CENTER FOR ADVANCED AVIATION SYSTEM DEVELOPMENT (CAASD)

ASSAP Architecture Revisions

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MITRE/CAASD

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CAASD

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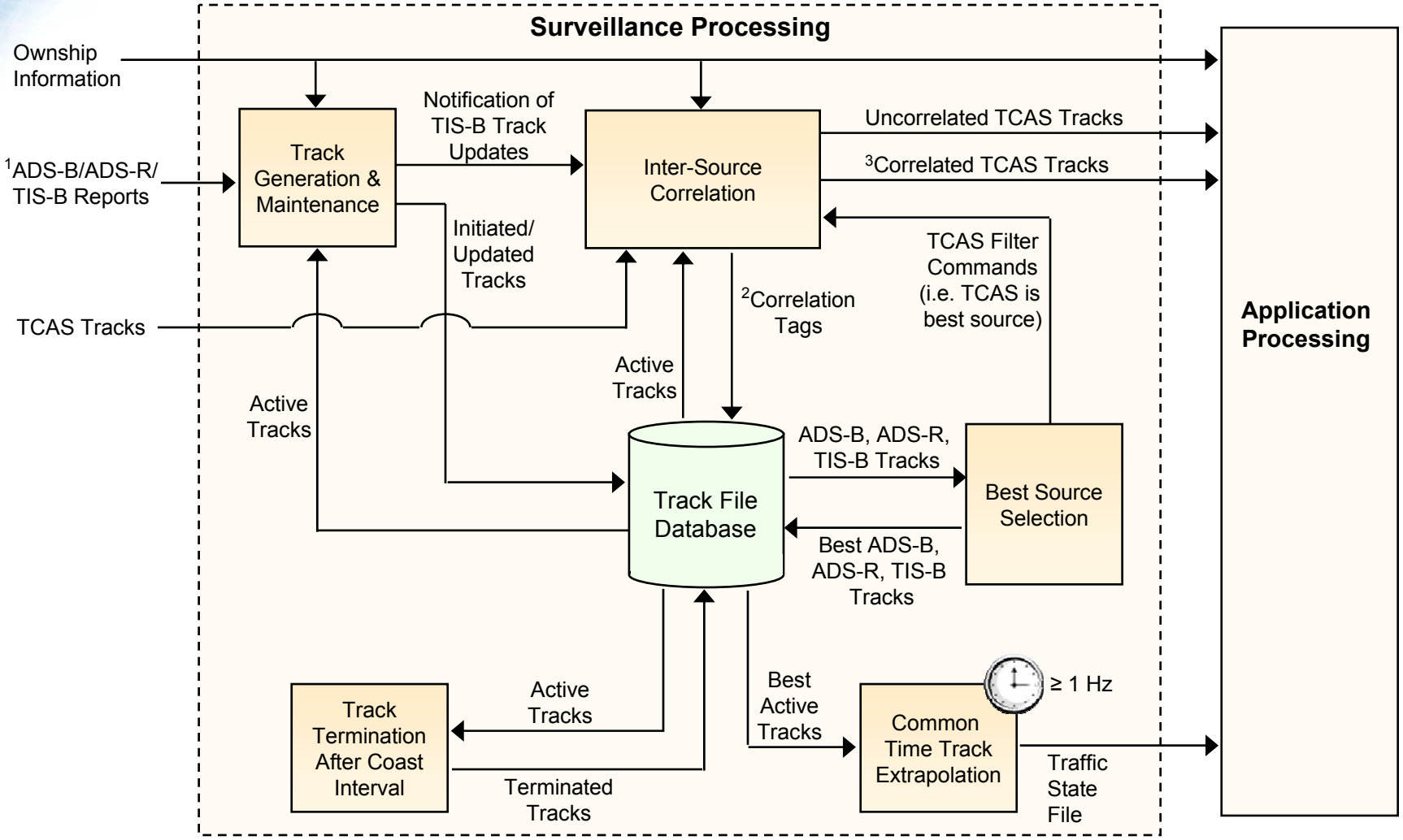
Surveillance Processing



1) Depending on the implementation (UAT or 1090ES), ASSAP will receive "full" reports (full state vector and state uncertainty) or "partial" reports (state vector and state uncertainty separately).
2) Correlation tags include TCAS correlation tags and track-to-track (i.e. ownship to TIS-B) correlation tags.
3) Correlated TCAS tracks are only sent to the application processor when best source selection determines that TCAS is the best surveillance source for a particular target. Note that any TCAS track sent to the application processor should not have a corresponding ADS-B, ADS-R, or TIS-B track in the traffic state file.

