

## New Features in The Link King v6.5:

### Feature #1: New “Linkage Editor” allows easy access and edits to Link King generated client listings at any point in time.

Linkage errors are unavoidable in large linkage jobs and are not always apparent during the linkage process. Linkage errors may become apparent during data analysis. When errors reveal themselves, the linkage editor allows one to easily disaggregate inappropriate groupings, combine records that should have been linked, or delete records entirely. Previously, the entire linkage job needed to be “restored” to allow editing of record groupings.

Access the linkage editor by clicking the “Linkage Editor” button on the main menu. The Linkage Editor interface then appears:

Linkage Editor

LINKAGE EDITOR

Identify Link King master

Navigate using  
 Directories  SAS Libraries

Criteria Variables  
uniqueid

Selection Criteria

Select from:  
 Full Client Listing  Viewer Subset

Load Data Clear Criteria

uniqueid	certainty	client_core	regroup	ssn	dob	fname	mname	lname	maiden	gender	flex var	client
----------	-----------	-------------	---------	-----	-----	-------	-------	-------	--------	--------	----------	--------

Linkage Core Legend  
 Linkage and Data Extract  
 Data Extract Only

Edit controls  
Left Mouse - Delete Row/ Change CORE  
Right Mouse - Regroup  
 Restore Original Grouping

Apply Edits

Return

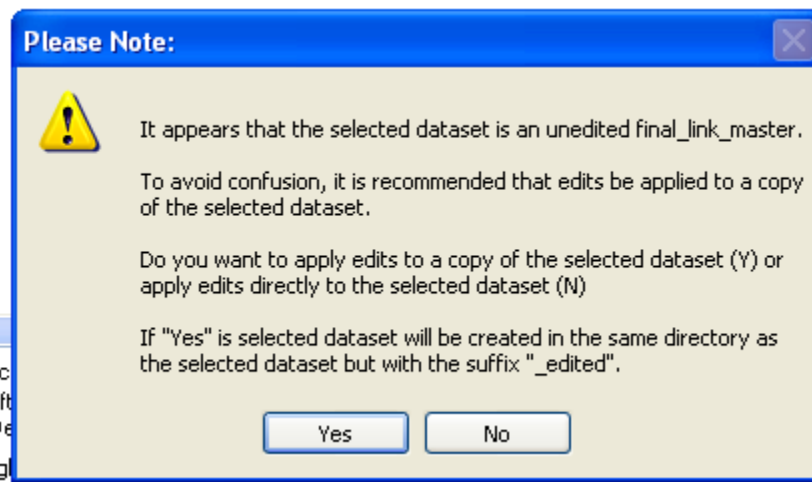
Use the “Identify Link King Master” control to navigate to a client master listing created by The Link King. If the original master listing contains required variables that have been renamed or if some variables (required for the linkage editor) have been dropped, the linkage editor will not work. At a minimum, the master listing must contain the following variables:

uniqueid  
client\_identifier  
client\_first\_name

client\_middle\_name  
client\_last\_name  
client\_alternate\_last\_name  
client\_social\_security\_number  
client\_gender  
client\_birthdate  
client\_race  
flex  
recnum  
certainty  
client\_core  
client\_origin

It is OK if the dataset name (“final\_link\_master”) has been changed as long as it contains the required variables.

If the selected master listing appears to be a pristine copy of a final\_link\_master (i.e., all original variables are present), then the linkage editor gives the user the option of a) making edits directly to the selected dataset (not recommended) or b) making edits to a copy of the selected dataset.



For the purposes to exploring the features of the linkage editor, a sample dataset “final\_link\_lingage\_edit” is installed in the Link King directory. When the selected dataset is ready for edits the following message will appear alongside of the “Identify Link King master” button:

FINAL\_LINK\_LINKAGE\_EDIT\_EDITED validated. OK to select records.

The “Criteria Variables” control allows the user to select variable(s) that will be used to identify and extract client “uniqueid” groupings for editing.



