

# 1.8.1a Release Notes

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# Important links

## Downloads:

- i2b2 Download Page (binaries and virtual machine): <https://www.i2b2.org/software/index.html>
- i2b2 - New Web client with redesigned user interface (source code) [i2b2/i2b2-webclient: Source code for the i2b2 Web Client \(github.com\)](#)
- i2b2 GitHub (source code:) [i2b2 Foundation \(github.com\)](#)

## Documentation:

- Data Export: [Data Exporter \(v 1.8.1\)](#)
- i2b2-omop install: [i2b2-on-OMOP With ENACT-OMOP Ontology v4.1](#)
- totalnum counting scripts: [Patient Counting Scripts \("totalnum"\)](#)
- New Web client reference: [New Web Client Install Guide](#) and [Help](#)
- Digital Twin Bundle (distributed separately): [Digital Twin Technologies](#)

## 1.8.1a Release Notes

i2b2 1.8.1a Release builds on the rewritten web interface introduced in 1.8 with new features and new administration tools, it introduces a powerful new data export module, and it adds core support for the OMOP data model on Postgres databases (adding to MSSQL and Oracle databases in 1.8).

This release includes fix for breakdown queuing for SQL and Postgres queries when the SQL breakdowns take a long time to finish after the patientset completes - references [CORE-443](#)

## Highlight of Features

### Top New Features

Description		
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Modern UI  
Enhancements  
with Admin  
Console

**i2b2 Query & Analysis Tool**
Find Patients Analysis Tools

**Terms**

- ACT COVID-19
- ACT Demographics
- ACT Diagnoses ICD-10-CM
- ACT Diagnoses ICD9-CM
- ACT Diagnoses ICD-9-CM
- ACT Laboratory Tests
- ACT Laboratory Tests (Professional)
- ACT Medications Alphabetical
- ACT Medications VA Classes
- ACT Procedures CPT-4
- ACT Procedures HCPCS
- ACT Procedures ICD-9-PCS
- ACT Procedures ICD-9-Proc
- ACT Research
- ACT Social Determinants of Health
- ACT Vaccination
- ACT Vital Events
- ACT Vital Signs
- ACT Zip Code

**Info** Workplace

**G00-G99 Diseases Of The Nervous System (G00-G99) (2015AB-2022AB)**

**Description**  
This term is a draggible folder which can be used in a query. The term represents the code of ICD10CM G00-G99 and may have children below it.

**Concept Path**  
 ACT\_DX\_ICD10\_2015ACTDiagnosisICD10V2\_2018AAA2008482A18921535

**SQL Code (to retrieve children)**  
SELECT \* FROM concept\_dimension WHERE concept\_path LIKE '%ACTDiagnosisICD10V2\_2018AAA2008482A18921535%';

**Values**  
This term does not allow values to be set.

**Queries**

- G00-G99 Diseases Of The Nervous System (G00-G99) (2010AB-100-89 Diseases Of
- G00-G99 Diseases Of The Nervous System (G00-G99) (2010AB-2022AB)@16:1-11 [1]
- G00-G99 Diseases Of The Nervous System (G00-G99) (2010AB-2022AB)@16:1-11 [1]
- C50-C50 Malignant Neoplasms Of Breast (C50) (2010AB-2022AB)@11:3-2 [9-26-2014
- C50-C50 Malignant Neoplasms Of Breast (C50) (2010AB-2022AB)@11:54-21 [9-26-20
- C50-C50 Malignant Neoplasms Of Breast (C50) (2010AB-2022AB)@11:50-14 [9-26-20
- C50-C50 Malignant Neoplasms Of Breast (C50) (2010AB-2022AB)@11:48-16 [9-26-20

**Find Patients**  with  without  when

G00-G99 Diseases Of The Nervous System (G00-G99) (2015AB-2022AB) - 23141

Set date range and/or occurrence for this entire panel

and  with  without  when

I00-I99 Diseases Of The Circulatory System (I00-I99) (2015AB-2022AB) - 54839

Set date range and/or occurrence for this entire panel

or drag additional concepts

or drag a concept here to define inclusion or exclusion criteria

**Name:** G00-G99 Diseases Of The Nervous System (G00-G99) (2015AB-100-89 Diseases Of The Circulatory System (I00-I99) (20 Find Patients Clear All

