

IPCC Inventory Software

UNFCCC Interoperability – CRT Export Quick Start Guide

Draft as of 6 June 2023

Contents

| | |
|-------------------------------------|----|
| Introduction..... | 3 |
| CRT Data Set management..... | 3 |
| What is CRT Data Set | 3 |
| CRT Data Set management screen..... | 3 |
| New CRT Data Set..... | 4 |
| Edit CRT Data Set..... | 5 |
| Open tables..... | 6 |
| Generate JSON..... | 6 |
| Refresh values..... | 7 |
| Delete CRT Data Set..... | 8 |
| CRT Tables | 8 |
| CRT Table actions..... | 9 |
| Single-cell actions..... | 9 |
| Multi-cell actions..... | 12 |
| Editable cells..... | 15 |
| CRT Table Documentation Box..... | 16 |

This Guide was prepared by Technical Support Unit (TSU) of IPCC Task Force on National Greenhouse Gas Inventories (TFI) to help national inventory compilers who use the IPCC Inventory Software for the purpose of official inventory submission under the Paris Agreement.

It has not been subject to formal IPCC review processes.

Introduction

Since version v2.86, the IPCC Inventory Software is capable of preparing a JSON data exchange format file for export of data from the IPCC Inventory Software into the UNFCCC reporting tool for the electronic reporting of the Common Reporting Tables (CRT) under the Paris Agreement. The interface is accessible from the Main Menu / Export / CRT.

This export functionality has been added to the IPCC Inventory Software following the invitation of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement to the IPCC.¹

In this [guide](#) to [UNFCCC CRTs export](#), guidance is provided by the Technical Support Unit of the IPCC Task Force on National Greenhouse Gas Inventories (TFI TSU).

CRT Data Set management

What is CRT Data Set

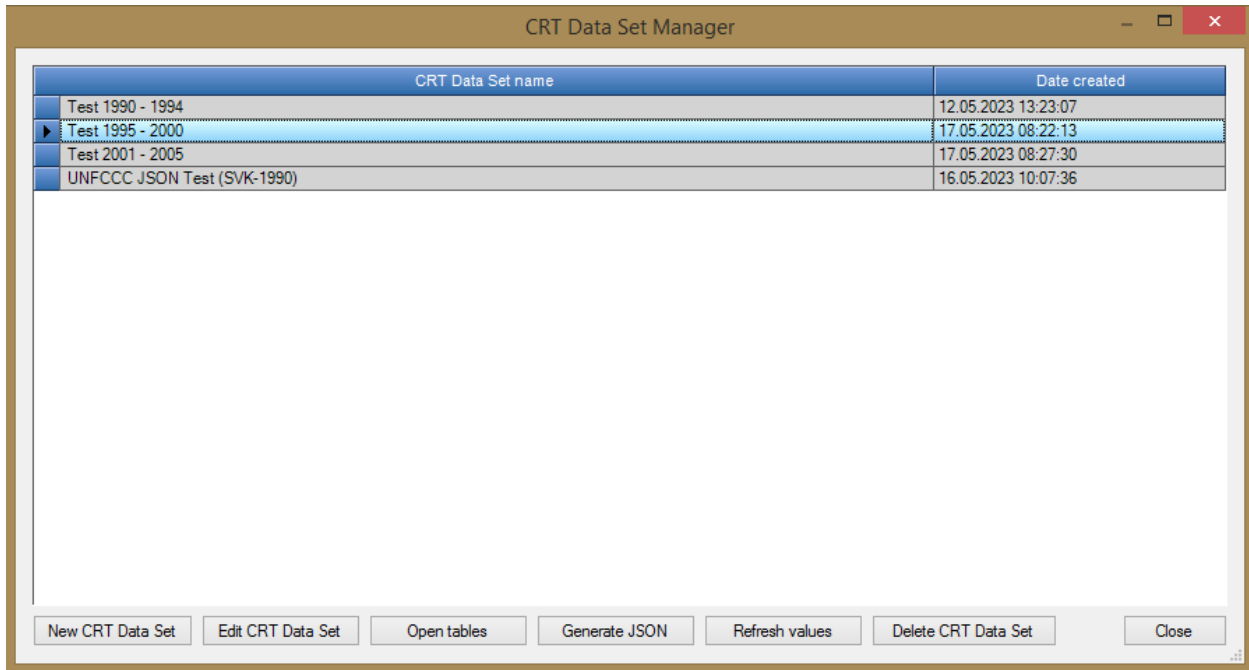
CRT Data Set represents a particular instance of CRT export which holds CRT Tables with data for the set of years that were selected during CRT Data Set creation. Software allows maintaining multiple CRT Data Sets that are independent of each other and thus can be managed and exported to JSON independently.

