



Covalent

Covalent.dnax

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Overview:

Covalent is used to create and maintain links that are displayed in a web browser within DNA™. Links can be set up to pass data from DNA as parameters, for example, a name can be passed to a SQL Server Reporting Services (SSRS) report. Additionally, oAuth and QCash¹ security types are supported.

Key Benefits:

Covalent:

- gives any financial institution the ability to create links to internal and external web sites
- can use certain DNA values as parameter values when dynamically building a url
- can pass some DNA values as parameters to SSRS reports
- can display raw HTML (e.g. html could be returned from an API call) in addition to urls
- keeps employees inside of DNA for work that requires a web browser

Processing:

Covalent contains:

- Administration screens that are used to
 - create and maintain links
 - maintain link parameters
 - maintain security values
- A screen that lists and displays currently active links and handles setting the values needed for both security and parameterization

Covalent Links

When the Covalent Links administration screen is opened all existing links are displayed. Links can be added, edited, and deleted.

When creating a new link, click the Clear/Start New button.

Each link needs to have a unique “friendly” name as the names, not the urls, are displayed in the grid for end users to select.

The link value should contain the full address (e.g. starting with http:// or https://)

The effective date of a link will default to the system date. Set it, and an inactive date if desired, to control when and for how long the link is available in the display screen.

The order number will have a default value based on the number of existing links. The order number does not need to be unique. Links are displayed to the end user in lowest order number, lowest alphanumeric value order.

¹ Check out QCash at <https://q-cash.com>

If you know that your link will return raw HTML (e.g. a call to an API can be programmed to return HTML rather than a url) select the “Check if return value will be HTML” box. In general, this can be left un-selected.

Select a security type other than the default of None from the drop-down if your link requires one of these currently supported security types:

- oAuth
- SSO
- Native Mode SSRS

Security types and how to set their properties are described in the Covalent Security screen section of this document.

Click the Test URL button to perform an Http Request/Response. Note that an OK response does not ensure that the link is valid with respect to returning a page, and errors such as 403 and 404 may be able to be resolved with security settings and parameters.

Click the Process Button to create/update links, or Cancel to discard changes.

Covalent Security

When the Covalent Security administration screen is opened all existing links are displayed and their security properties and values can be maintained.

A predefined set of security properties are installed with the application. Currently the SSO type is specific to the Q-Cash application.

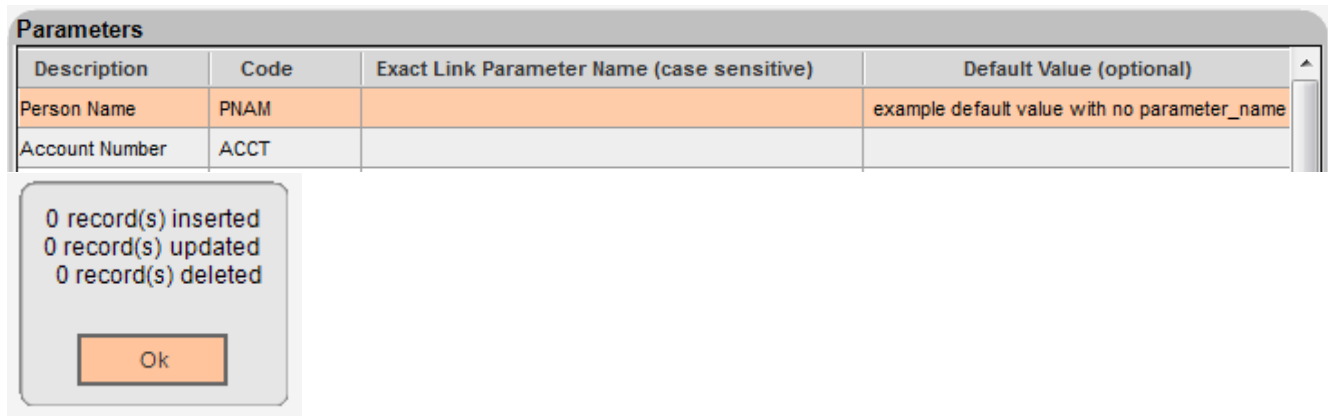
Security Type	Property Type	Description
oAuth	accessToken	the accessToken required for the httpWebRequest Authorization Header
SSO	appIdvalue	An application identifier (GUID) that is unique for each FI – supplied by Q-Cash
	appKeySSOvalue	An application SSO key that is unique for each FI – supplied by Q-Cash
	appSharedKeyvalue	An application vector key that is unique for each FI – supplied by Q-Cash

If the link selected has security properties available to set click in a Value cell in the Security Values grid and type or copy in the value. Click the Process Button to update values, or Cancel to discard changes.

Covalent Parameter

When the Covalent Parameter administration screen is opened all existing links are displayed and their parameter properties and values can be maintained.

Please note that a default value cannot be entered without a parameter name value. The screen shot below provides an example of an invalid entry, a blank parameter name with a default value. If the Process button is clicked it will process, but the message will state 0 rows.



