

Special Characters in BI



Applies to

SAP BW 3.5, SAP Net Weaver 7.0. For more information, visit the [EDW homepage](#).

Summary

This document contains the overview of Special characters and the general issues that are faced due to the special characters and how those issues can be handled.

Author: Archana Suresh

Company: Wipro Technologies

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Author Bio



Archana Suresh is working with Cognizant Technology Solutions with 4.4 years of experience. She is currently working on SAP BI 7 and has experience of BW 3.5 as well. She also worked on different areas in BW like modeling, reporting and production support.

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Introduction about Special Characters

A special character is any character that is not contained in the following list:

- Digit
- Letter
- Extended letter
- Hex digit
- Language Specific Character
- Characters that indicate the end of a line in a file

Digit:

A digit is a character.

Digit: 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9

Letter:

A letter is a character.

Letter: A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | a | b | c | d | e | f | g | h | i | j | k | l | m | n | o | p | q | r | s | t | u | v | w | x | y | z

Extended letter:

An Extended letter is a character.

Extended Letter: # | @ | \$

Hex digit:

A Hex digit is a character.

Hex digit: 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F | a | b | c | d | e | f

Language Specific Character:

A language-specific character is any letter that occurs in a northern, southern, or central European language and is not contained in the list of letters.

German umlauts: ä, ö, ü

French letters with a "grave" accent.

Note 1: If you have installed a UNICODE-enabled database, a language-specific character is a character that is not included in the ASCII-Code list from 0 to 127.

Note 2: To know the standard special characters that are allowed in BW, please refer the OSS note: 173241 – “Allowed characters in the BW System”

Issues due to Special Characters

Generally, while loading data from different sources like flat file or some other source; we will come across the error due to special characters that are available in the load data which is not supported by BI system. This can be rectified in many ways and this document provides the details and collection of errors faced because of the special characters taken from various threads of sdn.sap.com.

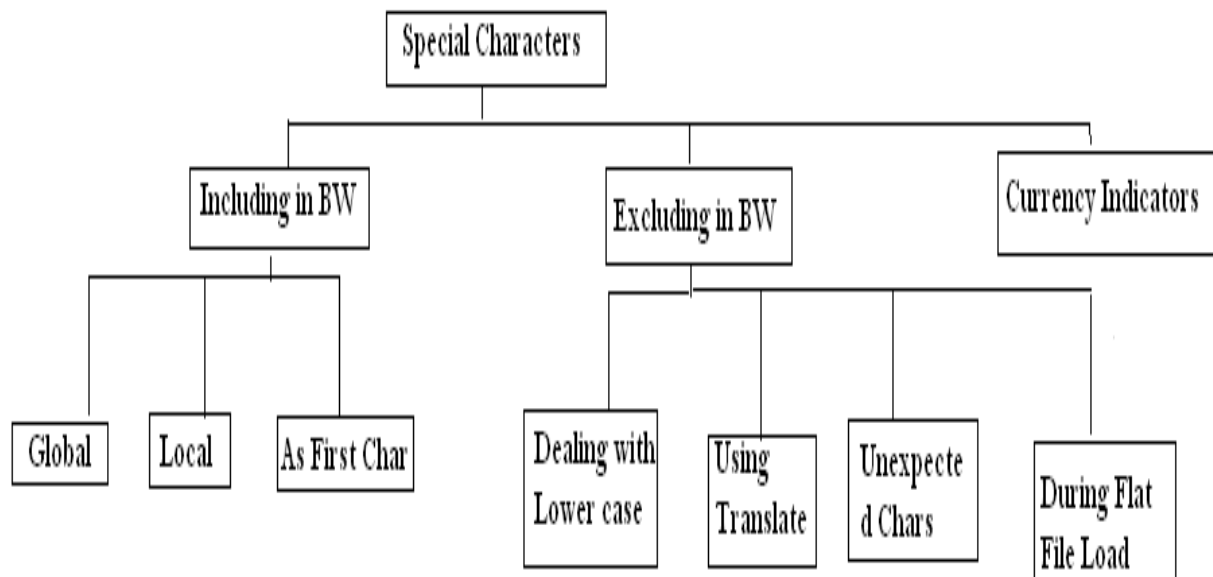
Common errors due to special characters include:

1. Error in SID generation
2. Error when assigning SI: Action VAL_SID_CONVERT table
3. Characteristic OXXX / ZXXXX contains invalid characters like (2Q235-A100[060D - note the [character, which is an invalid character for BI by default)
4. Activation of M records from Data Store object terminated
5. Error mentioning #, @, \$, %, ! etc are not allowed while loading data
6. Error

To avoid these errors few steps has to be done in BI system based on the business requirement

- Including the required special characters
- Excluding the unwanted special characters

Ways to handle Special Characters



Special Characters can be handled in various ways in BW which could be inclusion in BW or exclusion in BW. Sections below explain ways to handle special characters in details.