CRT Data Set management screen

This screen is designed for CRT Data Set management. It provides the following functionality:

- Create **New CRT Data Set**
- **Edit** properties of existing CRT Data Set
- **Open tables** interface that visualizes the CRT and allows managing data across sectors and years for selected CRT Data Set
- **Generate JSON** (export format) for selected CRT Data Set
- **Refresh values** – compile CRT Variable values from IPCC Inventory Software worksheet data for selected CRT Data Set
- **Delete** existing CRT Data Set

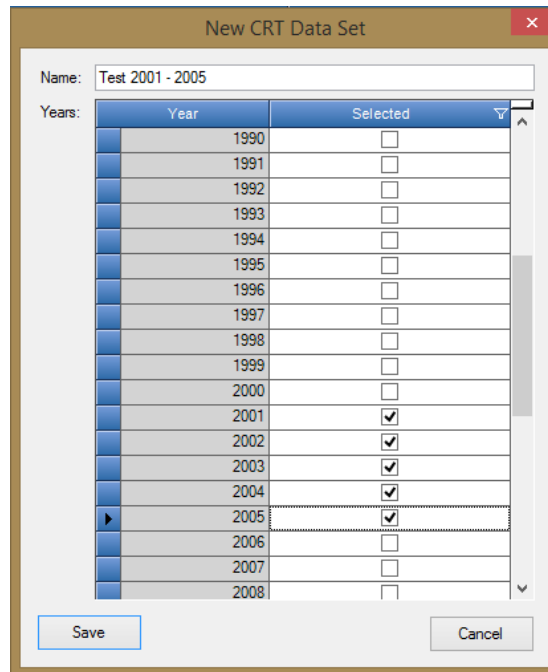
¹ Decision 5/CMA.3, paragraphs 19 and 20.



Except for “**New CRT Data Set**” button, all the action buttons at the bottom of the table always apply to currently selected CRT Data Set in table (highlighted).

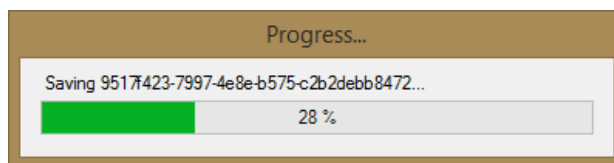
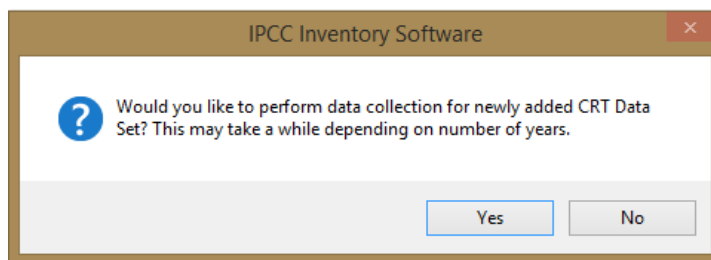
New CRT Data Set

This action button opens a screen where properties of the new CRT Data Set are specified.



- Name – name of new CRT Data Set
- Years – inventory years assigned to new CRT Data Set

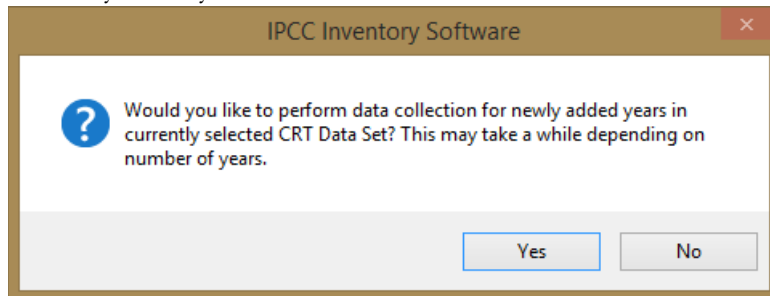
After pressing Save, a new data set is created and the user is prompted whether to feed data into CRT of the new data set. This operation can be postponed and carried out later on various levels (at sector level, table level, cell level, multiple cell selection level)



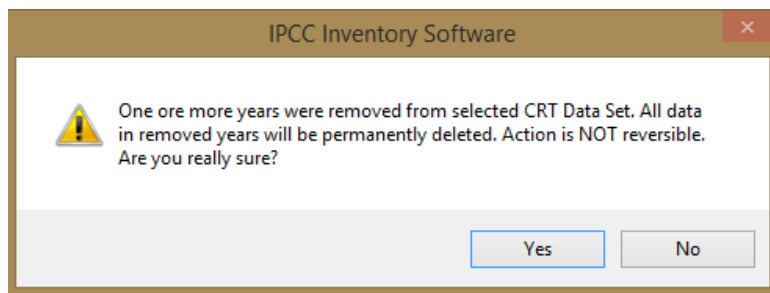
Edit CRT Data Set

This action button opens a screen where properties of the existing CRT Data Set can be adjusted.

- Name – can be changed, if necessary
- Years:
 - o Adding additional years – user can add additional years to existing CRT Data Set. After adding new years and saving data set user is prompted whether to feed data into CRT tables for newly added years within all sectors.