Currently the following parameter values are able to hold values from DNA.

Description	Code	Usage
Tax Reported For Organization	ORG	The organization number from Relationship Profile or Quick Search selection
Account Member Number	MMBR	The member number from Relationship Profile or Quick Search selection
Account Number	ACCT	The account number from Relationship Profile or Quick Search selection
Tax Reported For Person	PERS	The tax reported for person number from Relationship Profile or Quick Search selection
Q-Cash Teller ID	QTLI	Provided by Q-Cash – set as default value
Q-Cash Location	QLOC	Provided by Q-Cash – set as default value
Tax ID Number	TXID	The tax id number from Relationship Profile or Quick Search selection
Tax ID Number - No Hyphens	TXNH	The tax id number without hyphens from Relationship Profile or Quick Search selection
Person First Name	PFNM	The persons first name from Relationship Profile or Quick Search selection
Person Last Name	PLNM	The persons last name from Relationship Profile or Quick Search selection
Organization Name	ORNM	The organization name from Relationship Profile or Quick Search selection
Current Entity Type	ETYP	Either PERS or ORGN are used as the parameter value depending on the active entity type
Mailing Address Line 1	ADD1	The mailing address line 1 from Relationship Profile or Quick Search selection
Mailing Address Line 2	ADD2	The mailing address line 2 from Relationship Profile or Quick Search selection
Mailing Address Line 3	ADD3	The mailing address line 3 from Relationship Profile or Quick Search selection

Mailing Address Line 4	ADD4	The mailing address line 4 from Relationship Profile or Quick Search selection
Mailing Address Line 5	ADD5	The mailing address line 5 from Relationship Profile or Quick Search selection
Mailing Address City	CITY	The mailing address city from Relationship Profile or Quick Search selection
Person Name	PNAM	The person full name from Relationship Profile or Quick Search selection
Signon Name	SNNM	The currently signed on employee name
Mailing Address State	STAT	The mailing address state code from Relationship Profile or Quick Search selection
Mailing Address Zip Code	ZIP	The mailing address zip code from Relationship Profile or Quick Search selection
User Defined	CUST	This parameter can be associated to a link and its default value will be added to the URL. An example: link is https://www.google.com/ and the CUST User Defined parameter have a value of "search?q" and a default of "CNN". The Covalent URL will be " https://www.google.com/ search?q=CNN "
Email address	EML	The address for the first address returned from the CoreAPI for the entity in which the DNA Address CityName value is EMAIL

Click in the "Exact Link Parameter Name (case sensitive)" or "Default Value (optional)" cells in the Parameter Values grid to paste or enter a parameter name.

An example SSRS Native Mode report with parameters:

A SQL Server running SSRS in Native Mode has a report named "Customer Search By Name". It is accessed via a web browser at a url, and the parameter values are entered manually. The url that is browsed has a format *that will be different* than the url format required in the Covalent application.

Browser uses:

"<http://servername/Reports/Pages/Report.aspx?ItemPath=%2fArchiveSSRS%2fCustomer+Search+By+Name>"

The url format in Covalent for this example report is:

"<http://servername/ReportServer?/ArchiveSSRS/Customer Search By Name>"

Helpful information can be found by searching the web for "Pass a Report Parameter Within a URL". E.g. "<https://docs.microsoft.com/en-us/sql/reporting-services/pass-a-report-parameter-within-a-url>"

When the url is browsed the report page is displayed:

Home > ArchiveSSRS > Customer Search By Name

Enter Last Name or Organization Name (Required) Enter First Name (optional)

Select Person or Organization

This SSRS report has three parameters:

SQL Server Reporting Services
Customer Search By Name

Select the parameters that all users can change, and choose a default value for each.

Parameter Name	Data Type	Has Default	Default Value	Null	Hide	Prompt User	Display Text
paramLastName	String	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Enter Last Name or Organ
paramFirstName	String	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Enter First Name (optiona
pers_or_org	String	<input type="checkbox"/>	<input type="text" value="v"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Select Person or Organiz

All three parameters have been entered for this link using the exact parameter name and case sensitivity and associated with the parameter code that will be used to populate their value.

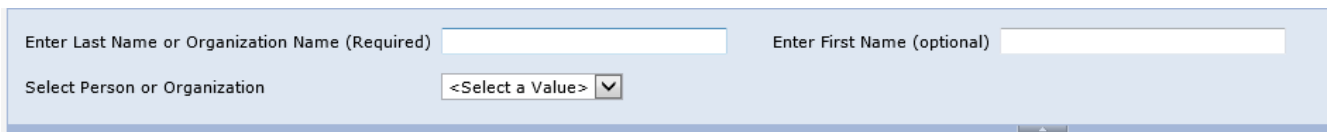
292	Verify	https://www.vertifi.com/	None
293	Customer Search By Name	http://corearc1./ReportServer?/ArchiveSSRS/Customer Search By N...	Native Mode SSRS

