Navigation Filter Initialization (0x0D,0x52)

Description	**Controls the source and values used for initial conditions of the navigation solution.**	
Notes	Notes: Initial conditions are the position, velocity, and attitude of the platform used when the filter starts running or is reset. For the user specified position array, the units are meters if the ECEF frame is selected, and degrees latitude, degrees longitude, and meters above ellipsoid if the latitude/longitude/height frame is selected. For the user specified velocity array, the units are meters per second, but the reference frame depends on the reference frame selector (ECEF or NED).	
Parameter Name	**Data Type**	**Description**
Field Length	*u8*	*19*
Descriptor	*u8*	*0x52*
Function Selector	u8	This command supports the following MIP function selectors: `Write Read Save Load Default [WRSLD]`
Wait For Run Command `[W]`	u8	Initialize filter only after receiving "run" command
Initial Cond Src `[W]`	u8 enum	Initial condition source:

Name	Value	Description
AUTO_POS_VEL_ATT	0	Automatic position, velocity and attitude
AUTO_POS_VEL_PITCH_ROLL	1	Automatic position and velocity, automatic pitch and roll, and user-specified heading
AUTO_POS_VEL	2	Automatic position and velocity, with fully user-specified attitude
MANUAL	3	User-specified position, velocity, and attitude.

Auto Heading Alignment Selector `[W]` — u8 bitfield

Bitfield specifying the allowed automatic heading alignment methods for automatic initial conditions. Bits are set to 1 to enable, and the correspond to the following:

Name	Bit(s)	Description
dual_antenna	0	Dual-antenna GNSS alignment
kinematic	1	GNSS kinematic alignment (GNSS velocity determines initial heading)
magnetometer	2	Magnetometer heading alignment (Internal magnetometer determines initial heading)

		external: 3 — External heading alignment (External heading input determines heading)
Initial Heading [W]	float	User-specified initial platform heading (degrees).
Initial Pitch [W]	float	User-specified initial platform pitch (degrees)
Initial Roll [W]	float	User-specified initial platform roll (degrees)
Initial Position [W]	Vector3f	User-specified initial platform position (units determined by reference frame selector, see note.)
Initial Velocity [W]	Vector3f	User-specified initial platform velocity (units determined by reference frame selector, see note.)
Reference Frame Selector [W]	u8 enum	User-specified initial position/velocity reference frames ECEF: 1 — WGS84 Earth-fixed, earth centered coordinates LLH: 2 — WGS84 Latitude, longitude, and height above ellipsoid
Ack/Nack Reply	**See standard MIP ack/nack reply format.**	
Response Data	**Data Type**	**Description**
Response Length	*u8*	*18*
Response Descriptor	*u8*	*0xD2*
Wait For Run Command	u8	Initialize filter only after receiving "run" command
Initial Cond Src	u8 enum	Initial condition source: AUTO_POS_VEL_ATT: 0 — Automatic position, velocity and attitude AUTO_POS_VEL_PITCH_ROLL: 1 — Automatic position and velocity, automatic pitch and roll, and user-specified heading AUTO_POS_VEL: 2 — Automatic position and velocity, with fully user-specified attitude MANUAL: 3 — User-specified position, velocity, and attitude.
Auto Heading Alignment Selector	u8 bitfield	Bitfield specifying the allowed automatic heading alignment methods for automatic initial conditions. Bits are set to 1 to enable, and the correspond to the following: dual_antenna: 0 — Dual-antenna GNSS alignment kinematic: 1 — GNSS kinematic alignment (GNSS velocity determines initial heading) magnetometer: 2 — Magnetometer heading alignment (Internal magnetometer determines initial heading) external: 3 — External heading alignment (External heading input determines heading)

<table>
<tr><td>Initial Heading</td><td>float</td><td>User-specified initial platform heading (degrees).</td></tr>
<tr><td>Initial Pitch</td><td>float</td><td>User-specified initial platform pitch (degrees)</td></tr>
<tr><td>Initial Roll</td><td>float</td><td>User-specified initial platform roll (degrees)</td></tr>
<tr><td>Initial Position</td><td>Vector3f</td><td>User-specified initial platform position (units determined by reference frame selector, see note.)</td></tr>
<tr><td>Initial Velocity</td><td>Vector3f</td><td>User-specified initial platform velocity (units determined by reference frame selector, see note.)</td></tr>
<tr><td>Reference Frame Selector</td><td>u8 enum</td><td>User-specified initial position/velocity reference frames
<table>
<tr><th>Name</th><th>Value</th><th>Description</th></tr>
<tr><td>ECEF</td><td>1</td><td>WGS84 Earth-fixed, earth centered coordinates</td></tr>
<tr><td>LLH</td><td>2</td><td>WGS84 Latitude, longitude, and height above ellipsoid</td></tr>
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