

CBH Assessment Data Extractor

Van Voorst Consulting, LLC

Overview

This utility automatically extracts the data from selected assessments into either CSV files or SQL tables. The resultant file is a flat, normal, easy to use file, which can then be easily used by normal reporting or Business Intelligence tools. It also provides a SQL statement that can be used to create a SQL view to access the data directly, rather than through an exported copy.

Details

The utility consists of two components. The “front end” component allows you to select which assessments or pages you want to extract, and allow you to select which items from those pages you want. It also allows you to choose to output that assessment to either a CSV file or to dynamically create a SQL table. The column headers for the output file are based on the labels from your form and you can be overridden in the extract definition.

The output data will automatically lookup and expand all radio buttons, checklists, and selection list items as well as narrative text content.

Checklists are expanded to multiple columns, one for each item, and the data contains a “Y” or “N” depending on if the item was checked.

It also has the option to save the SQL statement that it uses to a file so that you can create a SQL view from it and pull data live at any time.

The other component is the “engine” that actually runs the data extract. The engine can be run automatically each night via Windows Task Scheduler to refresh the data extracts, or it can be interactively run from the “front end” program.

Use Case - On going reporting for assessment data

Accessing CBH Assessment data is very complicated because the data is stored in many tables. This program removes the complexity by finding all of the data and putting it in a single file.

This makes it very easy to do reports or data analysis using business intelligence tools like PowerBI or Tableau because those tools simple access that single file.

This tool can be run automatically on a daily basis to refresh the extracted data tables so that your reports are always based on data that is current as of the prior evening.

This process makes responding to data requests a minor task rather than a multiple hour task for an experienced data person.

Use Case – Data Migration

This tool can also be valuable when you are migrating to another EHR software package. This tool can be used to pull all your assessment data into a “normal” SQL database for migration or simply for historical reference without having to keep CBH up and running. It can also be used to generate the SQL statement needed to pull all the data and look up values.

NOTES

If an assessment contains a detail table (a MEW), this utility will SKIP that part of the assessment. It only collects data from the questions on the assessment, not from detail tables.

When a page extract involves multiple versions of questions, you can only output it to a SQL table, not CSV, but in either case you can output the SQL statement.

Assessment exports can only be done with page exports that were stored in SQL.

STEP-BY-STEP HOW IT WORKS

EXAMPLE: GENERATING A SQL STATEMENT

In this example, we'll use it to generate the SQL statement for an assessment and store just that statement in a file for later use.

The first step is to use the Access front end to create a new "Page" extract definition. To do that, we select the Page from the list of active pages. In this example, we'll choose the page called "Clinical Outcome Measures".

PAGE EXTRACT DEFINITIONS		Find	Add New Extract
Page	Clinical Outcomes Measure	CLINICALOUTCOME	
Extract Name	Clinical Outcomes Measure		
Output File/Table Name	Clinical Outcomes Measure		Last Run Start
Storage Location	SQL		Last Run End
Narrative Text	INCLUDE Narrative text content		Duration
Build Question List			

Next we'll click the "Build Question List" button which will read the page definition in Cerner to determine the list of questions on this page. If there are multiple versions with different questions, it will compile a comprehensive list of all of them.

Here is the result of Building the Question List:

PAGE EXTRACT DEFINITIONS

Find

[Add New Extract](#)

Page

Extract Name

Output File/Table Name

Storage Location

Narrative Text

Last Run Star

Last Run Enc

Durat

[Build Question List](#)

	Incl.	Seq #	Column Name To Use (you can change to a meaningful name)	Version		Question
				Start	End	
<input checked="" type="checkbox"/>		3	Program			3470
<input checked="" type="checkbox"/>		4	Department			3427
<input checked="" type="checkbox"/>		18	Primary			29457
<input checked="" type="checkbox"/>		19	Goal Scaling			9184
<input checked="" type="checkbox"/>		20	Stage of Change			8705
<input checked="" type="checkbox"/>		21	Secondary			29461
<input checked="" type="checkbox"/>		22	Goal Scaling_Q9185			9185
<input checked="" type="checkbox"/>		23	Stage of Change_Q8706			8706
<input checked="" type="checkbox"/>		24	Tertiary			29463
<input checked="" type="checkbox"/>		25	Goal Scaling_Q9186			9186
<input checked="" type="checkbox"/>		26	Stage of Change_Q8707			8707
<input checked="" type="checkbox"/>		29	CAFAS Score			14123
<input checked="" type="checkbox"/>		30	CANS			16629
<input checked="" type="checkbox"/>		31	CASEY			16630
<input checked="" type="checkbox"/>		33	Progress Scaling			9187
<input checked="" type="checkbox"/>		34	Stage of Change_Q8708			8708

You can see there that the column name is created using the label of the field on the form. In the event that the label is a duplicate, it will append the question number to the name to make it unique. You can rename the column names here to make them more meaningful if desired. In the next screenshot you'll see revised column names.

