

# CDM - Collaborative Decision Making Tool

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# What is CDM

CDM is a modern tool helping us to manage traffic flow, both in and out of Copenhagen but also to ensure capacity is not breached other places. Likewise it is used by other airports to modulate traffic flow to help our sectors

CDM is MANDATORY for ALL online controllers to different extents!

**ATFCM** is management of CTOTs as is mandatory for ALL controllers regardless of position as long as traffic load allows. This is discussed under "Simplified CDM Procedures"

**A-CDM** is management of TSAT for sequencing within the airports, and is mandatory for TWR/GND controllers to the extent feasible. This is discussed under "Expanded CDM Procedures"

CDM Module should always be running regardless

## Abbreviations and Explanations

CDM: **Collaborative Decision Making**: patent term concerning flow restriction and planning to ensure appropriate ATC capacity during all phases of flight

ATFCM: **Air Traffic Flow Control Management**: Tool to modulate flights based on sector capacity by use of CTOTs to modulate traffic limitation around Europe.

A-CDM: **Airport-Collaborative Decision Making**: local airport flow regulations based on turnaround and TOBTs to ensure planes taxi and take off in a manner avoiding congestion

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EOBT : **Estimated off block time:** Time filed by the flightplan as planned start up time

TOBT: **Target off block time:** Time filed by the pilot after entering airplane as proposed start up time

TSAT: **Target Start Up Approval Time:** System created time for start up approval to comply with CDM/ATFCM

ASRT: **Requested Start Up Time:** Time pilot has requested start up, to search for earlier TSATs

CTOT: **Calculated Takeoff Time:** Time the pilot should take of at +10/-5 min, to comply with ATFCM.

## What does it all mean?

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Quick Breakdown for the basic rules

**EOBT** is always filed as part of the flight plan

**TOBT** is filed and changed during the boarding as predicted ready time may be changed back and forth. Pilot can freely choose this time. It is essentially a "Fine Tuning" of EOBT. A controller may also set this time.

**TSAT** is the time the CDM has targeted the pilot to start up on. This is based on

- 40 slots pr. hour meaning a takeoff time every 90 seconds
- Taxi time to the runway
- Making extra separation between two identical SIDs
- Finding a slot - taxi time which is as close as possible to the pilot filed TOBT.

**ASRT** is purely a marker you use to remind yourself pilot has requested start-up

**ASAT** is the time he has been given startup which is also in a way a marker.

Pilots **KNOW** their TOBT (it is filed by them)

Pilots DO **NOT** know their TSAT (It is constantly changing and is calculated by the system)

## What to expect from Pilots

1. Pilot have a off block time or EOBT. **This is filed with the flightplan**
2. TOBT is automatically calculated and will initially be identical to the EOBT
3. Pilots will access "vats.im/vgds" to "Confirm" their off block time. This should be done by pilots who want to avoid extensive delay, but is not mandatory

The screenshot shows a dark-themed interface for a pilot. At the top left, there is a user icon and the ID '1226374 ()'. In the top center, there is a blue button labeled 'ATFCM Prediction'. At the top right, there is a yellow button labeled 'Refresh' with a circular arrow icon. Below these, a large grey box contains a loading spinner and the text 'Checking start-up eligibility...'. The main area displays several fields in a grid:

CALLSIGN: ----	TOBT: ⓘ ----
TSAT: ⓘ ----	Taxi: ⓘ ----
CTOT: ⓘ ----	Reason: ⓘ ----
ATFCM: ⓘ ----	SID: ⓘ ----

Pilots shall call within +/- 5 minutes of their **TOBT** (the one they know)

Start-up shall only be granted within +/- 5 minutes of the **TSAT** (the calculated one)

# Simplified CDM Procedures (APP/CTR)

## Starting CDM (All Controllers)

As the first thing when you log on you must activate CDM to use it

Write **.cdm master EKCH** to activate!

```
[13:04:24] Version: 2.2.8.21.2 loaded.  
[13:04:36] Successfully set master airport EKCH
```

CDM Plugin

## How to do controller change correctly

1. The Old controller changes to Slave with command `.cdm slave EKCH`
2. Once there are no master controllers, the new controller gets the master "role" by writing `.cdm master EKCH`

## Simplified CDM Procedures (Top-down by APP/CTR)

This part of CDM is known as the ATFCM

Simplified CDM procedures are done from departure list. Please know that:

- You **are** completely allowed to perform expanded CDM procedures if your capacity allows
- You **MUST** adhere to displayed CTOT for takeoff
- You **may** ignore TSATs without CTOTs, if workload is too heavy.

