Addendum

to Operator's Manual version 4.2.1 and COBI CD version 1.0

cobas® 8000 modular analyzer series
Software version 05-02

Roche

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Document information

Document version	Software version	Revision date	Changes
4.2.2	05-02	2016-05	Minor changes and additions to V4.2.1 of the Operator's Manual and the Online Help. Two changes apply to the COBI CD V1.0 and 1.01

Table 1 Revision history

Edition notice

This addendum contains supplementary information for operators of the **cobas**® 8000 modular analyzer series. It is meant to complement the version 4.2.1 of the Operator's Manual and Online Help.

Every effort has been made to ensure that all the information is correct at the time of publishing. However, Roche Diagnostics reserves the right to make any changes necessary without notice as part of ongoing product development.

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Document information

The license agreement for UltraVNC software has been added. UltraVNC replaces pcAnywhere.
Additional approvals: The statements for compliance with the Radio Equipment Directive and the RoHS Directive have been added.

License agreement for UltraVNC software

UltraVNC is a piece of free software for all commercial uses. It is installed on the control unit PC of the **cobas**® 8000 modular analyzer series.

You can redistribute the software and/or modify it under the terms of the GNU General Public License (version 2 or later), as published by the Free Software Foundation. A copy of the GNU General Public License (version 2) is stored on the control unit PC. The path for the license is C:\Program Files\uvnc bvba\UltraVNC.

The software is distributed without warranty. There is no implied warranty of merchantability or fitness for a particular purpose. For more information, see the GNU General Public License at http://www.gnu.org/licenses.

The source code for the software is stored on the control unit PC. The path for the source code is C:\DriversAndTools\UltraVNC.

Additional approvals

In addition to the existing approvals, the instrument also meets the requirements laid down in:

Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonization of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC.

Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Compliance is provided by means of the Declaration of Conformity.

The following marks demonstrate compliance:

IVD	For *in vitro* diagnostic use.
CE	Complies with the IVD directive 98/79/EC on *in vitro* diagnostic medical devices
C ETL US	Issued by Intertek for Canada and the US.

Chapter: cobas c 702 module

Top view > Reagent manager

Unloading tray

The second bullet point in the tip has been deleted because the on-board stability is not written onto the RFID tag.

Unloading reagent packs The unloading tray is of the drawer type and you must open it to remove reagent packs. Once the tray is completely open, the system resets the inventory of reagent packs present on the tray.

Additionally, you can manually unload specific reagent packs to the tray via the user interface (**Reagent > Setting > R. Pack Unloading**).

- Be sure to pull the unloading tray forward all the way to take out reagent packs. Otherwise, the system will not reset the inventory of reagent packs present on the tray.

Chapter: cobas e 602 module

Top view > Measuring area

Immunoassay analysis workflow

The measurement unit has been corrected in step 6 of the table: 130 µL of reaction mixture are aspirated (not 130 mL).

		Description of a measurement sequence
1	Preparation	After start, the instrument mechanic moves to its default position. Every 21 seconds a sample sequence is performed. The xyz arm (gripper) transports an AssayTip into the AssayTip station and an AssayCup into the incubator.
2	Adding reagents	The reagent probe aspirates R1, is rinsed at the rinse station and aspirates R2. Then R1/R2 are dispensed into the AssayCup.
3	Adding sample	The sample probe takes the AssayTip and aspirates sample. The sample is dispensed into the AssayCup. The sample probe aspirates mixture of R1/R2 and sample and dispenses the mixture again into the AssayCup (tip mixing). The AssayCup with reaction mixture is incubated at 37°C for 9 minutes.
4	Adding microbeads	Before the first incubation is completed, the microbeads are mixed (3.7 seconds). The reagent probe aspirates the microbeads and dispenses them into the AssayCup. The gripper picks up and transports the AssayCup with the reaction mixture into the vortex mixing station and afterwards back into the incubator. The AssayCup is incubated again at 37°C for 9 minutes.
5	Preparing measuring cell	Before the second incubation is completed, the sipper probe aspirates ProCell into the measuring cell to facilitate measurement.
6	Aspirating reaction mixture	The sipper probe aspirates 130 µL of the reaction mixture. The gripper picks up and transports the AssayCup to the cup disposal opening and discards the cup.
7	Calculating result	The sipper probe aspirates ProCell into the measuring cell. The immune complex is captured by a magnet onto the electrode of the measuring cell. The ProCell washes away all unbound reagent and serum constituents. The ECL reaction is initiated and measured by the photomultiplier. The photomultiplier converts the ECL signal into an electrical signal from which the e 602 calculates the assay result.
8	Cleaning measuring cell	After measurement, the measuring cell is rinsed with CleanCell and ProCell.
9	Automatic stop	The instrument goes into Standby if the Rack Reception Mode is not activated.

