

## User manual to getpar

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### *Abstract:*

*This document is a user manual for program getpar.*

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## 1 Overview

Program getpar parses a spool file of the listing of Solve solution, extracts information from there, formats it and writes down in the set of output files.

## 2 Usage

Usage: getpar <spool\_file> <prefix>

where

spool\_file is the name of Solve spool file of global solution in either complete or back mode;

prefix is the main portion of the output filenames including path.

The actual names of the output files are results of concatenation of prefix with extension.

## 3 Formats description

Each output file has first two lines comments. The comment lines contains character # as the first character in the line. The first comment line, and therefore the first line of the file always holds the name of the format, its version and date of format revision:

```
# GETPAR_XXX format version 1.0 of 2001.05.25
```

where XXX is (in capital letter) extension of the file, for example,

```
# GETPAR_STA format version 1.0 of 2001.05.25
```

The second line, so-called header comment, contains the full path name of the spool file. Since the format of getpar output files is the subject of changes it is a good practice to check the format version each time when you parse getpar output files.

### 3.1 .sta -file

.sta file contains estimates of positions of global stations and the formal uncertainties of these estimates. The list of station positions is sorted in alphabetic order of station names. Stations before and after episodic motions are treated as different stations. Correlations between station positions and velocities are also written.

File contains lines of four types:

- 1) Comment. The first character is #. Header comment contain the full name of the spool file.
- 2) Cartesian components of the vector of station position. The first 8 characters of this line are STA\_GCX:

Field   Format   Units   Meaning

1-8	A8	--	record type identifier: STA_GCX:
11-25	A15	--	station name. Station name consist of 8-letters station acronym and 6-letter epoch in format yymmdd. Epoch is attached to the name only if the station had episodic motion. Fields between the last letter of the station name and the first letter of epoch are filled by _.
			If the station didn't have episodic name then the space after the last letter of the station name is left blank.
28-29	A2	--	component identifier. One of "X:", "Y:" or "Z:"
31-45	F15.2	mm	value of X-component of station position.
50-59	F10.3	mm	formal uncertainty of X-component of station position.
65-79	F15.2	mm	value of Y-component of station position.
84-93	F10.3	mm	formal uncertainty of Y-component of station position.
99-113	F15.2	mm	value of Z-component of station position.
118-127	F10.3	mm	formal uncertainty of Z-component of station position.
139-145	I7	--	the number of observations of this station used in solution.
156-162	I7	--	total number of observations of this station.
174-178	I5	--	the number of sessions with this station used in solution.
189-193	I5	--	total number of sessions of this station.
205-214	A10	--	the date of the first session with this station used

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in solution. format: yyyy.mm.dd (as integer numbers)

226-235 A10 -- the date of the last session with this station used

in solution. format: yyyy.mm.dd (as integer numbers)

- 3) Local topocentric components of the vector of station position: Up, East, North. The first 8 characters of this line are STA\_GCU:

Field   Format   Units   Meaning

1-8   A8   --   record type identifier: STA\_GCU:

11-25   A15   --   station name. Station name consist of 8-letters station acronym and 6-letter epoch in format yymmdd. Epoch is attached to the name only if the station had episodic motion. Fields between the last letter of the station name and the first letter of epoch are filled by \_.  
If the station didn't have episodic name then the space after the last letter of the station name is left blank.

28-29   A2   --   component identifier. One of "U:", "E:" or "N:"

31-45   F15.2   mm   value of U-component of station position.

50-59   F10.3   mm   formal uncertainty of U-component of station position.

65-79   F15.2   mm   value of E-component of station position.

84-93   F10.3   mm   formal uncertainty of E-component of station position.

99-113   F15.2   mm   value of N-component of station position.

118-127   F10.3   mm   formal uncertainty of N-component of station position.

- 4) Correlations between station positions and velocities. Correlation matrix is defined as the matrix of 6x6 in the upper triangle representation without the main diagonal which. Elements in the columns or rows of the matrix are in the order: X-position, Y-position, Z-position, X-velocity, Y-velocity, Z-velocity.