Incl.	Seq #	Column Name To Use (you can change to a meaningful name)	Version Start	Version End	Question
<input checked="" type="checkbox"/>	3	Program			3470
<input checked="" type="checkbox"/>	4	Department			3427
<input checked="" type="checkbox"/>	18	PrimaryConcern			29457
<input checked="" type="checkbox"/>	19	Goal Scaling Primary			9184
<input checked="" type="checkbox"/>	20	Stage of Change Primary			8705
<input checked="" type="checkbox"/>	21	SecondaryConcern			29461
<input checked="" type="checkbox"/>	22	Goal Scaling Secondary			9185
<input checked="" type="checkbox"/>	23	Stage of Change Secondary			8706
<input checked="" type="checkbox"/>	24	TertiaryConcern			29463
<input checked="" type="checkbox"/>	25	Goal Scaling Tertiary			9186
<input checked="" type="checkbox"/>	26	Stage of Change Tertiary			8707
<input checked="" type="checkbox"/>	29	CAFAS Score			14123
<input checked="" type="checkbox"/>	30	CANS			16629
<input checked="" type="checkbox"/>	31	CASEY			16630
<input checked="" type="checkbox"/>	33	Progress Scaling Overall			9187
<input checked="" type="checkbox"/>	34	Stage of Change Overall			8708

We are now ready to generate our SQL statement. We simply check the box that says “Show the SQL Statement”, then click the “Run the Extract” button.

RUN THE EXTRACT

Show SQL statement

This will start the engine process which will build the SQL statement, and will write it to a .sql file in the engine folder. (It will also create the destination SQL table and populate it with data).

Here is the SQL that it created for this definition (formatted using an online format tool):

```

SELECT TRCLPLAN.CLIENT_ID,
       TRCLPLAN.ID AS TRT_PLAN_ID,
       TRCLPLAN.DATE AS ASSESSMENT_DATE,
       TRCLPLAN.FREEZE_DATE AS FINAL_APPROVE_DATE,
       TRCLPAGE.[REVISION#] AS [CLINICALOUTCOME_REVISION],
       TRCLQDS2.[PROGRAM_TYPE] AS [Department_CODE],
       Lookup3427.LookupValue AS [Department],
       TRCLQDS2.[UNIT_ASSIGNED] AS [Program_CODE],
       Lookup3470.LookupValue AS [Program],
       TRCLQPH5.[ULCER_STAGE1] AS [Stage of Change Primary_CODE],
       Lookup8705.LookupValue AS [Stage of Change Primary],
       TRCLQPH5.[ULCER_STAGE2] AS [Stage of Change Secondary_CODE],
       Lookup8706.LookupValue AS [Stage of Change Secondary],
       TRCLQPH5.[ULCER_STAGE3] AS [Stage of Change Tertiary_CODE],
       Lookup8707.LookupValue AS [Stage of Change Tertiary],
       TRCLQPH5.[ULCER_STAGE4] AS [Stage of Change Overall_CODE],
       Lookup8708.LookupValue AS [Stage of Change Overall],
       TRCLQSC7.[GOAL_NUM1] AS [Goal Scaling Primary_CODE],

