CEE Queue Processor
Version 6.2

Agency Guide

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1. Introduction

1.1. General

CEE Queue Processor is a universal queue management system with following functions:

1. Queues sorting:
    - by agent sign
    - by agent name
    - by dealer
    - by last updating agent
    - by generic DOCI (Document Itinerary) remark
    - by generic NOTEPAD remark

2. Watching and reporting change of booking files number in queues.

3. Automatic deleting of expired booking files.

4. Automatic HX/NO (and optionally other codes) segments testing, deleting and reporting.

5. Collecting of CO_2 emission data by flight segments.

All processes can be widely customized to the different agencies needs.

Since version 5.0, application runs under uAPI connectivity only.

1.2. Benefits

Sorting application has built-in following smart functions:

- Mapping structure optimization before queues sorting.

- Checking and reporting mapping files errors.

- Recovery from errors and critical faults.

- Support of source and destination categories.

- Automatic creation of missing categories with optional e-mail reporting.

- Reporting of missing agent sine codes in mapping files.

- Moving unsortable PNR's to the waste queue to save further processing time.

- Smart notepad remarks handling

- Direct compatibility with XML Queue Manager™ mapping files.

2. Sorting

Queue sorting automatically distributes PNR's to the agent queues in accordance with the mapping rules.

2.1. Mapping structure - Taskmain

Sorting jobs are initiated in control file Taskmain by following records:

> *From PCC, Mapping file/Keyword, From queue no, Add note, Notepad/Notification addresses, Waste*
> **pcc,mapping_file,source_queue,add_note,notepad,waste_queue**

where:

pcc .... Source PCC to process.

mapping_file .... Mapping file name (example: abcd-q11.csv).
There is no limitation, but must be a MS Windows valid filename and keywords *watchdog, autocancel and segcheck / segremove* are forbidden.

source_queue .... Source queue number.
Optionally, also source Category can be specified after asterisk (example: 99*caa). Category must be letter C and two alphanumeric characters.

add_note .... Commands N, NO or NOT disable Notepad text. If the column is left blank or any other text is entered, the Notepad text is active.

notepad .... Optional Notepad text to add to the PNR after successful transfer.
Text may contain following variables, which are automatically expanded to the real values:
  %Q Source Queue Number (and optional Category)
  %D Source Queue Descriptor
  %M Sorting Mode and Agent/Dealer ID
Multiple Notepads are also supported (each part of text divided by @ character generates one NP remark).
Also, up to five keywords with pre-assigned text strings may be specified in Setup.
Example:
  Keyword `"HQNOTE"` with text `"HQ*MOVED FROM QUEUE %Q %D"`
  is expanded to the Notepad remark
  `HQ*MOVED FROM QUEUE 30 TRAINING`
(see screen description in section Setup Notepad Tab)

waste_queue .... Waste queue for particular Pseudo (may be also different PCC and/or category).
If not specified, the Setup General waste queue is used. If General Waste is blank too, the unsorted PNRs are left in the source queue.

2.2. Mapping structure – Mapping files

Each source PCC + Queue (+ optional Category) is linked to one or more specific mapping files, which describe for each agent, dealer or remark the destination for particular mode of sorting.
Name of the mapping file must exactly match the file name in main control file (Taskmain).

> *Agent sine, Agent name, Queue no, Category, Destination PCC, Distributed by*
> **sine,name,target_queue,target_category,target_pcc,mode**

where:

sine...............................Two characters agent sine code.
Agent sine code is retrieved from PNR header, or from PNR history (LUA mode).
This field is mandatory for *sine* and *lua* search, and has no effect in *name*, *dealer*, *doci* or *note* modes.

name...........................Agent or Dealer name or optional Zxx code or DOCI/NOTE text. Spaces and numbers are allowed.
This field is mandatory for *name*, *dealer, doci* and *note* modes, and has no effect in *sine* and *lua* modes. Agent *name* is searched in *P Phone field, *doci* text and *dealer* name in *DI and *note* text in *NP.

target_queue............Target queue number.

target_category.......Optional destination category. Category must be letter C and two alphanumeric characters.

target_pcc.................Four or three characters destination PCC. This item is optional and Source PCC is considered when left blank.

mode...........................Sorting mode. This data field is mandatory, only keywords *sine*, *name*, *lua, dealer*, *doci* or *note* are accepted.

Mapping file example:

```
Agent sine,Agent name,Queue no,Category,Destination PCC,Distributed by
sm,,68,cag,abcd,sine
,smith,68,,abcd,name
dk,,68,cdk,abcd,lua
,global travel,68,,abcd,dealer
,some doci text,68,,,doci
,remark,68,,abcd,note
```

Important:
For sorting by agent, at least one *sine*, *name* or *lua* line must be specified.