1-8   A8   --   record type identifier: STA\_CRL:

11-25   A15   --   station name. Station name consist of 8-letters station acronym and 6-letter epoch in format yymmdd. Epoch is attached to the name only if the station had episodic motion. Fields between the last letter of the station name and the first letter of epoch are filled by \_.  
If the station didn't have episodic name then the space after the last letter of the station name is left blank.

31-36   F6.3   d/l   Correlation between X-position and Y-position

38-43   F6.3   d/l   Correlation between X-position and Z-position

45-50   F6.3   d/l   Correlation between Y-position and Z-position

52-57   F6.3   d/l   Correlation between X-position and X-velocity

59-64   F6.3   d/l   Correlation between Y-position and X-velocity

66-71   F6.3   d/l   Correlation between Z-position and X-velocity

73-78   F6.3   d/l   Correlation between X-position and Y-velocity

80-85	F6.3	d/l	Correlation between Y-position and Y-velocity
87-92	F6.3	d/l	Correlation between Z-position and Y-velocity
94-99	F6.3	d/l	Correlation between X-velocity and Y-velocity
101-106	F6.3	d/l	Correlation between X-position and Z-velocity
108-113	F6.3	d/l	Correlation between Y-position and Z-velocity
115-120	F6.3	d/l	Correlation between Z-position and Z-velocity
122-127	F6.3	d/l	Correlation between X-velocity and Z-velocity
129-134	F6.3	d/l	Correlation between Y-velocity and Z-velocity

## 3.2 .vel -file

.vel file contains values estimates of velocities of global stations and the formal uncertainties of these estimates. The list of the estimates is sorted in alphabetic order of station names. Stations before and after episodic motions are treated as different stations. Correlations between station positions and velocities are also written.

File contains lines of three types:

- 1) Comment. The first character is #. Header comment contain the full name of the spool file.
- 2) Cartesian components of the vector of station velocity. The first 8 characters of this line are STA\_GVX:

Field   Format   Units   Meaning

1-8   A8   --   record type identifier: STA\_GVX:

11-18   A8   --   station name.

24-32   F9.2   mm/yr   value of X-component of station velocity.

37-44   F8.3   mm/yr   formal uncertainty of X-component of station velocity.

50-58   F9.2   mm/yr   value of Y-component of station velocity.

63-70   F8.3   mm/yr   formal uncertainty of Y-component of station velocity.

76-84   F9.2   mm/yr   value of Z-component of station velocity.

89-96   F8.3   mm/yr   formal uncertainty of Z-component of station velocity.

- 3) Local topocentric components of the vector of station velocity: Up, East, North. The first 8 characters of this line are STA\_GVU:

Field   Format   Units   Meaning

1-8   A8   --   record type identifier: STA\_GVU:

11-18   A8   --   station name.

24-32   F9.2   mm/yr   value of U-component of station velocity.

37-44 F8.3 mm/yr formal uncertainty of U-component of station velocity.  
 50-58 F9.2 mm/yr value of E-component of station velocity.  
 63-70 F8.3 mm/yr formal uncertainty of E-component of station velocity.  
 76-84 F9.2 mm/yr value of N-component of station velocity.  
 89-96 F8.3 mm/yr formal uncertainty of N-component of station velocity.

## 3.3 .sou -file

.sou file contains estimates of right ascension and declination of global sources, as well as formal their uncertainties and correlations between right ascension and declination of the same source.

File contains lines of two types:

1) Comment. The first character is #. Header comment contain the full name of the spool file.

2) Estimates.