Auto Hide

Parameters

Description	Code	Exact Link Parameter Name (case sensitive)	Default Value (optional)
Current Entity Type	ETYP	pers_or_org	
Person Last Name	PLNM	paramLastName	
Person First Name	PFNM	paramFirstName	
Account Number	ACCT		
Account Member ...	MMBR		
Tax Reported For ...	ORG		

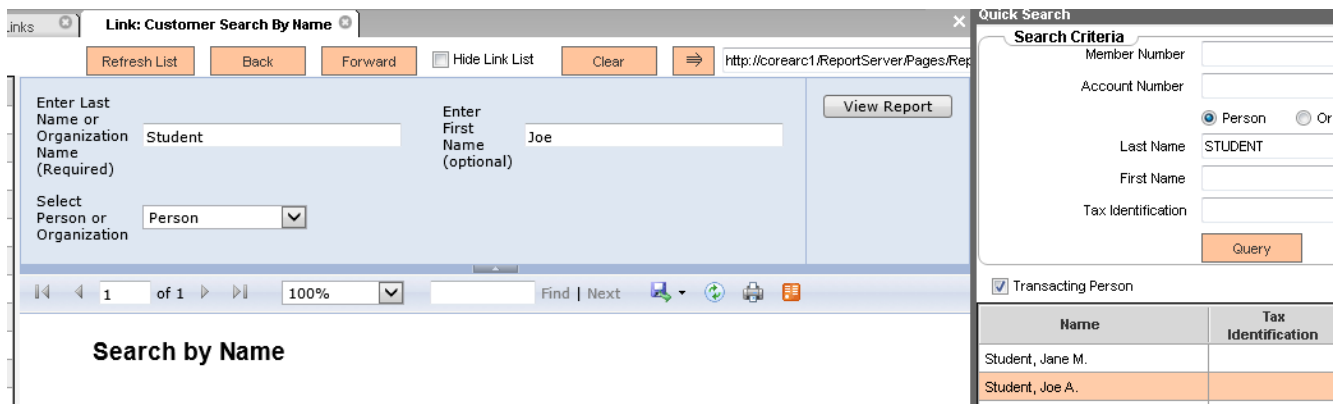
When the link to this example report is selected in the Covalent display screen from Quick Inquiries the parameter values will not be populated until the Quick Search panel is used to search for and find a person or organization.



Enter Last Name or Organization Name (Required) Enter First Name (optional)

Select Person or Organization

The following screen shot shows that the SSRS reports three parameter values were populated after selecting Joe Student from the Quick Search panel.



Link: Customer Search By Name

Refresh List Back Forward Hide Link List Clear http://corearc1/ReportServer/Pages/Rep

Enter Last Name or Organization Name (Required) Student Enter First Name (optional) Joe View Report

Select Person or Organization Person

Quick Search

Search Criteria

Member Number

Account Number

Person Or

Last Name STUDENT

First Name

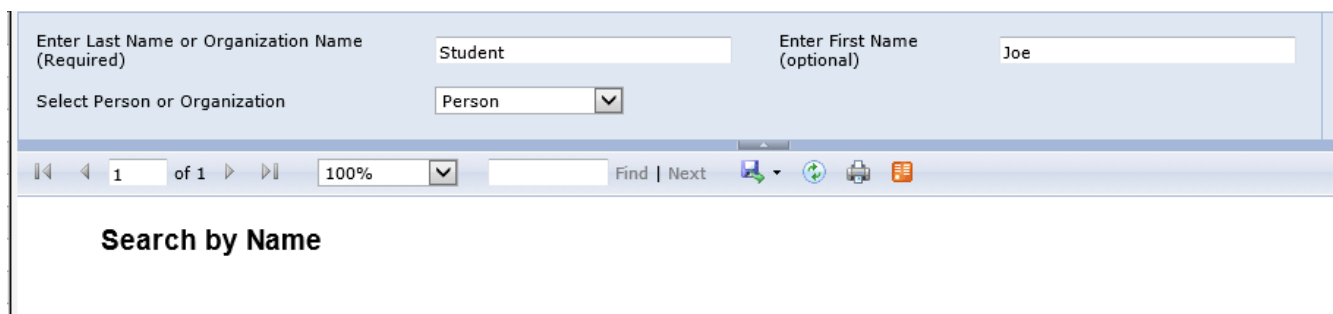
Tax Identification

Query

Transacting Person

Name	Tax Identification
Student, Jane M.	
Student, Joe A.	

Similarly, the report is created after opening the Covalent display screen from the More menu item in Relationship Profile however in this case the values are populated from the active person in Relationship Profile.



Enter Last Name or Organization Name (Required) Student Enter First Name (optional) Joe

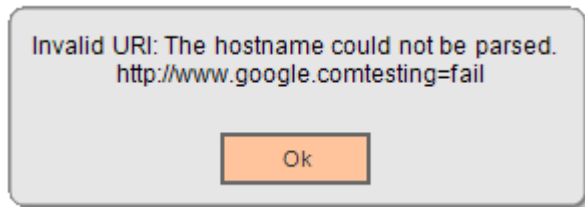
Select Person or Organization Person

1 of 1 100% Find | Next

Search by Name

It is important that parameters that are not required are not associated to a link. In this example the parameter name “testing” with a default value of “fail” was associated to the parameter code ACCT. When the link is browsed an Invalid URI error is raised.