- o Deleting existing years – user can remove existing years from edited data set. **Note that all data belonging to removed years will be permanently deleted from the CRT data set. Note that this will not in any way impact the underlying data in the IPCC Inventory software database.**



Open tables

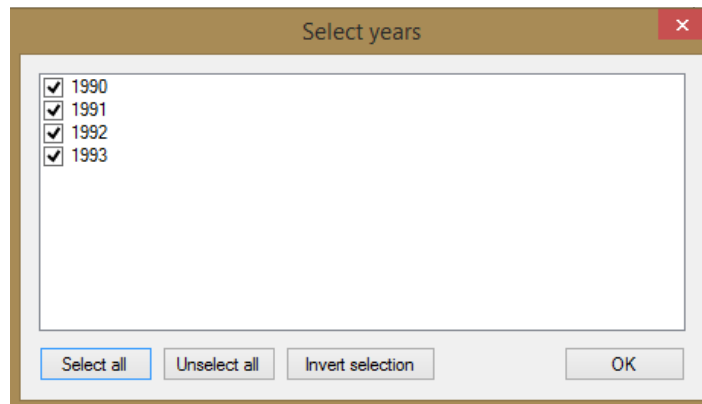
This action button opens a screen containing CRT for the currently selected CRT Data Set. This screen will open in a mode that allows the user to switch between itself and other IPCC Inventory Software screens (e.g. Worksheets screen). Only one CRT screen for one CRT Data Set can be open at a time. Refer to the “CRT Tables” chapter for more information on CRT Tables screen in Open Tables and its functions.

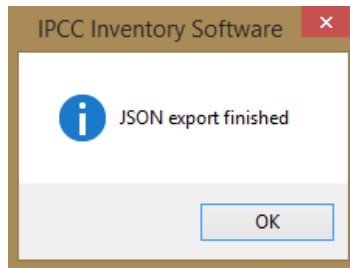
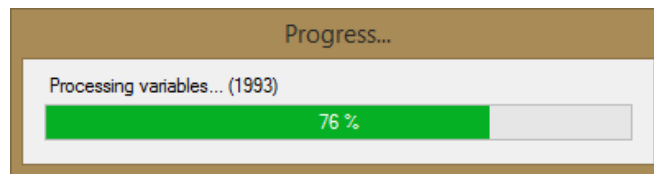
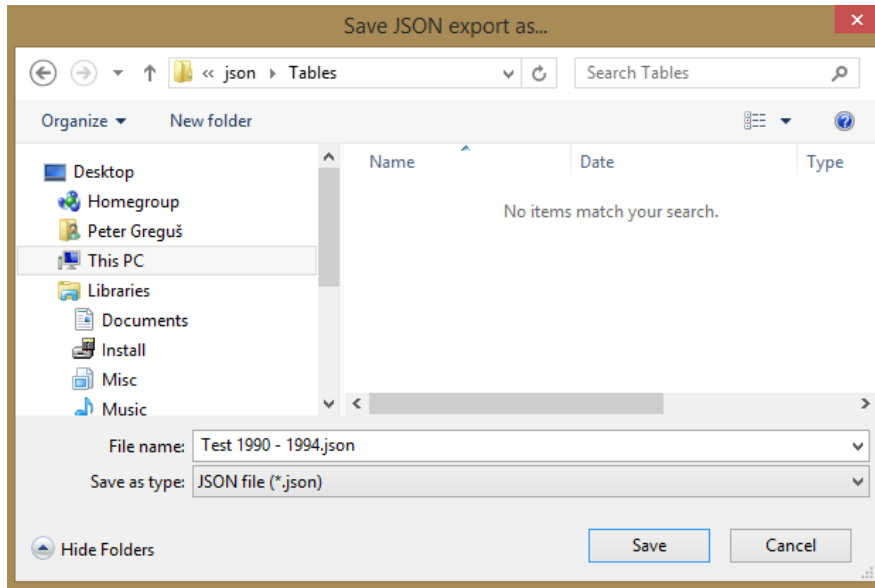
TABLE 1.A(a) SECTORAL BACKGROUND DATA FOR ENERGY
 Fuel combustion activities - sectoral approach (Sheet 4 of 4)

| GREENHOUSE GAS SOURCE AND SINK CATEGORIES | AGGREGATE ACTIVITY DATA | | IMPLIED EMISSION FACTORS | | | EMISSIONS | | | AMOUNT |
|---|-------------------------|---------|--------------------------|-------------|-------------|--------------|-----------|-----------|--------|
| | Consumption (TJ) | NCV/GCV | CO2 (t/TJ) | CH4 (kg/TJ) | N2O (kg/TJ) | CO2 (kt) | CH4 (kt) | N2O (kt) | |
| 1.A.4 Other sectors | 484,252.9 | | | | | 22,256.99097 | 16.369517 | 1.254897 | |
| Liquid fuels | 318,112.9 | | | | | 15,006.19097 | 16.112117 | 1.240461 | |
| Solid fuels | NO | | | | | NO | NO | NO, FX | |
| Gaseous fuels (6) | NO | | | | | NO | NO | NO | |
| Other fossil fuels (7) | 161,100 | | | | | 7,250.8 | 0.2322 | 0.013932 | |
| Peat (8) | NO | | | | | NO | NO | NO | |
| Biomass(3) | 5,040 | | | | | 200 | 0.0252 | 0.000504 | |
| 1.A.4.a. Commercial/institutional (14) | 126,540 | | | | | 5,009.035 | 12.6417 | 0.499434 | |
| Liquid fuels | 76,500 | | | | | 5,009.035 | 12.6165 | 0.49893 | |
| Solid fuels | NO | | | | | NO | NO | NO, FX | |
| Gaseous fuels (6) | NO | | | | | NO | NO | NO | |
| Other fossil fuels (7) | 45,000 | | | | | NE, NO | NE, NO | NE, NO | |
| Peat (8) | NO | | | | | NO | NO | NO | |
| Biomass (3) | 5,040 | | | | | 200 | 0.0252 | 0.000504 | |
| 1.A.4.a.i. Stationary combustion | 15,090 | | | | | 811.035 | 0.1257 | 0.006534 | |
| Liquid fuels | 10,050 | NCV | | | | 811.035 | 0.1005 | 0.00603 C | |
| Solid fuels | NO | NCV | | | | NO | NO | FX | |