Field	Format	Units	Meaning
1-8	A8	--	record type identifier: SOU_GCO:
11-18	A8	--	IVS source name.
25-26	I2	hours	right ascension. hours part
27-27	A1	--	separator " _ "
28-29	I2	min.	right ascension. minutes part
30-30	A1	--	separator " _ "
31-41	F11.8	sec.	right ascension. seconds part
46-55	F10.4	mas	formal error of right ascension
62-64	I3	deg.	declination. degrees part.
65-65	A1	--	separator " _ "
66-67	I2	arcmin	declination. arcminutes part.
68-68	A1	--	separator " _ "
69-78	F10.7	arcsec	declination. arcseconds part.
83-92	F10.4	mas	formal uncertainty of declination
99-104	F6.4	d/I	correlation between the estimates of right ascension and declination.
116-122	I7	--	the number of observations of this source used in solution.
133-139	I7	--	total number of observations of this source.
151-155	I5	--	the number of sessions of this source used in solution.
166-170	I5	--	total number of sessions with this source.
182-191	A10	--	the date of the first session with this source used

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in solution. format: yyyy.mm.dd (as integer numbers)  
203-212 A10 -- the date of the last session with this source used  
in solution. format: yyyy.mm.dd (as integer numbers)

### 3.4 .eop -file

.eop file contains estimates of X pole coordinate, Y pole coordinate, UT1-TAI angle, UT1 rate and UT1 acceleration as well as their formal uncertainties. Estimates are obtained using all observations of the specific session. .eop file contains also database names and time-tags.

File contains lines of two types:

1) Comment. The first character is #. Header comment contain the full name of the spool file.

2) Estimates.

Field	Format	Units	Meaning
1-8	A8	--	record type identifier: EOP_LOC:
11-20	A10	--	database name with leading dollar sign
23-25	I3	--	database version number
34-49	A16	calend	EOP time tag in Solve format: YYYY.MM.DD-hh:mm Time scale is not defined. Adjustments are at TDB time scale, a priori EOP are at unknown time scale.
58-63	I6	--	number of observation used for getting these EOP estimates.
69-79	F11.4	mas	estimate of X-pole coordinate
84-93	F10.2	muas	formal uncertainty of X-pole coordinate
99-109	F11.4	mas	estimate of Y-pole coordinate
114-123	F10.2	muas	formal uncertainty of Y-pole coordinate
129-139	F11.4	msec	estimates of UT1-TAI
144-153	F10.2	musec	formal uncertainty of UT1-TAI
159-169	F11.4	mas/day	estimates of X pole rate
174-183	F10.2	muas/day	formal uncertainties of X pole rate
189-199	F11.4	msec/day	estimates of Y pole rate
204-213	F10.2	msec/day	formal uncertainties of Y pole rate
219-229	F11.4	msec/day	estimates of UT1-TAI rate
234-243	F10.2	musec/day	formal uncertainties of UT1-TAI rate
249-259	F11.4	ms/day**2	estimates of UT1-TAI acceleration
264-273	F10.2	ms/day**2	formal uncertainties of UT1-TAI acceleration

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If the specific parameter was not estimated in this experiment, the field for its value and formal uncertainty is replaced by filler: \$\$\$\$\$\$. The filler takes entire field.

### 3.5 .nut -file

.nut file contains estimates of daily offset of nutation in longitude and nutation in obliquity as well as their formal uncertainties. .nut file contains also database names and time-tags.

File contains lines of two types:

- 1) Comment. The first character is #. Header comment contain the full name of the spool file.
- 2) Estimates.

Field	Format	Units	Meaning
1-8	A8	--	record type identifier: NUT_LOC:
11-20	A10	--	database name with leading dollar sign
23-25	I3	--	database version number
37-46	F10.5	years	time tag
53-59	I6	--	the number of used observations
64-74	F11.3	mas	estimate of nutation in longitude
79-88	F10.1	muas	formal uncertainty of nutation in longitude
94-104	F11.3	mas	estimate of nutation in obliquity
109-118	F10.1	muas	formal uncertainty of nutation in obliquity

### 3.6 .crl -file

.crl file contains off-diagonal coefficients of correlations between the estimates of EOP at a given experiment. Correlations are ordered in according the order of elements of a symmetric matrix in low-triangular representation without the main diagonal. Order of rows/columns: X\_pole, X\_pole rate, Y\_pole, Y\_pole rate, UT1, UT1 rate, Nutation in longitude, Nutation in obliquity

File contains lines of two types:

- 1) Comment. The first character is #. Header comment contain the full name of the spool file.