2.3. Mapping files preprocessing and optimization

Before the sorting process starts, QP scans main control file (taskmain) and all mapping files for errors, comments and duplicates. For each source PCC, Queue and Category, corresponding mapping files are joined together and sorted to avoid unnecessary switching between Pseudo Cities.

If any error is detected in taskmain or mapping files, agency supervisor may be warned by e-mail. E-mail with identical errors is sent only once.

Error e-mail notification sample:

```
Following mapping errors have been detected
by Queue Processor running at (PC NAME):

Error in Taskmain, line 3: invalid text
Error in Taskmain, line 4: mapping file map2.csv missing

Invalid category in mapping file map1.csv, line 2:
  xx,,94,xjp,79ye,sine
General error in mapping file map1.csv, line 4:
  invalid text
Missing or incorrect sorting mode in mapping file map1.csv, line 5:
  xx,,94,,79ye,error
```

2.4. Sorting process

PNR's in the source queue are sorted in following order:

a. Sorting by LUA (Last Updating Agent).

If at least one *lua* rule is found in buffered mapping for particular source, the PNR history is scanned for agent, who made the last update to the PNR. Sorting is done by agent sine, Online booking codes and Robotic codes are ignored in this scan.

- If valid agent signature is found, script tries to find the same agent code in *lua* mapping lines.
  If the match is found, script continues directly with Booking file transfer.

- If valid agent or mapping is not found, script continues with sorting by other criteria.
  To save communication costs, further sorting is performed only if at least one of *sine*, *name*, *dealer, doci or note* rule is detected in target mapping.

LUA search can be done for last updating agent only or on complete history. Complete scan could be limited by number of found agent codes and/or by transaction date in global Setup rules.

b. Sorting by SINE.

After LUA search, script tries to find PNR agent signature match with code in mapping *sine* lines.
Unmatched agent codes are displayed in the end of the session and recorded to the log and protocol.

For Online booking codes, script optionally tries to find letter 'Z' followed by two characters in the PNR Phone field. If such Zxx match is found, those two xx characters are taken as valid agent ID code. It's an agency specific rule.

Robotic agent codes are ignored in this stage.

c. <u>Sorting by NAME.</u>

If there is still no match, script tries to scan PNR Phone field for match with all agent names found in mapping *name* lines.

d. <u>Sorting by DEALER.</u>

If at least one *dealer* rule is found in mapping, DOCI field is retrieved and agency names in *dealer* lines are compared with the seller information in this field.

e. <u>Sorting by DOCI.</u>

If at least one *doci* rule is found in mapping, DOCI field is retrieved and *doci* text is compared with *DI content.

f. <u>Sorting by NOTE.</u>

If at least one *note* rule is found in mapping, text in *name* field is compared with the *NP content.

If the target is identified, PNR transfer to the destination queue is executed and program continues with next PNR sorting.
Unsorted PNR's can be moved to the specific agency waste queue to avoid useless scanning in next sessions.

2.5. **Booking file transfer**

Script moves PNR to the destination PCC/Queue/Category found in buffered mapping information.

PNR transfer returns an error, if the target is invalid or when simultaneous changes to the booking file are detected.

If the transfer was successful, optional Notepad remark is stored in the PNR.

Missing target categories are recorded for further processing.

2.6. **Automated creation of missing categories**

If missing target categories are detected during sorting process, they are recorded and created at the end of the session.

Booking files are moved to the newly created categories in the next sorting session.

2.7. Reporting

At the end of the session, result of sorting process is displayed and written to the debug log and QP protocol.

```
00:03:08.05 ### Categories treatment
00:03:08.09 ### --------------------
00:03:08.11 ### 79YE/94*CJP created
00:03:08.13 ###
00:03:08.14 ### Nbr of sorted queues:    423
00:03:08.18 ### PNRs processed:          53
00:03:08.19 ### PNRs reallocated:        1
00:03:08.22 ### PNRs wasted:             0
00:03:08.24 ### PNRs skipped:           52
00:03:08.27 ### -----------------------
00:03:08.28 ### Auto cancelled PNRs:     0
00:03:08.30 ### PNR count notifications: 0
00:03:08.33 ### Processed HX PNRs:       0
00:03:08.38 ### -----------------------
00:03:08.43 ### Elapsed time:            00:03:25.65
00:03:08.44 ### -----------------------
00:03:08.49 ### Not mapped SINE agents:
00:03:08.50 ### 3CH0/16 - LM, 11, 46, 47
00:03:08.53 ### 3CH0/2 – LM
00:03:08.55 ### 3CH0/21 – LM
00:03:08.63 ### 3YT6/16 – GO
00:03:08.64 ### *** FINISHED ***
00:03:08.64 ### ----------------
```

