

TRGUNLD and TRGLOAD Utilities

The unload and load utilities for the Adabas triggers and stored procedures facility are part of the online Trigger Maintenance facility and are run in a Natural environment:

Utility	... is used to
TRGUNLD	unload trigger definitions from the Adabas trigger file and related file-field table entries and write them to a work file.
TRGLOAD	load trigger definitions and related file-field tables from the TRGUNLD work file into the trigger file.

The work file for TRGUNLD is a Natural work file (work file 1) that is defined either

- in the batch job; or
- to the Natural environment where the unload utility is running.

The TRGUNLD work file is used as input to the TRGLOAD utility.

A report is prepared at the end of the unload or load summarizing the triggers processed.

This chapter covers the following topics:

- Starting a Utility
- Utility Parameters
- End of Processing Reports
- Utility Response Codes

Starting a Utility

To invoke a utility:

- Issue the name of the utility (TRGUNLD or TRGLOAD) as a command, optionally followed by a parameter list.

Parameters are used to limit the triggers to be processed.

Individual parameter values must be separated by the input delimiter (ID): the default is a comma ",". The input-mode parameter IM should be set to delimiter mode IM=D.

When executing a utility as a batch job, the batch job must log on to the SYSTRG library before executing the selected utility and its parameter list.

TRGUNLD

If the TRGULND utility is invoked from the command line in the online system without a parameter list, the following window is presented:

```

17:51:42          ***** A D A B A S TRIGGER MAINTENANCE *****          YYYY-MM-DD
User
-----
17:51:46  **** A D A B A S TRIGGER MAINTENANCE ****   YYYY-MM-DD
----- Trigger Unload Utility -----

Specify the following information to identify
the Triggers to be unloaded to Work File 1:

File Name ..... _____
Field ..... _____
Pre-triggers .. ____
Command Type .. __
Active State .. _
Trigger Type .. _

Use 'PF3' to cancel or hit Enter' when ready
-----

Command ==> trgunld
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help      Exit  Field Trigr Admin Procs          FTRG  FDIC  Canc
    
```

Enter values for the parameters as needed to limit the trigger definitions being unloaded. Any parameters left blank assume the default values.

If no parameters are specified for TRGUNLD, *all* triggers on the trigger file are unloaded and the related file-field table entries as well.

TRGLOAD

If the TRGLOAD utility is invoked from the command line in the online system without a parameter list, the following window is presented:

```

18:13:43          ***** A D A B A S TRIGGER MAINTENANCE *****          YYYY-MM-DD
User DBAU |-----|nr 105
          |
          |----- Trigger Load Utility -----|
          |
          |Specify the following information to identify
          |the Triggers to be loaded from Work File 1:
          |
          |File ..... _____|
          |Field ..... _____|
          |Replace ... ____|
          |With FFT .. ____|
          |
          |Use 'PF3' to cancel or hit Enter' when ready
          |
          |-----|
          |
          |Command ==> trgload
          |Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
          |      Help      Exit  Field Trigr Admin Procs          FTRG  FDIC  Canc
    
```

If no parameters are specified for TRGLOAD, *all* triggers and file-field table entries found on the TRGUNLD work file are loaded into the trigger file.

Utility Parameters

Wildcard Notation

The following "wildcard" or special character notation can be used in values specified for FILE and FIELD parameters discussed in the following sections for each utility:

Character	Example	Load triggers with file or field names...
*	PERS*	that start with "PERS"
>	PERS>	that have a value greater than "PERS"
<	PERS<	that have a value less than "PERS"

TRGUNLD Parameters

The following parameters are available to limit the triggers unloaded from the trigger file into the work file during TRGUNLD processing (the default value for each parameter is "*" to include all possibilities):

Parameter	Description
FILE	Name of a file found in the trigger definition. Valid values are a file name ("wildcard" notation allowed) * all files (the default)

