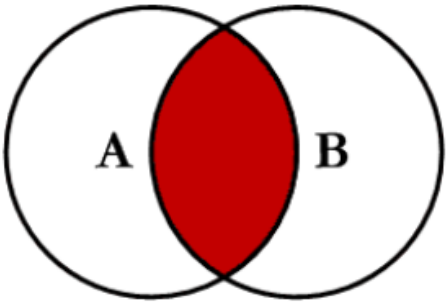
JOIN 1 – MATCHED RECORDS



This is the simplest, and default Join/Match type. It is also the most common. This join will return all of the records in the primary table (table A/T01 - Left) that have a matching record in the secondary table (table B/T02 - Right).

In CU*BASE® the majority of tables should be joined by a record's unique identifier of a member **account base**.

Table A (T01) - Primary		
Account Base	First Name	Wrong Address?
20	Jack	N
21	Phil	N
33	John	Y
40	Mary	N
57	Beth	N
101	Tom	N
118	Greg	N
119	Jill	N
135	Craig	N

Table B (T02) - Secondary		
Account Base	Opt-Out	Email
5	N	mbr5@noemail.com
20	Y	yes@fake.com
29	N	
33	N	leftie@noemail.com
40	N	
57	N	toys90@nomail.com
118	N	mainst@fake.com

JOIN

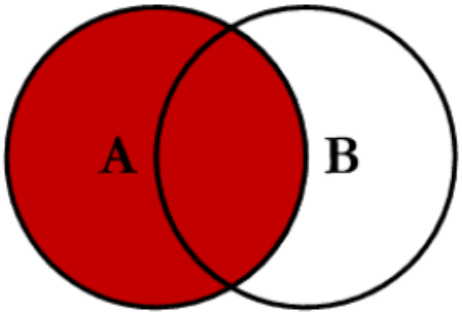
Account Base	First Name	Wrong Address?
20	**Jack**	**N**
~~21~~	~~Phil~~	~~N~~
33	**John**	**Y**
40	**Mary**	**N**
57	**Beth**	**N**
~~101~~	~~Tom~~	~~N~~
118	**Greg**	**N**
~~119~~	~~Jill~~	~~N~~
~~135~~	~~Craig~~	~~N~~

Account Base	Opt-Out?	Email
~~5~~	~~N~~	~~mbr5@noemail.com~~
20	**Y**	**yes@fake.com**
~~29~~	~~N~~	
33	**N**	**leftie@noemail.com**
40	**N**	
57	**N**	**toys90@nomail.com**
118	**N**	**mainst@fake.com**

RESULT – rows we keep from the primary table are *only* those which found matching account base in the secondary table. Columns and data from the secondary table in now also available on the right-hand side of the primary table's data.

Account Base	First Name	Wrong Address?	Account Base	Opt-Out	Email
20	Jack	N	20	Y	yes@fake.com
33	John	Y	33	N	leftie@noemail.com
40	Mary	N	40	N	
57	Beth	N	57	N	toys90@nomail.com
118	Greg	N	118	N	mainst@fake.com

JOIN 2 – MATCHED RECORDS WITH PRIMARY FILE



This is a helpful Join/Match type. This join will keep all of the records in the primary table (table A/T01 - Left) no matter what, even if any of those records fail to find a match in the Secondary table (table B/T02 - Right). For any matches it does find, the additional data from that secondary file becomes available in the new columns. For any records which do not match, the new data columns will be blank or 0's

Table A (T01) - Primary		
Account Base	First Name	Wrong Address?
20	Jack	N
21	Phil	N
33	John	Y
40	Mary	N
57	Beth	N
101	Tom	N
118	Greg	N
119	Jill	N
135	Craig	N

Table B (T02) - Secondary		
Account Base	Opt-Out	Email
5	N	mbr5@noemail.com
20	Y	yes@fake.com
29	N	
33	N	leftie@noemail.com
40	N	
57	N	toys90@nomail.com
118	N	mainst@fake.com

JOIN

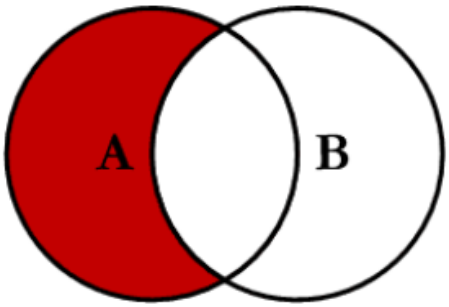
Account Base	First Name	Wrong Address?
20	**Jack**	**N**
21	**Phil**	**N**
33	**John**	**Y**
40	**Mary**	**N**
57	**Beth**	**N**
101	**Tom**	**N**
118	**Greg**	**N**
119	**Jill**	**N**
135	**Craig**	**N**

Account Base	Opt-Out?	Email
~~5~~	~~N~~	~~mbr5@noemail.com~~
20	**Y**	**yes@fake.com**
~~29~~	~~N~~	
33	**N**	**leftie@noemail.com**
40	**N**	
57	**N**	**toys90@nomail.com**
118	**N**	**mainst@fake.com**

RESULT – Now we have the data matching in from the secondary table wherever possible, without losing any members who didn't have a match. Any member with no match in the secondary table ends up with defaults or blank values for those data points. Notice we still don't have account bases 5 or 29 from the secondary table.

