

Re: How to enforce subtypes/supertypes in Access 2000?

Source:

<http://www.tech-archive.net/Archive/Access/microsoft.public.access.tablesdbdesign/2006-08/msg00447.html>

- *From:* "Bob" <fakeemail@xxxxxxxxxx>
 - *Date:* Wed, 9 Aug 2006 08:07:42 +1000
-

Hi Graham,

Thanks for sticking with me on this.

My setup is this:

In the unbound subform control I have already the following settings:

Link Child Fields – ContactID;ContactTypeID

Link Master Fields – ContactID;ContactTypeID

I do not create or amend this links programmatically in any way. The only thing I change via VBA is the SourceObject.

As for the VBA Code itself, this is what I have:

```
Private Sub cboContactType_AfterUpdate()  
If Me.cboContactType.Value = 1 Then ' Individual  
Me.Contactsubfrm.SourceObject = "NewIndiv" End If
```

```
If Me.cboContactType.Value = 2 Then ' Organisation  
Me.Contactsubfrm.SourceObject = "NewOrgs"  
End If  
End Sub
```

I've placed this code in the "After Update" event for a combobox in my main form. The control itself is bound to the ContactTypeID field in my tblContacts, but the RowSource is bound to my tblContactType.

"NewIndiv" is my modified subform for Individuals, and "NewOrgs" is my modified subform for Organisations. "Contactsubfrm" is the name I have given the subform control on my main form.

I've tried adding the following lines in each of the If ... Then statements in my code:

```
Me.Contactsubfrm.LinkChildFields = "ContactID;ContactTypeID"  
Me.Contactsubfrm.LinkMasterFields = "ContactID;ContactTypeID"
```

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But this just causes the error message to popup sooner – as soon as the subform opens rather than when I try to select a control or move to a new record. This time I get "Run Time 3200" as part of the error message as well. Curiously, the record selectors on the subform are not grayed out in this scenario – but still result in an error message if I press any button on the record selector itself.

As for the validation rules – I forgot to mention that I had already put these in place (as per the directions in your previous post).

As for the problem itself, it occurs on both subforms:

- when the NewIndiv opens up, the first record it shows is the existing record that I just entered. The message I quoted earlier pops up regardless of whether I'm trying to select a textbox on the subform or simply using the record selector (on either the main form or the subform itself) to create a new record. (By the way, the record selector on the subform remains grayed out)

- the message also pops up when I open the NewOrgs subform (which shows a blank record except for the ContactID and ContactTypeID fields which are already filled in when the form opens).

I'm not sure what you mean when you say I should be checking in Form_Current to make sure the appropriate subform is loaded. I can definitely see the subforms changing depending on the value in my combobox (for ContactType) if that's what you mean.

TIA
Bob

"Graham Mandeno" <Graham.Mandeno@xxxxxxxxxxxxxx> wrote in message news:uYNzw9yuGHA.4472@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

Hi Bob

Your changes to the design sound fine.

The only thing I would add is a validation rule for ContactTypeID:

=1 in tblIndividuals

=2 in tblOrganisations

to ensure that one entity cannot accidentally "morph" into the other.

As to your strange error, are you certain that you are not trying to change tblContacts.ContactTypeID for an *existing* record (the one you have previously entered)?

Do you get the error if you are on a new, empty record?

How have you set up the Link Master/Child Fields properties of your subform control? If you change the SourceObject of a subform control then you must also respecify the link fields, even though the field names have

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not changed.

Also, you should be checking in Form_Current that the appropriate subform is loaded and changing it if necessary.

If you're still having trouble, post the code behind your form and I'll try to reproduce the problem.

—

Good Luck!

Graham Mandeno [Access MVP]
Auckland, New Zealand

"Bob" <fakeemail@xxxxxxxx> wrote in message
[news:44d8b344\\$0\\$21274\\$5a62ac22@xx](mailto:news:44d8b344$0$21274$5a62ac22@xx)

Hi Graham,

This doesn't seem to be working properly for me.