3. PNR Auto cancelling

Autocancel service is initiated in Taskmain by keyword ***autocancel***:

> *From PCC, Mapping file/Keyword, From queue no, Add note, Notepad/Notification addresses, Waste*
> ***pcc,autocancel,,,,***

where:

pcc .... PCC to process

autocancel .... keyword

This service runs in intervals, predefined in Setup. If the Autocancel is activated, then:

- Command LD/UTK/TL is executed for defined Pseudo City.

- Listed PNR's are scanned for optional date/time defined in TKTG-TAU field and itinerary is canceled if the date/time already expired.

  The entry for the insertion of the date/time:

  T.TAU/date*X/1600

  Where:

  - date is the date which is assigned by user in TAU format,
  - X - auto-cancel sign,
  - 1600 is the time of auto-cancellation (optional).

Autocancel can be programmed in Setup to compare date/time with UTC time, or with PCC local time.

If user does not specify the time, then booking will be cancelled during the first check on the date in TAU.

For example: the user added auto-cancel sign X in following PNR. So, QP cancels this booking with XI format and add to received field R.PNR CANCELLED BY AGENT REQUEST:

```
ZJR0GE/37 IEVNH N339371 AG 99999992 05MAY
  1.1SLIPUHINA/NATALIIAMRS
1. LH 1487 D  11NOV MSQFRA HK1  1535   1600  O*       E TU
         OPERATED BY LUFTHANSA CITYLINE GMBH
2. ET  707 C  11NOV FRAADD HK1  2105  #0615  O*         TU
3. ET  704 J  14NOV ADDCDG HK1  2355  #0530  O*         FR
** FILED FARE DATA EXISTS **          >*FF·
** VENDOR LOCATOR DATA EXISTS **      >*VL·
** VENDOR REMARKS DATA EXISTS **      >*VR·
** CUSTOM CHECK RULES EXIST **        >*RU·
FONE-IEVT*356 7645
RBKG-7J8J/SA10MAY/1600/Q99
TKTG-TAU/SA10MAY*X
```

Cancelled PNR's are stored in QP protocol and debug log.

4. Queue watching (Watch Dog)

Service is initiated in Taskmain by keyword **watchdog**:

> *From PCC, Mapping file/Keyword, From queue no, Add note, Notepad/Notification addresses, Waste*
> **pcc,watchdog,watched_queue,,addresses,**

where:

pcc .... PCC to process.

watchdog .... Keyword.

watched_queue .... Queue number to watch.

addresses .... A list of e-mail addresses to send Watch Dog notification, separated by slashes or spaces.

List of PNR's in defined queues is recorded and compared with the last scan. If new PNRs are detected, following e-mail notification with subject "New PNR detected" is sent to the agency supervisor for each queue:

Watch Dog Advisory for PCC 79YE

2 new PNRs detected on queue 30

NAME	RECLOC	FLIGHT DATE
1NOVAK/JANMR	1BWDB1	09APR
1MIKSIKOVA/SIMONA MRS	2J25F1	15MAY
1MIKSIK/JOSEF MR	2J25F1	15MAY

End of advisory

5. Segments status check and segments auto removal

5.1. Description

This service has two operation levels:

1. Detects segments with given status and advises client supervisor in real time.

2. Removes affected segments automatically and reduces the number of possible ADM's received from airlines.

Both options differ by keyword, but share same parameters setting in control file. The service is started at the intervals set on the General Setup page (HX intervals).

All Segment auto removal tasks are processed first, followed by Segments status checks.

5.2. Segments status detection

Service is initiated in Taskmain by keyword *segcheck*:

> *From PCC, Mapping file/Keyword, From queue no, Add note, Notepad/Notification addresses, Waste*
> ***pcc,segcheck,codes,days,addresses,qw***

where:

pcc .... PCC to process.

segcheck .... keyword.

codes .... a list of extra booking codes separated by spaces or slashes. Codes ***HX*** and ***NO*** are fixed and do not need to be specified. Maximum number of reservation codes is 5 (including HX/NO).

days .... optional, number of days to scan (max. 331). When the field is empty or zero is inserted, only today and tomorrow departures are considered. Keyword ***max*** can be inserted to scan maximum number of days.

addresses .... a list of e-mail addresses where to send HX report and advisories, separated by spaces or slashes or spaces.

qw .... optional code to activate list of queues where the PNR is stored.