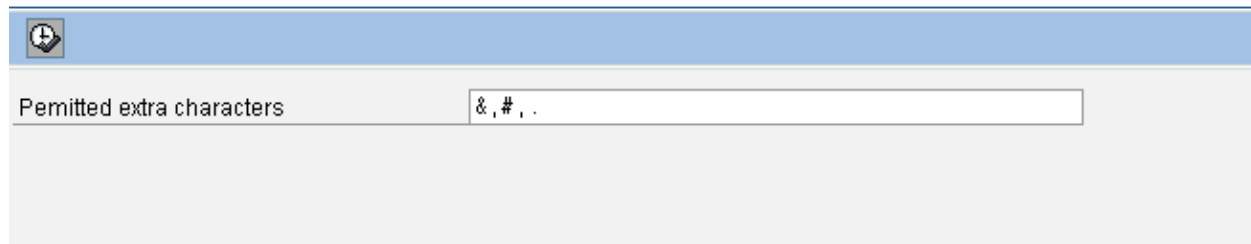
Including the required special characters

Including new characters globally:

Special characters that are allowed and used in the system has to be included in the system under the T-Code **RSKC**.

The below screen shows the special characters that are already included / allowed in the BW system

Maintenance of the permitted extra characters in BW



The screenshot shows the SAP RSKC transaction interface. At the top, there is a blue header bar with a refresh icon. Below it, the label 'Permitted extra characters' is followed by a text input field containing the characters '&, #, .'.

Note: "&, #, ." - Already included in the system

To include a new special character, we need to just enter it next to the existing characters and execute it.

This will include these characters in the table **RSALLOWEDCHAR**

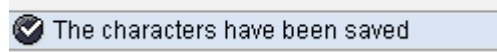
Maintenance of the permitted extra characters in BW



The screenshot shows the SAP RSKC transaction interface after adding a new character. The text input field now contains the characters '&, #, ., *'.

Note: We have included "*" and executing it.

This will show a success message.



Now the new special character "*" is also allowed in the system globally.

Including New Characters Locally:

Scenario:

Let us consider that the **ZADDRESS** field is getting loaded from the **ECC** system to **DSO** in **BW**.

And there are few cases which might have some special characters (unique characters). Now these characters are not allowed in **BW** as it is not included in **RSKC** and also business doesn't allow including this in **RSKC**, as they don't want other fields or targets to use these special characters.

Analysis:

As the special character comes directly from source system, **BW** system will throw an error, if it is not included in the **RSKC**, so we there is an option to write a field routine in the Transformation. Whereas, even with the routine we cannot make the system to accept the special character, because either we can ignore or exclude but not allow it.

Conclusion:

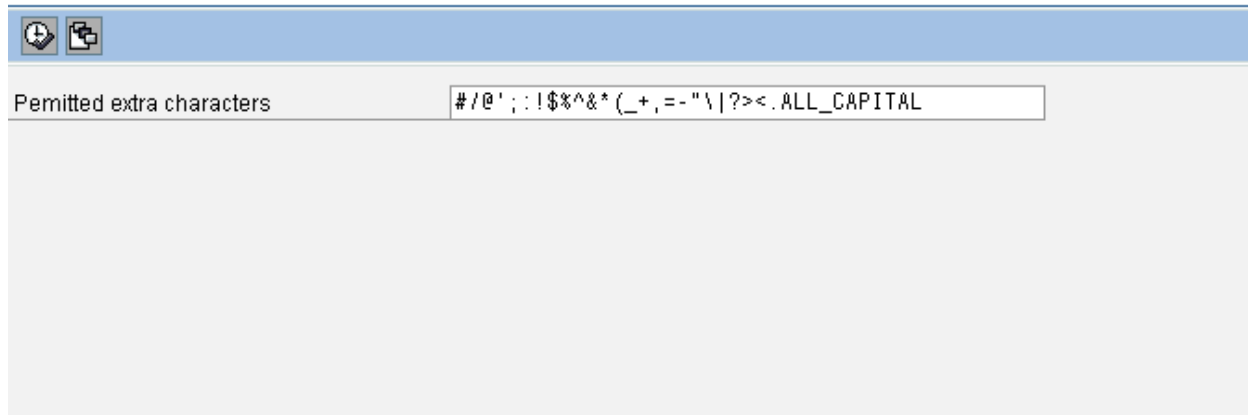
So, it is not possible to allow that special (unique) character in the system locally.