Parameter	Description
FIELD	<p>Name of a field found in the trigger definition. Valid values are a field name ("wildcard" notation allowed)</p> <p>* all fields (the default)</p>
PRE	<p>Specifies pre-trigger or post-trigger. Valid values are</p> <p>Y pre-trigger</p> <p>N post-trigger</p> <p>* both</p>
CMD	<p>Command type that causes trigger to fire. Valid values are</p> <p>R read</p> <p>F find</p> <p>I insert</p> <p>U update</p> <p>D delete</p> <p>* all command types (the default)</p>
ACT	<p>State of the trigger to be processed. Valid values are</p> <p>A active</p> <p>D not active (deactive)</p> <p>* both</p>
TYPE	<p>Type of participation of trigger in user's ET logic. Valid values are</p> <p>A asynchronous</p> <p>N non-participating</p> <p>P participating</p> <p>* all participation types</p>

TRGUNLD Parameter Examples

```
TRGUNLD FILE=EMPLOYEES
```

Specifying the FILE parameter limits the triggers unloaded to those defined for the specified file, in this case the EMPLOYEES file.

```
TRGUNLD FILE=VEHICLES,PRE=Y,ACT=A,TYPE=N
```

Combining parameters further limits the triggers unloaded. In this case, only active, non-participating pre-triggers defined for the VEHICLES file are unloaded. Note that the parameters must be separated by the input delimiter as specified in the ID parameter in the Natural environment.

TRGLOAD Parameters

The following parameters are available to limit the triggers loaded from the TRGUNLD work file to the trigger file during TRGLOAD processing:

Parameter	Description
FILE	Name of a file found in the trigger definition. Valid values are a file name ("wildcard" notation allowed) * all files (the default)
FIELD	Name of a field found in the trigger definition. Valid values are a field name ("wildcard" notation allowed) * all fields (the default)
FFT	Request that the file-field table entry found on the TRGUNLD input data set be loaded with the trigger. Valid values are Y yes (the default) N no
REPLACE	Request that a trigger definition being loaded that already exists on the database replace the old one. Valid values are Y yes: replace the existing definition with the new one N no (the default): do not replace the existing definition and return an error message

TRGLOAD Parameter Examples

```
TRGLOAD FILE=EMP*
```

Load into the trigger file all file-field table entries and triggers found on the TRGUNLD input work file for files starting with "EMP".

```
TRGLOAD FFT=N,REPLACE=Y
```

Ignore any file-field table entries read from the work file. If any trigger definition read from the work file has the same specifications as an existing trigger definition, replace the existing definition with the definition from the work file.

End of Processing Reports

Unload Report (TRGUNLD)

A report is written out at the end of the unload process stating the number of trigger definitions and the number of file-field table entries unloaded.

Example

The first page of the report indicates the source file and database for unloading the triggers and summarizes the selection criteria. Following this is a list of each record being unloaded into the work file:

```

18:12:00          ***** TRIGGERS UNLOAD UTILITY *****          YYYY-MM-DD
DBAUSER
Unloading from Trigger File      12 on Database      105
Rec  File  Details
-----
Unloading Pre and Post Triggers for file(s) *
and field name(s) * for all command types

FFT      45 ZB-FIELD (ZB,2,A)
FFT      45 ZF-FIELD (ZF,2,A)
FFT      45 ZZ-FIELD (ZZ,4,P)
TRG      45 CMD=R FLD=ZB PRTY=01 PGM=RBEGIMU PRE=S TYP=P PRM=C RB=U
GRP       4 Group Record
FFT      4 ADDRESS-LINE (AI,20,A)
FFT      4 AREA-CODE (AN,6,A)
FFT      4 BIRTH (AH,6,U)
.
.
.

```

The end of the report lists a summary count of records written to the work file. The physical work file written includes these records plus two additional records used for internal purposes.

```

18:13:04          ***** TRIGGERS UNLOAD UTILITY *****          YYYY-MM-DD
DBAUSER
Unloading from Trigger File      12 on Database      105
Rec  File  Details
-----
FFT      7 NA-FIELD (NA,40,A)
FFT      7 NT-SUPER (NT,110,A)
FFT      7 TI-FIELD (TI,70,A)
FFT      7 TY-FIELD (TY,10,A)
TRG      7 CMD=R FLD=** PRTY=90 PGM=NACNN200 PRE=S TYP=A PRM=C RB=N

Total records written to Work File 1

File-Field Table Entries: ...    141
Group Control Records: .....     2
Trigger Definitions: .....     13

Total Records: .....            156

*** TRGUNLD completed successfully. ***