For example, if “uniqueid” is selected from the “Criteria

Selection Criteria \_\_\_\_\_  
| IF uniqueid=<enter number>

Variables” (and the arrow button is pushed) the “Selection Criteria” box will appear as:

If, for example, the user knows that uniqueids 55 and 653 - in fact - represent the same person and the user wants to consolidate those 2 uniqueids into a single uniqueid, then the user would modify the selection criteria to read:

“IF uniqueid in (55 653)” and presses the “Load Data” button.

The following records will appear in the viewer:

uniqueid	certainty	Linkage core	regroup	ssn	dob	fname	mname	lname	maiden	gender	flex var
55 Reference		CORE	0	990148847	12/17/1983	WILLIAM	L	ANDERSON		M	WALLAWA
55 Reference (Alias)		nonCore	0	990148847	12/17/1983	WILLIAM	L	ANDERSON		M	
653 Reference		CORE	0	599148847	12/17/1988	BILLY	A	ANDERSON		M	RENTON
653 Reference (Alias)		nonCore	0	599148847	12/17/1988	BILLY	A	ANDERSON		M	

Users may not always remember the uniqueid numbers that needed editing. For the above example, if the user remembered that the groupings needing consolidation has a first name that was similar to Bill or William and a last name of “Ander” (something), then modifying the Selection Criteria box to read:

IF index(client\_first\_name,"ill")>0 and index(client\_last\_name,'Ander')>0

The above criteria would populate the data viewer with:

uniqueid	certainty	Linkage core	regroup	ssn	dob	fname	mname	lname	maiden	gender	flex var
55 Reference		CORE	0	990148847	12/17/1983	WILLIAM	L	ANDERSON		M	WALLAWA
55 Reference (Alias)		nonCore	0	990148847	12/17/1983	WILLIAM	L	ANDERSON		M	
653 Reference		CORE	0	599148847	12/17/1988	BILLY	A	ANDERSON		M	RENTON
653 Reference (Alias)		nonCore	0	599148847	12/17/1988	BILLY	A	ANDERSON		M	
1130 Reference		CORE	0	938401826	01/02/1981	WILLIAM	L	ANDERSON		M	TACOMA
1915 Reference		CORE	0		04/04/1932	WILLIAM	V	ANDERSON		M	OLYMPIA

To remove uniqueids 1130 and 1915 (because they are not part of the “case” being edited), the user would

a) select “viewer subset” from the “Select from” control,

Select from:

Full Client Listing  Viewer Subset

b) replace the “Selection Criteria” with “IF uniqueid in (55 653)”, and

c) push “Load Data”.

Edit controls

Left Mouse -  
Delete Row/ Change CORE

Right Mouse -  
Regroup

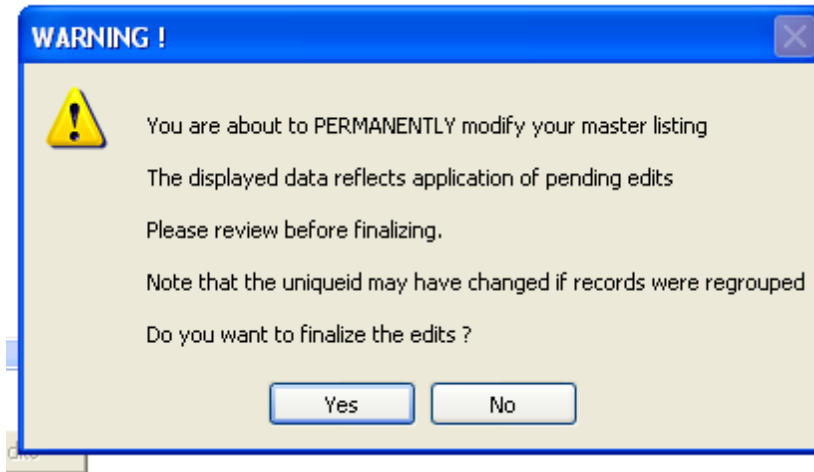
Restore Original Grouping  
 Consolidate All