Parameters			
Description	Code	Exact Link Parameter Name (case sensitive) ▾	Default Value (optional)
Account Number	ACCT	testing	fail
Current Entity Type	ETYP		
Account Member ...	MMBR		



A Q-Cash implementation will have parameter names and values supplied by Q-Cash.

Parameters			
Description	Code	Exact Link Parameter Name (case sensitive)	Default Value (optional)
Account Number	ACCT		
Current Entity Type	ETYP		
Account Member Number	MMBR	MemberID	
Tax Reported For Organization	ORG		
Organization Name	ORNM		
Tax Reported For Person	PERS		
Person First Name	PFNM		
Person Last Name	PLNM		
Tax ID Number	TXID		
Tax ID Number - No Hyphens	TXNH		
Q-Cash Teller ID	QTLI		
Q-Cash Location	QLOC	LOCATION	TEST

Covalent

When the Covalent display screen is opened all active links are listed on the left side of the screen. The first record in the list is selected and displayed by default.

When a link is selected by the end user and required security properties are set then the url is dynamically created using parameters names and values if they are set up and available.

The Link list in the display screen can be hidden by checking the Hide Link List checkbox.

Clicking the Clear button will refresh the browser window with the URL currently being displayed.

A Quick Search panel on the right side of the screen can be opened and used to search for entities; the entity values will be used as parameter values if a link is parameterized and its parameters have been properly set up.

Screens:**Maintain Covalent Links:****Navigation:**

System Module:

Services > System > Institution > Covalent > Links

Screen Appearance:

Existing links are displayed in the top section of the screen. The top grid is used to select links for maintenance or deletion. The bottom section is used for adding new links and editing the values of existing links.

Maintain Covalent Links

Existing Links

Link ID	Link Name	Link Order	Link Value	Security Type (optional)	HTML Y.
341	Browser Info	1	https://yourbrowser.is	None	N

Create Edit Delete

Link Details

Name

URL Test URL

Effective Date Check if return value will be HTML

Inactive Date Check if site requires an end user certificate

Order Number Security Type

Close Close Clear Review Process

Field Listing:

Field	Description
Existing Links	
Link ID	System defined ID
Link Name	The friendly name of the link; displayed in the list on the Display Content screen. Must be unique
Link Order	Defines the order in the Display Content list the link will be. Does not need to be unique. If there is more than one record with the same order number the link name is used for the alpha-numeric sort

Field	Description
Link Value	The URL to use in the web browser control in the Covalent display screen
Security Type	The security type used in the http request
HTML Y/N	Set to Yes if the URL returns raw HTML – typically this will be set to No
Effective Date	The date the link will start displaying in the Covalent display screen. Defaults to the current post date of the system
Inactive Date	The date the link will stop displaying in the Covalent display screen
Buttons	
Create	Creates a new Covalent Link
Edit	Edits the selected Covalent Link
Delete	Presents user with a dialog to confirm deletion of selected link; clicking Yes deletes the link, clicking No cancels the action
Add / Edit section	
Name	The friendly name of the link
URL	The URL to display in the web browser control
Effective Date	The date the external content link becomes effective
Inactive Date	The date the external content link becomes inactive. This date must be greater than or equal to the effective date
Order Number	The display order. Default is one more than the number of existing records
Check if the return value will be HTML	If the address returns raw HTML
Check if site requires an end user certificate	If this value is set to Y and a 403 error occurs in the web browser the end user will be asked if they would like to load a certificate
Security Type	One of four values: None, Native Mode SSRS (SQL Server Reporting Services), OAuth, SSO
Buttons	
Clear/Start New	Resets the Name, URL, Effective Date, Inactive Date, and Order Number fields
Test URL	Performs an HttpRequest and displays the response. Receiving a message stating that the URL could not be verified does not necessarily mean that the link will not work. For example, intranet sites can return this message.
Close/Cancel	Closes the screen or Cancels an edit
Process	Creates a new record or updates an existing record based on the Link ID value

Messages that can be displayed in Maintain Covalent Links:

Action	Message
When creating or updating links	A link URL is required
	A link name is required
	Link names must be unique
	An effective date is required
	Inactive date cannot be earlier than the Effective date
	Insert Link Successful

Action	Message
	Update Link Successful
When Process button is clicked without any edits	No changes have been made
When Cancel button is clicked	Cancel current edits?
When Deleting button is clicked	No link selected to delete
	Confirm that you would like to delete the link [link name] [link url]
	Note: All security values and parameters associated with the link will be deleted as well.
	1 Link Deleted
When Test URL is clicked	The web service end point address check returned code OK
	URL [link url] could not be verified [next line contains error message]
	The remote server returned an error: [various http status codes and messages can be displayed depending on the error]

Maintain Covalent Parameters:

Navigation:

System Module:
 Services > System > Institution > Covalent > Parameters

Screen Appearance:

Existing links are displayed in the top section of the screen. The bottom section is used for maintaining parameter names and default values.