Here's what I've done so far:

In tblContacts:

- left the pk as it was (ie tblContactsID remains an autonumber pk field)
- created a new unique multifield index based on ContactID and ContactTypeID as per the instructions in the Access help file

In tblIndividuals:

- deleted the original autonumber pk field (IndividualsID)
- converted the existing ContactID (number) field as the new pk
- inserted a new ContactTypeID (number) field
- set the "default value" property to 1 (corresponding to the ContactTypeID for the "Indiv" ContactType in tblContactTypes)
- set the "required" property to Yes
- created a new unique multifield index based on ContactID and ContactTypeID as per the instructions in the Access help file

In tblOrganisations

- deleted the original autonumber pk field (OrganisationsID)
- converted the existing ContactID (number) field as the new pk
- set the "default value" property to 2 (corresponding to the ContactTypeID for the "Orgs" ContactType in tblContactTypes)
- set the "required" property to Yes
- created a new unique multifield index based on ContactID and ContactTypeID as per the instructions in the Access help file

I then created a 1:1 relationship based on the combined ContactID and ContactTypeID fields between tblContacts and tblIndividuals.

I did this by selected the two fields in tblContacts and dragging them over to tblIndividuals. I created a 1:1 relationship between tblContacts and tblOrganisations in the same way.

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I then deleted all existing test data from tblContacts, tblIndividuals and tblOrganisations – starting with a clean slate.

I then opened my client data–entry form. The main form has all fields from tblContacts. The subform is unbound, but I have inserted vba into the AfterUpdate event section of the form to ensure that the SourceObject of the subform control is changed to the required subform depending on the selected ContactType (selected from a combo box).

I can enter the first record of either tblIndividuals or tblOrganisations without difficulty – once I open the required subform the value of ContactID is the same as the autonumber pk in tblContacts, and the value of the ContactTypeID defaults to the relevant default value.

However, after having entered this first record, if I then close and reopen the main form, I am prevented from creating any new records in either table by a popup box which states "The record cannot be deleted or changed because the table "Individuals" includes related records."

What could be causing this error? There are no "related" records in existence!

TIA
Bob

"Graham Mandeno" <Graham.Mandeno@xxxxxxxxxxxxxx> wrote in message
news:%23Rc1wLnuGHA.4160@xxxxxxxxxxxxxxxxxxxxxxxxxxxx

Hi Bob

The solution that Jamie gave is simple and elegant. To translate it into Access table design terms (which might be more familiar to you than ANSI–92 DDL statements!):

Add a unique index to tblContacts involving ContactID AND ContactType.
Next add a ContactType field to both tblIndividuals and tblOrganisations and for each, set the default value to the corresponding contact type

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and set the validation rule to =<contact type> and set required=Yes. (In other words, an individual MUST be an individual and cannot be an organisation, and vice-versa).

Now, add a 1:1 relationship with referential integrity between ContactID/ContactType in tblContacts and tblIndividuals, and the same for tblOrganisations.

Now the engine will look after the integrity for you. If a record in tblContacts has a matching record in one of the other tables, then the contact record can neither be deleted, nor changed to the other contact type, unless the related subclass record is first deleted.

To answer your other questions:

1. A table-level validation rule can be created in the Table Properties window (View>Properties in design view). For example: ([IndivID] Is Not Null) Xor ([OrgID] Is Not Null)
However, I would NOT use this two-field approach for your particular problem.

2. You can force a prompt before saving a record using the form's BeforeUpdate event.
Select case MsgBox("Save changes?", vbYesNoCancel)
case vbYes
' do nothing
case vbNo
Cancel = True
Me.Undo
case vbCancel
cancel = true
End Select

3. You can set ANSI-92 mode via Tools>Options>Tables/Queries. Use with caution!

—
Good Luck!