Allowing Special Characters to be First Character

Generally, the special characters are not allowed to be as the first character of the data. As per the requirement, if characters like '#' or '!' has to be present as the 1st character then we can use **ALL_CAPTIAL** or **ALL_CAPITAL_PLUS_HEX** or **ALL_CAPTIAL*** in **RSKC** or if this is required only in one particular **IOBJ**, then a field routine can be written in the transformation.

Note: Using **ALL_CAPITAL / ALL_CAPITAL_PLUS_HEX** will have more impact like it will allow all the characters as per source system into **BW**. Also this will not convert lower case letters into upper case letters.

Maintenance of the permitted extra characters in BW



The screenshot shows a configuration window for 'Permitted extra characters'. At the top, there are two icons: a clock and a plus sign. Below the icons, the text 'Permitted extra characters' is followed by a text input field containing the string: `#/@' ;: ! $ % ^ & * (_ + , = - " \ | ? > < . ALL_CAPITAL`

Excluding the special characters

Enabling lower case letters option

There are few Info objects, in which the option for “**Lower case letters**” would not be enabled. But still while extracting the data from the source system / flat files there are always chances of getting the data in the “**Lower Case**”.

In this scenario, we can enable the “**Lower case**” option for the **IOBJ**, to avoid errors in future while loading.

The screenshot shows the configuration for Info Object HIES_CITY. The 'Lowercase letters' checkbox is checked and highlighted with a red box. The configuration includes the following details:

Field	Value
Characteristic	HIES_CITY
Long description	Cities in the State.
Short description	Cities in the State.
Version	Active
Object Status	Active, executable
Dictionary	
Data element	/BIC/OIHIES_CITY
Data Type	CHAR - Character String
Length	15
Lowercase letters	<input checked="" type="checkbox"/>
Convers. Rout.	ALPHA
Output length	15
SID table	/BIC/SHIES_CITY
Other	
Attribute Only	<input type="checkbox"/>
Person Respons.	
Content release	
Characteristic Is Document Property	<input type="checkbox"/>
Constant	

Note: Changing the settings of the info object in the existing model will have impact on more objects, as it is already being used in so many places and all the objects has to be transported again, this can be avoided by “**Converting lower case letters using Translate**”

Converting lower case letters using Translate

We can write a Formula in the Transfer Routine to translate the data into the Upper Case

In our scenario, let us consider the Info Object “**ZREPO_BY**”, in which the “**Lowercase Letters**” is not checked / enabled.

The screenshot shows the configuration for Info Object ZREPO_BY. The 'Lowercase letters' checkbox is unchecked and highlighted with a red box. The configuration includes the following details:

Field	Value
Characteristic	ZREPO_BY
Long description	Reported By
Short description	Reported By
Version	Active
Object Status	Active, executable
Dictionary	
Data element	/BIC/OIZREPO_BY
Data Type	CHAR - Character String
Length	12
Lowercase letters	<input type="checkbox"/>
Other	
Attribute Only	<input type="checkbox"/>
Person Respons.	
Content release	

Here the source system is R/3 and the users are entering the lower case letters rarely and by mistake.

To rectify this, we can write a formula in the IOBJ - Transfer Routine to convert the lower case letter; this will convert even the lower case letters into upper case letters while loading the data to the target.

Removing unexpected special characters:

Even though we include so many special characters and do so many manipulations to avoid or remove the special characters during loading, there are chances to get unexpected characters from the source data.

This can be removed in the following ways:

- Correcting the data in PSA before updating it into the target
- Correcting through standard functions

Correction in PSA:

This can be done while loading the data, in general the system will throw error only while updating the data to the target, whereas PSA will have the same structure of data as the source system, so once the error is thrown, we can correct the data in PSA directly and then the corrected data can be further loaded into the higher level targets.