Please note that the Entity Type value that will be used in a url if you give the ETYP code a parameter name value will be either the exact text "PERS" or "ORGN". Those are the values you will need to handle in an SSRS report for example.

Current Entity Type	ETYP	Either PERS or ORGN are used as the parameter value depending on the active entity type
---------------------	------	-----------------------------------------------------------------------------------------

This example SSRS report has a parameter named pers_or_org, and is programmed to make decision based on the value "PERS" or "ORGN" that is passed to it.

Parameters			
Description	Code	Exact Link Parameter Name (case sensitive) ▾	Default Value (optional)
Current Entity Type	ETYP	pers_or_org	
Person Last Name	PLNM	paramLastName	
Person First Name	PFNM	paramFirstName	
Account Number	ACCT		

Maintain Covalent Parameters

Existing Links ^

Link ID	Link Name	Link Value	Security Type
302	Test Name	Test URL	SSO

Refresh List
Edit

Parameters ^

Description	Code	Exact Link Parameter Name (case sensitive)	Default Value (optional)
Account Number	ACCT	Test Parameter Name	
Current Entity Type	ETYP		
Account Member ...	MMBR		
Tax Reported For ...	ORG		
Organization Name	ORNM		
Tax Reported For ...	PERS		
Person First Name	PFNM		
Person Last Name	PLNM		
Tax ID Number	TXID		
Tax ID Number - N...	TXNH		
Q-Cash Teller ID	QTLI		
Q-Cash Location	QLOC		
User Defined	CUST		

Cancel

 Close
 Clear
 Review

Process

Field Listing:

Field	Description
Existing Links section	
Link ID	System defined ID
Link Name	The friendly name of the link; displayed in the list on the Display Content screen. Must be unique
Link Value	The URL to use in the web browser control in the Covalent display screen
Security Type	The security type used in the http request

Field	Description
Buttons	
Refresh List	Refreshes the Existing Links grid
Edit	Edit the parameters of the selected link
Parameter Values section	
Description	Parameter description
Code	The URL to display in the web browser control
Exact Link Parameter Name (case sensitive)	Parameters in urls are case sensitive. For example, an SSRS report might require a parameter named accountNbr, or acctnbr. Use the exact parameter name here
Default Value (optional)	A default value to use. Some parameters, for example, the Q-Cash Location, will be the same for all users
Buttons	
Close/Cancel	Closes the screen or Cancels edits
Process	Inserts, updates, and deletes Parameter names and Default values

Messages that can be displayed in Maintain Covalent Parameters:

Action	Message
When Process button is clicked	[x] record(s) inserted [x] record(s) updated [x] record(s) deleted
When Process button is clicked without any edits	No changes have been made
When Cancel button is clicked	Cancel current edits?

Maintain Covalent Security:

Navigation:

System Module:
Services > System > Institution > Covalent > Security

Screen Appearance:

Existing links are displayed in the top section of the screen. The bottom section is used for editing security values.

Maintain Covalent Security

Existing Links ⌵

Link ID	Link Name	Link Value	Security Type
302	Test Name	Test URL	SSO

Refresh List Edit

Security Values

Security Type	Property Type	Value
SSO	appIDvalue	Test Security Value
SSO	appKeySSOvalue	
SSO	appSharedKeyvalue	

Cancel
 Close
 Clear
 Review
Process

Field Listing:

Field	Description
Existing Links section	
Link ID	System defined ID
Link Name	The friendly name of the link; displayed in the list on the Display Content screen. Must be unique
Link Value	The URL to use in the web browser control in the Covalent display screen

Field	Description
Security Type	The security type used in the http request
Buttons	
Refresh List	Refreshes the Existing Links grid
Edit	Edit the security values of the selected link
Security Types section	
Security Type	Security Type description
Property Type	Security Type/Property Type description
Value	The value to use for the security type/property type
Buttons	
Close/Cancel	Closes the screen or Cancels edits
Process	Inserts updates and deletes Parameter names and Default values

Messages that can be displayed in Maintain Covalent Security:

Action	Message
When Process button is clicked	[x] record(s) inserted [x] record(s) updated [x] record(s) deleted
When Process button is clicked without any edits	No changes have been made
When Cancel button is clicked	Cancel current edits?

