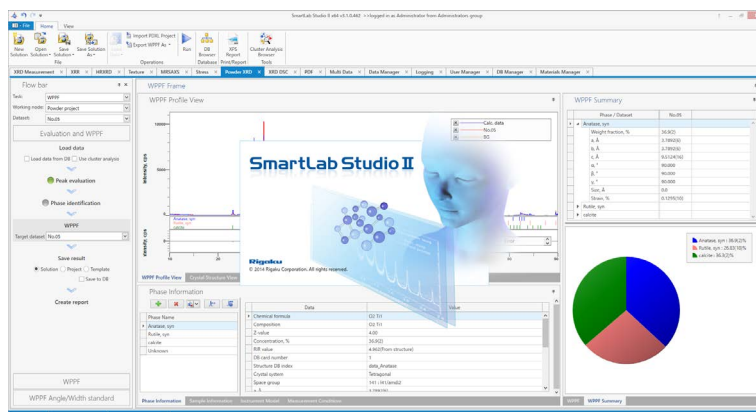


# Integrated X-ray diffraction software

## SmartLab Studio II

—New features—



### 1. Introduction

SmartLab Studio II is an integrated X-ray diffraction software package for making both measurements and analyses using SmartLab, an automated multipurpose X-ray diffractometer. Two years ago<sup>(1)</sup>, the user guidance feature, flow bars, chart control, report manager, SQL database<sup>\*1</sup>, and plugin modules were introduced. Now we would like to announce several new features of SmartLab Studio II for the SmartLab SE system which was launched to the market in April, 2017.

### 2. Enhancement of ER/ES features

SmartLab Studio II fully complies with the regulations and guidelines for pharmaceutical production and sales (21 CFR Part11, EU-GMP Annex11, PIC/S). The User Manager, Audit Trail Viewer<sup>\*2</sup>, and SQL database support all the required features, such as access restriction and management to the system by a user ID and password, setting permissions to each user account, guarantee of data integrity, electronic signature, audit trails of operator entries and actions, and so forth. Archiving electronic records and a backup function are available so you can preserve the large number of data sets that have been collected and analyzed over a long period, even in one PC.

### 3. New database browser

A new database browser (Fig. 1) provides almost the same features as those of Windows Explorer: copy data, create a folder, move data to a folder, rename data, etc. Compared to the legacy list-view-type browser, it is much easier to handle data sets in the SQL database

as if they were stored in the Windows file system. It is, for example, possible to restrict browsing data sets from any other users except the data owner (creator) using data sharing settings. When you use SmartLab Studio II in ER/ES mode<sup>\*3</sup>, only authorized users can delete or overwrite data. Edited data will be saved with the same name and a new revision number.

### 4. Transfer data to analysis plugins

When you wanted to perform data collections and analyses using the previous version of SmartLab Studio II, you had to take the following steps: (1) Collect data with the XRD Measurement plugin. (2) Save the collected data. (3) Switch to the analysis plugin. (4) Load the saved data. With the new version, after data collection you only have to select the analysis plugin for your purpose from the Transfer Data menu. The data displayed in the XRD Measurement plugin will be loaded and displayed by the selected analysis plugin.

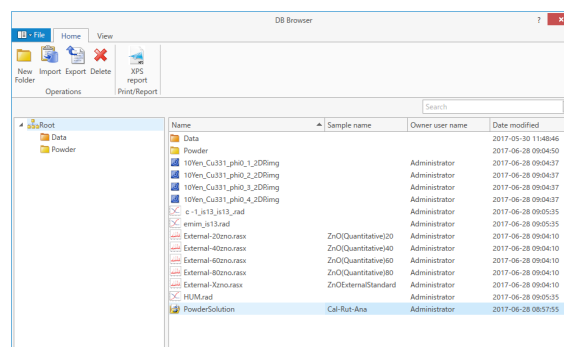


Fig. 1. A new database browser.



data handling and management become much easier, not to mention measurements and analyses. In particular, several features have been enhanced for handling a lot of data sets, which will contribute to reducing the time of analysis and report creation.

**\*<sup>1</sup> SQL database**

To consolidate all the information such as user accounts, collected data, analysis results, etc. SmartLab Studio II utilizes the Microsoft SQL server database. Data security is tightened compared to the file system, and it is easier to manage loading or deleting data in the database.

**\*<sup>2</sup> Audit Trail Viewer**

A plugin displays audit trails in ER/ES mode. This plugin provides a good filtering function to filter the audit trails under several conditions. You can easily display only the desired part of the audit trails.

**\*<sup>3</sup> ER/ES mode (Electronic Record and Electronic Signature)**

Use the ER/ES mode under conditions requiring the integrity of electronic records and the need to add electronic signatures. It is possible to electronically sign analysis results in this mode. When creating a report from signed analysis data, signature information is shown on the report. The history of user entries and operations is recorded in the database as an audit trail.

**\*<sup>4</sup> TDI scan**

A high-speed scan method using 1D strip detectors or 2D pixel detectors. Since the intensities collected by a large number of strips or pixels can be accumulated due to the high position sensitivity of the detectors, high intensity will be obtained even with a high-speed scan.

**Reference**

( 1 ) *Rigaku Journal (English version)*, **31** (2015), No. 2, 25–26.