Generate JSON

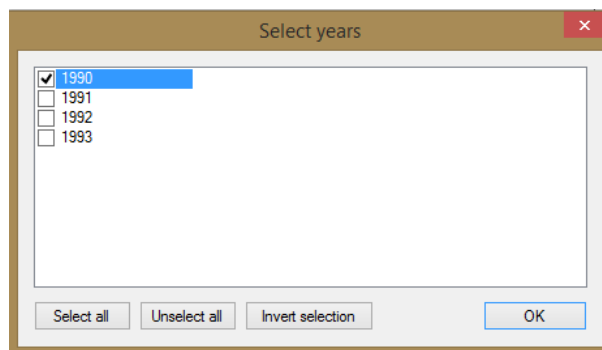
This action button serves the purpose of generating export in JSON format. All CRT that belong to the selected CRT Data Set will be serialized into the JSON file for selected years.

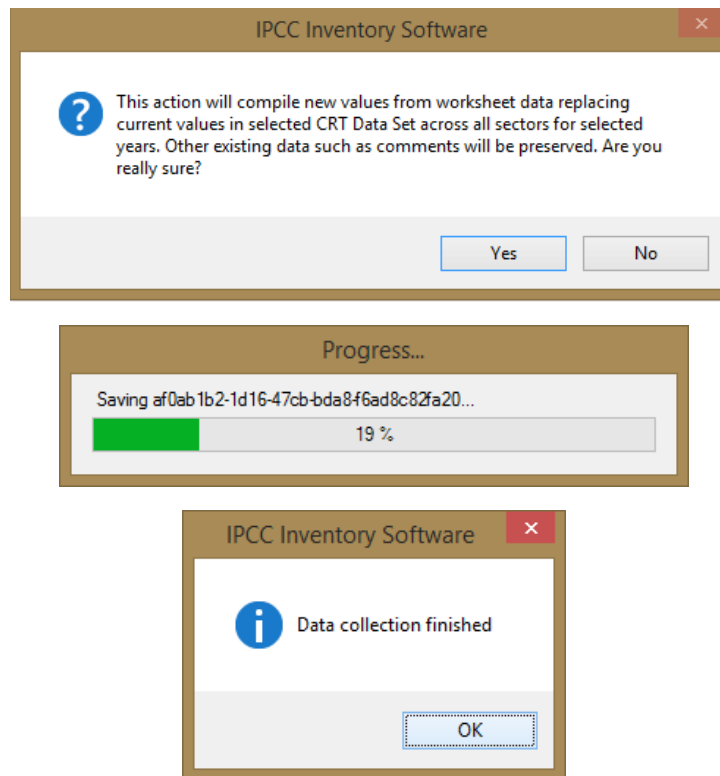




Refresh values

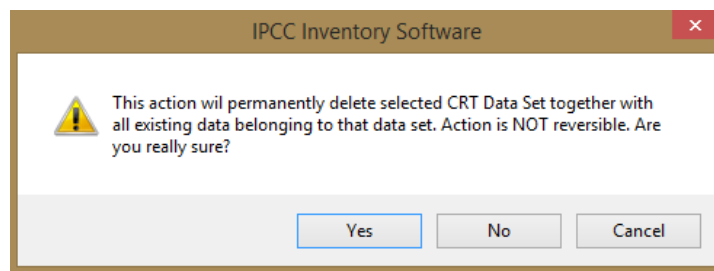
This action button allows refreshing all CRT Variable values within selected CRT Data Set for all sectors and selected years. Fresh values are compiled from the IPCC Inventory Software worksheets replacing current CRT Variable values. Other information that was already added by the user such as CRT Variable description and comments will be preserved. Notation Key specific comments will be preserved only in case refreshed variable Notation Key doesn't change during refresh.





Delete CRT Data Set

This action will permanently delete existing CRT Data Set together with all data in all CRT Tables. **This action is not reversible in CRT Data Set Management. Note that this will not in any way impact the underlying data in the IPCC Inventory software database.**



CRT Tables

Screen containing CRT Tables can be open using “Open tables” button in CRT Data Set Manager for selected CRT Data Set. An alternative way to open the tables is to double-click the desired CRT Data Set row in CRT Data Set Manager table. Only one CRT Tables screen of one particular CRT Data Set can be open at a time.