Covalent:

Navigation:

Relationships Module:

Services > Relationships > Quick Inquiries > Covalent

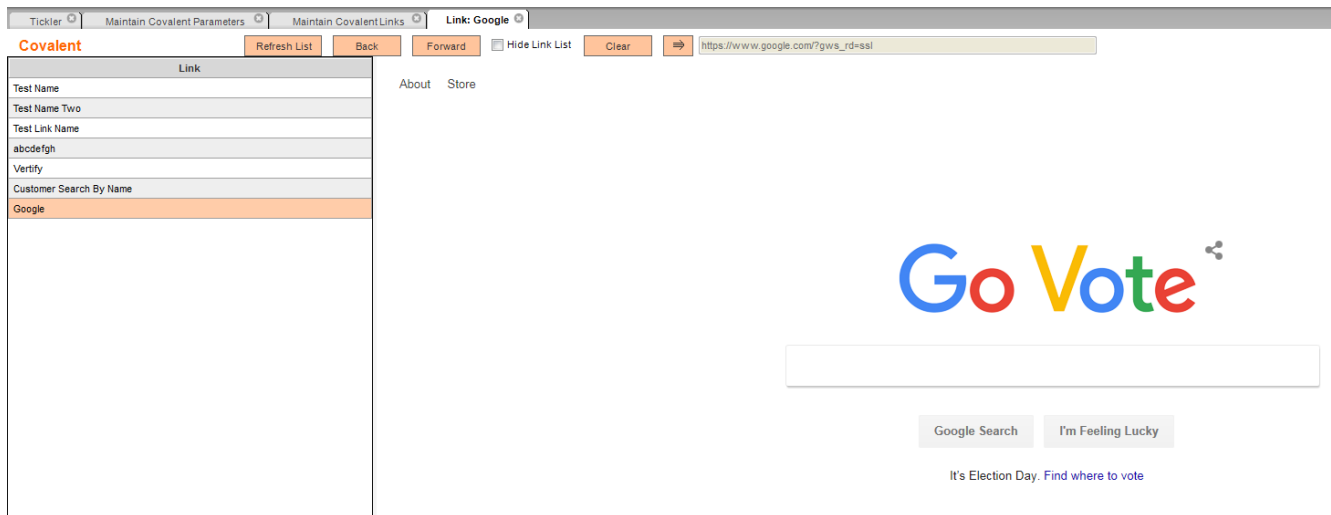
Services > Relationships > Quick Inquiries > Relationship Profile > More > Covalent

Services > Relationships > Maintenance > Person / Member > Relationship Profile > More > Covalent

Services > Relationships > Maintenance > Organization > Relationship Profile > More > Covalent

Screen Appearance:

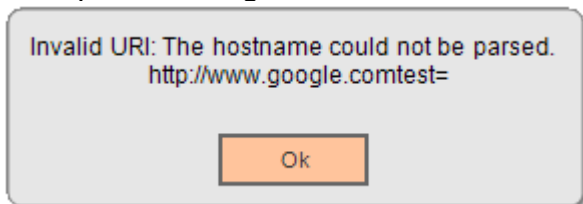
Active links are displayed in a list on the right side of the screen. The first record in the list will be displayed in the web browser by default. Clicking on any link in the list will display it.



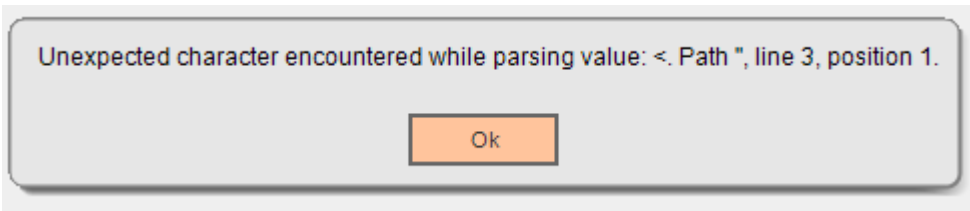
Field Listing:

Field	Description
Link	Currently active link names
Buttons	
Refresh List	Refreshes the list of active links; useful if links have been added by an administrator while you have the this screen open
Back	Navigates back through the web browsers history
Forward	Navigates forward through the web browsers history
Clear	Refreshes the currently displayed URL in the web browser
Arrows	Attempts to navigate to address in the text box currently holding the text "about:blank"
Text box holding the words about:blank	Populated with the value of the currently displayed URL. Edits can be made and submitted by clicking the Arrows button. An example: url can hold an address with a parameter value. Change the value of the parameter and re-submit.
Checkbox	
Hide Link List/Show Link List	Checking and Unchecking this box hides or shows the Link list