## Reference Material

Press on the top of the TSAT column where it says TSAT! This orders the departure list after TSATs and makes it easier to manage

Actions for simplified CDM procedures are identical as expanded, but with more freedom

Your departure list now features a TOBT, a TSAT and a CTOT.

C/S	TOBT	TSAT	CTOT	ATYP	W	R	DSQ	CFL	ADEP	ADES	RFL	SID	DRWY	ASSR	Gate	STATE	CLR
SESVD	1535			P28R	L			A15	EKCH	ESMS	A15		22R	7000			
SAS503	1536	1536		MD82	M		340	EKCH	EGLL	340	NEXEN2C		22R	2200	D4		
NAX7041	1540	1540		B788	H		400	EKCH	KFLL	400			22R	2200	C29		
NSZ938	0000	~		B738	M		330	EKCH	ENGM	330			22R	2000	A15		
SAS1635	1700	~		A320	M		200	EKCH	EDDF	200			22R	2200	B9		

TOBT shows the estimated time of departure filed by the pilot.

- **TOBT:** Is Light green when the time is valid but not yet within the window for startup.
- **TOBT:** Is Dark green when the time is within time for startup approval.
- **TSAT:** Is Light green when the time is valid but not yet within the window for startup.
- **TSAT:** Is Dark green when the time is within time for startup approval.
- **TSAT:** Is Yellow when the time is within 1 minute from expiring
- TSAT is blank if time is expired.
- CTOT: Is **Green**, **Orange** or **Red** depending on the type of restriction triggering the CTOT.

## Procedures

## Aircraft calls for ATC Clearance

If **CTOT** is present: Advise of CTOT. You MUST in this case adhere to the TSAT.

**Advise pilot about CTOT!**

If no **CTOT**: No further action required at this stage

## Aircraft calls for STARTUP/PUSHBACK

- Right click on TOBT to signal aircraft ready for startup.

if CTOT is present:

- Adhere to TSAT Displayed . If TSAT is not yet within startup window (**Light green**), pilot must wait.
- When TSAT is within startup window (**Dark Green**) (+/- 5min) Start-up can be approved.

if no CTOT is present

- Start and push can be approved, regardless of TSAT time
- Be aware that non-adherence to TSATs may result in longer waiting times at the runway.

# Explanations

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NIL

# Expanded CDM Procedures (TWR/GND/DEL)

## Starting CDM (All Controllers)

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As the first thing when you log on you must activate CDM to use it

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```
[13:04:24] Version: 2.2.8.21.2 loaded.  
[13:04:36] Successfully set master airport EKCH
```

