SESAR	Active		ECAC+
ATC12.1	**Automated Support for Conflict Detection, Resolution Support Information and Conformance Monitoring**		

REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

The implementation of free route airspace (FRA) needs to be supported by conflict detection tools (CDT), resolution support information and conformance monitoring.

The conflict detection tools (CDT) include the trajectory based medium conflict detection tool (MTCD) or/and tactical controller tool (TCT).
The decision on whether to implement either one or both tools (MTCD and TCT) is left to the individual ANSP organisation as it depends on local conditions and systems in use.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	All ECAC+ States except: Luxembourg			
Timescales:		**From:**	**By:**	**Applicable to:**
Initial operational capability		01/01/2015		Applicability Area
Full operational capability			31/12/2021	Applicability Area

References

European ATM Master Plan

OI step -	[CM-0202]-Automated Assistance to ATC Planning for Preventing Conflicts in En-Route Airspace							
	Enablers -	ER APP ATC 129	PRO-046b					

OI step -	[CM-0203]-Automated Flight Conformance Monitoring							
	Enablers -	CTE-S01a	CTE-S03	CTE-S03a ATC21	CTE-S04	CTE-S04a ATC21	CTE-S04b AOP04.1, AOP04.2	ER APP ATC 130	PRO-046b

OI step -	[CM-0205]-Advanced support for Conflict Detection and Resolution by Tactical Controller in En Route							
	Enablers -	ER ATC 157	PRO-046b					

OI step -	[CM-0207-A]-Advanced Automated Ground Based Flight Conformance Monitoring in En-Route							
	Enablers -	CTE-S01a	CTE-S03b AOP04.1, AOP04.2, ATC21	ER ATC 91					

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

-none-

Essential Operational Changes

Fully Dynamic and Optimised Airspace

SESAR Solution

#104 - Sector Team Operations - En-route Air Traffic Organiser, #27 - MTCD and conformance monitoring tools

ICAO GANP - ASBUs

FRTO-B0/4	Basic conflict detection and conformance monitoring
FRTO-B1/5	Enhanced Conflict Detection Tools and Conformance Monitoring

ATC12.1	Automated Support for Conflict Detection, Resolution Support Information and Conformance Monitoring

Deployment Programme

3.2.1	Initial FRA

European Plan for Aviation Safety

- none -	

Operating Environments

En-Route

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
ATC12.1-ASP01	Implement MTCD and associated procedures	01/01/2015	31/12/2021
ATC12.1-ASP02	Implement resolution support function and associated procedures	01/01/2015	31/12/2021
ATC12.1-ASP03	Implement TCT and associated procedures	01/01/2015	31/12/2021
ATC12.1-ASP04	Implement MONA functions	01/01/2015	31/12/2021
ATC12.1-ASP05	Perform ATCO training for the use of CDT (MTCD and or TCT), resolution support and MONA related functions	01/01/2015	31/12/2021
ATC12.1-ASP06	Develop safety assessment for the changes	01/01/2015	31/12/2021

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Early and systematic conflict detection and conformance monitoring enabled by ground based automated tools will reduce the need for tactical interventions, conformance monitoring reduces the risk of the impact of controllers and pilots errors. Possibility to maintain high level of safety with an increase in capacity due to a reduction of controller workload per aircraft.
Capacity:	Reduction of tactical controller workload, and better sector team productivity, compared to the conventional systems without automated support will open potential for capacity up to 15% in comparison to a baseline case without a detection tool (MTCD and/or TCT).
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

ATC12.1-ASP01	Implement MTCD and associated procedures	From:	By:
		01/01/2015	31/12/2021

Action by:	**ANS Providers**

Description & purpose:	Deploy the MTCD related to :
	   * Detection conflicts and risks
	 - between aircraft;
	 - between aircraft and reserved airspace or area (such as Holding stack area), upon activation or de-activation
	 - Including posting detection to the sector responsible for acting on it,
	    as appropriate and in accordance with the ANSP's Concept of Operation and identified needs.
	
	Adapt the operational procedures and working methods to support the MTCD deployment.

Supporting material(s):	EUROCONTROL - SPEC 143 - EUROCONTROL Specification for Trajectory Prediction - Edition 2.0 / 03/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-trajectory-prediction EUROCONTROL - FASTI - Operational Performance Requirements Analysis for the Conflict Detection Tool - Final Draft - 2 / 12/2012 EUROCONTROL - SPEC-139 - EUROCONTROL Specification for Medium-Term Conflict Detection - Edition 2.0 / 03/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-medium-term-conflict-detection-mtcd

ATC12.1	Automated Support for Conflict Detection, Resolution Support Information and Conformance Monitoring

ATM Master Plan relationship:	[ER APP ATC 129]-Upgrade FDP and provide Controller Tools to provide assistance to ATC Planning for Preventing Conflicts in En-Route Airspace
	[ER ATC 157]-Enhanced ATC System Support to the Tactical Controller for Conflict Detection and Resolution in En-Route
	[PRO-046b]-ATC Procedures for Using Advanced System Assistance to Medium Term Conflict Detection and Resolution
Finalisation criteria:	1 - MTCD has been implemented, documented and is in operational use.