TABLE 1.D.1.a. International aviation (aviation bunkers)

| GREENHOUSE GAS SOURCE AND SINK CATEGORIES | ACTIVITY DATA Consumption (TJ) | IMPLIED EMISSION FACTORS | | | EMISSIONS | | |
|--|--------------------------------------|--------------------------|----------------|----------------|---------------|-------------|-------------|
| | | CO2 (t/TJ) | CH4 (kg/TJ) | N2O (kg/TJ) | CO2 (kt) | CH4 (kt) | N2O (kt) |
| 1.D.1.a. International aviation (aviation bunkers) | 660,700 | | | | 39,209.101542 | 0.320022 | |
| Jet kerosene | 456,000 | | | | 32,603.995547 | 0.2205 | |
| Aviation gasoline | 94,200 | | | | 6,594.01804 | 0.047092 | |
| Biomass | 110,500 | | | | 11,087955 | 0.052429 | |
| 1.D.1.b. International navigation (marine bunkers) | 279,305.5 | | | | 13,885.63975 | 1.206939 | |
| Residual fuel oil | NO | | | | FX | NO | |
| Gas/diesel oil | 102,705.5 | | | | 7,534.23975 | 0.718939 | |
| Gasoline | 88,600 | | | | NE | NE | |
| Other liquid fuels (please specify) | 21,000 | | | | 1,694 | 0.105 | |
| Other liquid fuels [IPCC Software 1.A.3.d.i] | 21,000 | | | | 1,694 | 0.105 | |
| Gaseous fuels (1) | 24,000 | | | | 1,346.4 | 0.168 | |
| Biomass | NO | | | | NO | NO | |
| Other fossil fuels (please specify) (2) | 43,000 | | | | 3,311 | 0.215 | |
| Other fossil fuels [IPCC Software 1.A.3.d.i] | 43,000 | | | | 3,311 | 0.215 | |
| 1.D.2. Multilateral operations (3) | 299,900 | | | | 15,403.292165 | 1.5505 | |

Additional information

| | Domestic distribution (%) (a) | International distribution (%) (a) |
|------------------|-------------------------------|------------------------------------|
| Fuel consumption | | |
| Aviation | | |
| Marine | | |

Legend

- (1) Including LNG for international navigation.
- (2) Include information in the documentation box on which fuels are included and provide a reference to the section in the NID where further information is provided.
- (3) Parties may choose whether to report or not report AD and IEFs for multilateral operations, consistently with the principle of confidentiality stated in the MPGs (chapter II). In any case, Parties should report the emissions from multilateral operations, where available, under memo items in the summary tables and in the sectoral report table for energy.

Documentation box

Parties should provide a detailed description of the fuel combustion subsector, including international aviation and international navigation, in the relevant section of chapter 3 ("Energy" (CRT subsector 1.A)) of the NID. Use this documentation box to provide references to relevant sections of the NID, if any, additional information and/or comments.

1.D.1

1.D.2

IPCC Inventory Software notes

- Orange cells above that contain no information (i.e. are blank) will be calculated automatically by the UNFCCC reporting tool. No action by the user is required.
- Note that in CRT Reporting, it is not necessary to enter data for some fuel types used as international bunkers. The IPCC inventory software may include additional fuels for bunkers not included here.
- Please report in the "Documentation Box" the other liquid fuels included in the estimates reported in

CRT Tables screen consists of the following elements.

- Window title – contains the name of selected CRT Data Set
- Sector – currently selected sector. Set of tables is presented according to selected Sector
- Year – currently selected year from the list of years that belong to selected CRT Data Set
- Refresh values – allows refreshing values from the IPCC Inventory Software worksheets for all tables in selected sector and for years selected by user
- Tabbed interface – allows switching between tables belonging to selected sector
- Documentation area – relevant for currently selected table. Contains Legend, Documentation box, IPCC Inventory software notes and other relevant info. Documentation area windows can be rearranged according to user preference.


CRT Table actions


For each CRT Variable in CRT Table there are several actions. Actions can be performed for a single cell as well as for selection of cells.


Single-cell actions

Right click on any cell that represents CRT Variable to open context menu with actions that are relevant for selected CRT Variable. Completion of these details provides information for inclusion in the UNFCCC CRT.

| ACTIVITY DATA | |
|---------------|--|
| Consumption | |
| (TJ) | |
| 660,700 | |
| | |
| | |
| | |
| | |