```
CDM Plugin|.cdm master EKCH
```

## How to do controller change correctly

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1. The Old controller changes to Slave with command `.cdm slave EKCH`
2. Once there are no master controllers, the new controller gets the master "role" by writing `.cdm master EKCH`

## Expanded CDM Procedures (TWR/GND/DEL)

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This is both conducting ATFCM via CTOTs and A-CDM through use of TSATs

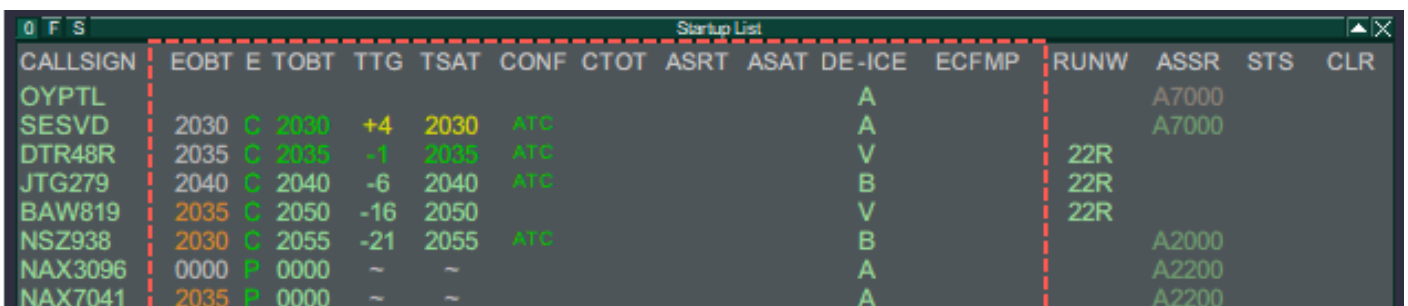
Expanded CDM procedures are done from Startup list, but can be done via departure list for TWR. Please know that:

- You **should** adhere to A-CDM procedures unless traffic load is low, either through Departure list or Startup list.
- You **MUST** adhere to displayed CTOT for takeoff

## Reference Material

Press on the top of the TSAT column where it says TSAT! This orders the departure list after TSATs and makes it easier to manage

With expanded mode there is a lot more information, but procedures are very similar



CALLSIGN	EOBT	E	TOBT	TTG	TSAT	CONF	CTOT	ASRT	ASAT	DE-ICE	ECFMP	RUNW	ASSR	STS	CLR
OYPTL										A			A7000		
SESVD	2030	C	2030	+4	2030	ATC				A			A7000		
DTR48R	2035	C	2035	-1	2035	ATC				V		22R			
JTG279	2040	C	2040	-6	2040	ATC				B		22R			
BAW819	2035	C	2050	-16	2050					V		22R			
NSZ938	2030	C	2055	-21	2055	ATC				B			A2000		
NAX3096	0000	P	0000	~	~					A			A2200		
NAX7041	2035	P	0000	~	~					A			A2200		

## Descriptor

There are four main descriptor of times (EOBT, TOBT, TSAT, CTOT), separated by three descriptors (E, TTG, CONF), and an additional four additional items (ASRT, ASAT, DE-ICE, ECFMP).

- **EOBT:** Estimated Off Block Time
  - The pilot filed off block time from the flightplan (e.g. Simbrief). The one passengers shows up for.
- **TOBT:** Target Off Block Time.
  - The pilot filed off block time, via our CDM tool to confirm actual time of start-up readiness.
- **TSAT:** Target Start-up Approval Time.

- The time our system calculates based off the TOBT, to have the pilot fit into the sequence.
- For internal capacity mainly
- **CTOT**: Calculated Takeoff Time
  - A Takeoff time at which the aircraft must depart within -5/+10 min of. TSAT is adjusted accordingly.
  - For external capacity (ECFMP, ATFCM)

(Color) Coding	EOBT	TOBT	TSAT	CTOT
LIGHT GREEN	--	Valid, but not yet Active		--
DARK GREEN	--	Active		By CDM Server*
YELLOW	--	TOBT+4	TSAT+4	Default Color
RED	Flight Suspended	--		By CAD*
ORANGE	EOBT >5min from TOBT			By Manual Event*
WHITE	Default color			

\*Not important to know

- **E**: A descriptor about the validity of the filed TOBT.
- **TTG**: Time until the TSAT (- equals time to go, +equals past TSAT)
- **CONF**: A descriptor if the TOBT has been confirmed ( or altered) by either "pilot" or "ATC"

(Color) Coding	E	TTG	CONF
DARK GREEN	Correct (C) or Passed (P)	-35min until +3 min	Default Color
YELLOW	--	+4min until +5 min	TSAT+4
RED	Invalid (I)	--	--

- **ASRT**: Actual Start-up Request Time
  - The pilot requested start-up if done so before TSAT is active.
- **ASAT**: Actual Start-up Approval Time
  - When start-up approved (STUP or PUSH in Status), ASAT activates and rest of line goes gray.
- **DE-ICE**: De Icing assigned
  - De-ice is required for the pilot, hence taxi out time will be extended.
- **ECFMP**: European Central Flow Management Position
  - A note on what is the origin of a particular flow measure. Only for information.

# Procedures

Procedures depends on whether you are handling SEQ only or DEL+SEQ.

## Aircraft calls for ATC Clearance (if within AOR)

If **CTOT** is present: Advise pilot about CTOT!. Advise on earliest startup time (TSAT)

If no **CTOT**: No further action required at this stage.

## Aircraft calls for STARTUP/PUSHBACK

Check your timings and note:

- If TSAT is **Dark Green**, Start-up can be approved.
- If TSAT is **Light Green**, Pilot is still more than 5 minutes early. he must wait.
- If TSAT is **Yellow** Start-up can be approved, but be quick, it will soon expire.
- If TSAT is **Blank**, Flightplan expired and new TOBT must be filed.

If TSAT is **Light Green** or a **CTOT** is present or TOBT is **Invalid** (expired), try to improve it by sending a "Ready message" by \*right clicking on the TOBT. This updates the TOBT to current time, and tries to recalculate everything to look for an earlier time.

If TSAT remains **Light Green** after that, Start-up cannot yet be approved.

- Click **ASRT** to remind that a request has been made by the pilot
- Approve Startup when TSAT turns **Dark Green**

When start-up approved

- Update Status to STUP or PUSH to activate **ASAT**, and blank out the rest of the times. Aircraft is released.

# Flow Chart

Right click on image and select "Open in new tab" to see picture in higher resolution