```

```

Lookup9184.LookupValue      AS [Goal Scaling Primary],
TRCLQSC7.[GOAL_NUM2]        AS [Goal Scaling Secondary_CODE],
Lookup9185.LookupValue      AS [Goal Scaling Secondary],
TRCLQSC7.[GOAL_NUM3]        AS [Goal Scaling Tertiary_CODE],
Lookup9186.LookupValue      AS [Goal Scaling Tertiary],
TRCLQSC7.[GOAL_NUM4]        AS [Progress Scaling Overall_CODE],
Lookup9187.LookupValue      AS [Progress Scaling Overall],
TRCLQSC9.[CAFAS_SC_AD]      AS [CAFAS Score],
TRCLQSCA.[FIN_STAT]         AS [CANS_CODE],
Lookup16629.LookupValue     AS [CANS],
TRCLQSCA.[EDU_STAT]         AS [CASEY_CODE],
Lookup16630.LookupValue     AS [CASEY],
TRCLQGN7.[MH_LRALENGTH]     AS [PrimaryConcern_CODE],
Lookup29457.LookupValue     AS [PrimaryConcern],
TRCLQGN7.[MH_LRAASSGNAGN1] AS [SecondaryConcern_CODE],
Lookup29461.LookupValue     AS [SecondaryConcern],
TRCLQGN7.[MH_LRAASSGNAGN2] AS [TertiaryConcern_CODE],
Lookup29463.LookupValue     AS [TertiaryConcern]

FROM TRCLPLAN
INNER JOIN TRCLPAGE
      ON TRCLPLAN.ID = TRCLPAGE.TRT_PLAN_ID
INNER JOIN TRCLQDS2
      ON TRCLPLAN.ID = TRCLQDS2.TRT_PLAN_ID
      AND TRCLPLAN.CLIENT_ID = TRCLQDS2.CLIENT_ID
LEFT JOIN (SELECT CDMISCSL.ID AS ID,
                [DESC]       AS LookupValue
           FROM   CDMISCSL
           WHERE  CATEGORY = 'TRTPRG') AS Lookup3427
      ON TRCLQDS2.[PROGRAM_TYPE] = Lookup3427.ID
LEFT JOIN (SELECT CAUNIT.ID AS ID,
                [ID]       AS LookupValue
           FROM   CAUNIT) AS Lookup3470
      ON TRCLQDS2.[UNIT_ASSIGNED] = Lookup3470.ID
INNER JOIN TRCLQPH5
      ON TRCLPLAN.ID = TRCLQPH5.TRT_PLAN_ID
      AND TRCLPLAN.CLIENT_ID = TRCLQPH5.CLIENT_ID
LEFT JOIN (SELECT CDMISCSL.ID AS ID,
                [DESC]       AS LookupValue
           FROM   CDMISCSL
           WHERE  CATEGORY = 'STAGES') AS Lookup8705
      ON TRCLQPH5.[ULCER_STAGE1] = Lookup8705.ID
LEFT JOIN (SELECT CDMISCSL.ID AS ID,
                [DESC]       AS LookupValue
           FROM   CDMISCSL
           WHERE  CATEGORY = 'STAGES') AS Lookup8706
      ON TRCLQPH5.[ULCER_STAGE2] = Lookup8706.ID
LEFT JOIN (SELECT CDMISCSL.ID AS ID,
                [DESC]       AS LookupValue
           FROM   CDMISCSL
           WHERE  CATEGORY = 'STAGES') AS Lookup8707
      ON TRCLQPH5.[ULCER_STAGE3] = Lookup8707.ID
LEFT JOIN (SELECT CDMISCSL.ID AS ID,

```

```

        [DESC]          AS LookupValue
    FROM    CDMISCSL
    WHERE   CATEGORY = 'STAGES') AS Lookup8708
    ON TRCLQPH5.[ULCER_STAGE4] = Lookup8708.ID
INNER JOIN TRCLQSC7
    ON TRCLPLAN.ID = TRCLQSC7.TRT_PLAN_ID
    AND TRCLPLAN.CLIENT_ID = TRCLQSC7.CLIENT_ID
LEFT JOIN (SELECT CDMISCSL.ID AS ID,
                [DESC]          AS LookupValue
            FROM    CDMISCSL
            WHERE   CATEGORY = 'GOALSCAL') AS Lookup9184
    ON TRCLQSC7.[GOAL_NUM1] = Lookup9184.ID
LEFT JOIN (SELECT CDMISCSL.ID AS ID,
                [DESC]          AS LookupValue
            FROM    CDMISCSL
            WHERE   CATEGORY = 'GOALSCAL') AS Lookup9185
    ON TRCLQSC7.[GOAL_NUM2] = Lookup9185.ID
LEFT JOIN (SELECT CDMISCSL.ID AS ID,
                [DESC]          AS LookupValue
            FROM    CDMISCSL
            WHERE   CATEGORY = 'GOALSCAL') AS Lookup9186
    ON TRCLQSC7.[GOAL_NUM3] = Lookup9186.ID
LEFT JOIN (SELECT CDMISCSL.ID AS ID,
                [DESC]          AS LookupValue
            FROM    CDMISCSL
            WHERE   CATEGORY = 'GOALSCAL') AS Lookup9187
    ON TRCLQSC7.[GOAL_NUM4] = Lookup9187.ID
INNER JOIN TRCLQSC9
    ON TRCLPLAN.ID = TRCLQSC9.TRT_PLAN_ID
    AND TRCLPLAN.CLIENT_ID = TRCLQSC9.CLIENT_ID
INNER JOIN TRCLQSCA
    ON TRCLPLAN.ID = TRCLQSCA.TRT_PLAN_ID
    AND TRCLPLAN.CLIENT_ID = TRCLQSCA.CLIENT_ID
LEFT JOIN (SELECT CDMISCSL.ID AS ID,
                [DESC]          AS LookupValue
            FROM    CDMISCSL
            WHERE   CATEGORY = 'GOALSCAL') AS Lookup16629
    ON TRCLQSCA.[FIN_STAT] = Lookup16629.ID
LEFT JOIN (SELECT CDMISCSL.ID AS ID,
                [DESC]          AS LookupValue
            FROM    CDMISCSL
            WHERE   CATEGORY = 'GOALSCAL') AS Lookup16630
    ON TRCLQSCA.[EDU_STAT] = Lookup16630.ID
INNER JOIN TRCLQGN7
    ON TRCLPLAN.ID = TRCLQGN7.TRT_PLAN_ID
    AND TRCLPLAN.CLIENT_ID = TRCLQGN7.CLIENT_ID
LEFT JOIN (SELECT CDMISCSL.ID AS ID,
                [DESC]          AS LookupValue
            FROM    CDMISCSL
            WHERE   CATEGORY = 'TXCONCER') AS Lookup29457
    ON TRCLQGN7.[MH_LRALENGTH] = Lookup29457.ID
LEFT JOIN (SELECT CDMISCSL.ID AS ID,