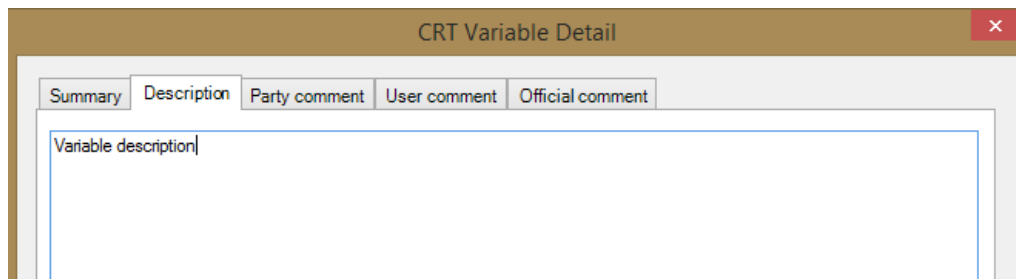
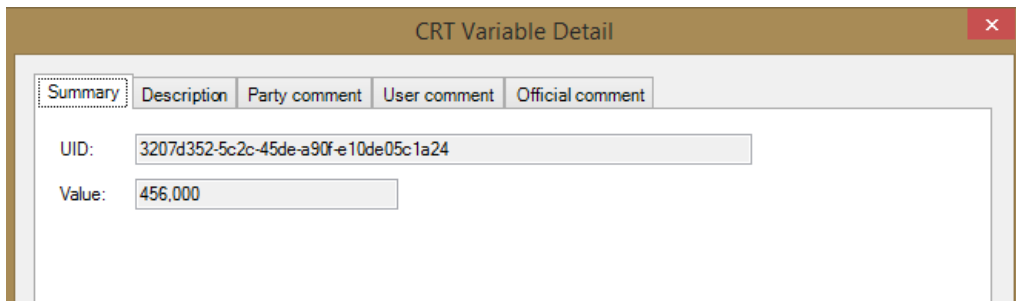
 **Edit**

 Notation Key ▶

 Refresh value ▶

Edit

Opens CRT Variable detail dialog with all information relevant for the type of selected CRT Variable. Detail dialog can be alternatively opened by double-clicking on a cell. Standard numeric variable detail dialog is shown below.



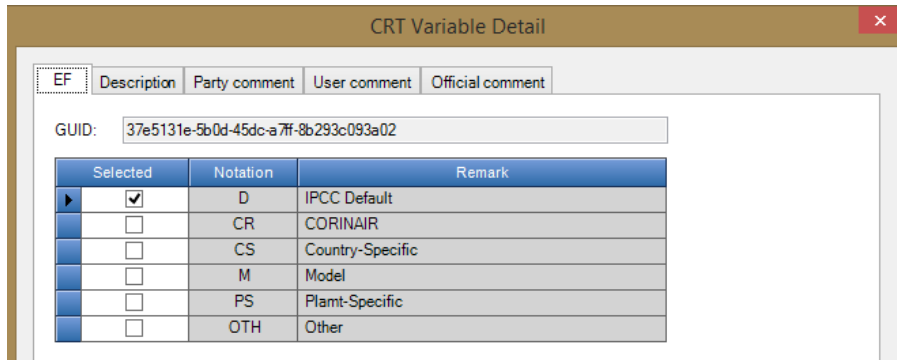
- Summary – contains basic information such as UID and current value
- Description – description of variable
- Party comment
- User comment
- Official comment

User can enter this additional information independently for every CRT Variable cell in every CRT Table.

In case of a CRT Variable that has a Notation Key instead of a numeric value, additional information that is relevant for the selected Notation Key becomes available. Example for FX (flexibility) variable below.

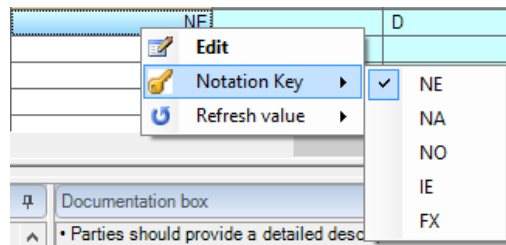
Example of detail dialog for “Method” and “EF” CRT Variable:

| Selected | Notation | Remark |
|-------------------------------------|----------|-------------------------------------|
| <input checked="" type="checkbox"/> | T1 | IPCC Tier 1 methodological approach |
| <input checked="" type="checkbox"/> | T2 | IPCC Tier 2 methodological approach |
| <input checked="" type="checkbox"/> | T3 | IPCC Tier 3 methodological approach |
| <input type="checkbox"/> | CR | CORINAIR |
| <input type="checkbox"/> | CS | Country-Specific |
| <input type="checkbox"/> | M | Model |
| <input type="checkbox"/> | RA | IPCC Reference Approach |
| <input type="checkbox"/> | OTH | Other |

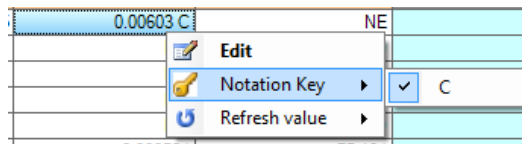


Notation Key

This menu item contains a list of possible Notation Keys that can be set for the CRT Variable. If a cell already contains one of the notation keys instead of a numeric value, then the list of possible notation keys is as follows:



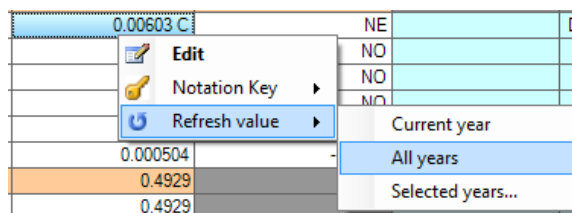
In case of cells that contain numeric value the list of notation keys contains only one item – C (Confidential) allowing a user to mark that CRT Variable as Confidential.