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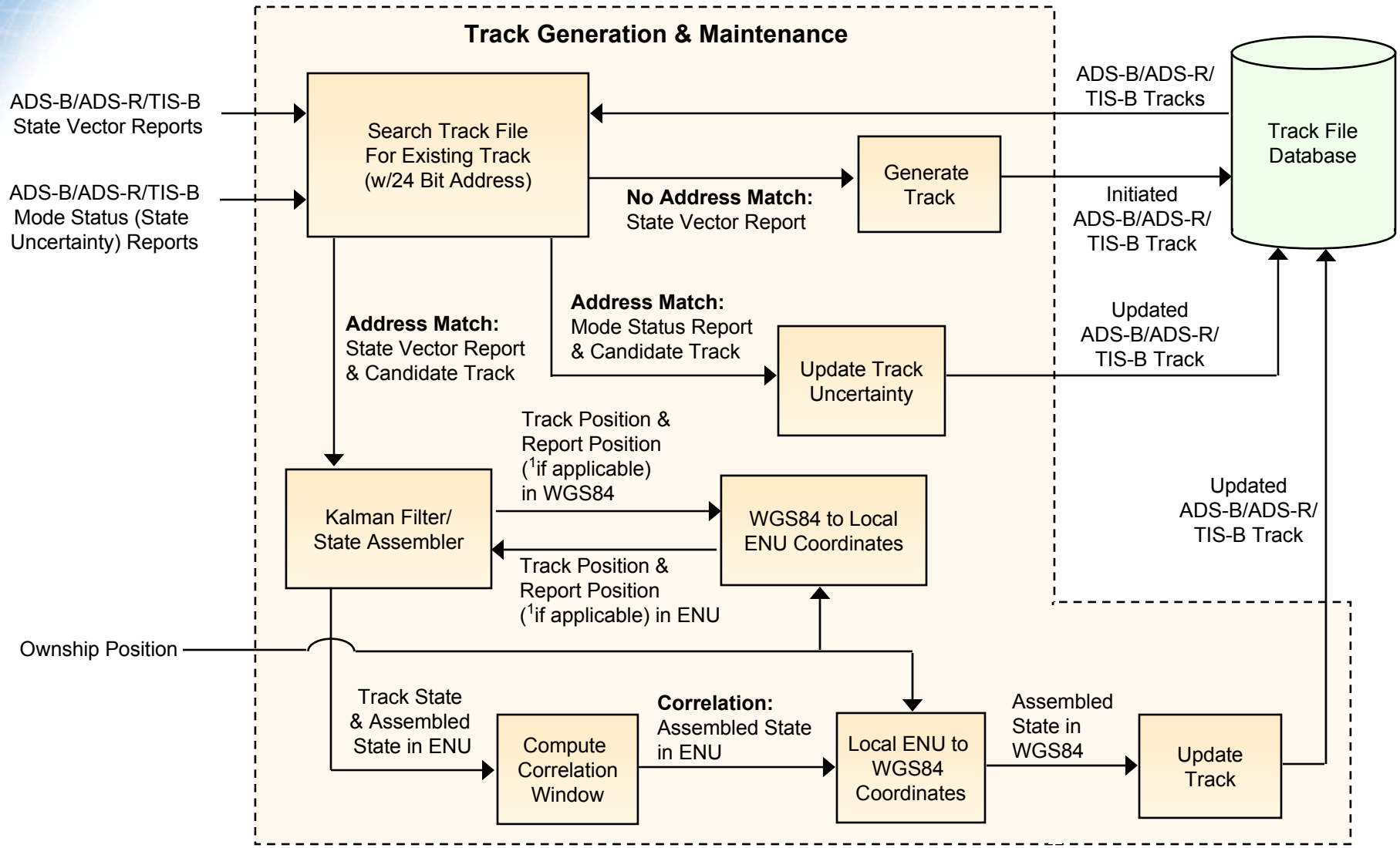
Track Generation & Maintenance (1090ES)



1) Reported position is applicable only if a position message was received, if a velocity message was received, velocity is used by the state assembler.

