Qlik Gold Client™

Qlik Q

**Number Range
User Guide
8.7**

Copyright

Trademarks

Table of Contents

Introduction

This Gold Client program is used to artificially inflate number range statuses (current numbers) for the sole purpose of creating a buffer between natively created data within the target client and data being copied to the target via Gold Client. Generating a buffer will help avoid number range conflicts that might otherwise occur when creating new records in the target database. In turn, this provides users additional flexibility to copy data to the target.

Executing this utility in 'Update Database' mode will perform an update to records stored exclusively within the NRIV (Number Range Intervals) table.

Reference the _Important Points_ section of this document for details on how the buffer is calculated.

This utility is a software enhancement that was released as part of Gold Client version 8.1.2.

Security Details

The Number Range Utility leverages the Gold Client authorization activity number '81' since ideally it should only be executed by Gold Client administrators. For more details, reference the Gold Client Security Guide.

This utility cannot be executed in Production systems as a programmatic safeguard exists which prevents the occurrence.

How to Execute the Utility

From release 8.2 forwards, the utility can be accessed via the Post Process buttons located within Client Construct or Data Echo (Fig 1.0). Earlier versions of Gold Client must access it via the Configuration button.
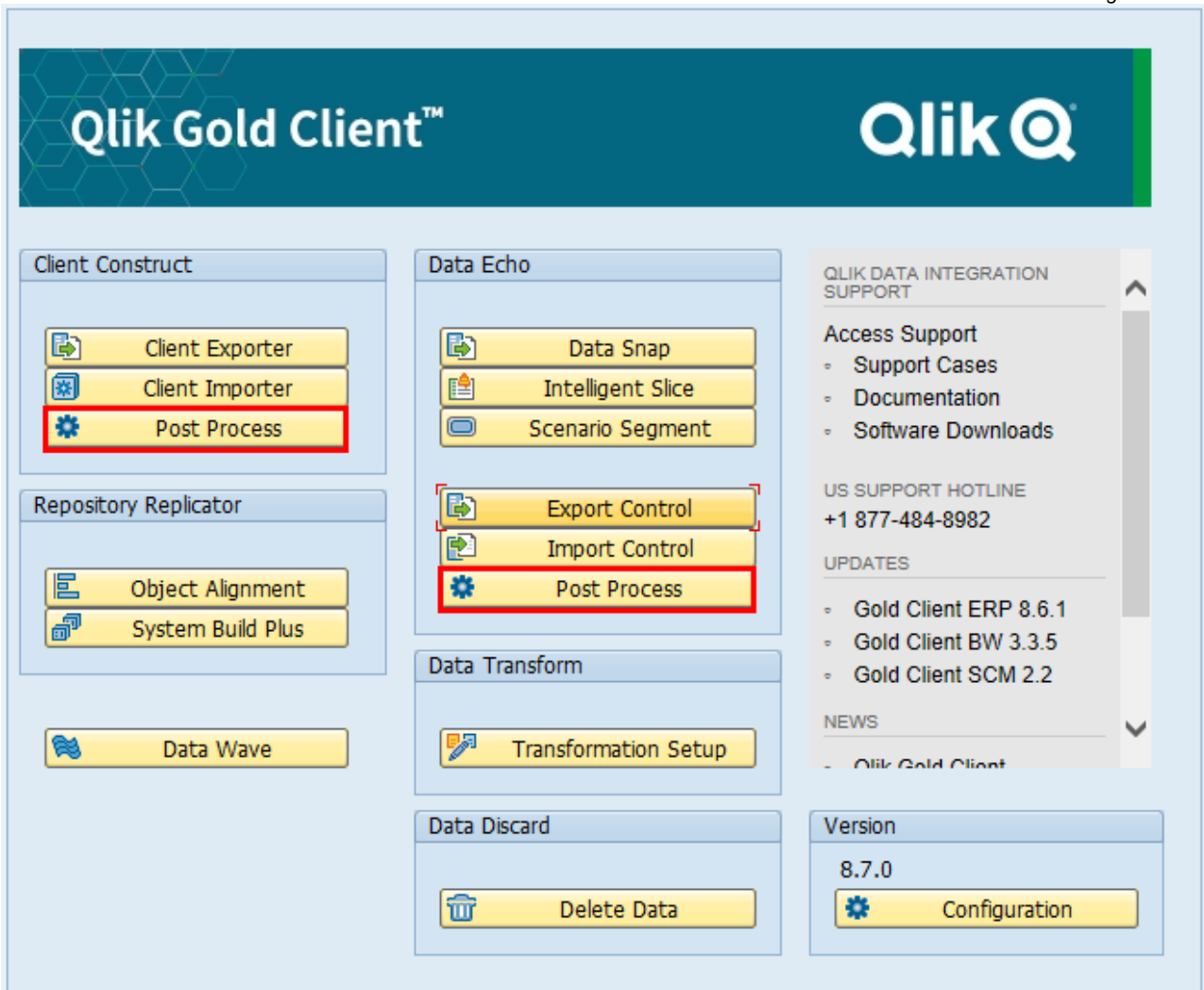
Select the Number Range Utility from whichever Post Process button was selected from the main Gold Client screen, Client Construct (Fig. 1.1) and Data Echo (Fig. 1.2)
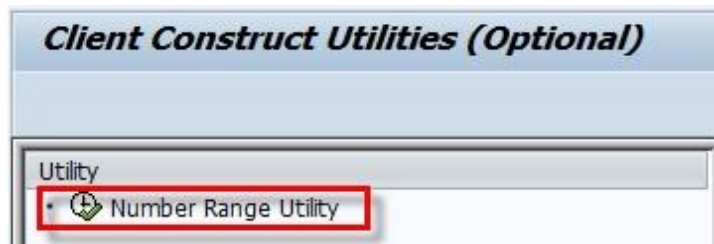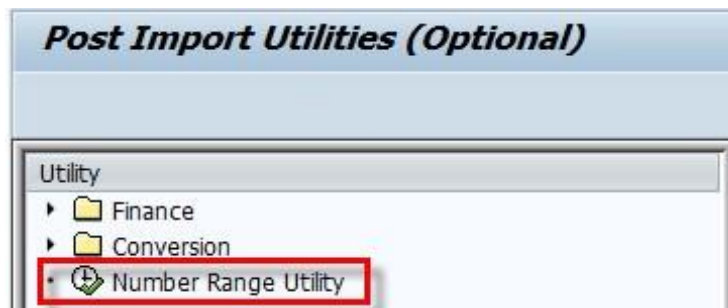
Figure 1.1

