

DB

The remove operation is triggered by undo or redo AND
The removal of non consecutive characters is allowed

Yes

No

Is the first character consecutive with the character that is situated before the removal area?

Throw a **GeneralException**

For each character in the String that has to be removed:

Select the character before and after the actual character, if not possible throw a **RemoveConflictResolutionException**

sql

Has the character an **ElementBorder**?

Yes

No

Add the **ElementBorder** to a border list

Are the actual character and the next character that shall be removed consecutive in the document?

Yes

No

Store the actual character and all following characters that shall also not be deleted in a list called „charactersInBetween“, if not possible throw a **RemoveConflictResolutionException**

Yes

No

Write access?

Throw a **GeneralException**

class cache.CChar

No

Is the character the start or end character of the document (99998 or 99999)?

Yes

Set character as inactive in the document (set **IsActive** = 0)

Yes

Update successful?

No

Throw a **GeneralException**

Undo

Redo

Mark Entry as not relevant for undo anymore (not active in the **UndoHistory**, **isActive** = 0), if not possible throw a **GeneralException**

sql

Mark entry as relevant again for undo (active in the **UndoHistory**, **isActive** = 1), if not possible throw a **GeneralException**

sql

Insert Entry into **RedoHistory**

sql

Delete Entry from **RedoHistory**, if not possible throw a **GeneralException**

class cache.CUndoHistory

class cache.CRedoHistory

Throw a **GeneralException**

No

Was exactly one entry affected?

Yes

Update both the characters that are not removed and the characters that are removed (See detail **RemoveSpecialUpdate**)

Yes

No

Are there characters in between?

Yes

Is the preceding character active (**IsActive**=1) OR is it the beginning of the document?

No

Throw a **GeneralException**

Yes

Are there characters in between?

No

Merge the borders, if there are any (**borderList** > 1), if not possible throw a **GeneralException**

sql

class cache.CChar

Is the preceding character active (**IsActive**=1) OR is it the beginning of the document?

No

No

Throw a **GeneralException**

Update Before of the preceding character, if not possible throw **GeneralException**

sql

Is the next character active (**IsActive**=1) OR is it the end of the document?

Yes

Yes

Update After of the next character, if not possible throw **GeneralException**

sql

Update Before of the preceding character with the first character that is in between, if not possible throw **GeneralException**

sql

Is the next character active (**IsActive**=1) OR is it the end of the document?

Yes

Update After of the next character with the last character that is in between, if not possible throw **GeneralException**

sql