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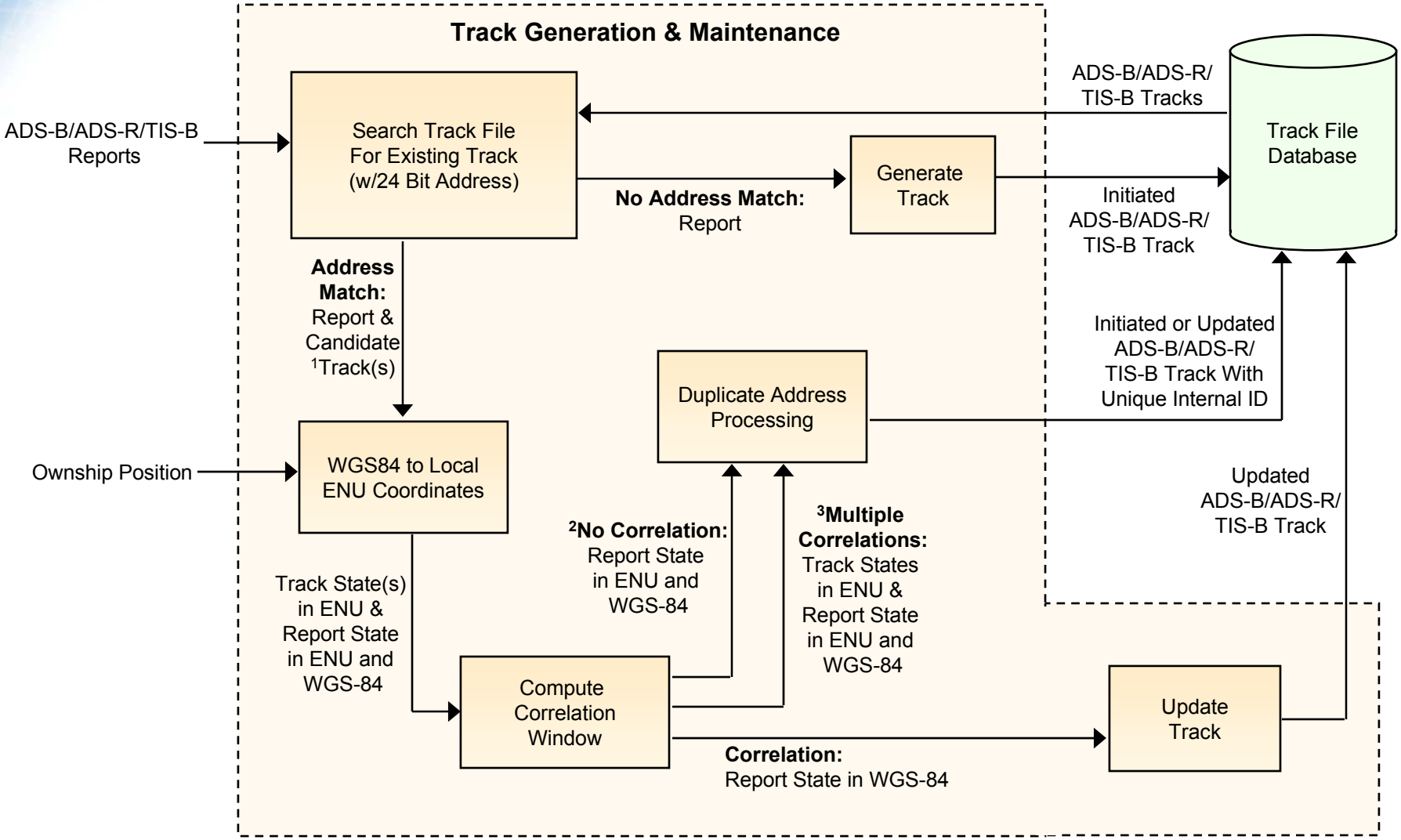
Track Generation & Maintenance (UAT)