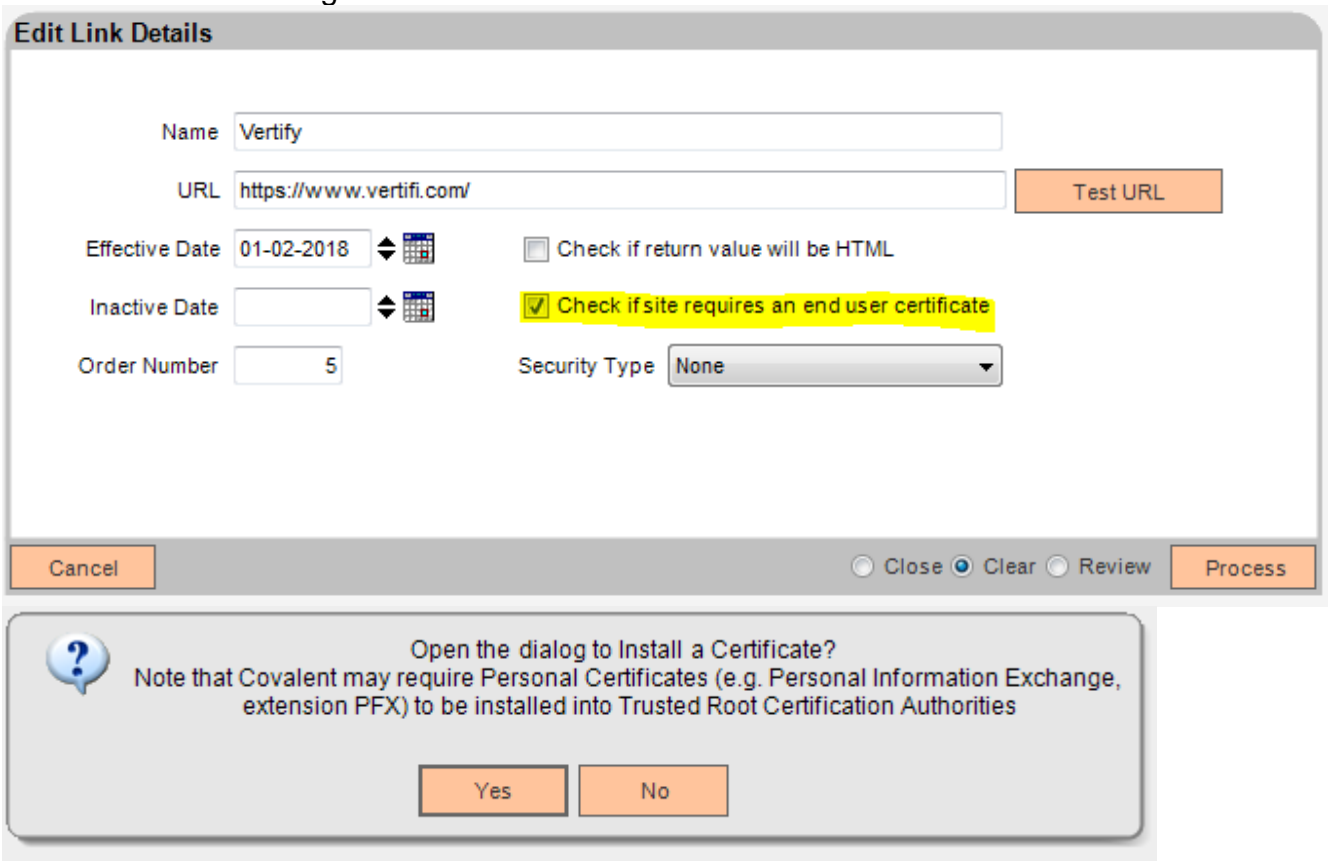
If a link is invalid a message along with the URI that was used will be displayed. In this example the Google site url is incorrect due to a parameter having been added to it.



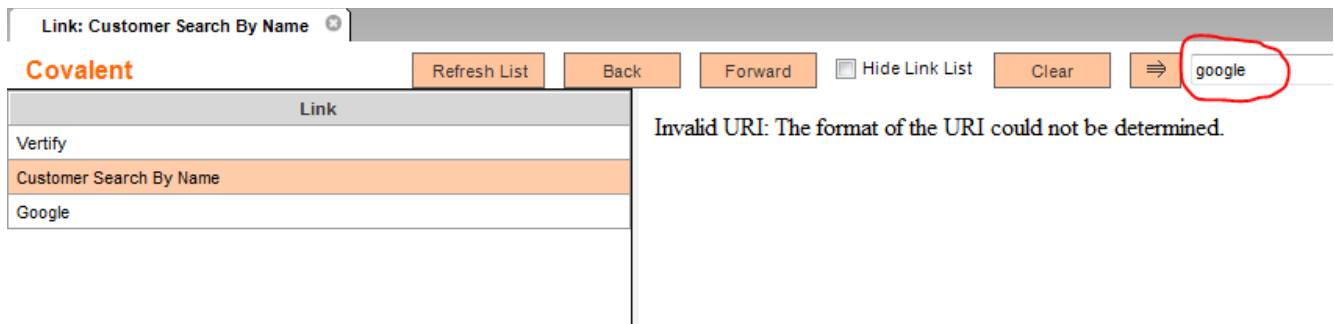
Another example of an error that can occur, in this case a link was created with a security type of SSO that does not require SSO.



Some sites may require a Certificate. If the Covalent link has a value of Y for “site requires a end user certificate” (see Covalent Links Admin screen) and a 403 error is raised in the web browser control a dialog will ask if the end user would like to install a certificate.