Figure 1.2

The end-user has the following options available when executing this utility (Fig. 2.0):

- **Processing Options**
  - "Summary Report" is the default setting and can be used to check the outcome in test mode
  - "Update Database" is used to perform the actual update to the NRIV table
- **Increase by %**
  - The default value is '1' and can be any value between 1-99; however, it is highly recommended that this value be of a conservative nature -- typically a range of 5-10% is suitable for most customers
  - This value is used as the multiplier to inflate the number range current number to a higher number (based on the remaining numbers within the given range)
- **Selection Criteria**
  - "All Number Range objects" is the default setting and will update all NR objects in your system
  - "Select Number Range objects" allows the user to be selective about which number range objects are included (Fig. 2.1); available criteria include: Object, Sub-object, Number Range Number, and Year
  - Reference the *Important Points* section of this document for additional details that should be considered regarding this selection
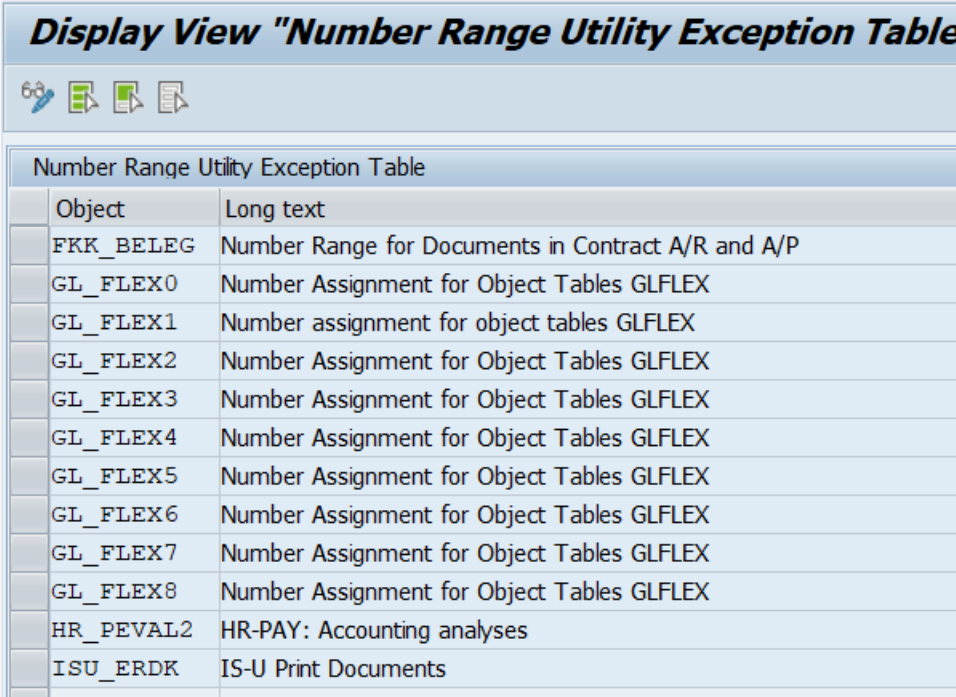
- **Number Range Table Exception**
  - o This table can be maintained to include number range objects that should never be included in the program's execution -- even when the 'All Number Range objects' option is selected
  - o A list of known number range objects has already been added to this table as part of the standard Gold Client configuration (Fig. 2.2)
  - o Customers can add other number range objects to the table according to the organization's requirements
  - o Note: this feature was released in version 8.5.1

Figure 2.2

Display View "Number Range Utility Exception Table

Number Range Utility Exception Table

Object	Long text
FKK_BELEG	Number Range for Documents in Contract A/R and A/P
GL_FLEX0	Number Assignment for Object Tables GLFLEX
GL_FLEX1	Number assignment for object tables GLFLEX
GL_FLEX2	Number Assignment for Object Tables GLFLEX
GL_FLEX3	Number Assignment for Object Tables GLFLEX
GL_FLEX4	Number Assignment for Object Tables GLFLEX
GL_FLEX5	Number Assignment for Object Tables GLFLEX
GL_FLEX6	Number Assignment for Object Tables GLFLEX
GL_FLEX7	Number Assignment for Object Tables GLFLEX
GL_FLEX8	Number Assignment for Object Tables GLFLEX
HR_PEVAL2	HR-PAY: Accounting analyses
ISU_ERDK	IS-U Print Documents

A sample output of this program's execution (Fig. 3.0); the data displayed here is explained below.