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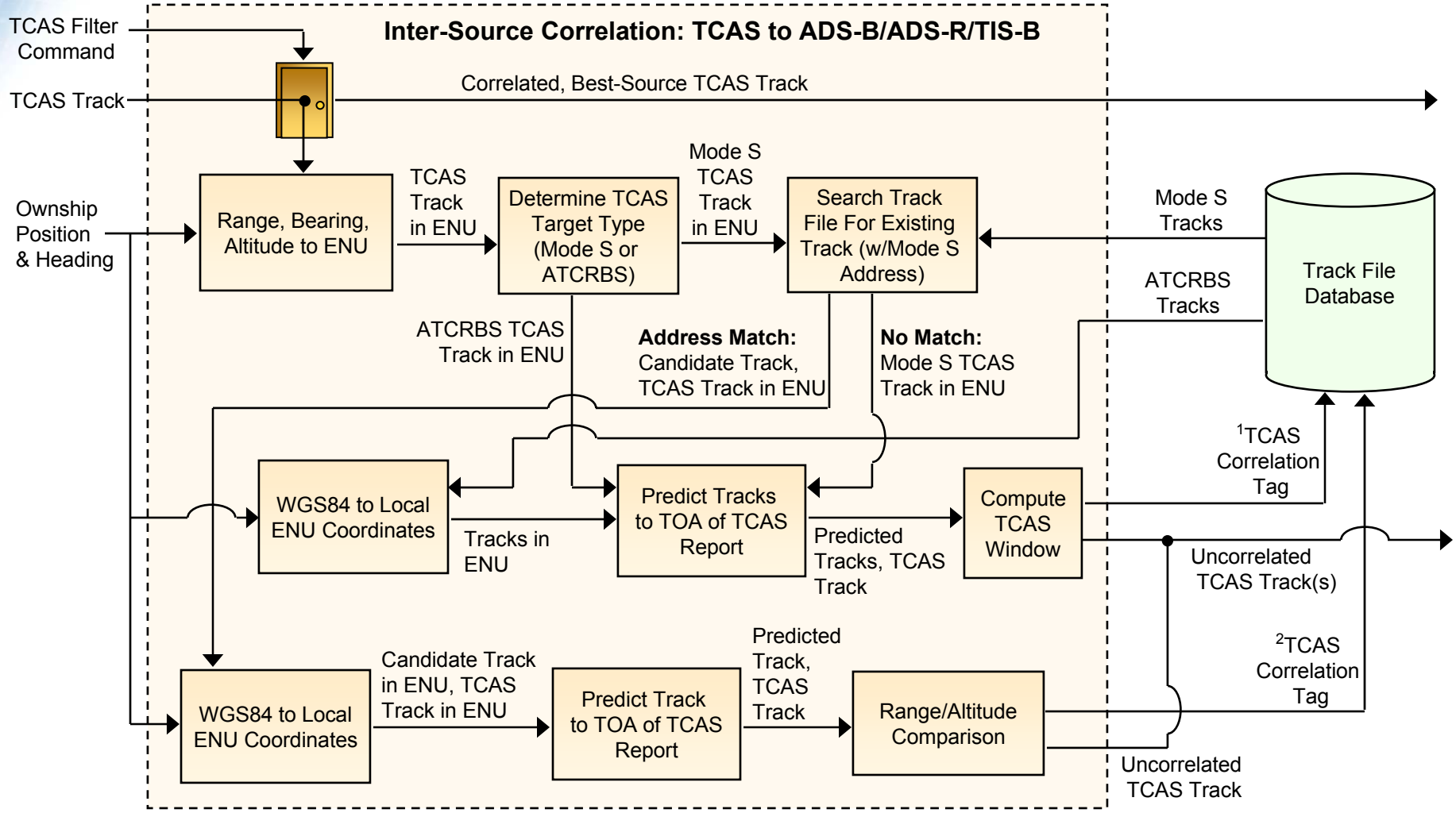
Inter-Source Correlation: TCAS to ADS-B/ADS-R/TIS-B