```

The final page of the report summarizes the triggers unloaded by categories. This report is useful for cross-checking with the TRGLOAD utility.

```

**** Trigger Unload Statistics ****

Number of Triggers Unloaded by Categories

Pre or Post :           Pre:      7
                       Post:     6

Trigger Type:  Asynchronous:    6
                Participating:   3
                Non-Participating: 4

Command Type:   READ:          6
                FIND:          0
                INSERT:         0
                DELETE:         2
                UPDATE:         1
                *ANY*:          4

Field Criteria: *ANY*:          4
                Specific:       9
    
```

Load Report (TRGLOAD)

A report is written at the end of the unload process, stating the number of trigger definitions and the number of file-field table entries loaded.

Example

The first page of the report indicates the target database for loading the triggers, the source database where the workfile was created, and a summary of the selection criteria. Following this is a list of each record being loaded into the work file.

```

20:05:05          ***** TRIGGERS LOAD UTILITY *****          YYYY-MM-DD
DBAUSER
Rec  File  Details
---  ---  -----
Loading Trigger Definitions into database    106 file    14
from data set unloaded from database    105 file    12
created on 1999-07-26 20:04 from version  711

FFT    50 AA-FIELD (AA,8,A)
FFT    50 AC-FIELD (AC,20,A)
FFT    50 AD-FIELD (AD,20,A)
FFT    50 AE-FIELD (AE,20,A)
FFT    50 AF-FIELD (AF,1,A)
FFT    50 AG-FIELD (AG,1,A)
FFT    50 AH-FIELD (AH,6,U)
FFT    50 AI-FIELD (AI,20,A)
FFT    50 AJ-FIELD (AJ,20,A)
FFT    50 AK-FIELD (AK,10,A)
.
.
.
    
```


The end of the report lists a summary count of records read from the work file and how they were loaded into the database.

```

20:08:43          ***** TRIGGERS LOAD UTILITY *****          YYYY-MM-DD
DBAUSER
Rec  File  Details
-----
TRG      5 CMD=R FLD=AA PGM=CAROL PRE=P TYP=A PRM=C RB=N

Total records loaded from Work File 1

File-Field Table Entries: ...      109
Group Control Records: .....       1
Trigger Definitions: .....         65

Total Records Loaded: .....         175
Records found with errors ...       0
Total Records Read: .....          178

*** TRGLOAD completed successfully. ***

```

The final page of the report summarizes the triggers loaded by categories. This report is useful for cross-checking with the TRGUNLD utility.

```

***** Trigger Load Statistics *****

Number of Triggers Loaded by Categories

Pre or Post :          Pre:      34
                   Post:      31

Trigger Type:  Asynchronous:    23
                Participating:   32
                Non-Participating: 10

Command Type:          READ:     25
                   FIND:        6
                   INSERT:      14
                   DELETE:       2
                   UPDATE:       3
                   *ANY*:       15

Field Criteria:      *ANY*:     19
                   Specific:    46

```

Utility Response Codes

Code	Meaning
000	Function completed successfully.
013	Invalid file-field table entry specified. Triggers requires access to a file-field table that maps long file names to file numbers and field names to Adabas two-character field identifiers. See section <i>File-Field Tables</i> for more information.
016	No trigger definition found with this criteria.
023	Field name not found for this file. The field name specified does not exist in the file-field table for this file. See section <i>File-Field Tables</i> for more information.
025	Invalid command type. See list above for valid values.
027	No field found for this file and command type.
029	No trigger found for this file, command, and field criteria.
039	Natural subprogram name is invalid.
041	Trigger type may be "A", "N", or "P" only.
042	CALLNAT type may be "C", "E", or "N" only.
043	Record buffer usage may be "A", "N", or "U" only.
047	Trigger already exists with this criteria.
103	File name must not be blank.
110	File-field table entry already exists for file.
1xxx	Function resulted in an Adabas response code 22 where "xxx" represents the subcode.
3xxx	Nonzero Adabas response code was returned, where "xxx" is the actual Adabas response code.
9999	Function not successful. Verify parameters and existing trigger definitions. For more information, contact your Software AG technical support representative.