Header information:
- Report Mode: 'Summary Report' or 'Update Database' depending on user's selection on the input screen
- NRIV records read: number of records read from the NRIV table depending on user's selection on the input screen
- Increase by %: value entered by user on the input screen

Detail information:
- Object – name of the number range object
- Short text – description of the number range object
- Subobject Value – number range object subobject value
- Number – number range number
- Year – to fiscal year
- From Number – first number of the range
- To Number – last number of the range
- Number Status - the current number
- Updated Number - the artificially inflated number
- Remaining % - the percent of numbers remaining within the range
- Warning % - the value set in SAP for each Number Range object that once this percentage is reached a warning message is displayed

Figure 3.0

Number Range Utility

Flush NR Buffer

Report Mode: Summary Report
NRIV records read: 45,021
Increase by % :   10

Object	Short text	Subobj.val	No	Year	From numb..	To number	Number Status	Updt Num	Rem %	Warn %
AENDBELEG	Change documents		01		0000000001	9999999999	4346613634	4911952271	50.88	10.0
BP_BELEG	Planning/budgeting		01		0000000001	0099999999	8743403	17869063	82.13	10.0
	Planning/budgeting		02		0200000000	0299999999	208743845	217869461	82.13	10.0
	Planning/budgeting		03		0300000000	0399999999	308743669	317869302	82.13	10.0
	Planning/budgeting		04		4400000000	4499999999	4408744082	4417869674	82.13	10.0
	Planning/budgeting		05		4500000000	4999999999	4543716895	4589345206	82.13	10.0
	Planning/budgeting		10		1000000000	1099999999	1008743721	1017869349	82.13	10.0
	Planning/budgeting		11		1100000000	1199999999	1108743803	1117869423	82.13	10.0
EINKBELEG	Purchasing document		43		4300000000	4399999999	4313306210	4321975589	78.02	2.0
	Purchasing document		45		4500000000	4599999999	4513321248	4521989124	78.01	2.0
	Purchasing document		46		4600000000	4699999999	4613306266	4621975640	78.02	2.0
	Purchasing document		47		4700000000	4799999999	4713306245	4721975621	78.02	2.0
	Purchasing document		55		5500000000	5599999999	5513306327	5521975695	78.02	2.0
	Purchasing document		60		6000000000	6099999999	6013306229	6021975606	78.02	2.0
	Purchasing document		70		7000000000	7099999999	7013306227	7021975605	78.02	2.0
	Purchasing document		CC		5800500000	5800599999	5800513307	5800521977	78.02	2.0
	Purchasing document		CI		5002000000	5002999999	5002133062	5002219756	78.02	2.0
	Purchasing document		LI		5004000000	5004999999	5004133062	5004219756	78.02	2.0

When executing the program using the 'Update Database' processing option, the user will be presented with a confirmation message. (Fig. 3.1) Selecting the 'Continue' button will permit the user to proceed while selecting the 'Cancel' button will end the process.

Figure 3.1

For Gold Client releases before 8.7.2024.11:

If the update process continues, the user will be presented with an information message about the need to flush the number range buffer. (Fig 3.2)
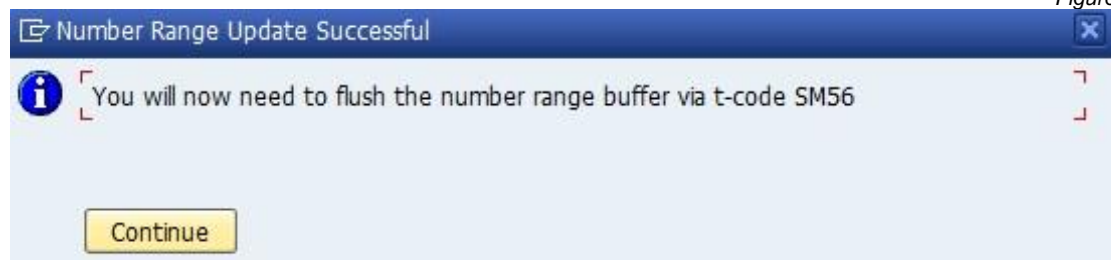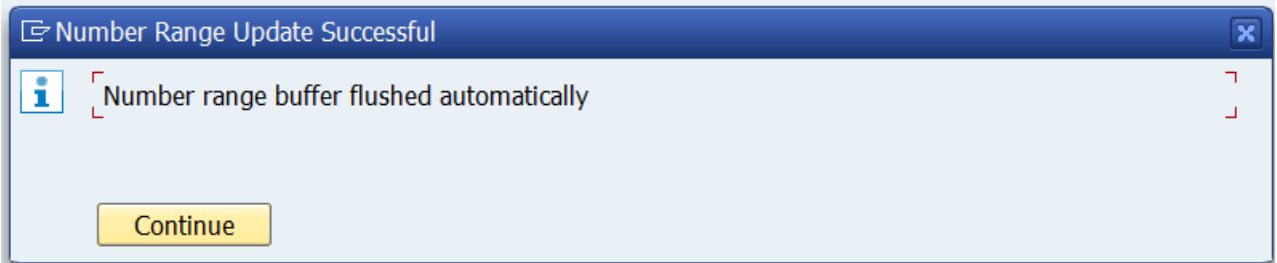
Figure 3.2

Flushing the number ranges must be executed via standard SAP t-code SM56; however, a short-cut to this transaction has been provided for ease-of-use purposes. (Fig 3.3)

Figure 3.3

As of Gold Client release 8.7.2025.02:

Transaction SM56 does not need to be executed to flush the number range buffer. The Gold Client Number Range Utility handles it automatically

Execution Log

This Number Range solution has been enhanced as part of the 8.7 release by adding a logging function. The details recorded in this log should help a team have proper visibility and not have to wonder whether the solution has been executed or not in a given client.

Selecting the Execution Log function (Fig. 4.0) provides the user with logging / historical details (Fig. 4.1). Who, when, and the percentage that was used, are all recorded in the log.
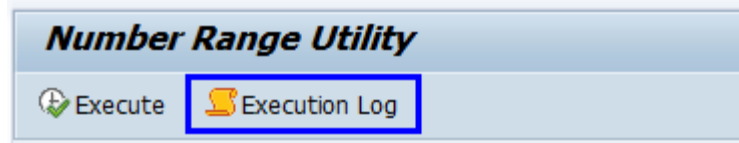
Figure 4.0

Figure 4.1

If the solution is executed using one or more specific number range objects, then the 'Reason for change' comments should reflect that fact (Fig. 4.2).