To combine uniqueids 55 and 653 into a single client grouping, the “consolidate all” option should be selected from the “Edit Controls”. The data in the viewer will then be modified to appear as:

uniqueid	certainty	Linkage core	regroup	ssn	dob	fname	mname	lname	maiden	gender	flex var
55	Reference	CORE	1	990148847	12/17/1983	WILLIAM	L	ANDERSON		M	WALLAWA
55	Reference (Alias)	nonCore	1	990148847	12/17/1983	WILLIAM	L	ANDERSON		M	
653	Reference	CORE	1	599148847	12/17/1988	BILLY	A	ANDERSON		M	RENTON
653	Reference (Alias)	nonCore	1	599148847	12/17/1988	BILLY	A	ANDERSON		M	

Note that the value in “regroup” column has been changed from “0” to “1” indicating that all of the records in the display will be “regrouped” into a single grouping:

If the user is satisfied with the new configuration and presses “Apply Edits”, the following message will pop-up:



And the display in the viewer will appear as:

uniqueid	certainty	Linkage core	regroup	ssn	dob	fname	mname	lname	maiden	gender	flex var
55	User Regrouped	CORE	0	990148847	12/17/1983	WILLIAM	L	ANDERSON		M	WALLAWA
55	User Regrouped	CORE	0	599148847	12/17/1988	BILLY	A	ANDERSON		M	RENTON
55	User Regrouped	nonCore	0	990148847	12/17/1983	WILLIAM	L	ANDERSON		M	
55	User Regrouped	nonCore	0	599148847	12/17/1988	BILLY	A	ANDERSON		M	

Note that the uniqueid for all records has been changed to “55”.

Select “Yes” to finalize the edits in the master dataset.

The previous example illustrated how multiple uniqueids may be consolidated into a single uniqueid. The following example illustrates how as single uniqueid may be disaggregated into multiple uniqueids.

Select from:

Full Client Listing  Viewer Subset

Select “Full Client Listing”, type “If uniqueid=1491” in the “Selection Criteria” box, and press “Load Data”. The following will appear in the data viewer:

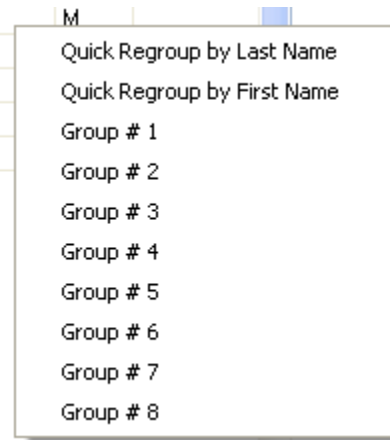
uniqueid	certainty	Linkage core	regroup	ssn	dob	fname	mname	lname	maiden	gender	flex var
1491	Reference	CORE	0		11/07/1957	JIMMY		MARTIN		M	CENTRALIA
1491	Reference	CORE	0	961720191	11/07/1957	JIMMY	A	MORTON		M	
1491	Reference (Alias)	nonCore	0		11/07/1957	JIMMY	A	MORTON		M	
1491	Reference (Alias)	nonCore	0	961720191	11/07/1957	JIMMY		MORTON		M	
1491	Reference (Alias)	nonCore	0		11/07/1957	JIMMY	A	MORTON		M	
1491	Level 1	CORE	0		11/07/1957	JAMES	A	MORTON		M	
1491	Level 2	nonCore	0		11/07/1957	JIMMIE		MARTIN		M	
1491	X-linked	nonCore	0	961726018	11/07/1957	JIMMIE	A	MORTON		M	

For the purposes of this example, suppose that the user has discovered that

- the records with “Martin” as the last name belong to a different person than the records with “Morton” as the last name and
- the record with the SSN “961726081” is “bogus” data and needs to be eliminated from the dataset entirely.

