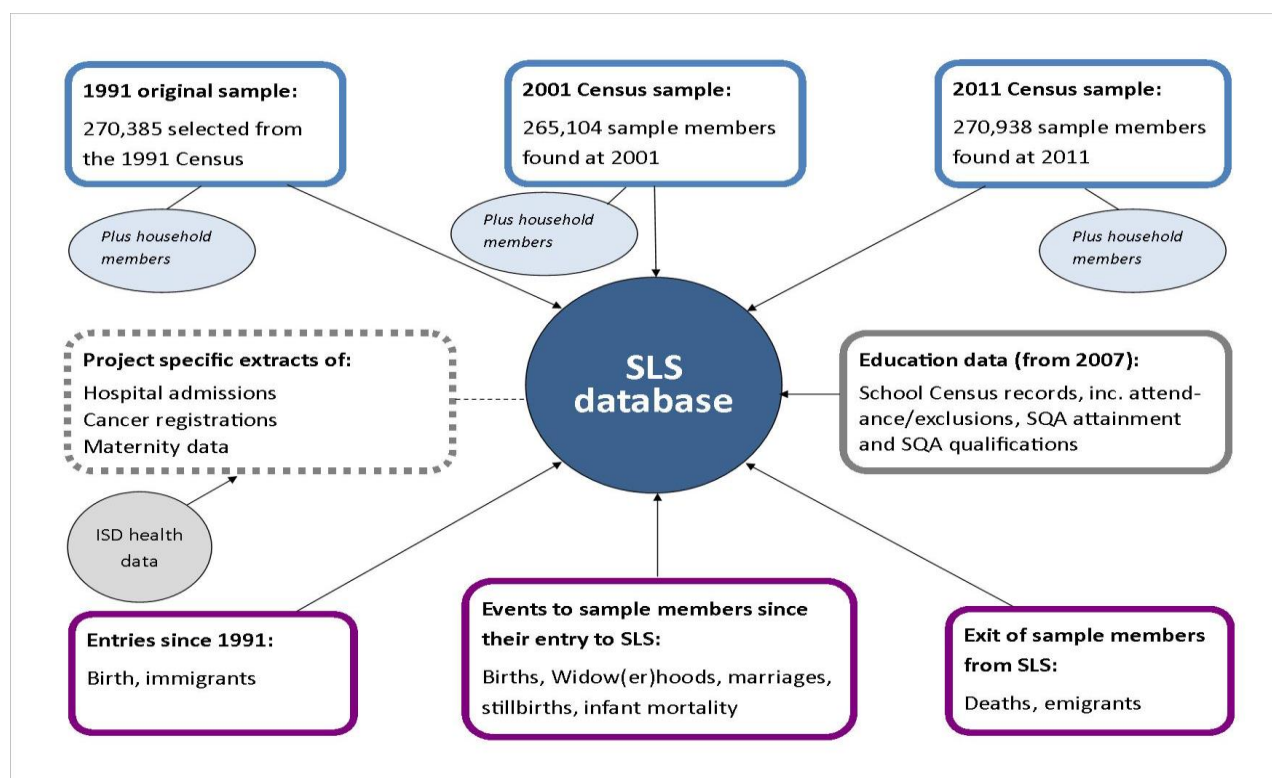
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How to use this guide

Some key information is given in this document to provide you with information and guidance about the SLS data sets. Along with guidance from your SLS Support Officer (SLS SO), this should help you with filling out your SLS Application Form. We recommend that you:

- Read this guide before you start to complete the form.
- Speak to your SLS SO for advice on selecting your research sample of interest.
- Read through and familiarise yourself with the [Census forms](#) so that you are aware of how questions were asked, changes between Censuses and question routing ie some questions are not completed by everyone, some questions are fundamentally the same but differ in wording or available responses at each census.
- Use the [SLS data dictionary](#) online to select your variables. You should be able to download your variable selections as an MS Excel file, which can then be submitted with your SLS Application Form to specify your variables. Additionally, there is an Access version downloadable from the link above which may be useful to search through all category/variable labels. However, logging in and creating an account is the easiest way.