Figure 4.2

Be aware that the same logging details are also visible when executing the Configuration Change Log. Go to ZGOLD and select the Configuration menu. On the Gold Client Setup Utility screen, select the executable named Configuration Change Log (Fig. 4.3). The Config Event will be 'NUM RANGE' and will share the same logging content that is displayed when running it from the Number Range Solution (Fig. 4.4).

Gold Client Setup Utility

- ▼ 📂 Data Framework
  - • ⏰ Client Construct
  - • ⏰ Data Echo
  - • ✅ Data Type Hierarchy Report
  - • ✅ Data Type Table Query
  - • ⏰ Data Type Tags Maintain
  - • ✅ Configuration Change Log
  - ▶ 📁 Additional Tools
  - ▶ 📁 Config Copy Tools
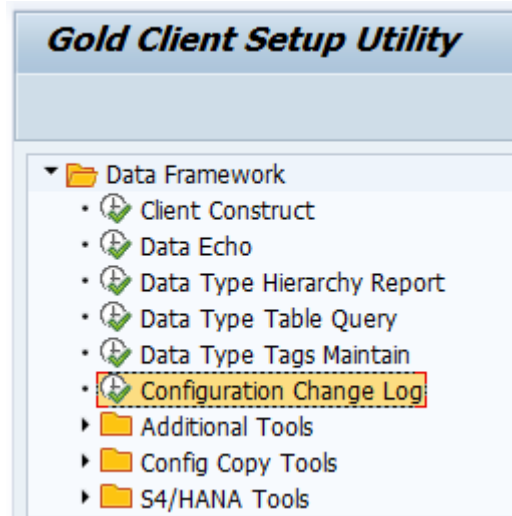 - ▶ 📁 S4/HANA Tools

Gold Client: Configuration Change Log

Gold Client: Configuration Change Log

| User Name	Date	Time	Data Type	Config Event	Reason for change
SGEORGE	01/12/2021	11:27:46		NUM RANGE	Increase by 01%: All Number Ranges Updated

Important Points

This section includes several meaningful insights and recommendations regarding this program.

Calculating the Number Range Exceptions

- The logic used to calculate the inflated numbers is as follows:
  - Subtract the Current Number (NRIV-NRLEVEL) value from the To Number (NRIV-TONUMBER) value to determine the remaining amount of numbers within the allowed range
  - Multiply the calculated value from the previous step by the percentage entered by the user on the input screen; round the value up to the next integer as needed
  - Add the calculated value from the previous step to the Current Number (NRIV-NRLEVEL) value thereby resulting in the inflated number

- This program updates <u>only</u> internal number ranges and ignores those which are defined as external (Fig. 5.0)

Figure 5.0
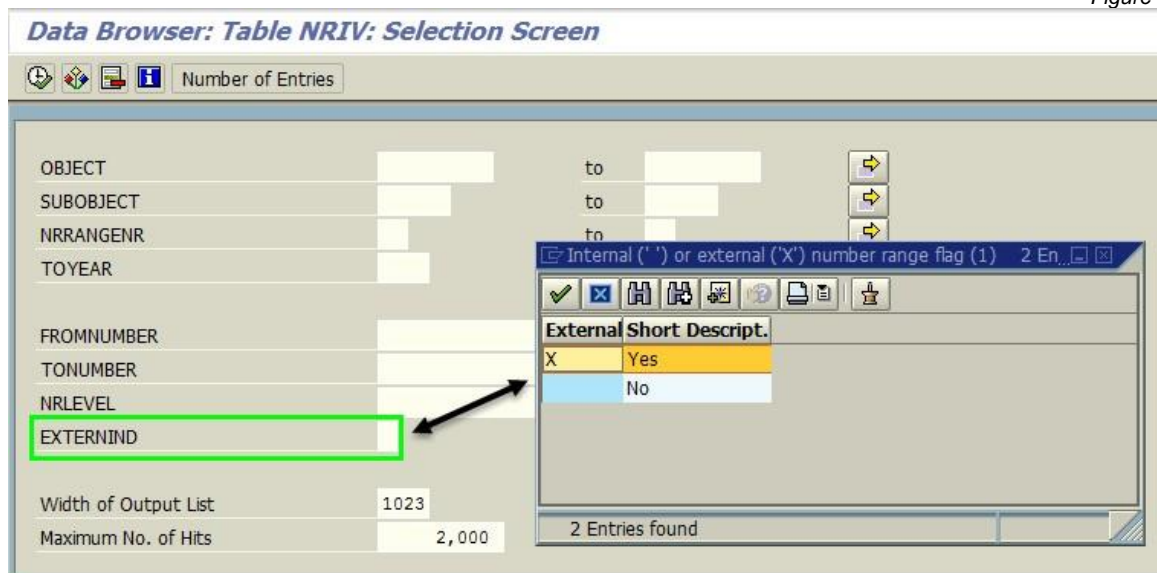
Number Range Exceptions

- With respect to the 'All Number Range objects' or 'Select Number Range objects' settings, the Qlik team has learned that a few specific number range objects should not be buffered and therefore should *not* be included in this program's execution. The specific objects, their descriptions, and the reason for excluding them are listed below.

  FKK_BELEG (Number Range for Documents in Contract A/R and A/P)
  ISU_ERDK (IS-U Print Documents)
    - Buffering these two number range objects causes performance issues because the relevant SAP programs look for the last number used rather than the next number available. The assumption our team has made is that SAP doesn't want these number ranges to have any gaps.

  GL_FLEX0 through **GL_FLEX8** (Number Assignment for Object Tables GLFLEX)
    - Buffering these number range objects has been known to cause shortdumps when executing SAP programs that call these specific number ranges

Your organization may be immune to these issues if no numbers are being consumed within these ranges. The easiest way to acquire this information is to query table NRIV using these number range objects and then check the Number range status (NRLEVEL) field to see if values exist. In the screen capture below, numbers are being consumed for several of the GL_FLEX* objects.