## 2) Correlations.

Field	Format	Units	Meaning
1-8	A8	--	record type identifier: CRL_LOC:
11-20	A10	--	database name with leading dollar sign
23-25	I3	--	database version number
29-34	F6.4	d/l	correlation between X_pole rate and X_pole
36-41	F6.4	d/l	correlation between Y_pole and X_pole
43-48	F6.4	d/l	correlation between Y_pole and X_pole rate
50-55	F6.4	d/l	correlation between Y_pole rate and X_pole
57-62	F6.4	d/l	correlation between Y_pole rate and X_pole rate
64-69	F6.4	d/l	correlation between Y_pole rate and Y_pole
71-76	F6.4	d/l	correlation between UT1 and X_pole
78-83	F6.4	d/l	correlation between UT1 and X_pole rate
85-90	F6.4	d/l	correlation between UT1 and Y_pole
92-97	F6.4	d/l	correlation between UT1 and Y_pole rate
99-104	F6.4	d/l	correlation between UT1 rate and X-pole
106-111	F6.4	d/l	correlation between UT1 rate and X-pole rate
113-118	F6.4	d/l	correlation between UT1 rate and Y-pole
120-125	F6.4	d/l	correlation between UT1 rate and Y-pole rate
127-132	F6.4	d/l	correlation between UT1 rate and UT1
134-139	F6.4	d/l	correlation between Nutation Psi and X_pole
141-146	F6.4	d/l	correlation between Nutation Psi and X_pole rate
148-153	F6.4	d/l	correlation between Nutation Psi and Y_pole
155-160	F6.4	d/l	correlation between Nutation Psi and Y_pole rate
162-167	F6.4	d/l	correlation between Nutation Psi and UT1
169-174	F6.4	d/l	correlation between Nutation Psi and UT1 rate
176-181	F6.4	d/l	correlation between Nutation Eps and X_pole
183-188	F6.4	d/l	correlation between Nutation Eps and X_pole rate
190-195	F6.4	d/l	correlation between Nutation Eps and Y_pole
197-202	F6.4	d/l	correlation between Nutation Eps and Y_pole rate
204-209	F6.4	d/l	correlation between Nutation Eps and UT1
211-216	F6.4	d/l	correlation between Nutation Eps and UT1 rate
218-223	F6.4	d/l	correlation between Nutation Eps and Nutation Psi

**3.7 .Iso -file**

.Iso file file contains estimates of right ascension and declination of local sources, as well as formal their uncertainties and correlations between right ascension and declination of a given source. It contains also the time tag of the estimates of right ascension and declination. File is sorted in order of sessions and in order of appearance of local sources in the session.

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File contains records of two types:

- 1) Comment. The first character is #. Header comment contain the full name of the spool file.
- 2) Estimates.

Field	Format	Units	Meaning
-------	--------	-------	---------

1-8	A8	--	record type identifier: SOU_LSO:
11-18	A8	--	IVS source name.
21-30	A10	--	database name with leading dollar sign
33-35	I3	--	database version number
47-56	F10.5	years	time tag: time of the middle epoch of the observing session in Julian years since 0000.01.01_00:00
63-64	I2	hours	right ascension. hours part
65-65	A1	--	separator "_"
66-67	I2	min.	right ascension. minutes part
68-68	A1	--	separator "_"
69-79	F11.8	sec.	right ascension. seconds part
84-93	F10.4	mas	formal error of right ascension
100-102	I3	deg.	declination. degrees part.
103-103	A1	--	separator "_"
104-105	I2	arcmin	declination. arcminutes part.
106-106	A1	--	separator "_"
107-116	F10.7	arcsec	declination. arcseconds part.
121-130	F10.4	mas	formal uncertainty of declination
138-144	F7.4	--	Correlation between right ascension and declination
151-154	I4	--	Number of used observations of this source
158-161	I4	--	Total number of observations of this source

### 3.8 .prp -file

.prp file file contains estimates of proper motions in right ascension and declination of sources, as well as elements of the correlation matrix between right ascension and declination, and proper motions in right ascension and declination, the a given source. File is sorted in order of right ascensions.

File contains records of two types:

- 1) Comment. The first character is #. Header comment contain the full name of the spool file.
- 2) Estimates.