Overview of the main SLS study structure



Additionally, the SLS Birth Cohort of 1936 ([SLSBC1936](#)) is now available. The SLSBC1936 includes: the Scottish Mental Survey of 1947 (SMS1947 - a cognitive ability test that included almost all Scottish children born in 1936) has been linked to the 1939 National Register, the NHS Central Register and the SLS. The outcome of the project is a powerful life-course dataset containing information from childhood to old age. For further information on this cohort please read the [blog and working paper](#). The GP residential history data are also now available. Postcodes of residence and dates of new GP registrations are available for 2000-2015 (Table E10 in the [SLS data dictionary](#) online), allowing study of internal migration and the type of areas that members have lived in. Please note that you will probably be using variables derived from those listed in E10 so speak to your support officer.

Overview of the SLS Restricted variables – 3 levels of restriction

LEVEL	EXAMPLE	PERMISSIONS		
		SLS ADMINISTRATORS	SLS SUPPORT OFFICERS	SLS EXTERNAL RESEARCHERS (SAFE SETTING ENVIRONMENT)
1	DOB JTITLE0 INDES9 LINKTYP0 ZQUERY	Access	No access.	No access.
2	DATAZONE CATT EASTING9 GRNORTH POSTCODE	Access	With permission from the SLS Manager, can: -View fields -Create new derived variables based on these fields -Provide data to External Researchers based on these fields	No access.
3	DOBMT PERSNUM9 SIMDScore4 CARSCO9 CARSCO0	Access	Can: -View fields -Create new derived variables based on these fields -Provide data to External Researchers based on these fields. -Link to approved lookup tables via these fields	Can: -View fields -Create new derived variables based on these fields -Link to approved lookup tables via these fields Cannot: -Remove from the SLS (ie report findings for these variables)

Please note that the day field of date variables have restriction level 1 and are not available to external researchers however the month and year fields are available so in the variable selection box write either 'month and year fields only' or 'day field available for SLS staff' as appropriate. For deaths only, if you require the 'day' part for date of death please discuss with SLS staff to make the case.

Overview of the SLS tables – from the online Data Dictionary

Data contained in the SLS Database for members and non-members.

Source	Short Table name	Description
General	CORE	Core contains info. from the source from where the SLS member first entered the SLS (i.e. birth, immigration, Census). File containing unique identifier for each SLS member, sex, year of birth, presence at Census & tracing indicators. <i>We recommend that you select variables such as sex from the Census tables.</i>
1991 Census	91MEMBER	1991 Census person data on SLS members
1991 Census	91NONMEMBER	1991 Census person data on SLS non-members (people living with SLS members)
1991 Census	91HOUSEHOLD	1991 Census household data for SLS members and non-members

Source	Short Table name	Description
1991 Census	91COMMUNAL	1991 Census communal data for SLS members living in communal households
1991 Census	91FAMILY	1991 Census data on persons living in families
1991 Census	91LSRELAT	1991 Census data on relationships to SLS members in households
2001 Census	01MEMBER	2001 Census person data on SLS members
2001 Census	01NONMEMBER	2001 Census person data on SLS non-members (people living with SLS members)
2001 Census	01HOUSEHOLD	2001 Census household data for SLS members and non-members
2001 Census	01COMMUNAL	2001 Census communal data for SLS members living in communal households
2001 Census	01LSRELAT	2001 Census data on relationships to SLS members in households
2011 Census	11MEMBER	2011 Census person data on SLS members
2011 Census	11NONMEMBER	2011 Census person data on SLS non-members (people living with SLS members)
2011 Census	11HOUSEHOLD	2011 Census household data for SLS members and non-members
2011 Census	11COMMUNAL	2011 Census communal data for SLS members living in communal households
2011 Census	11FAMILY	2011 Census data on persons living in families
2011 Census	11LSRELAT	2011 Census data on relationships to SLS members in households
Vital Events	BIRTH	Births of new SLS members
Vital Events	DEATH	Deaths of SLS members
Vital Events	DEATH	Deaths of SLS members' spouses
Vital Events	BIRTH	Live Births to female SLS members
Vital Events	BIRTH	Live Births to male SLS members
Vital Events	STILLBIRTH	Stillbirths to female SLS members
Vital Events	STILLBIRTH	Stillbirths to male SLS members
Vital Events	INFANT MORTALITY	Infant deaths to child of SLS mother
Vital Events	INFANT MORTALITY	Infant deaths to child of SLS father
Vital Events	MARRIAGE	Marriage of female SLS member
Vital Events	MARRIAGE	Marriage of male SLS member
---	IMMIGRANT	Immigrations of new SLS members from outside UK
---	MIGRATION	Migrations of SLS members (into or out of Scotland)
	Residential location data (created from GP histories, 2000 onwards).	NHS Postcode History for SLS Members (from 2000 onwards)
---	Education data Tables H01 to H13	Including: School Census, School Attendance, School Exclusions, SQA Attainment and SQA Qualifications
	1936SLSBC Tables M01 to M04	Tables relating to the 1936 SLS Birth Cohort (1936SLSBC) including: SMS1947 and 1939 National Register