Data Browser: Table NRIV Select Entries   9

CLIE...	OBJECT	SUBOBJECT	NRRANGE...	TOYEAR	FROMNUMBER	TONUMBER	NRLEVEL	EXTERNIND
800	GL_FLEX0		01	0000	0000000001	9999999999	1200	
800	GL_FLEX1		01	0000	0000000001	9999999999	30	
800	GL_FLEX2		01	0000	0000000001	9999999999	1854	
800	GL_FLEX3		01	0000	0000000001	9999999999	2420	
800	GL_FLEX4		01	0000	0000000001	9999999999		
800	GL_FLEX5		01	0000	0000000001	9999999999		
800	GL_FLEX6		01	0000	0000000001	9999999999	590	
800	GL_FLEX7		01	0000	0000000001	9999999999		
800	GL_FLEX8		01	0000	0000000001	9999999999		

Flush the Buffer

After the execution of this utility, it is important to **always** flush the Number Range buffer via t-code SM56. If this task is not completed, number range conflicts may still occur even after executing the Number Range Utility.

Noteworthy Items

- This utility does not resolve those isolated situations where a Number Range's current number is higher in the target client than the source client
- This utility updates records stored only in the NRIV table
- After having executed this utility, it's possible that a warning message may appear when creating new records in the Target client; see the example below (Fig 5.1). This is only a warning and SAP should allow you to continue creating the actual record.
- This message may occur when new records being created exceed the warning percentage defined for the relevant Number Range object (Fig 5.2). For whatever reason, SAP may have this warning value set really high (90% or higher) for some Number Range Objects. The higher the warning value is set, and the larger the increase when executing this utility, increases the likelihood of this warning message appearing.
- If local buffering is enabled in your target system, the local buffers may also need to be reorganized in conjunction with flushing the number range buffers. Tables NRIVSHADOW and NRIV_LOKAL store data for number range objects that are buffered parallel or locally. Flushing the number range buffer in transaction SM56 will not adjust these tables, and if this is configured in your system, it could lead to number range conflicts. Flushing the local buffers can be accomplished with standard SAP program NK_REORGANIZE. It moves records in those tables to archiving tables and deletes the old local buffer. Before executing, consult SAP notes 1244898 and 1030400 for additional information.
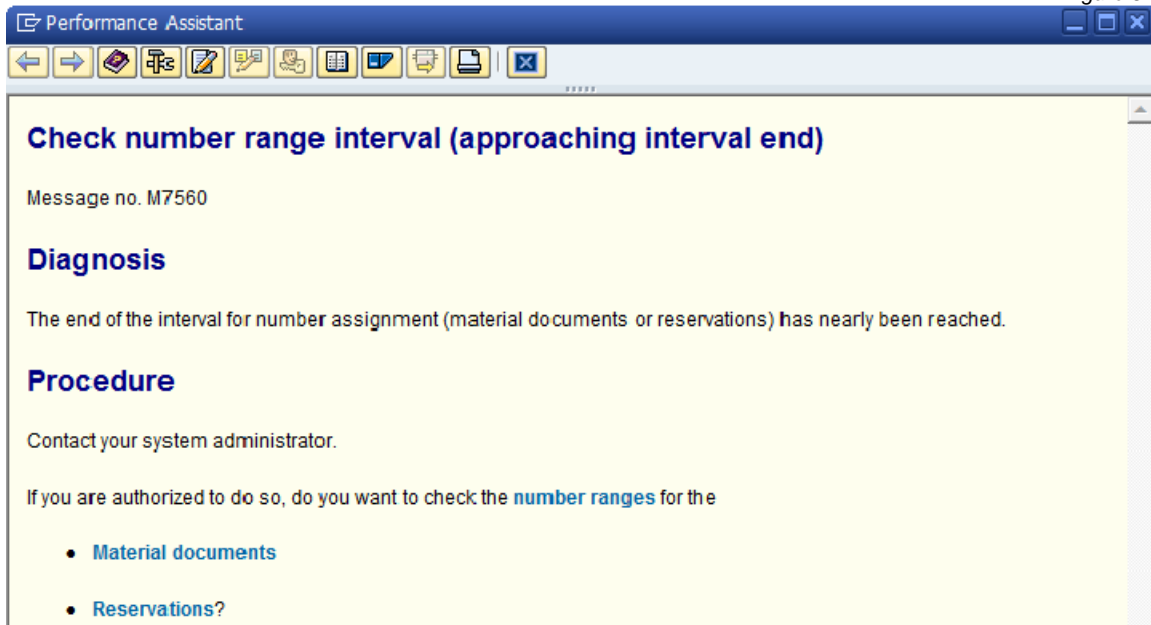
Why the Number Range Solution is Needed

Some users might struggle to understand why Gold Client has a solution for adding a buffer to number ranges. The content in this section provides some visual examples as to what might happen if this solution was not available or was not executed as part of the team's refresh process. The first four graphs explain the sequence of events that might lead to number range issues, and the final two graphs explain the solution that should avoid them.