1) For ATCRBS targets, a TCAS correlation tag is added to a track after repeated (i.e. 3) spatial correlations with a "complex" window; correlation history is stored in the track file.
2) For Mode S targets, a TCAS correlation tag is added to a track when its Mode S address matches that of a TCAS track and spatial correlation with a "simple" window succeeds.

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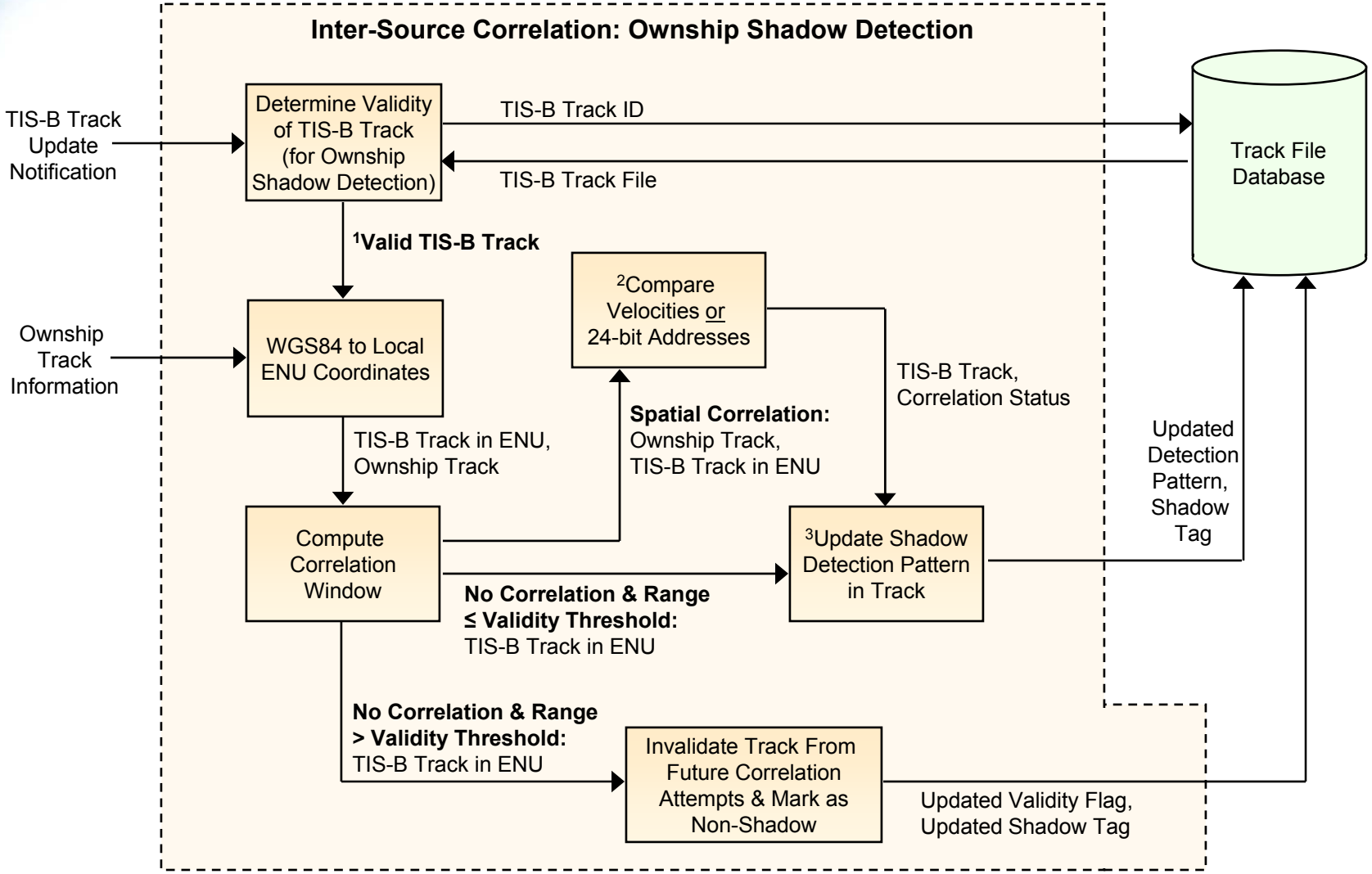
Inter-Source Correlation: Ownship [TIS-B] Shadow Detection