**Query Status**

**Age patient breakdown**

**Results Details**  
Number of patients: 1596  
patient\_count: 1596

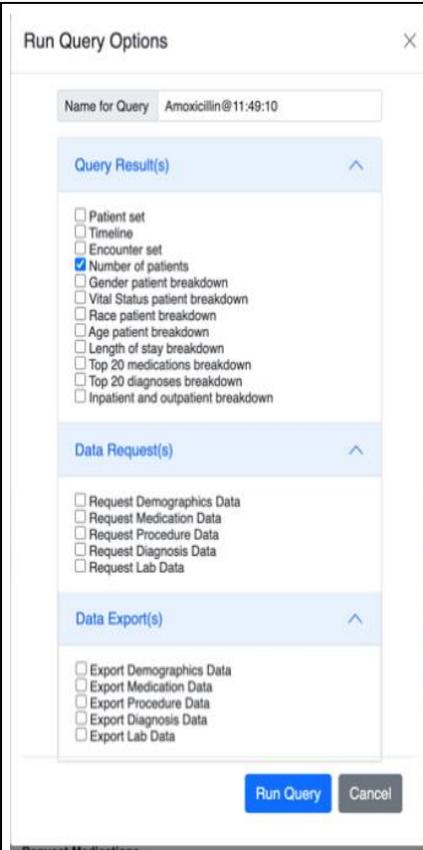
**USERS PROJECTS HIVE**

**+ ADD NEW PROJECT**

Name	Description	Key	Wiki	Path	Actions
i2b2 ACT			http://www.i2b2...	/ACT	
i2b2 ACT ORACLE				/ACTORACLE	
i2b2 ACT Postgres				/ACTPostgres	
i2b2 Demo			http://www.i2b2...	/Demo	
i2b2projzou				/i2b2projzou	
i2b2 ACT 1			http://www.i2b2...	/NODE1	
i2b2 ACT 10			http://www.i2b2...	/NODE10	

The new webclient has been enhanced with new features such as faster term search, streamlined icons, and an administration console.

[Data Exporter extension for i2b2](#)



Using the Run Query breakdown dialog, patient data can be exported as flat files to be loaded into SAS, R and other data analytic tools for further analysis.

ACT Ontology Version 4.1

- + ACT COVID-19
- + ACT Demographics
- + ACT Diagnoses ICD-9-CM
- + ACT Diagnoses ICD-10-CM
- + ACT Diagnoses ICD10-ICD9
- + ACT Laboratory Tests
- + ACT Laboratory Tests (Provisional)
- + ACT Medications Alphabetical
- + ACT Medications VA Classes
- + ACT Procedures ICD-9-Proc
- + ACT Procedures CPT-4
- + ACT Procedures HCPCS
- + ACT Procedures ICD-10-PCS
- + ACT Research
- + ACT Social Determinants of Health
- + ACT Vaccination
- + ACT Visit Details
- + ACT Vital Signs
- + ACT Zip Code

Version 4.1 provides 19 ontologies supporting i2b2 and OMOP CDM architectures on ORACLE, SQLServer and Postgres databases.

<p><a href="#">i2b2 on OMOP for Postgres database</a></p>		<p>The core i2b2 platform now supports the OMOP data model on Postgres database (adding to existing Oracle and SQLServer OMOP support), which is queryable through the comprehensive ENACT-OMOP Ontology.</p>
<p><a href="#">Digital Twin Bundle</a> (distributed separately)</p>		<p>Tools for computing loyalty cohorts and computational phenotypes in i2b2.</p>
<p>Bug fixes</p>		

**Community-Contributed Features**

Contribution	Contributor	Description
<p><a href="#">ACT-Ontology Version V4.1</a></p>	<p><b>Michele Morris</b> (University of Pittsburgh)</p>	<p>The ACT V4.1 Ontology supporting i2b2 and OMOP CDMs enables queries to be run in i2b2 query tool against ORACLE, SQLServer and Postgres databases.</p>

**Detailed Documentation on New Features**

**Data Exporter extension for i2b2**

i2b2 can now export patient data for a patient set. The workflow involves breakdowns in the webclient, which allow users to request exports and data managers to generate exports. The export types and options are fully configurable in the database. Detailed documentation on set up can be found here: [Data Exporter Set-up](#)

The below steps describe the overall process:

- User logs into i2b2 webclient and runs a regular i2b2 query, checking the desired **Data request** breakdown option when running the query.
- E-mail is sent to the data manager and the User, informing them that the user's data request has been made.
- The manager logs in and reruns the user query with the **Data Export** breakdown selection to generate the export flat files.
- The generated export flat file is stored in a configurable location on the i2b2 server.
- An e-mail is sent to the manager confirming the file extract and how to access the files (which can be shared with the requester).

### **Steps to upgrade:**

First, install the new war file. Next, upgrade the database. Because the upgrade requires loading some new content from the NewInstall, we have created an ant target to upgrade the data tables: `upgrade_tables_release_1-8-0` This should be run from Upgrade/CrcData, e.g., `ant f data_build.xml upgrade_tables_1 8-0`

Detailed upgrade instructions can be found here: [Upgrade to version 1.8.1](#)

### **ACT - V4.1 Ontology**

The V4.1 Ontology includes 19 ontologies- 3 new and 11 updated and 5 unchanged

Metadata and CRC zip files are provided to load the latest ENACT Version-4.1 ontology into your db schema using ANT scripts.