The hypothetical example in the graph below shows a number range in Production that consists of 100,000 records where only 30,000 have been consumed to date. The entire contents of table NRIV are copied from Production to the Target client so the result is that they match initially.
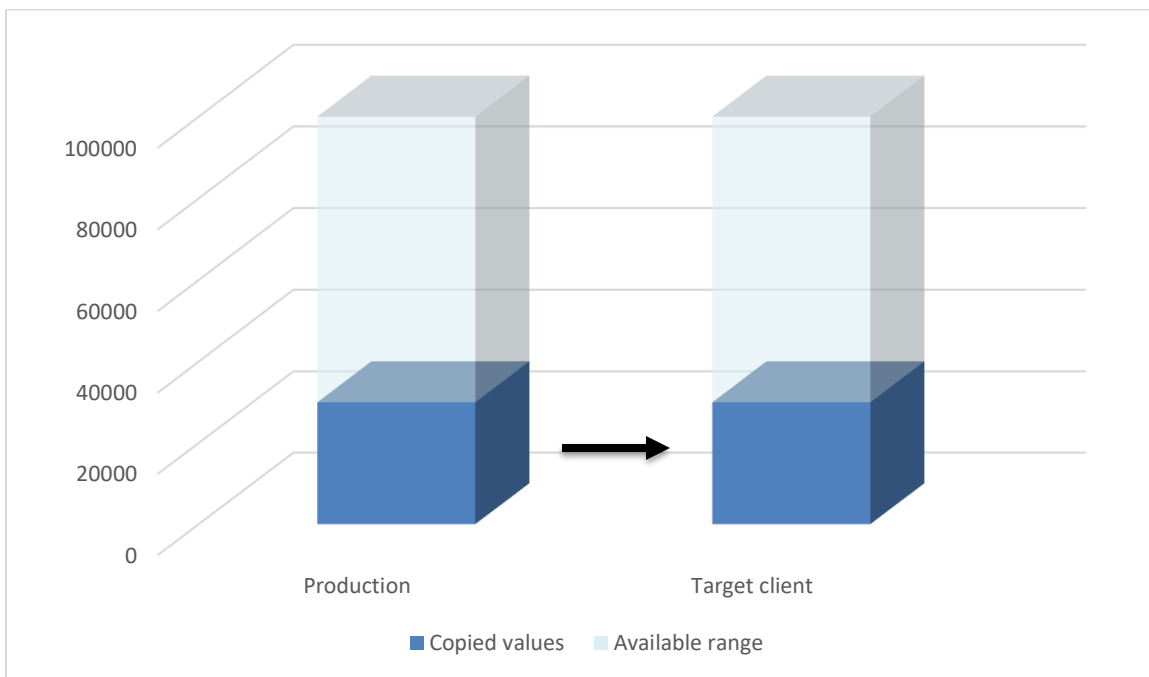
Of course, the pace with which number range values are consumed in Production should exceed all non-Prod systems. In this hypothetical example where 3-months' time has passed, the growth in Prod is 10,000 records whereas in the Target client it is a marginal number.
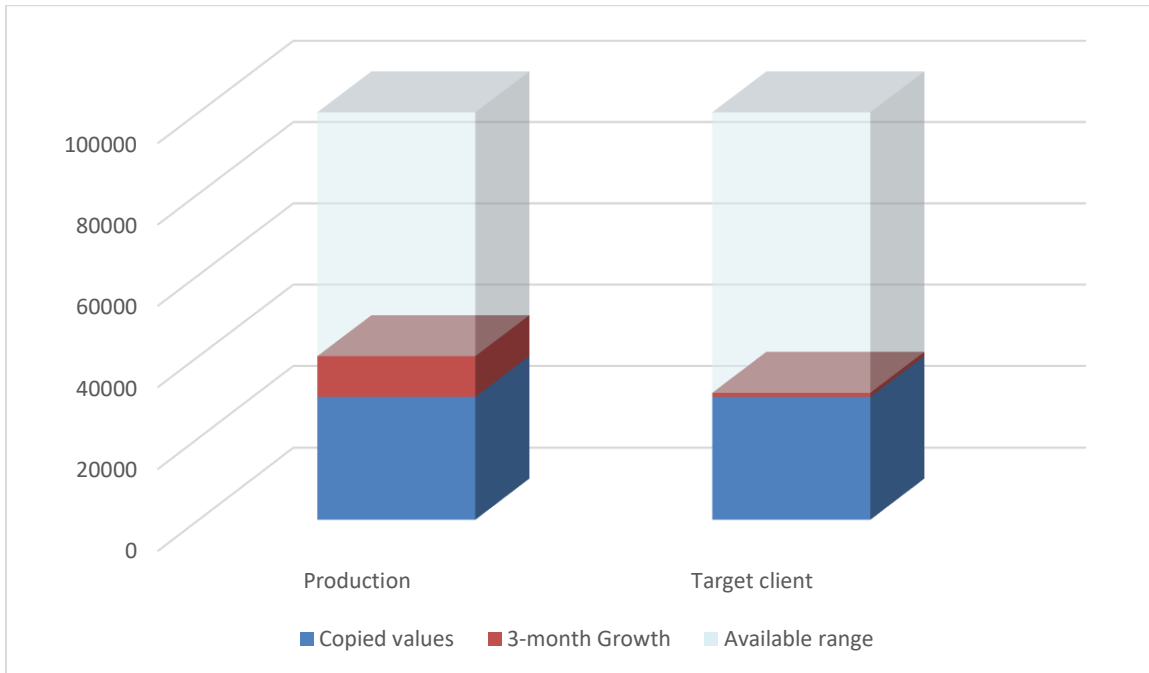
As time progresses it is very likely that Production data, having been created with higher numbers, will be copied to the Target client as represented by the arrow. There is no problem at this point because the data being copied to the Target is higher in the number range with respect to the data being natively created in the Target.
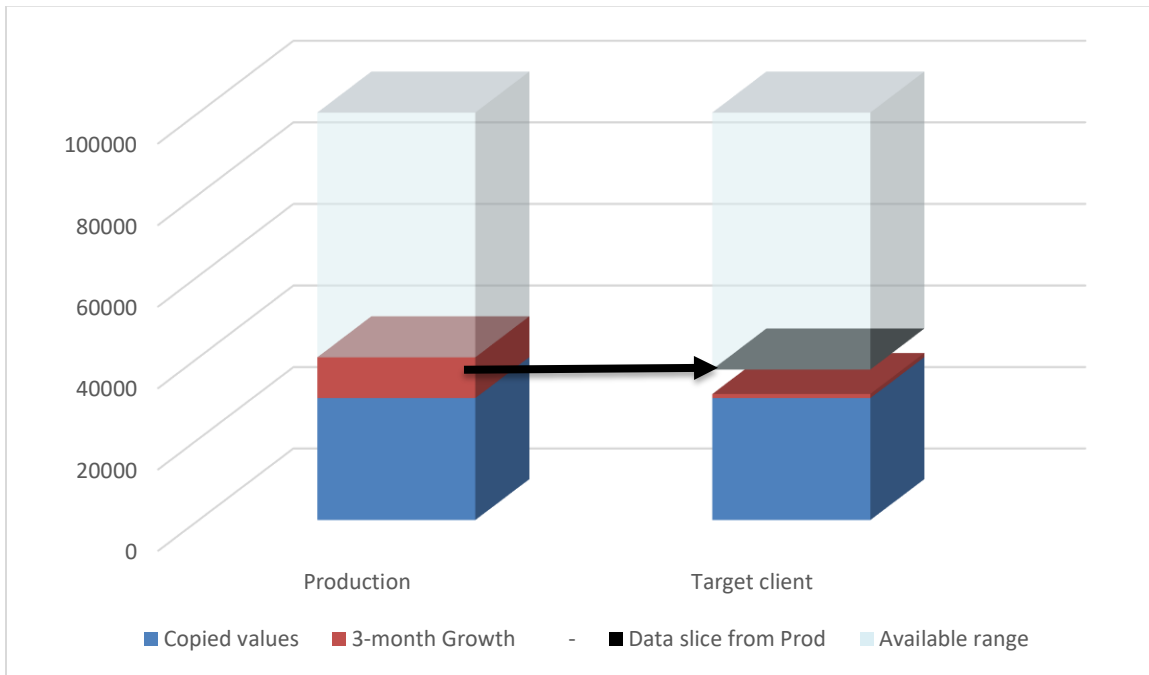
The problem eventually occurs as new data continues to be natively created in the Target client for those number range values which have already been consumed by data that has been copied from Production. The SAP program does not expect the data to already exist in the database and the result is that of a shortdump. This "data conflict" is represented by the red segment in the graph.
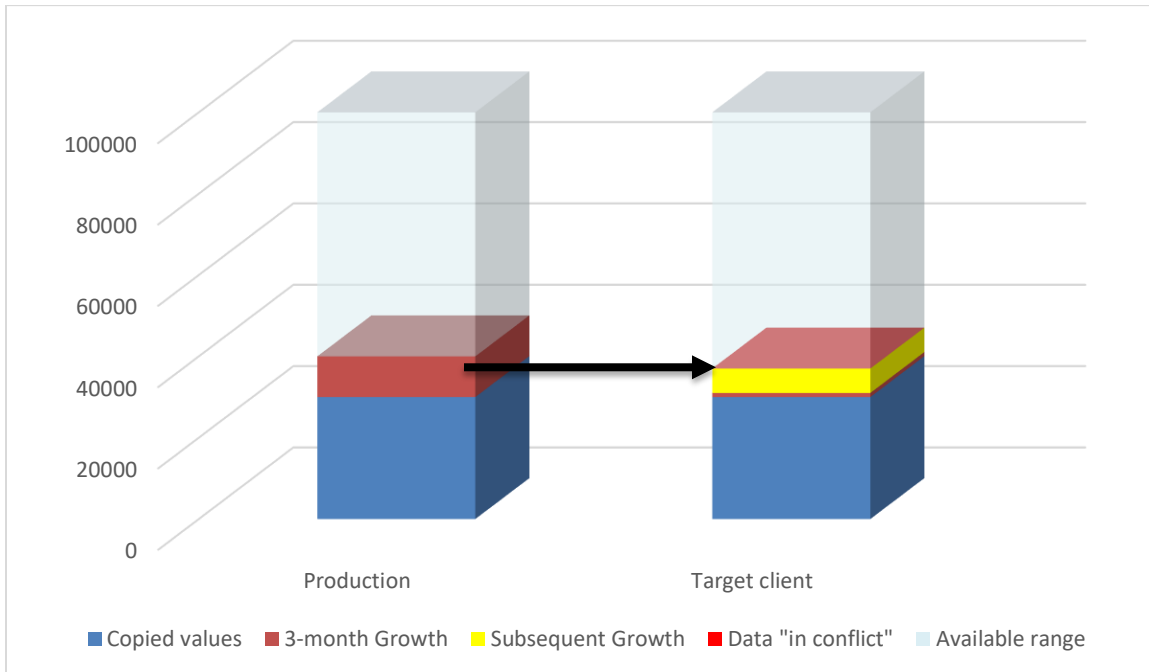
Generating a buffer between data that is copied from Production and data that is natively created in the target client will help avoid number range conflicts. Creating this buffer is the sole purpose of the Number Range Utility being available within Gold Client.