A “C” flag is added as suffix to the numeric value. While the value in the confidential cell is still visible in the software it WILL NOT be exported in JSON. Choosing “C” on a cell that already has “C” flag will remove it.

Refresh value

This action allows refreshing the CRT Variable with the latest relevant IPCC Inventory Software worksheet value. This action can be performed for the current year, all years in data set or only years explicitly selected by user.



Multi-cell actions

CRT Table interface allows performing actions on multiple selected cells at once. This way it is possible to e.g. set the same documentation text for several cells without editing each cell individually.

Multiple cells can be selected utilizing various techniques.

- Left click and hold on starting cell and drag mouse pointer to select additional cells;
- Left click on column header to select single column or left click, hold and drag to select multiple columns and all of their cells;
- Left click on row header to select single row or left click, hold and drag to select multiple rows and all of their cells;
- Hold CTRL and left click on individual cells to be selected;
- Click on start cell, hold SHIFT and then click on end cell to select area of cells.

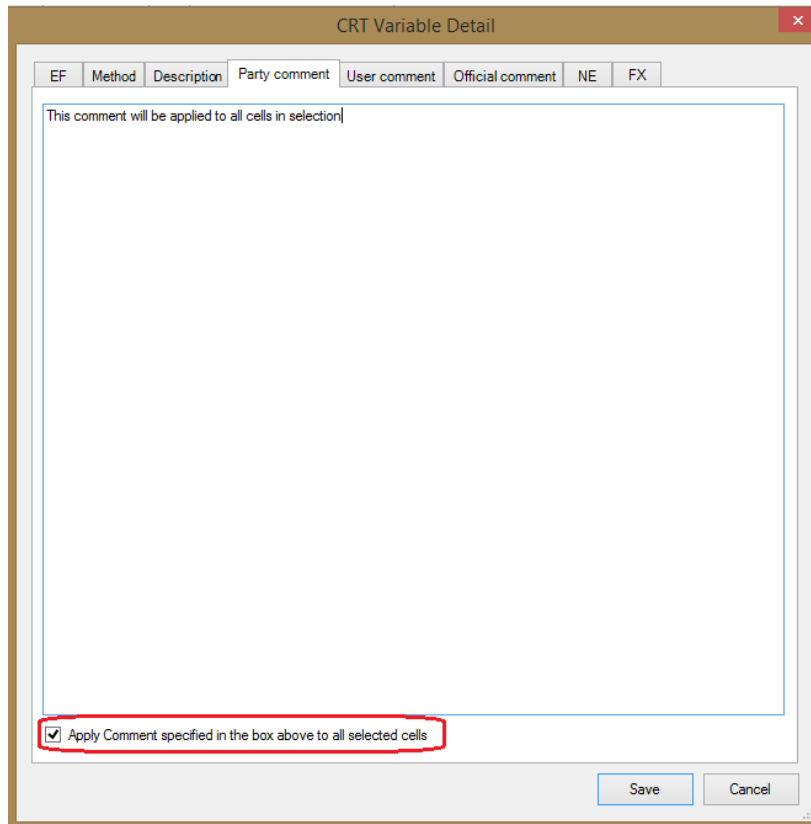
Selected cells are highlighted. In case selection contains at least one CRT Variable cell, right click anywhere within selection opens context menu that applies to selection.

| | | | | | |
|-----|-----------|---------|--|---|--|
| 257 | 0.006534 | -75.184 | | | |
| 005 | 0.00603 C | NE | | D | |
| NO | NO | NO | | | |
| NO | NO | NO | | | |
| NO | NO | NO | | | |
| NO | NO | NO | | | |
| 252 | 0.000504 | -75.184 | | | |
| 516 | 0.4929 | | | | |
| 516 | 0.4929 | | | | |
| NO | NO | | | | |
| NO | NO | | | | |