Account Base	First Name	Wrong Address?	Account Base	Opt-Out	Email
20	Jack	N	20	Y	yes@fake.com
21	Phil	N	0		
33	John	Y	33	N	leftie@noemail.com
40	Mary	N	40	N	
57	Beth	N	57	N	toys90@nomail.com
101	Tom	N	0		
118	Greg	N	118	N	mainst@fake.com
119	Jill	N	0		
135	Craig	N	0		

JOIN 3 – UNMATCHED RECORDS WITH PRIMARY FILE



This join/match will only keep the records in the Primary table (table A/T01 - Left) that do not match any records in the Secondary table (table B/T02 - Right). This essentially treats the entire secondary table as an exclusion list and an account base that is found in that secondary table is scrubbed out of the resulting list of records.

Remember, in CU*BASE® the majority of tables should be joined by a record's unique identifier of a member **account base**.

Table A (T01) - Primary		
Account Base	First Name	Wrong Address?
20	Jack	N
21	Phil	N
33	John	Y
40	Mary	N
57	Beth	N
101	Tom	N
118	Greg	N
119	Jill	N
135	Craig	N

Table B (T02) - Secondary		
Account Base	Opt-Out	Email
5	N	mbr5@noemail.com
20	Y	yes@fake.com
29	N	
33	N	leftie@noemail.com
40	N	
57	N	toys90@nomail.com
118	N	mainst@fake.com

JOIN

Account Base	First Name	Wrong Address?
~~20~~	~~Jack~~	~~N~~
21	**Phil**	**N**
~~33~~	~~John~~	~~Y~~
~~40~~	~~Mary~~	~~N~~
~~57~~	~~Beth~~	~~N~~
101	**Tom**	**N**
~~118~~	~~Greg~~	~~N~~
119	**Jill**	**N**
135	**Craig**	**N**

Account Base	Opt-Out?	Email
~~5~~	~~N~~	~~mbr5@noemail.com~~
~~20~~	~~Y~~	~~yes@fake.com~~
~~29~~	~~N~~	
~~33~~	~~N~~	~~leftie@noemail.com~~
~~40~~	~~N~~	
~~57~~	~~N~~	~~toys90@nomail.com~~
~~118~~	~~N~~	~~mainst@fake.com~~

RESULT – only rows for account bases that were not in the secondary table are kept. No data is kept from the secondary file (remember, results are rows in primary that didn't have any records in secondary). Columns are included from secondary, but are defaults or blank.

Account Base	First Name	Wrong Address?	Account Base	Opt-Out	Email
21	Phil	N	0		
101	Tom	N	0		
119	Jill	N	0		
135	Craig	N	0		

BONUS – JOINING ON MULTIPLE COLUMNS

SMART QUERYING – PREVENT DUPLICATION WHEN MULTIPLE MATCHES ARE POSSIBLE

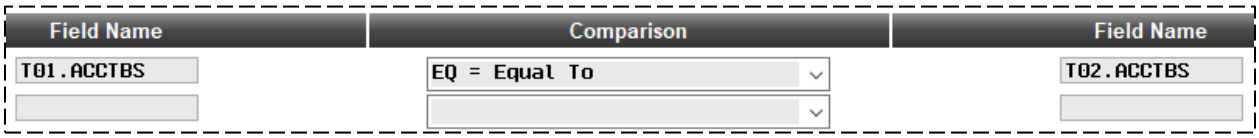
Not all data is stored neatly in one row per account base. The example below demonstrates working with loan products (member 20 has three loans and each have their own row). Other common types of data stored in multiples across account bases are transactions, and tracker records.

EXAMPLE – LOAN PRODUCTS

Table 1 (T01) - Primary		
Account Base	Account Type	Product Description
20	510	Used Vehicle 1
20	520	Used Vehicle 2
20	680	Signature Loan

Table 2 (T02) - Secondary		
Account Base	Account Type	Collateral Description
20	510	Kia Sorento
20	520	Audi A4

INCORRECT - Level 1 join on only Account Base

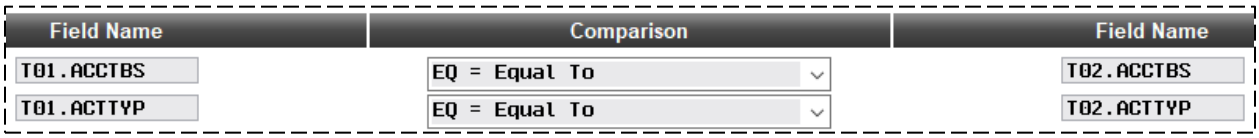


The blue rows below are what you want, but look at all those incorrect rows! For member 20, all 3 of his loan rows from the primary table have found 2 matches in the secondary table. **3 x 2 = 6** rows in results.

Notice in orange that even though there is no 680 loan in the secondary table, *a match was still found.* Remember, we only matched on account base and yes, there is an account base (2 of them actually…) in the secondary table.

Account Base	First Name	Wrong Address?	Account Base	Account Type	Collateral Description
20	510	Used Vehicle 1	20	510	Kia Sorento
20	520	Used Vehicle 2	20	510	Kia Sorento
20	680	Signature Loan	20	510	Kia Sorento
20	510	Used Vehicle 1	20	520	Audi A4
20	520	Used Vehicle 2	20	520	Audi A4
20	680	Signature Loan	20	520	Audi A4

CORRECT– Level 1 join on Account Base *and* Account Type



Now we correctly only keep the rows and data which match for *both* account base and account type. Notice that means since the 680 loan doesn't have a match in the secondary table, it is now excluded.

Account Base	Account Type	Loan Product	Account Base	Account Type	Collateral Description
20	510	Used Vehicle 1	20	510	Kia Sorento
20	520	Used Vehicle 2	20	520	Audi A4
57	510	Used Vehicle 1	57	510	Ford Focus
57	790	1st Mortgage	57	790	384 Main St