Table 2 Workflow of a measurement sequence.

Chapter: Specifications

Environmental conditions

The noise emission has been corrected:
<65 dB(A) are specified now instead of previously <85 dB(A).

The following environmental conditions should be followed in order to ensure correct operation of this system:

Ambient temperature during operation	18–32 °C (64.4–89.6 °F) with changes < ±2 °C/h (±3.6 °F/h)
Ambient humidity	30–85% (non-condensing)
Waste volume	• **c** 701 / **c** 702 module: approx. 2.4 L/h concentrated waste solution including wastes of ISE tests • **c** 502 module: max. 2.5 L/h concentrated waste solution and max. 37.5 L/h diluted waste solution • **e** 602 module: approx. 1.0 L/h concentrated waste solution (approx. 6 mL waste per determination)
Installation altitude	up to 2000 m above sea level
Noise emission	< 65 dB(A) to surroundings
Other environmental conditions	• Dust-free environment with air-condition • No direct sunlight • No perceptible vibration • Indoor use only
Floor condition	Level flatness below 0.5% related to horizontal; strong enough to hold the weight of the instrument.

Chapter: Calibration

Calibration (overall system) > Install submenu

Editing concentration values

The safety message has been corrected:
For Std(2)-(6), the safety message applies only to the calibration types Spline and Line Graph while RCM, RCM2T1, and RCM2T2 are not affected.
The second countermeasure has been revised.

CAUTION

Incorrect results due to wrong calibration

After changing the calibrator concentration for any calibrator Std (1)-Std (6), the calibration curve is immediately updated, even before the actual calibration measurement is performed. However, this is depends on the calibration type. For Std (1) this affects all calibration types, as it changes the decimal place for reporting results. For Std (2)-(6) it affects only the calibration types Spline and Line graph while the remaining calibration types RCM, RCM2T1 and RCM2T2 are not affected.

- To avoid incorrect results, change the number of decimal places on **Utility > Application > Range** if required.
- Always recalibrate the test to obtain a lot calibration. If necessary, load a new reagent pack for the lot number to be used and calibrate it within 24 hours. This ensures that incorrect results are not reported for the current reagent lot or for any previously registered reagent lots still in use. In addition, recalibrate all reagent packs currently in use as well as those temporarily unloaded.
- Make sure to perform the calibration measurements prior to any other determinations.

Chapter: Utility

System submenu > Rack assignment

Module Settings

The tip below has been added to indicate that overlapping rack ranges for module-specific calibrator and QC racks cannot be used.

For each module, specific calibrator and control racks can be defined. The specified racks are sent directly to the particular module. Calibrator and control measurements can be pipetted simultaneously on all modules.

To assign specific calibrators or QC materials directly to a single module, you must define module-specific calibrator and QC racks on the **Module Settings** tab.

You cannot use the same rack range for module-specific calibrator and QC racks on multiple modules.