1) Determined with a validity flag set in the track file (i.e. 1 = valid, 0 = invalid).
2) Depending on the environment, airborne or surface, respectively.

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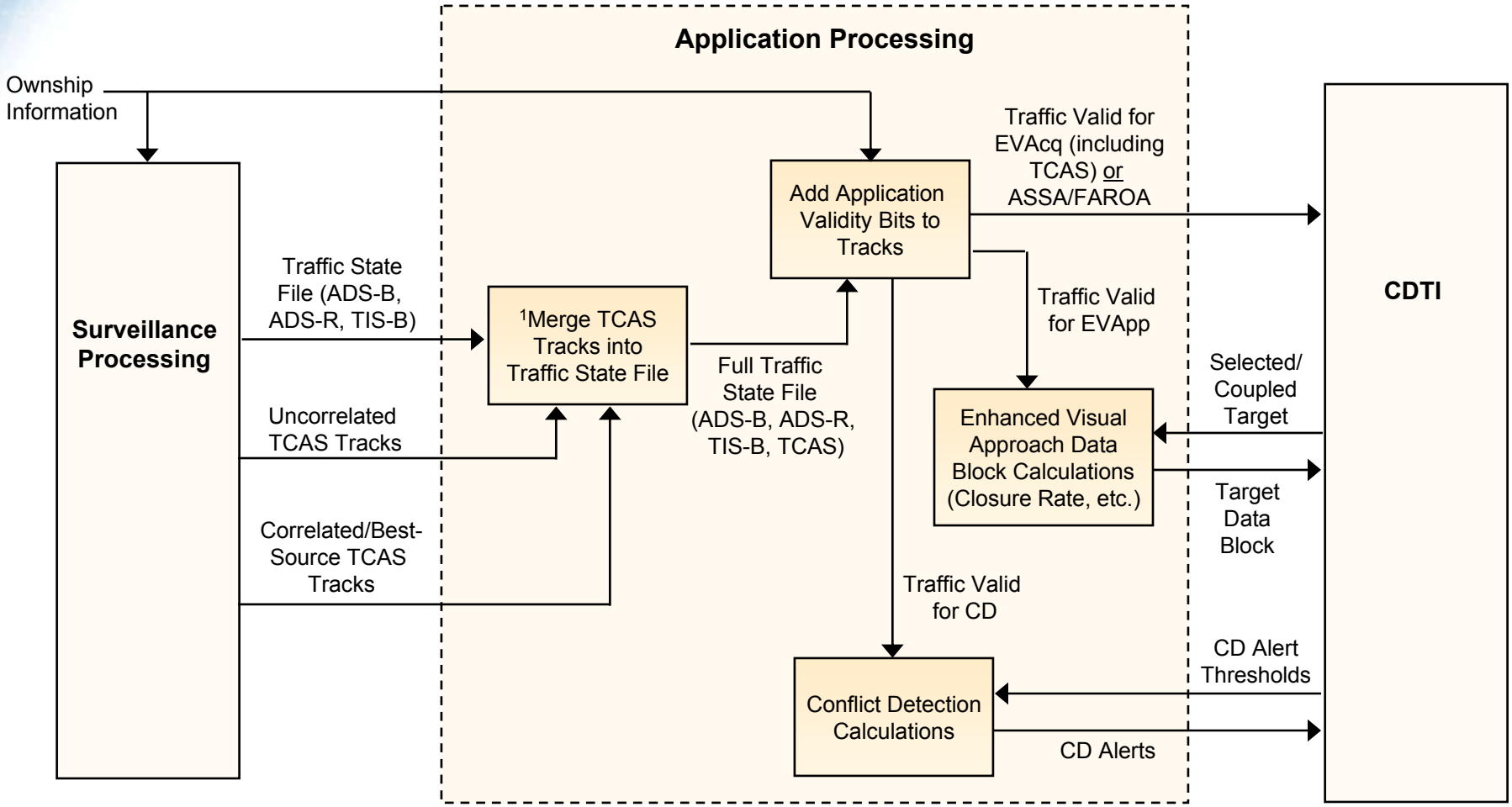
Application Processing