```

```

        [DESC]          AS LookupValue
    FROM    CDMISCSL
    WHERE   CATEGORY = 'TXCONCER') AS Lookup29461
    ON TRCLQGN7.[MH_LRAASSGNAGN1] = Lookup29461.ID
LEFT JOIN (SELECT CDMISCSL.ID AS ID,
                [DESC]          AS LookupValue
    FROM    CDMISCSL
    WHERE   CATEGORY = 'TXCONCER') AS Lookup29463
    ON TRCLQGN7.[MH_LRAASSGNAGN2] = Lookup29463.ID
WHERE TRCLPAGE.PAGE_ID = 'CLINICALOUTCOME'
AND TRCLPLAN.FREEZE_DATE > '1/1/1900'
AND ( TRCLPLAN.VOID_FLAG IS NULL
    OR TRCLPLAN.VOID_FLAG <> 'Y' )
AND TRCLPAGE.[REVISION#] >= 0.00
AND TRCLPAGE.[REVISION#] < 999

```

You'll see that every column that needed a value looked up in another table has been handled and looked up. It adds a second field to the table to show the looked up value. The original coded field is given a “_CODE” suffix.

If this form contained checklist items, each item becomes its own column.

This SQL is directly useable. When run in SQL Management Studio, it produces this output (broken up in sections for this document):

CLIENT_ID	TRT_PLAN_ID	ASSESSMENT_DATE	FINAL_APPROVE_DATE	CLINICALOUTCOME_REVISION	Program_CODE	Program	Department_CODE	Department
17432	118891	2021-01-08 00:00:00.000	2021-01-19 00:00:00.000	1.01	3210	3210	SRSUBAB	SECURE RESIDENTIAL - SUBSTANCE ABUSE
21632	118917	2021-01-25 00:00:00.000	2021-01-22 00:00:00.000	1.01	3030	3030	ORSEXOFF	OPEN RESIDENTIAL - SEX OFFENDER
24610	118955	2021-01-06 00:00:00.000	2021-01-27 00:00:00.000	1.01	3220	3220	SRSUBAB	SECURE RESIDENTIAL - SUBSTANCE ABUSE
23312	118960	2021-01-07 00:00:00.000	2021-01-27 00:00:00.000	1.01	3220	3220	SRSUBAB	SECURE RESIDENTIAL - SUBSTANCE ABUSE
24776	118962	2021-01-16 00:00:00.000	2021-01-27 00:00:00.000	1.01	3220	3220	SRSUBAB	SECURE RESIDENTIAL - SUBSTANCE ABUSE
24637	118967	2021-01-27 00:00:00.000	2021-01-27 00:00:00.000	1.01	3220	3220	SECRES	SECURE RESIDENTIAL
22997	118997	2021-01-15 00:00:00.000	2021-02-01 00:00:00.000	1.01	3130	3130	SECRES	SECURE RESIDENTIAL
23324	119015	2021-01-19 00:00:00.000	2021-02-03 00:00:00.000	1.01	3130	3130	SRESDD	RESIDENTIAL - DD
23092	119050	2021-01-02 00:00:00.000	2021-02-08 00:00:00.000	1.01	3210	3210	SECRES	SECURE RESIDENTIAL
20020	119053	2021-02-25 00:00:00.000	2021-02-26 00:00:00.000	1.01	3200	3200	SECRES	SECURE RESIDENTIAL