Field	Format	Units	Meaning
1-8	A8	--	record type identifier: SOU_PRP:
11-18	A8	--	IVS source name
37-46	F10.4	mas/yr	proper motion in right ascension without \cos\delta factor
51-60	F10.4	mas/yr	uncertainty of proper motion in right ascension without \cos\delta factor
67-76	F10.4	mas/yr	proper motion in declination
81-90	F10.4	mas/yr	uncertainty of proper motion in declination
102-108	F7.4	--	correlation between right ascension and proper motion in right ascension
116-122	F7.4	--	correlation between right ascension and proper motion in declination
130-136	F7.4	--	correlation between proper motion in declination and right ascension
144-150	F7.4	--	correlation between declination and proper motion in right ascension
159-165	F7.4	--	correlation between proper motion in declination and proper motion in right ascension

### 3.9 .lst -file

.lst file contains estimates of positions of local stations and the formal uncertainties of these estimates. The list of station positions is sorted in the order of sessions and then in the alphabetic order of station names. Total estimates of station positions in crust-fixed XYZ coordinates system and adjustments to the apriori positions in topocentric system are presented.

File contains lines of three types:

- 1) Comment. The first character is #. Header comment contain the full name of the spool file.
- 2) Cartesian components of the vector of station position. The first 8 characters of this line are STA\_LCX:

Field	Format	Units	Meaning
1-8	A8	--	record type identifier: STA_LCX:
21-30	A10	--	database name with leading dollar sign
33-35	I3	--	database version number
47-56	F10.5	years	time tag

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59-60 A2 -- component identifier: X:  
62-76 F15.2 mm value of X-component of station position.  
81-90 F10.3 mm formal uncertainty of X-component of station position.  
93-94 A2 -- component identifier: X:  
96-110 F15.2 mm value of Y-component of station position.  
115-124 F10.3 mm formal uncertainty of Y-component of station position.  
127-128 A2 -- component identifier: Z:  
130-144 F15.2 mm value of Z-component of station position.  
149-158 F10.3 mm formal uncertainty of Z-component of station position.

3) Topocentric components of the vector of adjustments to the apriori station position. The first 8 characters of this line are STA\_LCU:

Field Format Units Meaning

1-8 A8 -- record type identifier: STA\_LCU:  
21-30 A10 -- database name with leading dollar sign  
33-35 I3 -- database version number  
47-56 F10.5 years time tag  
59-60 A2 -- component identifier: U:  
62-76 F15.2 mm value of U-component of station position.  
81-90 F10.3 mm formal uncertainty of U-component of station position.  
93-94 A2 -- component identifier: E:  
96-110 F15.2 mm value of E-component of station position.  
115-124 F10.3 mm formal uncertainty of E-component of station position.  
127-128 A2 -- component identifier: N:  
130-144 F15.2 mm value of N-component of station position.  
149-158 F10.3 mm formal uncertainty of N-component of station position.

### 3.10 .bas -file

.bas file contains series of the estimates of the components of baseline vectors of the stations whose positions were estimated as local parameters as well as formal uncertainties of these these estimates. The list of the estimates of baseline vectors is sorted in the order of sessions and then in the alphabetic order of station names forming a baseline. All three component: baseline length, transversal and and normal components are computed.

File contains lines of two types:

1) Comment. The first character is #. Header comment contain the full name of the spool file.

- 2) Cartesian components of the vector of station position. The first 8 characters of this line are BAS\_LCL:

Field	Format	Units	Meaning
1-8	A8	--	record type identifier: BAS_LCL:
11-20	A10	--	database name with leading dollar sign
23-25	I3	--	database version number
35-44	F10.5		years time tag
46-53	A8	--	the name of the first station of the baseline
54-54	A1	--	delimiter: "/"
55-62	A8	--	the name of the second station of the baseline
64-77	F14.2	mm	baseline length
78-83	F6.2	mm	formal uncertainty of baseline length determination
85-94	F10.2	mm	transversal (horizontal) component of baseline vector
96-102	F7.2	mm	formal uncertainty of transversal comp. of baseline
104-114	F11.2	mm	normal (vertical) component of baseline vector
116-122	F7.2	mm	formal uncertainty of normal comp. of baseline vector

### 3.11 .eob -file

.eob file contains series of the estimates of X pole coordinate, Y pole coordinate, UT1-TAI angle, UT1 rate, daily offsets of nutation angles as well as their formal uncertainties and correlations. Time tag and database name is attached to each line. .EOB format is an extension of the IERS EOP format.