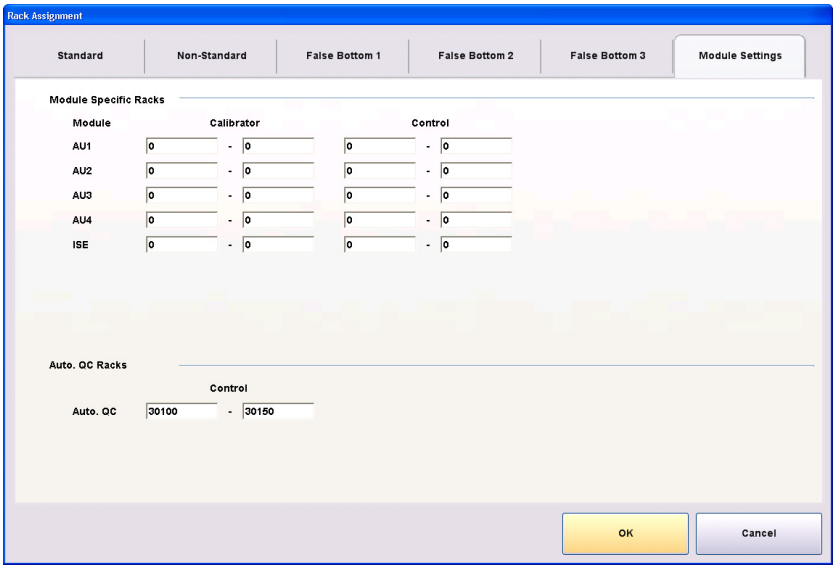

Figure 1 **Rack Assignment** window - **Module Settings** tab

System submenu > Rack reception

Rack Reception

The tip below has been added.

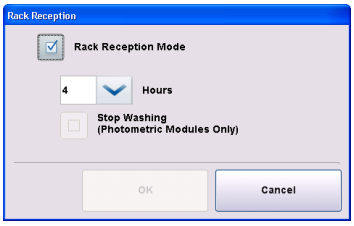

Figure 2 **Rack Reception** window

Stop Washing (Photometric Modules Only)

During operation and rack reception mode (RRM), the reaction cells are continuously washed. To disable the washing function during RRM, select the **Stop Washing** check box. In this case, washing stops after the last sample is processed and all used reaction cells are washed. When the next analysis is started, cell washing automatically continues.

The **Stop Washing** check box must not be selected if auto QCs are to be measured during Rack Reception Mode (RRM).

This check box is available only if the **Rack Reception Mode** is selected.

When you press the **Start** button during **Rack Reception** mode with the **Stop Washing** check box selected, wait for at least 6 seconds before you press the **Start** button again.

Application submenu > Range parameters

For the qualitative evaluation of quantitative infectious disease assays, the descriptions of the Cut Off Target field and the Cut Off Limit fields have completely been added. The fields are visible for specific infectious disease assays, which are available in the United States only.

Qualitative evaluation of quantitative assays (e 602 tests)

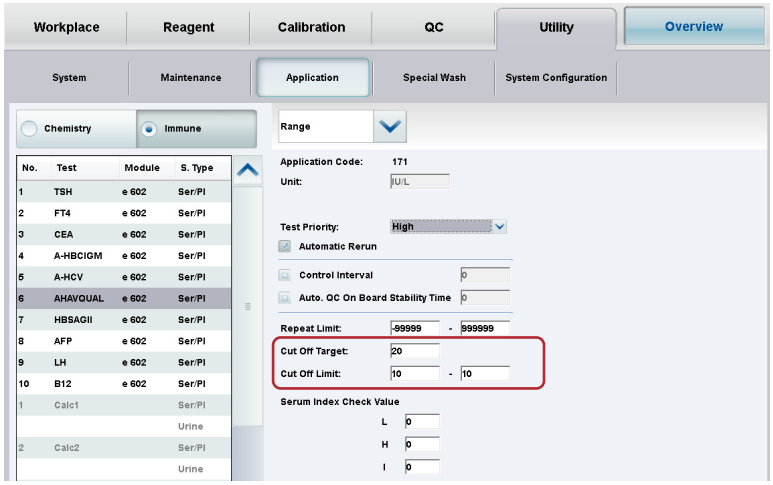

Figure 3 **Range** parameters for **e** 602 modules

The **Cut Off Target** and **Cut Off Limit** fields are only available for quantitative infectious disease assays, for example, anti-HBs.

The **Cut Off Target** field defines the reference value for this test, while the **Cut Off Limit** fields define the lower and upper limit for the border range.

Based on the result and these settings, a result message is attached to the result to indicate whether the result is *reactive*, *non-reactive*, or in the *border* range. The result message is displayed, for example, in the **R.M.** column on **Workplace > Data Review > Test Review**.

Example: The **Cut Off Target** is set to 20 (concentration units, e.g., IU/L), the lower **Cut Off Limit** is set to 10 (%), and the upper **Cut Off Limit** is set to 10 (%.)