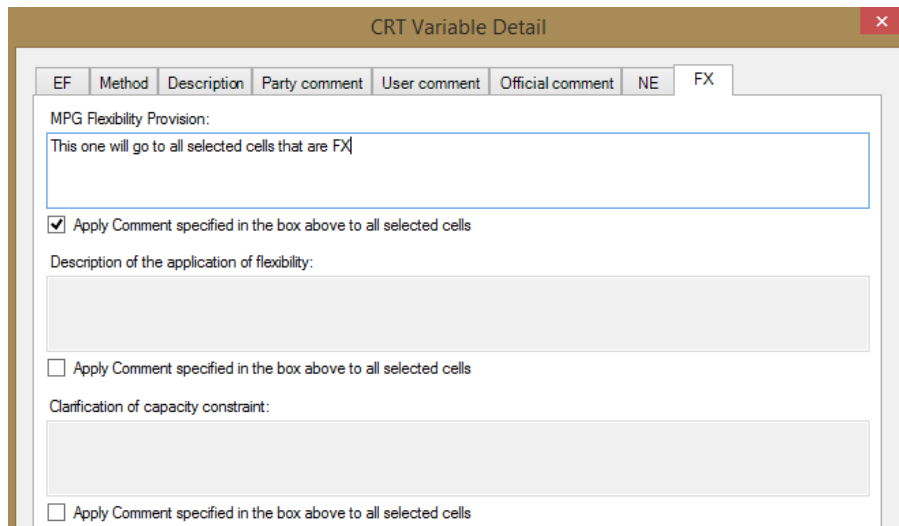
Edit

Opens detail dialog for selected cells in multi-cell mode. Detail dialog is constructed based on types of cells that are in selection. This means all relevant tabs will be shown within detail dialog. (e.g. if selection contains “Method” and “EF” cell, “Method” and “EF” tabs will become available).

User has to explicitly flag which information entered in multi-cell detail dialog should be applied to selected cells. This way it is possible to bulk-update only specific types of information while leaving other information in selected cells intact. Example: If only “Party comment” should be updated in all selected cells then user explicitly marks that comment using a dedicated checkbox and then inputs new value for that comment (see screenshot below).



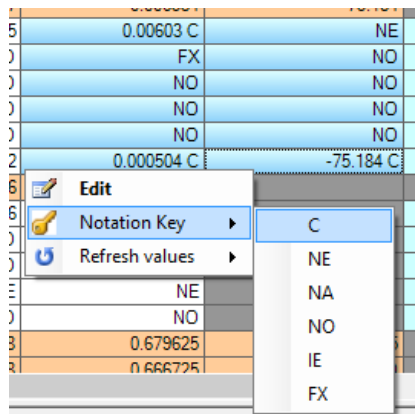
In multi-cell detail dialog, each piece of information has its dedicated “Apply” checkbox. Example for FX related comments below where only “MPG Flexibility Provision” was marked to be updated within all FX cells in the selection of cells.



Note, that every piece of information will be applied to cell in selection only in case it is relevant for that cell. (e.g. FX comments will be applied only to those cells in selection that are FX).

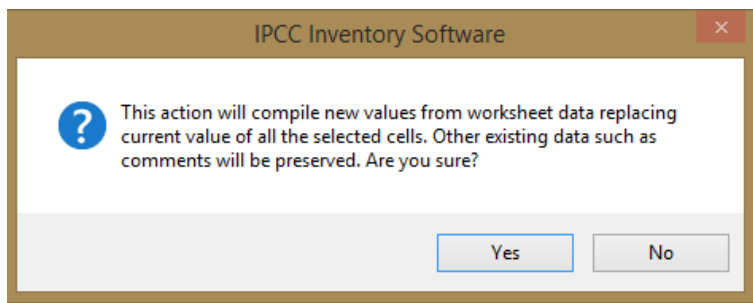
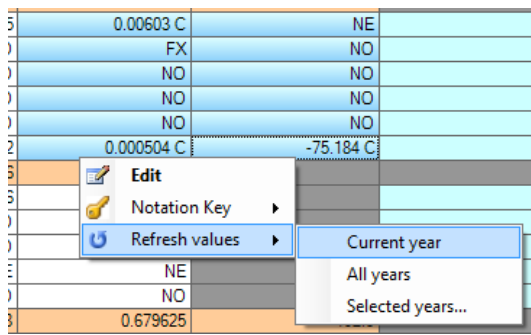
Notation key

Allows the user to set the same Notation Key for all cells in the selection. The rules are analogic to those in “Edit” action and thus selected Notation Key will be applied only to relevant cells. (e.g. if C is selected, only cells containing real numeric value will be marked as C).



Refresh values

Allows refreshing values from the IPCC Inventory Software worksheets for all selected cells for either current year, all years in data set or for years explicitly selected by user.



Editable cells

Some cells highlighted with pale green color allow direct editing of value. User is allowed to change value of such cells or set notation key by direct input.

- To enter numeric value – type in numeric value directly into cell. Value can be marked as confidential by entering “c” or “C” after numeric value
- To enter notation key – type in one of the relevant notation keys directly. Allowed notation keys: NE, NA, NO, IE, FX (can be typed lowercase in which case they will be automatically converted to upper case)

| | |
|---------------------------------------|--------------|
| 1.A.1.c.i. Manufacture of solid fuels | 77,477.485 |
| Liquid fuels | NO |
| Solid fuels | 29,477.485 C |

CRT Table Documentation Box

Allows to specify additional textual information at CRT Table level. Each documentation box has its dedicated UID thus it is exported to JSON just like any other CRT Variable. After changing value of documentation box, click Save button located next to editing text area to apply changes.

Documentation box ⌵

- Parties should provide a detailed description of the fuel combustion subsector, including international aviation and international navigation, in the relevant section of chapter 3 ("Energy" (CRT subsector 1.A)) of the NID. Use this documentation box to provide references to relevant sections of the NID, if any additional information and/or further details are needed to explain the contents of this table.
- Provide in this documentation box a brief explanation of how the consumption of international aviation and

1.D.1

Documentation for 1.D.1

S

1.D.2

Documentation for 1.D.2

a

v