Source	Short Table name	Description
---	ECOLOGICAL	Area-based variables about deprivation, population density and urban-rural indicator – please provide the geographic level eg datazone
---	POLLUTION	Pollution Variables
---	WEATHER	Weather Variables

Area-level data

For Ecological data such as deprivation, population density, SIMD and urban-rural please ensure you request which geographical level at which you require the data in section B1.7. Details of these variables can be found in the Ecological Table (G01) in the [SLS data dictionary](#) online. However, only SIMD 2004 is available so you may wish to source the relevant SIMD that corresponds to your research cohort as it is freely available online.

For weather or pollution data please ensure that you specify the frequency (e.g. monthly, annual, day of Census) and geographical level at which you require the data in section B1.7. Details of these variables can be found in the Weather Table (G03) and Pollution Table (G02) of the [SLS data dictionary](#) online. However, they are not up to date (and will not be updated as it is freely available online) – as such, it may be best to contact the relevant agency and bring in your own data.

NHS Health data

For NHS health data linkage to the SLS (including Cancer registrations SMR06, Hospital admissions SMR01 and Maternity Inpatient and Day Case SMR02), information on getting started with health data and what is available for research use, please look at the online [Health and Social Care Data Dictionary](#) along with the downloadable [‘NHS Scotland PDF Pack’](#) (10.4Mb). Note that if any health data linkage is required you will have to apply to the Public Benefit and Privacy Panel (HSC-PBPP) for Health and Social Care after you have SLS project approval. You will need an Electronic Data Research and Innovation Service ([eDRIS](#)) Research Coordinator to assist you with the HSC-PBPP application. Your SLS Support Officer can also advise you and should be copied in on your discussions with your eDRIS Research Co-ordinator. For your convenience, we have prepared a Part filled HSC-PBPP application form which can be found at Step 7 on the [SLS Website](#) which is regularly updated to correspond to the most recent PBPP Application Form on the PBPP website. More information on completing the PBPP application form can be found on the [PBPP](#) website.

NHS Central Register (NHSCR) data

The SLS holds various variables that are either directly or derived from NHSCR data. Please note that your project must have an impact on health (directly or indirectly) as a condition of using variables sourced from NHSCR. This relates to variables from tables E06 (Immigrant), E08 (Migration) and E10 (Postcode). Please speak to SLS staff for more information once you have selected your variables in order to undertake the research.

SLS working papers

In order to understand how the SLS was created, how large it is, along with tables with breakdowns by age, sex and marital status it may also be useful to read the [technical working papers](#) on the SLS:

- [The SLS, An Introduction](#)
- [The SLS, Tracing rates and sample quality for the 1991 Census SLS sample](#)
- [The SLS, A technical guide to the creation, quality and linkage of the 2001 Census SLS sample](#)
- [The SLS, The 1991 - 2001 Scottish Longitudinal Study Census Link](#)

Commonly used research variables

Overview of commonly selected research variables – from the online [Data Dictionary](#)