- If the test result is between 18 and 22, *Border* is attached to the test result. This means no determination whether reactive or non-reactive can be made.
- If the test result is less than 18, *NonReac* is attached to the test result.
- If the test result is higher than 22, *Reac* is attached to the test result.

▶ To change the qualitative fields (e 602 tests)

1 Choose **Utility > Application > Range**.

2 Select the test to be edited from the **Test** list on the left.

3 Enter the target concentration into the **Cut Off Target** field.

4 Enter the lower limit of the border range into the left **Cut Off Limit** field.

5 Enter the upper limit of the border range into the right **Cut Off Limit** field.

6 Choose **Save** to save the changes.

■

Chapter: General maintenance

List of maintenance items

*The NAOHD consumption has been revised from 72 mL to 63 mL for the **c** 701/**c** 702 modules. A minimum volume of 70 mL has been added.*

(7) Wash Reaction Parts **c** 701 / **c** 702, **c** 502: The reagent probes and all reaction cells are washed with detergent **D1** (NAOHD) from reagent packs. With the **Reagent Probe** and **Cell** check boxes selected, the NAOHD consumption is 63 mL per reagent disk on **c** 701 / **c** 702 modules and 58 mL on **c** 502 modules approximately.

If the remaining volume is less than 70 mL on **c** 701 / **c** 702 modules, load another NAOHD reagent pack before starting this maintenance item.

List of maintenance checks

The description of this maintenance check has been updated completely.

(25) Urgent Information This function initiates parameter synchronization between the data manager and the control unit. New or updated parameters for applications, calibrators, QC materials, and special washes are then available under **Overview > Parameter Download**. This function can only be performed in **Standby** mode.

If you do not execute this maintenance check, the parameters are only synchronized when you power on or reboot the control unit.

Chapter: Maintenance of photometric modules

Weekly maintenance

Washing the reaction parts

*The NAOHD consumption has been revised from 72 mL to 63 mL for the **c** 701/**c** 702 modules. A minimum volume of 70 mL has been added.*

Detergent	Description	Consumption
SmpCln 1	Basic wash	approx. 1 mL
Reagent probe and reaction cell detergent **D1**	NAOHD reagent packs on both disks	**c** 701 / **c** 702: approx. 63 mL for each reagent disk[(a)] **c** 502: approx. 58 mL

Table 3 Wash the reaction system—required amounts of detergent

(a) Load another NAOHD reagent pack when the remaining amount is less than 70 mL.

Chapter: Data alarms

Data alarms of photometric tests

>React

The description of the >React data alarm has been slightly modified.

Description In a rate assay, the rate of change in main wavelength absorbance exceeds the automatically corrected limit value.

Online Help only

Workplace menu > Reaction Monitor window

➔ **Workplace > Data Review > Reaction Monitor**

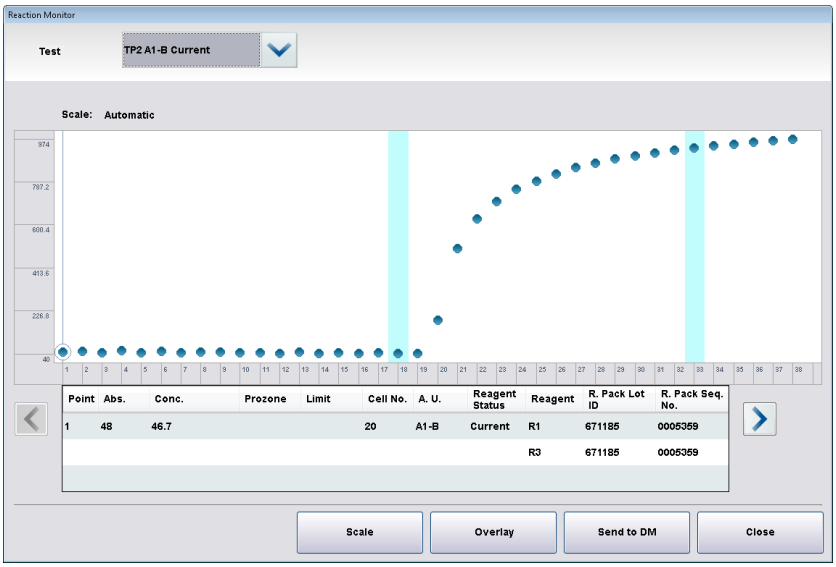

Figure 4 **Reaction Monitor** window

Reaction information

The description of the Limit field has been revised.