PrimaryConcern_CODE	PrimaryConcern	Goal Scaling Primary_CODE	Goal Scaling Primary	Stage of Change Primary_CODE	Stage of Change Primary	SecondaryConcern_CODE	SecondaryConcern
DEP	Depression	C	Completed	A	Action	DLS	Daily Living Skills
SEX	Sexually Problematic Behaviors	1	Some Improvement (+1)	C	Contemplation	DLS	Daily Living Skills
SUD	Substance Use	1	Some Improvement (+1)	C	Contemplation	TR	Trauma
DEP	Depression	-1	Some Regression (-1)	PC	Pre-Contemplation	SUD	Substance Use
SUD	Substance Use	0	No Change (0)	C	Contemplation	DEL	Delinquency
AG	Aggression	0	No Change (0)	C	Contemplation	ANX	Anxiety
DEP	Depression	0	No Change (0)	A	Action	SUI	Suicide Ideation
AG	Aggression	2	Significant Improvement (+2)	A	Action	DLS	Daily Living Skills
DEP	Depression	C	Completed	P	Preparation	TR	Trauma
TR	Trauma	0	No Change (0)	PC	Pre-Contemplation	AG	Aggression

Goal Scaling Secondary_CODE	Goal Scaling Secondary	Stage of Change Secondary_CODE	Stage of Change Secondary	TertiaryConcern_CODE	TertiaryConcern	Goal Scaling Tertiary_CODE	Goal Scaling Tertiary
C	Completed	A	Action	SUD	Substance Use	C	Completed
1	Some Improvement (+1)	A	Action	NULL	NULL	NULL	NULL
1	Some Improvement (+1)	C	Contemplation	DLS	Daily Living Skills	1	Some Improvement (+1)
0	No Change (0)	C	Contemplation	TR	Trauma	-1	Some Regression (-1)
0	No Change (0)	PC	Pre-Contemplation	ANX	Anxiety	0	No Change (0)
0	No Change (0)	C	Contemplation	NULL	NULL	NULL	NULL
0	No Change (0)	A	Action	DLS	Daily Living Skills	1	Some Improvement (+1)
1	Some Improvement (+1)	A	Action	TR	Trauma	0	No Change (0)
2	Significant Improvement (+2)	P	Preparation	ANX	Anxiety	2	Significant Improvement (+2)
1	Some Improvement (+1)	C	Contemplation	NULL	NULL	NULL	NULL

Stage of Change	Tertiary_CODE	Stage of Change	Tertiary	CAFAS Score	CANS_CODE	CANS	CASEY_CODE	CASEY
P		Preparation		90	C	Completed	NULL	NULL
NULL		NULL		NULL	1	Some Improvement (+1)	1	Some Improvement (+1)
P		Preparation		120	1	Some Improvement (+1)	NULL	NULL
PC		Pre-Contemplation		140	NULL	NULL	NULL	NULL
C		Contemplation		110	NULL	NULL	NULL	NULL
NULL		NULL		NULL	1	Some Improvement (+1)	0	No Change (0)
P		Preparation		NULL	NULL	NULL	NULL	NULL
M		Maintenance		NULL	1	Some Improvement (+1)	NULL	NULL
P		Preparation		NULL	2	Significant Improvement (+2)	1	Some Improvement (+1)
NULL		NULL		NULL	1	Some Improvement (+1)	NULL	NULL

Progress Scaling Overall_CODE	Progress Scaling Overall	Stage of Change Overall_CODE	Stage of Change Overall
C	Completed	A	Action
1	Some Improvement (+1)	C	Contemplation
1	Some Regression (-1)	C	Contemplation
-1	Some Regression (-1)	C	Contemplation
0	No Change (0)	PC	Pre-Contemplation
1	Some Improvement (+1)	C	Contemplation
2	Significant Improvement (+2)	A	Action
2	Significant Improvement (+2)	M	Maintenance
2	Significant Improvement (+2)	P	Preparation
1	Some Improvement (+1)	C	Contemplation

As you can see, all the data from the assessment is presented in the output, and all lookup values have been looked up. The output is ready for immediate, and simple, use by report writers and data extracts. Additionally, it includes the CLIENT_ID field to allow you to easily link to other CBH tables – such as CDCLIENT if you needed to have the case number or client name included.

For data extract purposes, you could save this SQL statement as a SQL view and then reference it in your data extract queries.