Description	Variable name	Table name
Unique identifier allocated to SLS member at entry to SLS	SLSNO	A01 / CORE ¹
Year of birth	DOBYR DOBYRT9 DOBYR0 DOBYR1	A01 / CORE C10 / 91Member C20 / 01Member C30 / 11Member
Sex	SEX SEXTEN9 SEX0 SEX1	A01 / CORE C10 / 91Member C20 / 01Member C30 / 11Member
Age at 1991 census Age at 2001 census Age at 2011 census	AGETEN9 AGEP0 AGEP1	C10 / 91Member C20 / 01Member C30 / 11Member
Presence at 1991 census Presence at 2001 census Presence at 2011 census	HISCEN9 HISCEN0 HISCEN1	A01 / CORE A01 / CORE A01 / CORE
Tracing indicators (way of entry into and out of the SLS)	TRACEIN TRACEOUT	A01 / CORE
Indicator whether a person lives in a private household or in a communal establishment	1991: RECTYPE9 2001: PERTYPO 2011: RESIDENCE_TYPE1	C10 / 91Member and C11 / 91NonMember C20 / 01Member and C21 / 01NonMember C30 / 11Member and C31 / 11NonMember
Relationship (1991: of all household members to the head of household) (2001: of all household members to one another) (2011: of all household members to one another)	1991: RELAT9 2001: RELAT0 2011: RELTSHIP1	C10 / 91Member and C11 / 91NonMember C20 / 01Member and C21 / 01NonMember C30 / 11Member and

¹ The Core table contains info on the source from where the SLS member first entered the SLS (i.e. birth, migrant, Census).

		C31 / 11NonMember
Relationship to the SLS member	LSRELAT9	C15 / 91LSRELAT
	LSRELAT0	C25 / 01LSRELAT
	LSRELAT1	C35 / 11LSRELAT

Useful info for selecting variables and selecting a sample:

1991 Census ‘SLS recoded variables’

The 1991 Census took place before advances in machine readable forms and was transcribed. The ‘difficult to code’ Census information (e.g. occupation) was only captured electronically for 10% of the population and the SLS-DSU needed to transcribe these data for the remainder of our sample. In fact, we transcribed the information for our entire SLS sample, to allow us to check our results against the original transcribing for 10% of the cases and this procedure revealed some coding errors in the original Census transcription/coding. Both the original Census (10%) and the SLS recoding (100%) are available in the Data Dictionary. As a general rule we recommend that users select the variables with the ‘SLS recoded variables’ in the description (if available) these can be identified by ‘t9’ or ‘ten9’ at the end of the variable name. For example, AGETEN9 rather than AGE9 and ECONPOT9 rather than ECONPO9. However, not all 1991 variables were part of the original 10% sample transcribed and hence there are not two versions of all the 1991 Census variables.

Dates of Birth from different sources and selecting a sample

As a result of the SLS recoding (see section above), unless otherwise specified the SLS-DSU will create requested research samples based on age using the Census tables for a conditional age range. For example, age 18+ in 1991 would use the year part of Date of Birth DOBYRT9 [Year of birth (SLS recoded) from 1991 Census] as this is deemed more accurate than DOBYR9 [Year of birth from 1991 Census] or the Core table variable DOBYR.

Since information held in the Core table is the information as received when an SLS member first enters the SLS (i.e. birth, migrant, Census), for a small proportion of members, human error – either accidental misreporting of information or transcription errors from Census – may mean that the Date of Birth for sample members found in Core table is different from the date of birth in the census table. For the 1991 Census, the Date of Birth in the Core Table would match the 1991 Census date of birth but may not match the SLS coded Date of Birth for the 1991 Census. This means that a small proportion of people are entered into the SLS sample as having one of the 20 birth dates but it is

subsequently found that there was an error in the birth date and it is not one of the 20 birth dates. Such people are retained as SLS members however there is no linkage to vital event data for these people (linkage based on the 20 dates). Please see 'extra deaths' below.

The implications of these differences depend on how your sample is specified, i.e. whether selected using variables from the Core table where members first entered the SLS, or from Census information. For example, if you request two (or more) versions of the Date of Birth variables (eg DOBYR1, DOBYR) and run cross-tabulations you will see minor differences. This is not an issue for other Censuses, as there is only one Date of Birth variable.

2011 Imputation flags

There are no missing data for some 2011 variables as the 2011 variables were released to SLS after the Census Team had carried out edit and imputation ie missing data had been replaced with non-missing data (imputation) or had been edited if data were found to be not consistent. Imputation flags indicating if values have been edited or imputed are available for some primary variables (ie variables that are directly obtained and not derived from the census questionnaires) with extension `_IMP`. Researchers may wish to select these variables to either exclude edited/imputed values or carry out sensitivity analyses. Please note that census data before edit and imputation are not available.