The CPT4 ontology table is not included with i2b2 due to AMA restrictions on redistribution of CPT code information. Contact the ENACT team to get a copy if your institution is an AMA member.

### **ACT V4.1 data load process**

1. Download and extract the newinstall zip package from "Download Binary Distribution" in the top section of <https://www.i2b2.org/software>
2. Edit the `edu.harvard.i2b2.data\Release_1-8\NewInstall\Metadata\db.properties` file to update the project properties to 'ACT' ; `db.project=ACT`
3. From the `edu.harvard.i2b2.data\Release_1-8\NewInstall\Metadata` folder, run the ant command: `ant -f data_build.xml db_metadata_load_data`. This will execute the SQL

scripts from the edu.harvard.i2b2.data\Release\_1-8\NewInstall\Metadata\act\scripts\<db type> folder to create and load the metadata tables

4. From the edu.harvard.i2b2.data\Release\_1-8\NewInstall\crdata folder, run the ant command: ant -f data\_build.xml db\_demodata\_load\_data. This will execute the SQL scripts from the edu.harvard.i2b2.data\Release\_1-8\NewInstall\crdata\act\scripts\<db type> folder to create and load the concept\_dimension
5. Run the scripts from the edu.harvard.i2b2.data\Release\_1-8\NewInstall\Metadata\<dbtype>\scripts folder to load the Schemes, Table\_access tables
6. You can now verify the new Ontology by logging into the webclient

Additional details on the ontology are available at [this link](#).

### ACT i2b2 on OMOP for Postgres database

ACT i2b2 on OMOP functionality uses ACT Ontology in the front-end and enables the i2b2 Software to run against Postgres database that uses the OMOP CDM architecture.

For enabling use of an OMOP database with i2b2, follow the instructions in the install guide for a new install of i2b2 using the i2b2-OMOP install option. The documentation here will guide you through this process. [i2b2-on-OMOP With ENACT-OMOP Ontology v4.1](#)

For historical reference on old 2018 OMOP installation , refer to [OMOP Home on i2b2 Community Wiki](#)

## Changelog

### Database Drivers

The JDBC drivers were updated to the following versions.

<b>Server Type</b>	oracle	Postgresql	mssql
<b>Driver Version</b>	ojdbc8.jar	postgresql-42.7.1.jar	mssql-jdbc-12.4.2.jre8.jar

### Supported Db Server versions

Server Type	SQL Server	Oracle	PostgresSQL
<b>Supported Version/s</b>	2012+ (tested with up to 2022)	23.3	9 to 14

## Supported software versions

Application Type	Java	Wildfly	Apache HTD	Apache Ant	Apache Axis2	PHP
Supported Version/s	8 or 11	17.0.1Final	2.0 (RHEL 6) and 2.2 (RHEL 7)	1.9.6	1.7.1	7.2.27 or higher

## Supported Operating Systems

Rocky linux 8 and 9, CentOS versions 7

Windows 2016 -2019

- There is a new PHP install process for IIS in the i2b2 install guide: [2.5.3.2 PHP for Windows](#)

Unofficially, MacOS and other flavors of Linux are likely to work.

## i2b2 Server and Client Changes

### New Features and Improvements

Web client
<a href="#">WEBCLIENT-360</a> New web client User Interface fixes/improvements for 1.8.1
Core-server
<a href="#">CORE-428</a> Data export Extension for i2b2 using java classes and breakdowns
<a href="#">CORE-448</a> I2b2 on OMOP- Postgres - java changes
<a href="#">CORE-447</a> Update JDBC drivers
<a href="#">CORE-450</a> html injection in Queryname and workplace

## i2b2 Database Changes

### New Features and Improvements

<a href="#">DATA-17</a> ACT v4.1 ontology - ANT scripts (github)
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<a href="#">DATA-24</a> I2b2 on OMOP- Postgres
<a href="#">DATA-38</a> Loyalty cohort and computational phenotypes stored procedures for MSSQL and ORACLE
<a href="#">DATA-32</a> Faster Totalnum (patient counting) script!

## Bug Fixes

Core-server / Data
<a href="#">CORE-440</a> Queries from queue are not processing and returning back_
<a href="#">CORE-443</a> Breakdown queueing
<a href="#">DATA-43</a> old crcdata folder , metadata1 subfolder 1.8.1 issue fixes

## Notes for Developers

- For Java 11 install, if you change the xsd (REST API message definitions), then you will need to regenerate gensrc via JAXB in Java 8. In the i2b2-core cell directory for which you're regenerating the XSD-Java, run the ant target "jaxb\_gen" on Java 8 and then build as usual using Java 11.
  - For developers that need to recompile the new admin tool in the webclient, remove the package-lock.json file from i2b2-webclient/plugins/edu/harvard/catalyst/admin-tool/ before compiling. This will ensure you have the latest non-breaking changes for all third-party libraries used in building the tool, including security fixes.
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