Here is a reminder of the original graph and the result after having copied the NRIV table to the Target client.
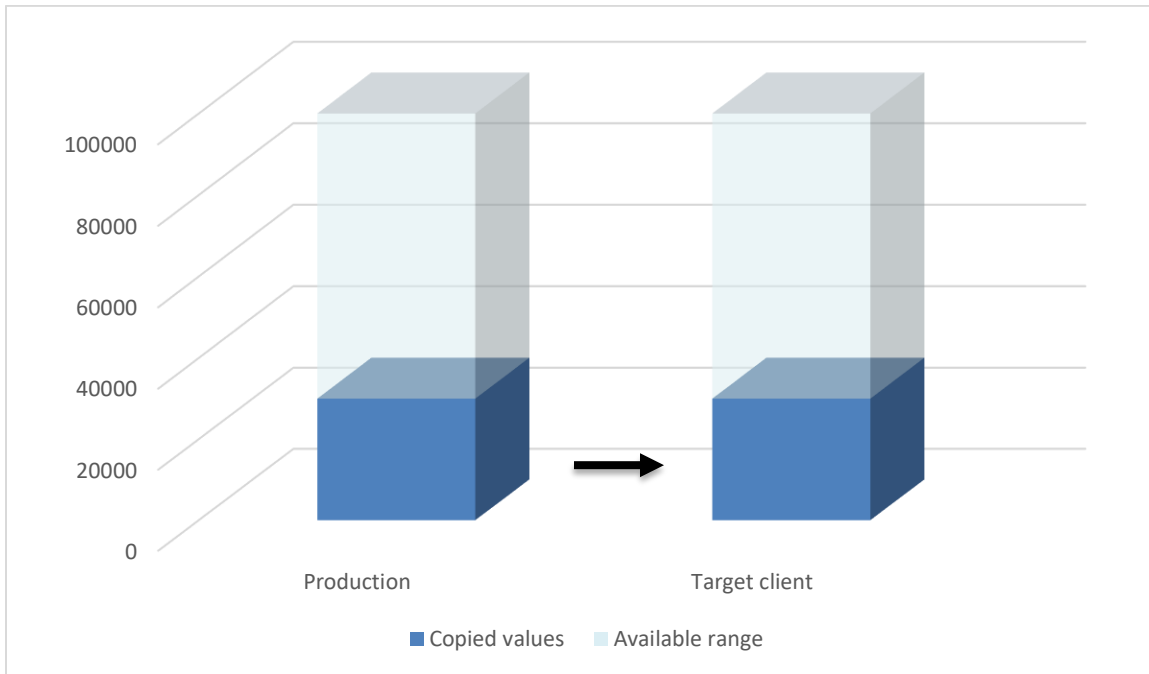
Executing the Number Range program will create a buffer in the Target client to allow for data to be copied from Prod while still being able to create new data in the Target client to avoid conflicts.