Deaths Data

Deaths from the Vital Event data are added to the SLS via the NHS Central Register (NHSCR)². All SLS members are flagged on the NHSCR on entry to the SLS be it via a census record, a birth record or an immigration (immigration is captured in the SLS by someone registering with a Scottish GP – ie recorded on the NHSCR). Vital Event death records are linked to the SLS for all individuals with one of the 20 SLS birth dates, however some cases will not be matched by this process.

SLS members can fail to be linked to their death record for a number of reasons;

1. **Identifying data used for linkage does not match** - if the identifying data (name, date of birth and sex) are different on the death record compared to the NHSCR then the records may not be matched. For example, if names are spelled differently, there has been a name change eg due to marriage or divorce which NHSCR has not been notified of or discrepancies in date of birth or sex.

² THE NHSCR contains basic demographic details of everyone who was born or has died in Scotland plus anyone else who is (or has been) on the list of a general medical practitioner in Scotland.

2. **SLS members emigrate** - Only deaths which are recorded in Scotland have a vital event record that can be passed to NHSCR for matching, therefore if an SLS member has left Scotland and is living elsewhere when they die, their death cannot be traced using the normal method.
3. **SLS members subsequently found to not have one of the 20 SLS date of births** - In some cases, an individual is selected as an SLS member based on the date of birth which is subsequently found to be incorrect (ie not one of the 20 SLS birth dates). In these cases, the individual remains in the SLS sample but cannot be linked to the Vital Event data as only vital events death records with an SLS date of birth are received.

To try and trace these missing deaths, NHSCR data can be used. NHSCR in England can provide death details for SLS members who have emigrated to England (category 2). NHSCR in Scotland and England can provide recorded death details for individuals who fall into categories 1 and 3. Deaths that are identified from NHSCR data rather than vital events are termed 'extra deaths' (Extra Deaths as recorded by NHSCR (table E09)).

We encourage all SLS users interested in deaths to request this information to correctly account for people who died outside Scotland within the NHS system or who entered the SLS without one of the 20 SLS birth dates (for example, from incorrect details given at Census compared with NHSCR information). In practice these extra deaths as recorded by NHSCR accounts for just over 200 deaths per year for the period 1991-2010.

The 3 most useful variables are:

DOD_ND - Date of Death of SLS member, as held by NHSCR (month & year only)

LOCATION_ND - Location of Death of SLS member, as held by NHSCR. Recorded as: Abroad, England/Wales, Northern Ireland or Scotland

DEATH_IND_ND - Indicates whether the death is recorded by the SLS as well as NHSCR or NHSCR only.

Limitations: At present, we do not receive ICD-9 or ICD-10 codes for these extra deaths as recorded by NHSCR so information on cause of death is not available.

Other frequently-used Census variables in the SLS – from the online [Data Dictionary](#)

Note: variables in 1991, 2001 and 2011 are not necessarily comparable; they may have a different definition or different categories. Please check before you use these variables.

* denotes a Restricted variables

Topic	Description	Variable Name		
		1991	2001	2011
Personal	Marital status	MSTAT9	MSTP0	MSTP1
	Student indicator	ECONSTU9	STUP0	STUP1
	Term time address indicator	TERMIND9	TTIND0	TTIND1
	Country of birth	COB9	COBP0	COBP1
	Dependent child indicator	DEPNCHN9	DCHP0	DCHP1
Accommodation	Household tenure	TENURE9	TENH0	TENH1
	Owns/rents	---	OWNRENT0	OWNRENT1
	Landlord	---	LANH0	LANH1
	Number of cars	CARS9	CAVH0	CAVH1
	Central heating	CENHEAT9	CNHH0	CENHEATH1
	Availability of bath/shower	BATHSHW9	BTSH0	---
	Building type	BLDTYPE9	ACCH0	ACCH1
	Number of rooms	ROOMS9	NORH0	NORH1
Communal establishment	Establishment type	ESTABTY9	CETC0	ESTNATURES1
	Position in communal establishment	RESCLAS9	POSP0	POSP1
Industry	1991 coding frame	IND919	---	---
	2001 coding frame	IND019	INDP0	---
	2011 coding frame	---	---	INDP1
Occupation	SOC 90 code	SOC909	SOC900	---
	SOC 2000 code	SOC20009	SOC20000	---
	SOC 2010 code	---	---	OCCP1
	Employment status	EMPST9	EMPST90, EMPST0	EMPSTP1
	Supervisor status	---	SUMPO	SUMP1
	Company size	INDSIZE9 (10%)	SIZP0	---
	Economic activity	ALWEEKT9	ECOPO	ECOP1
	Economic position	ECONPOT9	---	---
Socio-economic	Social class	SCLAS9	SCLAS90, SCLAS0	
	Social Grade (approximated)			SCGP1
	Socio-economic group	SEG909	SEG9090, SEG900	
	Ns-sec code	NSSECR9	NSSECR0	NSSECR_20101