Limit This column displays the calculated, sample-specific absorbance limit. The absorbance limit is used for the calculation of the reaction limit check data alarm (>React).

Calibration menu > Install submenu

Edit window

The safety message has been corrected:
For Std(2)-(6), the safety message applies only to the calibration types Spline and Line Graph while RCM, RCM2T1, and RCM2T2 are not affected.
The second countermeasure has been revised.

CAUTION

Incorrect results due to wrong calibration

After changing the calibrator concentration for any calibrator Std (1)-Std (6), the calibration curve is immediately updated, even before the actual calibration measurement is performed. However, this is depends on the calibration type. For Std (1) this affects all calibration types, as it changes the decimal place for reporting results. For Std (2)-(6) it affects only the calibration types Spline and Line graph while the remaining calibration types RCM, RCM2T1 and RCM2T2 are not affected.

- To avoid incorrect results, change the number of decimal places on **Utility > Application > Range** if required.
- Always recalibrate the test to obtain a lot calibration. If necessary, load a new reagent pack for the lot number to be used and calibrate it within 24 hours. This ensures that incorrect results are not reported for the current reagent lot or for any previously registered reagent lots still in use. In addition, recalibrate all reagent packs currently in use as well as those temporarily unloaded.
- Make sure to perform the calibration measurements prior to any other determinations.

Utility menu > Application submenu

Range

➔ **Utility > Application > Range**

For the qualitative evaluation of quantitative infectious disease assays, the descriptions of the Cut Off Target field and the Cut Off Limit fields have completely been added. The fields are visible for specific infectious disease assays, which are available in the United States only.

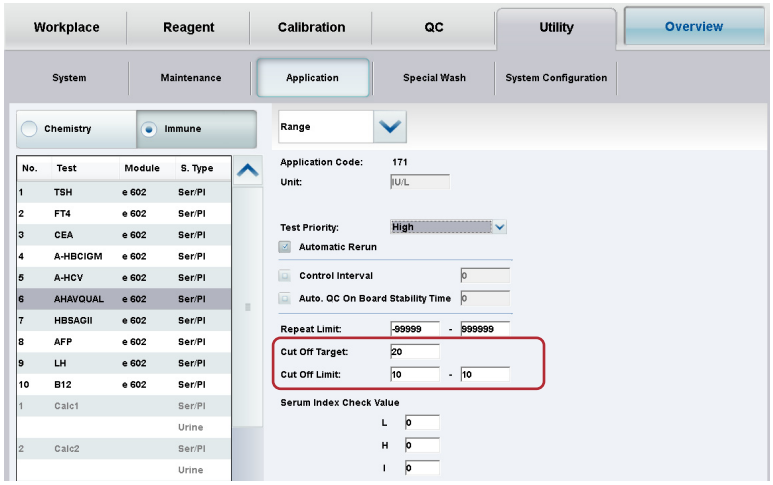

Figure 5 **Range** parameters for **e** 602 modules

Cut Off Target This field defines the reference value for a quantitative infectious disease assay, for example, anti-HBs.

Based on the result and the settings in the **Cut Off Target** and **Cut Off Limit** fields, a result message (*Reac*, *NonReac*, or *Border*) is attached to the result. The result message is displayed, for example, in the **R.M.** column on **Workplace > Data Review > Test Review**.

Cut Off Limit These fields are used to define the lower and upper cut off limit in percent. This equals the border range. The first field is the lower cut off limit and the second field is the upper cut off limit. If a result lies within this range, it is in the border range.

Example:
The **Cut Off Target** is set to 20 (concentration units, e.g., IU/L), the lower **Cut Off Limit** is set to 10 (%), and the upper **Cut Off Limit** is set to 10 (%.)

- If the test result is between 18 and 22, *Border* is attached to the test result.
- If the test result is less than 18, *NonReac* is attached to the test result.
- If the test result is higher than 22, *Reac* is attached to the test result.