Correcting through standard functions:

Using Function Module:

The Function Module '**SCP_REPLACE_STRANGE_CHARS**', can be used in the field routine or in the start routine, which will remove the unwanted characters from the specified field or in whole.

Code Sample:

```
call function 'SCP_REPLACE_STRANGE_CHARS'
exporting
intext = SOURCE_FIELDS-*Infoobject name*
intext_lg = 0
inter_cp = '0000'
inter_base_cp = '0000'
in_cp = '0000'
replacement = 46
importing outtext = RESULT
* OUTUSED =
* OUTOVERFLOW =
** EXCEPTIONS
* INVALID_CODEPAGE = 1
* CODEPAGE_MISMATCH = 2
* INTERNAL_ERROR = 3
* CANNOT_CONVERT = 4
* FIELDS_NOT_TYPE_C = 5
* OTHERS = 6.
translate RESULT to upper case.
```

Note: *Infoobject name - Name of the Info Object for which the values has to be replaced.

Ex:

```
From   : EXTRAÑO ÉTRANGE NÃO OÙ ÖFFNUNLAD JUN-MAY
To     : EXTRANO ETRANGE NAO OU OeFFNUNLAD JUN-MAY
```

The Function Module '**RSKC_CHAVL_CHECK**' can be used to check the Non-Allowed characters in BW, then we can use the ABAP Replace statement to replace it with a valid statement.

Ex:

```
REPLACE ALL OCCURRENCES OF 'X' IN i_string WITH 'Y'
```


Removing Unexpected Characters while Loading from Flat File:

While loading data from Flat file the chances of getting the non-printable characters is more. To avoid this, we can also run a UNIX command on the data file.

Command: “: tr '\001'-\011'\013'-\037'\177'-\237' ' _' <filename.bak>”

Also can refer this article from SDN, to remove the invalid characters while loading from “**Flat File Source**”

[<http://www.sdn.sap.com/irj/scn/go/portal/prtroot/docs/library/uuid/50db4398-2dea-2b10-1fab-e3195bb311dc?QuickLink=index&overridelayout=true>]

Note: To deal with special characters, invisible, like **TAB, CR BACKSPACE** etc. you need to write **ABAP** routines in transfer rules to eliminate them

Special Currency Indicators:

The symbols for the US Dollar (**\$**), British Pound (**£**), Japanese Yen (**¥**) and the Euro are not allowed by default. The symbol for the US Dollar (**\$**) is allowed in BW customizing. The other special currency indicators lead to errors in the system.

In the Info Object maintenance screens or in the transfer rules, you need to create a transfer routine for any currency fields and other characteristic values that have special currency indicators. This transfer routine converts the invalid characters into valid characters or character sets. This conversion is mandatory for currency fields.

The currency codes, into which you need to change the currencies, are stored in BW customizing under **General Settings -> Currencies -> Check Currency Codes (or ISO4217)**. The key must agree with the keys in the currency tables.

Most of the special currency indicators can be assigned to three-character currency codes. For example, the **\$** dollar symbol is converted into USD for US dollars or AUD for Australian dollars.

Related Content

[Restricting Invalid Characters from Loading into SAP BI 7.0](#)

[Invalid characters in SAP BW 3.x: Myths and Reality. Part 1.](#)

[Invalid characters in SAP BW 3.x: Myths and Reality. Part 2.](#)

[BW and ALPHA Conversion FAQ](#)

[ALL CAPITAL in RSKC - how to allow other characters?](#)

[What is the importance of transaction RSKC?](#)

[Hexidecimal Non-Allowed Characters in a Unicode System](#)

[ALL CAPITAL in RSKC - how to allow other characters?](#)

[Hexidecimal Non-Allowed Characters in a Unicode System](#)

[Permitted characters during BW data load](#)

<https://www.sdn.sap.com/irj/scn/thread?messageID=6720595#6720595>

<https://www.sdn.sap.com/irj/scn/thread?messageID=6595304#6595304>

<https://forums.sdn.sap.com/thread.jspa?messageID=6704124#6704124>

<http://www.sdn.sap.com/irj/scn/index?rid=/library/uuid/50db4398-2dea-2b10-1fab-e3195bb311dc&overridelayout=true>

<https://forums.sdn.sap.com/thread.jspa?threadID=1467571&messageID=8124182#8124182>

<https://forums.sdn.sap.com/thread.jspa?forumID=133&threadID=90844&messageID=993396#993396>

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