If the Address text box is edited and navigation is attempted (contains the word google in this case) then whatever error message is returned by the web browser is displayed



Additional Requirements:

- DNA™ 4.2.1 or above
- .NET Framework 4.5.2 (minimum)
- Q-Cash (optional – see q-cash.com)

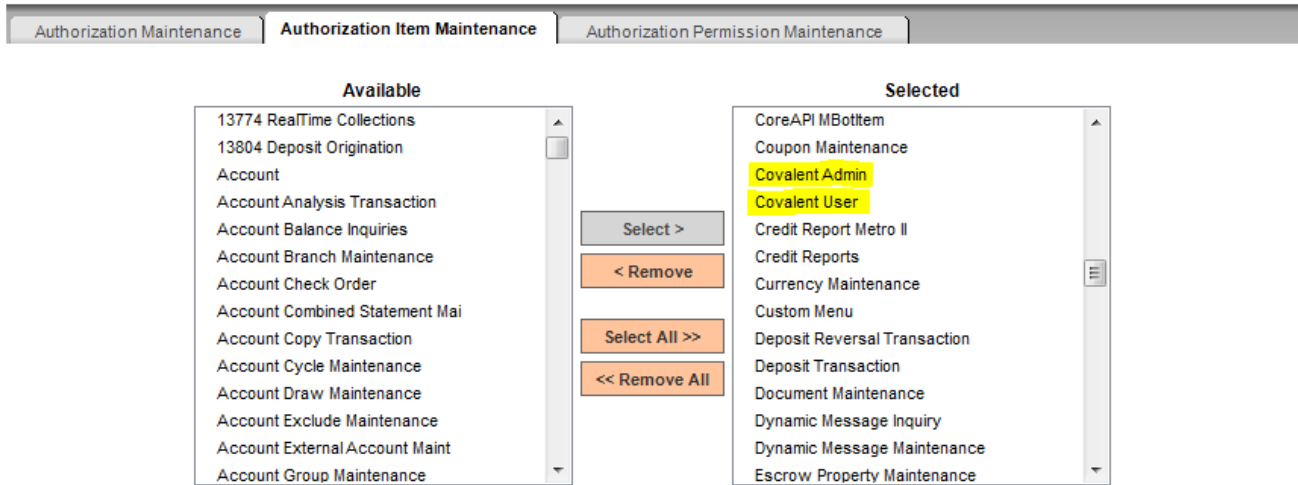
Configuration Checklist:

Item	Test Environment	Production Environment
Authorizations		

Authorizations:

Grant authorization item Covalent User ('CVTU') to end users who need to open the Covalent display links screen.

Grant authorization item Covalent Admin ('CVTA') to end users who need to open the Covalent admin screens.



Institution Options:

Navigate to Services -> System -> Institution -> Institution Options
 Select the Institution Option Category "Uncategorized"

Set option to Yes or No to control enabling/disabling of the URL address text box on the Display Content screen (screen shot shows disabled mode). If enabled an end user can type in any URL they like and use the arrow button to navigate to it.

Tickler | Maintain Covalent Parameters | Maintain Covalent Links | Link: Google

Covalent Refresh List Back Forward Hide Link List Clear ⇒ https://www.google.com/?gws_rd=ssl


Link

Verify

Customer Search By Name

Google

About Store



Institution Option

Selection Criteria

Institution Option Category:

Institution Options

Values

Code	Description	In Use YN	Value	Data Type
ALN4	AllNotes Display DynMsg	Yes	Yes	Yes/No
ALN5	AllNotes Display CLS AcctRoles	No	No	Yes/No
CVLT	Covalent URL Enabled	Yes	Yes	Yes/No
RNQ1	Rellnq Ins Agency Acct Usr Fid	Yes	AIRA	Variable Character
RNQ2	Rellnq Ins Carrier Usr Eld	Yes	AIRC	Variable Character

Auto Hide

Edit Institution Option

Option Code » Option On

Description »

Data Type »

Option Value

Close Clear Review

Revisions

Date	App Version #	Change
12/2018	2.0.0.0	<p>GUI edits for DNA consistency</p> <p>Removed pop-up blocking as it was interfering with certificates</p>
2/2018	1.1.1.1	<p>Fixed the textbox to correctly display the url when Back and Forward navigation buttons are used</p> <p>Added text to this document for the CUST parameter</p>
01/2018	1.1.1.0	<p>Changed the way that the Covalent screen launches from Relationship Profile from a new tab to a tab. This allows ActiveTask to be carried through properly, but removes the Quick Search functionality (Quick Search will still work as designed when Covalent is launched from Quick Inquiries)</p> <p>Added a column REQUIRESCERTIFICATEYN to the Covalent Links table</p> <p>Added functionality to load Certificates through Covalent</p> <p>Added an address text box and button that can be used to enter and navigate to a url</p> <p>Added an institution level bank option that controls enabling/disabling the address text box. Default is disabled</p> <p>Added more variables that can be used as parameters: ADD1: Mailing Address Line 1 ADD2: Mailing Address Line 2 ADD3: Mailing Address Line 3 ADD4: Mailing Address Line 4 ADD5: Mailing Address Line 5 CITY: Mailing Address City PNAM: Person Name SNNM: Signon Name STAT: Mailing Address State ZIP: Mailing Address Zip Code CUST: UserDefined</p>
11/2017	1.0.0.0	Created Covalent from External Content Links