File contains lines of three types:

- 1) Comment. The first character is #. Header comments contain some information about solution.
- 2) Header. The first two symbols are blank. Header lines contain titles of the columns
- 3) Estimates.

1	1-1	A1	---	Usage flag
2	3-14	F12.6	days	Modified Julian date of the TDT time tag for pole coordinates and UT1
3	16-25	A10	---	Database name
4	27-32	A6	---	IVS session code (if available)
5	34-41	F8.6	arcsec	The estimate of X pole coordinate

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6	43-50	F8.6	arcsec	The estimate of Y pole coordinate
7	52-62	F11.7	sec	The UT1-TAI function
8	64-71	F8.3	mas	Adjustment of the nutation in longitude angle with respect to IAU 1980 nutation expansion
9	73-80	F8.3	mas	Adjustment of the nutation in obliquity angle with respect to IAU 1980 theory
10	82-90	F9.6	asc/day	The estimate of X pole rate
11	92-100	F9.6	asc/day	The estimate of Y pole rate
12	102-108	F7.4	ms/day	The estimate of UT1 rate
13	110-117	F8.6	arcsec	Formal uncertainty of X pole coordinate
14	119-126	F8.6	arcsec	Formal uncertainty of Y pole coordinate
15	128-136	F9.7	sec	Formal uncertainty of UT1-UTC function
16	138-144	F7.3	mas	Formal uncertainty of nutation in longitude angle
17	146-152	F7.3	mas	Formal uncertainty of nutation in obliquity angle
18	154-162	F9.6	asc/day	Formal uncertainty of X pole rate
19	164-172	F9.6	asc/day	Formal uncertainty of Y pole rate
20	174-180	F7.4	asc/day	Formal uncertainty of UT1 rate
21	182-187	F6.4	--	Correlation between the estimates of X-pole positions and Y-pole position
22	189-194	F6.4	--	Correlation between the estimates of X-pole positions and UT1-TAI angle
23	196-201	F6.4	--	Correlation between the estimates of Y-pole positions and UT1-TAI angle
24	203-208	F6.4	--	Correlation between the estimates of nutation in longitude and nutation in obliquity
25	210-215	F6.4	--	Correlation between the estimates of X-pole positions and UT1 rate
26	217-222	F6.4	--	Correlation between the estimates of Y-pole positions and UT1-TAI date
27	224-229	F6.4	--	Correlation between the estimates of UT1-TAI angle UT1 rate
28	231-235	F5.2	hours	Session duration
29	237-243	F7.2	psec	Weighted root mean square of postfit residuals
30	245-250	I6	--	Number of used observations in the session
31	252-263	F12.6	days	Modified Julian date for nutation at TDT time scale
32	265-328	A64	--	The network configuration line. Consists of two characters IVS station codes listed in alphabetic order for stations that participated in the experiment and supplied the data that have been used in processing this experiment.

If the specific parameter was not estimated in this experiment, the field for its value and formal uncertainty is replaced by filler: \$\$\$\$\$\$. The filler takes entire field.

### 3.12 .trp -file

.trp file contains apriori zenith path delay, adjustments of zenith path delay, totals (apriori+adjustments) and formal uncertainties of adjustments for each session, each station. In the case if zenith apriori path delays were not written into the spool file, then apriori zenith path delays are reported as zeroes.