The quickest way to accomplish these tasks, is to

- Right click anywhere in the data viewer. A pop-up will appear (see illustration to the right). From this pop-up, select “Quick Regroup by Last Name”. (Alternatively, the user could have right-clicked on each line in the data viewer and selected “Group #1” or “Group #2” to assign each row to a particular group). The data in the viewer will change to appear as:



uniqueid	certainty	Linkage core	regroup	ssn	dob	fname	mname	lname	maiden	gender	flex var
1491	Reference	CORE	1		11/07/1957	JIMMY		MARTIN		M	CENTRALIA
1491	Level 2	nonCore	1		11/07/1957	JIMMIE		MARTIN		M	
1491	Reference	CORE	2	961720191	11/07/1957	JIMMY	A	MORTON		M	
1491	Reference (Alias)	nonCore	2		11/07/1957	JIMMY	A	MORTON		M	
1491	Reference (Alias)	nonCore	2	961720191	11/07/1957	JIMMY		MORTON		M	
1491	Reference (Alias)	nonCore	2		11/07/1957	JIMMY	A	MORTON		M	
1491	Level 1	CORE	2		11/07/1957	JAMES	A	MORTON		M	
1491	X-linked	nonCore	2	961726018	11/07/1957	JIMMIE	A	MORTON		M	

- Left click on the record with the SSN “961726081”. The record will be highlighted in red to signify a pending deletion.

uniqueid	certainty	Linkage core	regroup	ssn	dob	fname	mname	lname	maiden	gender	flex var
1491	Reference	CORE	1		11/07/1957	JIMMY		MARTIN		M	CENTRALIA
1491	Level 2	nonCore	1		11/07/1957	JIMMIE		MARTIN		M	
1491	Reference	CORE	2	961720191	11/07/1957	JIMMY	A	MORTON		M	
1491	Reference (Alias)	nonCore	2		11/07/1957	JIMMY	A	MORTON		M	
1491	Reference (Alias)	nonCore	2	961720191	11/07/1957	JIMMY		MORTON		M	
1491	Reference (Alias)	nonCore	2		11/07/1957	JIMMY	A	MORTON		M	
1491	Level 1	CORE	2		11/07/1957	JAMES	A	MORTON		M	
1491	X-linked	nonCore	2	961726018	11/07/1957	JIMMIE	A	MORTON		M	

- “Click Apply Edits” to finalize these edits.

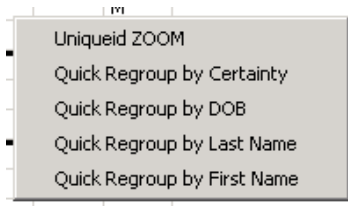
## Feature #2: Enhanced “shortcut” editing features during review of master client listing.

The Link King has always allowed the user great flexibility in where/when/how edits can be made to the linkage solution. Recently added is the ability to quickly “regroup” linked records based on the values of certain fields.

For example, suppose the user believes the following grouping is incorrect and that records with the last name “CHAMPBELL” represent a different person than records with the last name “CAMPBELL”.

	DATE OF BIRTH	SUFFIX	RELATIONSHIP	LAST NAME
	10/30/1993	DANIEL	R	CAMPBELL
987398426	10/30/1993	DAN		CHAMPBELL
987398426	10/30/1993	DAN		CHAMPBELL
987394826	10/03/1993	DEAN	C	CAMPBELL
833434100	08/23/1961	CHRISTOPHER	F	LINKS

The following box will pop-up when the user right clicks on any of the rows (note that middle name and SSN do not appear as a regrouping variable because of missing values for those variables in some rows).



If the user selects “quick regroup by last name”, certain rows will become “grayed” to indicate that a user edit is pending.

	DATE OF BIRTH	SUFFIX	RELATIONSHIP	LAST NAME
	10/30/1993	DANIEL	R	CAMPBELL
987398426	10/30/1993	DAN		CHAMPBELL
987398426	10/30/1993	DAN		CHAMPBELL
987394826	10/03/1993	DEAN	C	CAMPBELL
833434100	08/23/1961	CHRISTOPHER	F	LINKS

Right clicking on any row and selecting “restore original grouping” will undo the user grouping edit.