Example:

> ***abcd,segcheck,un uc ak,2,supervisor@agency.com/manager@agency.com,qw***

This entry will try to find HX/NO/UN/UC/AK codes in all PNR's with today, tomorrow and after tomorrow departures and include queue list for every PNR in advisory sent to supervisor@agency.com and manager@agency.com.

Ticketed PNR's and PNR's that still contain active segments (HK, TK, HL, etc...) are scanned by ***segcheck*** by default.

PNR's are not altered and QP immediately releases a list of segments with monitored statuses to the addresses, specified in control file. Advisory is released only when new segment with monitored status is detected by the service.

Daily summary report is not sent for detection process.

5.3. <u>Segments automatic removal</u>

Service is initiated in Taskmain by keyword ***segremove***:

> *From PCC, Mapping file/Keyword, From queue no, Add note, Notepad/Notification addresses, Waste*
> **pcc,segremove,codes,days,addresses,parameters**

where:

pcc .... PCC to process.

segremove .... keyword.

codes .... a list of extra booking codes separated by spaces or slashes. Codes ***HX*** and ***NO*** are fixed and do not need to be specified. Maximum number of reservation codes is 5 (including HX/NO).

days .... optional, number of days to scan (max. 331). When the field is empty or zero is inserted, only today and tomorrow departures are considered. Keyword ***max*** can be inserted to scan maximum number of days.

addresses .... a list of e-mail addresses where to send HX report and advisories, separated by spaces or slashes.

parameters .... optional codes to activate special functions:
> ***tkt*** or ***ticketed*** – process also ticketed PNR's
> ***partial*** – cancel also segments in partially cancelled PNR's
> ***qw*** – report list of queues where the PNR is stored
> Parameters should be separated by spaces or slashes.

Example:

> ***abcd,segremove,,max,supervisor@agency.com,***

This entry will remove segments with HX/NO booking codes in non-ticketed PNR's which do not contain any active segment and departing within 331 days ahead.

By default, this service finds only booking codes HX/NO in PNR's departing today and tomorrow and excludes ticketed PNR's and PNR's with active segments.

When any segment is removed, notepad remark is inserted to the PNR. A list of all removed segments is recorded in PNR NP note.
A specific transaction code is issued for EK airline segments.

If segment remove fails, the "manual" indicator is inserted to such segment in the e-mail report.

QP sends immediately an advisory and just before midnight standard report with daily summary of all removed segments.

Monitored segments detection advisory sample:


```
        PCC 5A5I Segments Status Advisory

1 HX/NO/UC/UN/AK segment cancelled at 12:08 07SEP UTC

PNR HPDTNS, ticketed, queued on 3J9M/05
 1.  EK  140 L  14OCT  PRGDXB  HK2  1555   2350  O*     E WE  12
 2.  EK  656 L  15OCT  DXBMLE  HK2  0230   0740  O*     E TH  12
 3.  EK  653 T  22OCT  MLEDXB  UN2  2300  #0200  O*     E TH  to remove
 4.  EK  657 T  23OCT  MLEDXB  TK2  0910   1210         FR
 5.  EK  139 T  23OCT  DXBPRG  HK2  0835   1300  O*     E FR

End of advisory
```

Segments automatic removal advisory sample:


```
        PCC 79YE Removed Segments Advisory

6 HX/NO/UC/UN segments cancelled at 13:44 14AUG UTC

PNR MRWRKD
 1.  KL 1350 N  20AUG  PRGAMS  HX1  0605   0735  O*     E TH  cancelled
 2.  KL 1233 N  20AUG  AMSCDG  HX1  1225   1340  O*     E TH  cancelled
 3.  AF 1382 G  27AUG  CDGPRG  HX1  0710   0850  O*     E TH  cancelled
PNR MS045L, ticketed, queued on 79YE/94
 1.  KL 1350 N  20AUG  PRGAMS  HX1  0605   0735  O*     E TH  cancelled
 2.  KL 1233 N  20AUG  AMSCDG  HX1  1225   1340  O*     E TH  cancelled
 3.  AF 1382 G  27AUG  CDGPRG  HX1  0710   0850  O*     E TH  cancelled

End of advisory
```

Segments automatic removal report sample:


```
        PCC 79YE Removed Segments Report

Evaluated HX/NO/UN/UC PNR's in period 29AUG-26JUL: 3
Ticketed:     2
Cancelled:    1

Ticketed PNR's (skipped)
PNR 1G9XPS
PNR P27PCK

Cancelled HX PNR's
PNR N3L0QC, queued on 79YE/94/94JP
 TK 1768 U  14OCT  PRGIST  HX1  0925   1305  O*     E WE  cancelled
 TK 7540 Y  14OCT  SAWAYT  HX1  1920   2030  O*     E WE  cancelled
 TK 2413 Y  18OCT  AYTIST  HX1  1225   1355  O*     E SU  cancelled
 TK 1769 U  18OCT  ISTPRG  HX1  1655   1835  O*     E SU  cancelled

End of report
```

6. Control files details

6.1. General rules

Queue sorting process is controlled in two levels by database files in comma delimited format. Files format is compatible with XML Queue Manager ™ version 11, so these files can be directly used by Queue Processor application with no modification.