Graham Mandeno [Access MVP]
Auckland, New Zealand

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"Bob" <woodlambert@xxxxxxxx> wrote in message
news:1154923513.211065.184730@xx

Hi Graham,

Thanks for the tips. I'll re-examine the use of the autonumbers in the two sub-tables.

As to the use of table-level constraints, how do I set this up? I mean, I know I can specify that a particular field can't be null. But how do I force a check on the null value of another field (field B) before allowing one field (field A) to be null? Along the same lines, how can I make sure that at least one field must have a value?

I assume that this would ordinarily be achievable at the form level – but you mention table-level constraints. I'm all ears :-)

Going off topic a bit, where the form is concerned I've noticed that my database saves data automatically even if I close the form within pressing save on the toolbar. I assume there is some kind of auto-save when you enter data into a form – but this does not always happen. Sometimes it saves, sometimes it doesn't. How do I force a prompt to save every time the form closes? (I located some example code – which I don't have handy – but it does not seem to work).

TIA
Bob

Graham Mandeno wrote:

Hi Bob

PMFJI :-)

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In a Jet (Access) database, there is no way to enforce this sort of entity subclassing at the engine level. The only way to do that would be to have two FK fields in tblContacts – one for IndividID and one for OrgID, and have a table-level constraint (validation rule) to specify that they cannot both be Null.

Using the structure you have, you can go most of the way there using a BeforeUpdate event procedure on your ContactType control.

Something like this (pseudo-code):

```
If ContactType.OldValue  
isn't null then  
lookup corresponding  
record in table  
corresponding to OldValue  
If record exists then  
Heavy warning message  
about changing contact type  
If user wishes to continue  
then  
delete old related record  
else  
cancel = True  
End If  
End If  
End If
```

BTW, I think you are complicating matters by having separate (AutoNumber?) PKs in your Individuals and

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Title
FirstName
MiddleNames
LastName
Suffix
EmployerID
(fk) (links
back to
tblContacts.ContactID
(1:Many))
EmpDirectPhn
EmpDirectFax
EmpEmail

tblOrganisations:
OrgID (pk)
ContactID
(fk)
OrgName
TradingName
IsACompany
(yes/no)
ACN
(Australian
Company
Number)
ABN
(Australian
Business
Number)
Website

tblContactType
ContactTypeID
(pk)
ContactType
("Indiv" or
"Org")

As you can
see,
tblContacts
lists the
location (ie
residential
or
business)
addresses,
postal
addresses
and

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(residential
or business)
telecommunication
details for
all contacts.
The table
tblIndividuals
segregates
the
individual-specific
biographical
information
together
with
the
individual's
work
details. The
EmployerID
links back
to the
ContactID
field in
tblContacts
because we
often end up
acting for
employees
of
existing
corporate
clients or
for multiple
employees
of
non-client
organisations.
I segregate
the
Organisation
details so
that I can
record
details for
all
businesses
(incorporated
and
unincorporated
(ie
sole-proprietorships,

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partnerships,
associations,
churches
etc))
that
simply
aren't
relevant to
individuals.
It also
enables me
to set up
a
separate
table
(tblOrgContacts)
to identify
individual
contacts for
the
organisation
entities (a
1:Many
relationship
is
established
between
the
two tables
based on
tblOrganisations.OrgID
(pk) and
tblOrgContacts.ContactID
(fk)). For
our
purposes,
we do not
require
any
contacts to
be linked
with
Individuals
as opposed
to
Organisations.