In the hypothetical example below, the program was executed with a 20% increase which is calculated using the remaining range. 100,000 - 30,000 = 70,000 * 20% = 14,000; this value is then appended to the range which has been consumed: 30,000 + 14,000 = 44,000. The buffer in this example is reflected in the graph below.

Any newly created data in the Target client will be created above the buffered range to avoid this conflict.

18
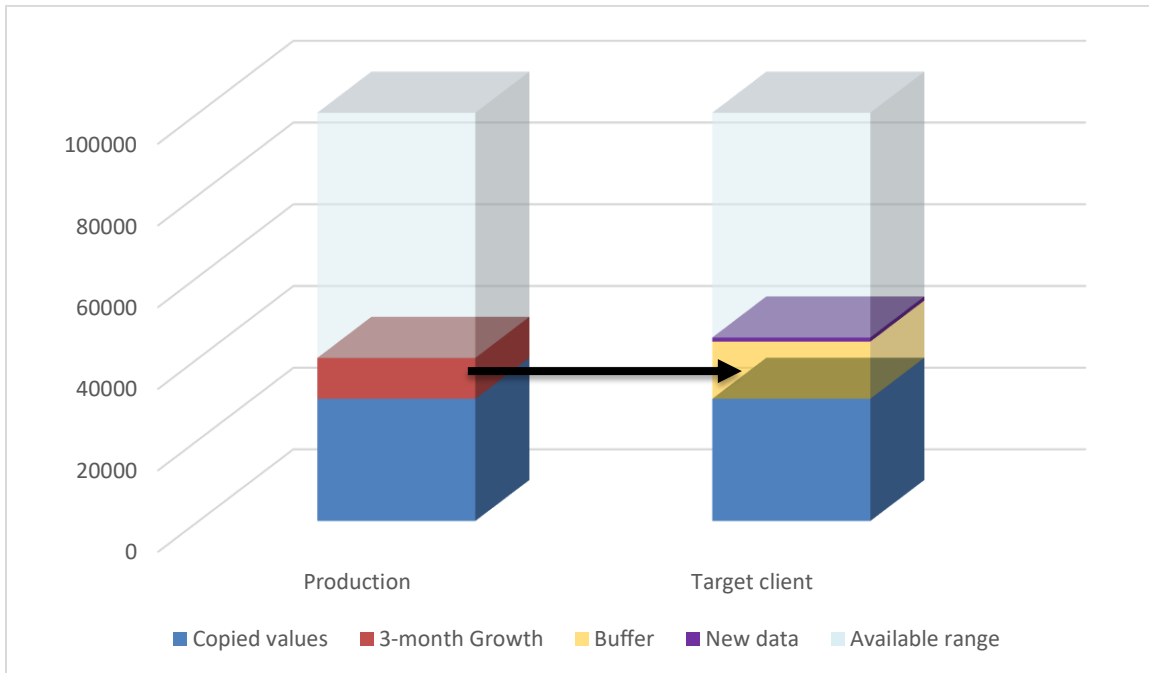
Support Information

Qlik Analytics (ISR) Ltd.. can be contacted either by telephone or via email. Any support related issue regarding problems with or use of the Gold Client software and process can be reported for resolution.

If our offices are closed, or staff is unable to directly respond to a support request, we will respond within 24 hours of the initial call. Problems related to the export or import processing may require code enhancements. If a code enhancement or fix is required, resolution time may vary.

As per the maintenance agreement, any repairs or enhancements to the Gold Client software will immediately be deployed to all customers up-to-date with their maintenance contract. It is the choice of the customer as to if and when such enhancements are implemented. In addition, customers may request a planning session with Qlik to review changes in the software and how the changes might impact their environment.

We can also be contacted to discuss application or feasibility of using the Gold Client process to resolve a current challenge the project team faces. When this is required, a planning session can be scheduled in advance to ensure proper participation by both Qlik and the client.

Corporate Offices:

> QLIK TECHNOLOGIES INC.
> 211 South Gulph Road
> Suite 500
> King of Prussia, PA 19406
> United States

Website:

> https://www.qlik.com/us/products/qlik-gold-client

Contact:

> goldclient.support@qlik.com

> 1-877-484-8982 (Toll Free in the USA)

19