			SOCNSSP0	
Qualifications	Qualifications	---	QUPS10/20/30/40/ 50/60/80	QUPS11/21/31/41/ 51/61/81/91/101/1 11
	Professional qualifications	---	QUPS70	QUPS71
	Highest qualification	QMLVHQT9	HLQP0	HLQP1
Health	Long-term illness	LTILL9	ILLP0	ILLP1
	Carer	---	HELPO	HELP1
	General health	---	HEAPO	HEAP1
Ethnicity	Ethnicity	ETHNIC9	ETHGRP0, ETHP0	ETHP1
Religion	Practising religion	---	RELIGP0	RELPS1
	Raised religion	---	RELIGR0	---
Family and household	Household size	DJHH9	SIZH0	SIZH1
	Relationship	RELAT9 (to the head of household)	RELAT0, RELP0 (within household)	RELTSHIP1 (within household)
	Relationship to the SLS member	LSRELAT9	LSRELAT0	LSRELAT1
	Head of household / household reference person	HDHEADT9	HRPP0	HRPP1
	Head of family / family reference person	FAMHEDT9	FRPP0	FRPP1
	Family status	FAMPOHT9	FMSP0	FMSP1
	Family type	FAMTYPT9	FMTFAM0	FMTFAM1
	Generation in family	GENINFM9	GENINF0	GENINF1
	Household composition	HHFAMTYT9, FHHTYPT9	HHCH0	HHCH1
	Number of dependent children in household	HDPCHAT9	DPCH0	DPCH1
	Minimal household type	MHUTYPE9	MHUTYPE0	MHUTYPE1
	Position of person within MHU	MHUPOS9	MHUPOS0	MHUPOS1
	Combination of MHUs within household	MHUPOS9	MHUPOS0	MHUPOS1
	Number of families in household	FAMINHT9	FMCNT20	FAMINHH1

	Number of adults in household	ADULTS9	ADTH0	ADTH1
	Number of adults in household in employment	EMPERSH9	ADEMH0	ADEMH1
	Age of youngest dependent child in household	AGYOCH9	AGYOCH0	AGYOCH0
Migration	Migrant indicator (current residence is different than residence one year before)	MGPOP9, URONIND9	MIGP0	MIGP1
	Wholly moving household indicator	WMOHHIN9	MIGH0	MIGH1
	Enumeration postcode	ENUMPC9*	ENUMPC0*	ENUMPC1*
	Usual address one year ago (postcode)	URONDET9*	MIGPCP0*	MIGPCP1*
	Migration distance (current residence to residence one year before)	MPDOM9	MIGDOMA0	MIGDOMA1
	Migrant indicator (1991 to 2001)		MBCFLAG0	---
	Migration distance (1991 to 2001)		MBCDOM0	---
	Migrant indicator (2001 to 2011)			MBCFLAG1
	Migration distance (2001 to 2011)			MBCDOM1

Please refer to the SLS-DSU website for the SLS governance arrangements that can be downloaded [here](#) which are used to assess a SLS research proposal.

Project End Date and Archiving

In order to comply with data retention guidelines in line with GDPR, the SLS will archive your SLS project data for a period of 5 years beyond the end date stated on your SLS Project Application Form. This timeframe is to enable any comments from reviewers of peer reviewed papers to be addressed, should changes to analysis be required by the research team. At the end of the archive retention period the project files and data are securely and confidentially destroyed. We will contact you prior to your project end date. Please ensure your contact details are kept up to date.

If a Project Extension is necessary, it should be applied for before the project end date.

Please see the [SLS website](#) (step 14) for full details on end of project and data retention policy.