ATC12.1-ASP02	Implement resolution support function and associated procedures	From: 01/01/2015	By: 31/12/2021

Action by:	ANS Providers
Description & purpose:	Deploy the resolution support function which includes conflict probe and passive conflict resolution assistant (e.g. presentation of context traffic) in support of MTCD, as appropriate and in accordance with the ANSP's concept of operation and identified needs. Adapt the operational procedures and working methods for the resolution support function deployment.
Supporting material(s):	EUROCONTROL - SPEC-139 - EUROCONTROL Specification for Medium-Term Conflict Detection - Edition 2.0 / 03/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-medium-term-conflict-detection-mtcd
ATM Master Plan relationship:	[ER ATC 157]-Enhanced ATC System Support to the Tactical Controller for Conflict Detection and Resolution in En-Route
	[PRO-046b]-ATC Procedures for Using Advanced System Assistance to Medium Term Conflict Detection and Resolution
Finalisation criteria:	1 - Resolution support function in support of MTCD has been implemented, documented and is in operational use.

ATC12.1-ASP03	Implement TCT and associated procedures	From: 01/01/2015	By: 31/12/2021

Action by:	ANS Providers
Description & purpose:	Deploy the Tactical Controller Tool (TCT) to: - Detection conflicts between state vector trajectories(extended STCA); - Detection conflicts between state vector trajectories and tactical trajectories; - Detection conflicts between tactical trajectories; as appropriate and in accordance with the ANSP's Concept of Operation and identified needs. Adapt the operational procedures and working methods to support the TCT deployment.
Supporting material(s):	EUROCONTROL - TCT RTS Final report - 0.3 / 04/2009
ATM Master Plan relationship:	[CTE-S01a]-SSR Mode A/C/S
Finalisation criteria:	1 - TCT functions have been implemented documented and is in operational use.

ATC12.1-ASP04	Implement MONA functions	From: 01/01/2015	By: 31/12/2021

Action by:	ANS Providers
Description & purpose:	Deploy MONA functions : - Lateral deviation - Longitudinal deviation - Vertical deviation - CFL deviation - Aircraft Derived Data (ADD) deviations as appropriate and in accordance with the ANSP's Concept of Operation and identified needs. Adapt the operational procedures and working methods to support the MONA deployment
Supporting material(s):	EUROCONTROL - SPEC 143 - EUROCONTROL Specification for Trajectory Prediction - Edition 2.0 / 03/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-trajectory-prediction
	EUROCONTROL - SPEC-142 - EUROCONTROL Specification for Monitoring Aids - Edition 2.0 / 03/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-monitoring-aids-mona
ATM Master Plan relationship:	[CTE-S01a]-SSR Mode A/C/S
	[ER APP ATC 130]-Upgrade FDP and provide Controller Tools to provide Controller with warnings if aircraft deviate from a clearance or plan
	[ER ATC 91]-ATC System Support for Advanced Conformance Monitoring in En-route Airspace
	[ER ATC 94]-ATC tools in support of RNP (e.g. RNP1, A-RNP) for En-Route
	[PRO-046b]-ATC Procedures for Using Advanced System Assistance to Medium Term Conflict Detection and Resolution
Finalisation criteria:	1 - Conformance Monitoring function has been implemented, documented and is in operational use.

ATC12.1-ASP05	Perform ATCO training for the use of CDT (MTCD and or TCT), resolution support and MONA related functions	From: 01/01/2015	By: 31/12/2021

ATC12.1	Automated Support for Conflict Detection, Resolution Support Information and Conformance Monitoring

Action by:	ANS Providers
Description & purpose:	Perform ATCO training in line with EUROCONTROL Specifications and guidelines.
Supporting material(s):	EUROCONTROL - FASTI - Completing the FASTI Safety Case: Guidance for Service Providers - 1.0 / 01/2009
	EUROCONTROL - Good Practice Guidelines for First ATC Support Tools Implementation (FASTI) with a Focus on Human Factors and Managing the Transition - Edition 1.0 / 06/2007
	EUROCONTROL - SPEC-139 - EUROCONTROL Specification for Medium-Term Conflict Detection - Edition 2.0 / 03/2017
	Url : https://www.eurocontrol.int/publication/eurocontrol-specification-medium-term-conflict-detection-mtcd
	EUROCONTROL - FASTI - FASTI Specific Human Factors Guidelines for MTCD, MONA and SYSCO 06/2007
Finalisation criteria:	1 - ATCOs have been trained for the use of CDT (MTCD and/or TCT), resolution support information and MONA.

ATC12.1-ASP06	Develop safety assessment for the changes	From:	By:
		01/01/2015	31/12/2021

Action by:	ANS Providers
Description & purpose:	Develop safety assessment of the changes, notably ATC systems and procedures that will implement Conflict Detection Tools, resolution support function and conformance monitoring.

The tasks to be done are as follows:

- Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks;
- Develop safety assessment;
- Deliver a safety assessment report to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2.

This safety assessment shall be based on a fully validated/recognised method. |
Supporting material(s):	EUROCONTROL - FASTI - Completing the FASTI Safety Case: Guidance for Service Providers - 1.0 / 01/2009
	EUROCONTROL - EAM 4 - ESARR 4 - Risk Assessment and Mitigation in ATM - Edition 1.0 / 04/2001
	Url : https://www.eurocontrol.int/publication/esarr-4-risk-assessment-and-mitigation-atm
	EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006
	Url : https://www.eurocontrol.int/tool/safety-assessment-methodology
Finalisation criteria:	1 - The safety assessment report including safety arguments for the changes has been delivered to the NSA and a notification of acceptance was received.