1) Uncorrelated TCAS tracks (i.e. TCAS is the only surveillance source for a target) and correlated/best-source TCAS tracks (i.e. TCAS is the best surveillance source for a target) are merged into the traffic state file; TCAS tracks are not extrapolated, resulting in a maximum 1 second data age from the time of transfer to ASSAP (the traffic state file is recalculated at 1 Hz).

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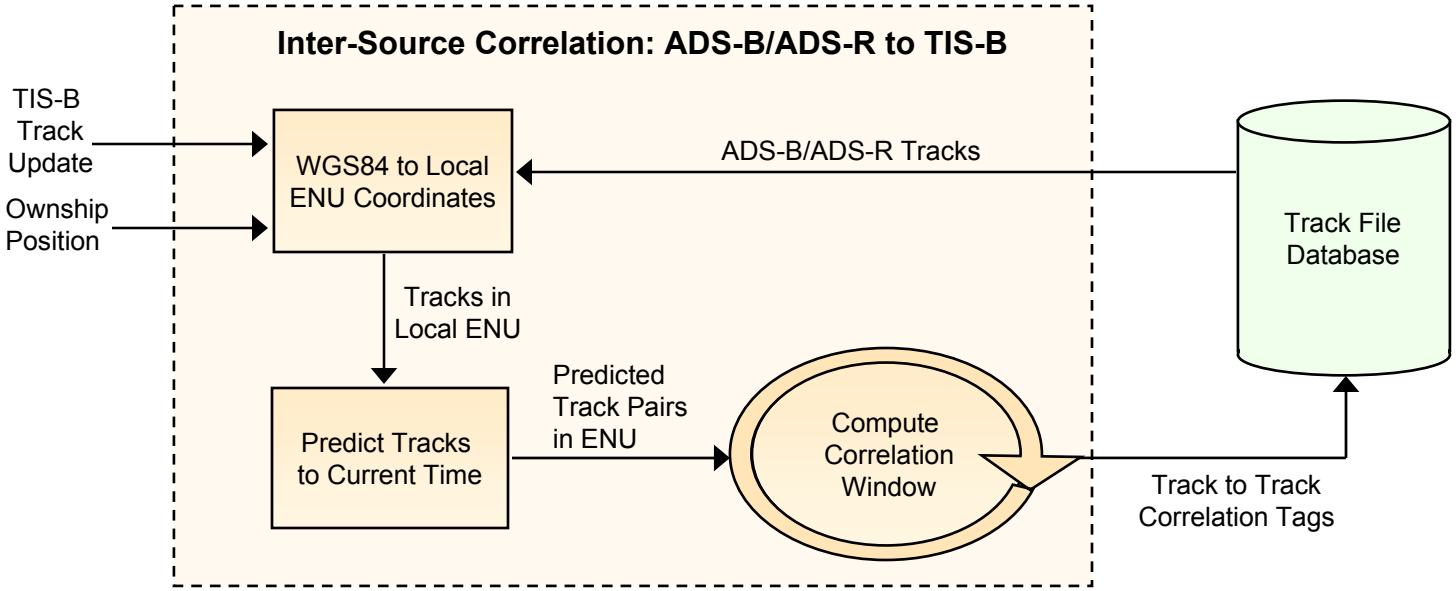
Inter-Source Correlation: ADS-B/ADS-R to TIS-B (Optional)



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