The above
tables
essentially
constitute

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the whole
set of
"contacts"
for my
employer's
business;
tblContacts
is then
linked with
tblClients
which
identifies
those
contacts
that are in
fact clients:

tblClients:
ClientID
(pk)
(autonumber)
ContactID
(fk) (related
to
tblContacts.ContactID)
(1:1
relationship)
ReferrerID
(fk) (related
to
tblContacts.ContactID)
(1:Many
relationship)

Regards
Bob

"tina"
<nospam@xxxxxxxxxxx>

wrote in
message

[news:bCnBg.220675\\$mF2.29695@xx](mailto:news:bCnBg.220675$mF2.29695@xx)

my
first
thought
is:
do
you

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really
need
to
to
separate
the
individuals
records
and
organizations
records
into
different
tables?
suggest
you
post
all
the
fields
in
each
of
those
two
tables
so
we
can
review
them;
perhaps
we
can
help
you
combine
the
two
tables
into
one,
with
the
addition
of
a
single
field
specifying
either

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"individual"
or
"organization".

hth

"Bob"
<fakeemail@xxxxxxx>
wrote
in
message
[news:44d5b441\\$0\\$21304\\$5a62ac22@xxxxxxxxxxxxxxxxxxxxx](mailto:news:44d5b441$0$21304$5a62ac22@xxxxxxxxxxxxxxxxxxxxx)

Hi
folks,

I
am
creating
a
client
database
in
MS
Access
with
the
following

(simplified)

table
structure:

tblContacts:
ContactID
(pk
-
autonumber)
ContactType
(fk
(from
tblContactTypes)
ContactDetails
(text)

tblIndividuals
IndivID
(pk
-

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autonumber)
ContactID
(fk
(from
tblContacts)
IndivDetails
(txt)

tblOrganisations
OrgID
(pk
-
autonumber)
ContactID
(fk
(from
tblContacts)
OrgDetails
(txt)

tblContactTypes
(serves
as
a
lookup
table)
tblContactTypeID
(pk
-
autonumber)
tblContactType
(txt
-
contains
values
"Indiv"
or
"Org")

There
is
a
1:1
relationship
between
the
ContactID
(pk)
in
tblContacts
and

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the
ContactID
(fks)
in
tblIndividuals
and
tblOrganisations.

I
have
created
a
form
in
MS
Access
for
entering
client
details.
At
the
moment,
I
have
two
subforms
–
frmIndiv
and
frmOrg
–
which
are
positioned

on

my
main
entry
form.

The
form
contains
a
combo-box
from
which
the

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user
can
select
"Indiv"
or
"Org"
as
the
ContactType.
Depending
on
the
value
in
the
combo-box,
one
or
other
of
the
two
subforms
will
become
visible.

At
the
moment,
the
user
selects
–
say
–
"Indiv"
as
the
ContactType
and
proceeds
to
enter
details
for
this
type
of
Contact.
When

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this happens, the ContactID for the current record in tblContacts table is mirrored in the ContactID foreign key in the tblIndividuals table. This is what I want.

The problem is that once the user is finished (and whilst still in the

same

record in the tblContacts table), the

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user
can
select
"Org"
from
the
combo-box
and
be
provided
with
a
empty
copy
of
the
sub-form
frmOrg.
If
the
user
proceeds
to
enter
data
on
the
sub-form,
the
ContactID
foreign
key
in
the
frmOrg
will
also
mirror
the
ContactID
in
tblContacts.

This
results
in
a
record
in
both
of

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my
subtype
tables
(tblIndividuals
and
tblOrganisations)
having
a
record
which
points
to
the
same
ContactID
in

the

supertype
table
(tblContacts).

How
can
I
prevent
this
from
happening?

–
ie
make
sure
that
each
record
in
the
subtype
tables
points
to
a
record
in
the
supertype
table
for
which

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no
subtype
record
has
already
been
created?
(That's
a
mouthful
–
I
hope
it
makes
sense).
I've
seen
some
references
to
"check
constraints"
on
the
internet
which
I
believe
might
help
achieve
my
objective.
But
–
so
far
as

I

am
aware
–
I
can't
impose
check
constraints
on

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fields
in
Access
2000.
(I
have
seen
a
suggestion
that
this
might
be
achieved
by
using
ADO,
but
no

code

example
was
given).

Any
pointers
would
be
appreciated.

Please
note,
I
am
a
complete
novice
at
this.

TIA
Bob

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