COBI CD only

Chapter: e 602 – Immunology calibration

Result calculation for qualitative assays

The tips for sandwich assays and for competitive assays have been added.

In order to calculate the result of a qualitative assay (cutoff test), the instrument compares the effective signal of the measurement S_{eff} with the cutoff signal of the calibration S_{Cutoff}. For that purpose, a cutoff index $Cutoff_{Index}$ is calculated as the ratio between the effective signal and the cutoff signal as follows:

Equation C-26 $$Cutoff_{Index} = \frac{S_{eff}}{S_{Cutoff}}$$

$Cutoff_{Index}$	Cutoff index
S_{eff}	Effective signal of sample measurement
S_{Cutoff}	Cutoff value of the calibrator

If the effective signal of the measurement S_{eff} equals the cutoff signal of the calibration S_{Cutoff}, the cutoff index $Cutoff_{Index}$ equals 1. For effective signals being lower or higher than the cutoff signal, the cutoff index is smaller or larger than 1, respectively.

The test result is evaluated depending on the test principle (sandwich or competitive):

Sandwich assays Samples with a cutoff index ≥ 1.0 are considered *reactive*; those with a cutoff index < 1.0 are considered *non-reactive*. For some tests a gray zone is introduced.

The result message is displayed on **Workplace > Data Review > Test Review**. The decision about the result message (**R.M.** column) is taken before rounding is applied.

For qualitative sandwich tests, if the actual cutoff index is 1.001 to 1.004 before rounding, the cutoff index displayed after rounding is 1.00, and the result message *Reac* (reactive) is displayed.

If the actual cutoff index is 0.9995 to 0.9999 before rounding, the cutoff index displayed is still 1.00 after rounding, but in this case the result message *NonReac* (non reactive) is displayed.

Competitive assays Samples with a cutoff index > 1.0 are considered *non-reactive*; those with a cutoff index ≤ 1.0 are considered *reactive*.

The result message is displayed on **Workplace > Data Review > Test Review**. The decision about the result message (**R.M.** column) is taken before rounding is applied.

For qualitative competitive tests, if the actual cutoff index is 1.001 to 1.004 before rounding, the cutoff index displayed after rounding is 1.00, and the result message *NonReac* (non reactive) is displayed.

If the actual cutoff index is 0.9995 to 0.9999 before rounding, the cutoff index displayed is still 1.00 after rounding, but in this case the result message *Reac* (reactive) is displayed.

Chapter: c 502 and c 701 – Calculating data alarms

Reaction limit check (>React)

*The section **Automatic correction of reaction limit absorbance** has been revised completely. The screenshot has been added.*

Automatic correction of reaction limit absorbance

The reaction limit is verified with reference to the absorbance at the main wavelength. The instrument automatically corrects the given reaction limit value, for example, due to sample turbidity:

Reaction limit = absorbance limit + $(L_S - L_C)$

L_S: The absorbance at measuring point 1 of the primary wavelength during *sample* measurement.

L_C: The absorbance at measuring point 1 of the primary wavelength during *calibration* using calibrator 1.

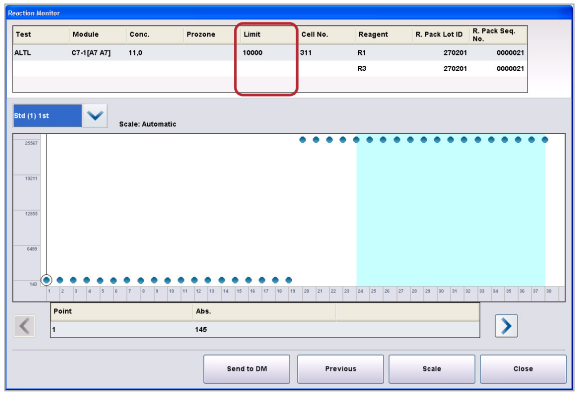

Figure 6 **Reaction Monitor** window

The reaction limit value is displayed in the **Limit** column on **Calibration > Status > Reaction Monitor**. The value of L_S fluctuates for every sample measurement, which results in a different reaction limit value.

If $L_S < L_C$, the reaction limit value is the same as the value in the **Abs. Limit** field defined on **Utility > Application > Chemistry > Analyze**.