Files can be created manually or exported from database, for example from MS Excel sheet.

Both comma and semicolon delimiters are allowed. However, *these delimiters must not be used in data fields!* For example, addresses are separated by slashes for this reason.

Content of mapping files is not case sensitive. Any line in main control or mapping file can be disabled (commented) by double slash // at the line beginning. Block comments /* ... */ are not supported.

PCC can be specified in either three or four characters format.

Detailed mapping logic description is in the Sorting section.

6.2. Main control file

Main control file taskmain.csv links each source PCC and Queue (Category) with mapping file(s) for Sorting or triggers special services (Queue watching, Auto canceling or HX removal).

This file includes optional descriptive header and at least one line with link to the mapping file for each sorting source or special *keyword* for other services. Each source Queue can be linked with several mapping files, which are joined together by mapping preprocessing and optimization. Mapping files are processed in first come - first served order.

Main control file example:

```
1.  From PCC, Mapping file/Keyword, From queue no, Add note,
    Notepad/Notification addresses, Waste
2.  abcd,abcd-q11.csv,11,,,
3.  //Comment line
4.  abcd,abcd-q33.csv,33,,hqnote,97
5.  abcd,abcd-q44.csv,55,,,efgh/97*cxx
6.  abcd,watchdog,99,,supervisor@agency.com,
7.  abcd,autocancel,,,,
8.  abcd,segremove,,max,supervisor@agency.com,
9.  abcd,segcheck,un uc ak,,supervisor@agency.com,tkt partial qw
10. abcd,co2,,,,
```

Command lines decoding:

1. Header line

2. Sorting from PCC ABCD queue 11, mapping file: abcd-q11.csv.

3. Comment line

4. Sorting from PCC ABCD queue 33, adding notepad and moving to waste queue 97 if unsorted.

5. Unsorted PNR's are moved to waste queue 97 and category XX of PCC EFGH.

6. Watching number of PNR's in queue ABCD/99 and reporting to supervisor@agency.com

7. Starting autocancel process for PCC ABCD

8. Starting cancelled segments auto-removal process for PCC ABCD and reporting to supervisor@agency.com, checking PNR's departing within 331 days ahead.

9. Starting cancelled segments testing for PCC ABCD and release advisories to supervisor@agency.com. Including ticketed and partially cancelled PNR's, detecting HX/NO/UN/UC/AK segments and reporting .

10. CO_2 emissions data collecting for PCC ABCD

6.3. Mapping files

Mapping files are applicable for PNR sorting jobs only. Each source PCC + Queue (Category) is linked to one or more specific mapping files, which describe destinations for each *agent*, *dealer* or *doci/note* remark match.

Name of the mapping file must exactly match the file name in main control file.

Mapping file example:

```
1. Agent sine,Agent name,Queue no,Category,Destination PCC,Distributed
   by
2. sm,,68,csm,abcd,sine
3. ,smith,68,,abcd,name
4. dk,,68,cdk,abcd,lua
5. ,global travel,68,,abcd,dealer
6. ,some doci text,68,,,doci
7. ,notepad remark,68,,abcd,note
```

Mapping lines decoding:

1. Header line

2. Sorting by *sine*. Moving PNR with agent code SM to PCC ABCD, queue 68 and category SM.

3. Sorting by *name*. Moving PNR with agent SMITH to PCC ABCD and queue 68.

4. Sorting by *lua*. Moving PNR with detected agent code DK in history to PCC ABCD, queue 68 and category DK.

5. Sorting by *dealer*. Moving PNR with dealer GLOBAL TRAVEL to PCC ABCD and queue 68.

6. Sorting by *doci*. Moving PNR with Document Itinerary (*DI) remark SOME DOCI TEXT to the Source PCC and queue 68.

7. Sorting by *note*. Moving PNR with Notepad (*NP) remark NOTEPAD REMARK to PCC ABCD and queue 68.

7.   Support and Troubleshooting

Please contact administrators at *helpdesk@cee-systems.com* if any problems encountered in the results of this tool usage.