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Field Format Units Meaning

1-8	A8	--	record type identifier: TRP_SEG:
11-20	A10	--	database name
23-25	I3	--	database version number
32-50	A23	--	time tag of the estimates of troposphere path delay in TAI
32-35	I4	--	year number
37-38	I2	--	month number
40-41	I2	--	day number
43-44	I2		hours hour
46-47	I2	min	minutes
49-50	I2	sec	seconds
56-63	A8	---	IVS station name
73-82	F10.3	ps	a priori total troposphere zenith path delay (wet + dry)
92-101	F10.3	ps	a priori wet component of the troposphere zenith path delay
107-116	F10.3	psec	adjustment of troposphere zenith path delay
126-135	F10.3	psec	total estimated troposphere zenith path delay. It the sum of total apriori path delay and adjustment.
141-150	F10.3	psec	formal uncertainty of troposphere path delay

### 3.13 .trs -file

.trs file contains statistics of the atmospheric path delay in zenith direction: a priori path delay, adjustment with respect to the apriori path delay and total path delay.

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Field Format Units Meaning

1-8	A8	--	record type identifier: TRP_STS:
11-20	A10	--	database name
23-25	I3	--	database version number
28-35	A8	---	IVS station name
42-64	A23	--	time tag of the estimates of troposphere path delay in TAI
42-45	I4	--	year number
47-48	I2	--	month number
50-51	I2	--	day number
53-54	I2	hours	hour
56-57	I2	min	minutes
59-60	I2	sec	seconds
72-80	F9.3	ps	average residual zenith path delay adjustment
92-102	F10.3	ps	rms of the residual zenith path delay adjustment
118-128	F10.3	ps	rms of the total zenith path delay
141-145	F10.3	ps	number of scans at this station
153-160	F8.1	sec	duration of the interval statistics was collected
176-181	F6.1	ps	average a priori total zenith path delay
192-197	F6.1	ps	rms of the a priori total zenith path delay
208-213	F6.1	ps	average a priori wet zenith path delay
224-229	F6.1	ps	rms of the a priori wet zenith path delay
243-249	F7.0	Pa	average atmospheric pressure recorded at station
263-267	F5.1	C	average air temperature recorded at station
281-286	F6.1	C	bias of the recorded air temperature and derived from the model
299-304	F6.1	C	rms of the recorded air temperature and derived from the numerical weather model
318-324	f7.0	Pa	bias of the recorded atmospheric pressure and derived from the numerical weather model
335-341	f7.0	Pa	rms of the recorded atmospheric pressure and derived from the numerical weather model

### 3.14 .erm -file

.erm file contains numerical values of the coefficients of expansion  
of the perturbation vector of the Earth rotation over the B-spline basis.



Document is under preparation.

### **3.15 .heo -file**

.heo file contains numerical values of the harmonic model of Earth's orientation. Refer to document [http://vlbi.gsfc.nasa.gov/solve\\_root/help/heo\\_format.txt](http://vlbi.gsfc.nasa.gov/solve_root/help/heo_format.txt) for further details.

### **3.16 .npv -file**

.erm file contains numerical values of the coefficients of expansion of the site position expansion over B-spline and Fourier basis, as well as covariance matrix of its estimates.

Document is under preparation.

### **3.17 .apr -file**

Document is under preparation.

### **3.18 .cns -file**

Document is under preparation.

### **3.19 .hps -file**

.heo file contains numerical values of the harmonic model of site position displacements. Refer to document [http://vlbi.gsfc.nasa.gov/solve\\_root/help/harpos\\_format.txt](http://vlbi.gsfc.nasa.gov/solve_root/help/harpos_format.txt) for further details.

### 3.20 .bsp -file

.bsp file contains numerical values of the coefficients of expansion of site position evolution over the B-spline basis.

Refer to document

[http://vlbi.gsfc.nasa.gov/solve\\_root/help/bsppos\\_format.txt](http://vlbi.gsfc.nasa.gov/solve_root/help/bsppos_format.txt)  
for further details.

### 3.21 .rms -file

.rms file contains overall weighted root means square of postfit residuals for all observations and a series of wrms of postfit residual for each individual session. File is ordered in decreasing wrms.

File contains lines of three types:

1) Global statistics. Fields 11-17 are Global:

Field	Format	Units	Meaning
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1-8	A8	--	record type identifier: RMS_DEL:
-----	----	----	----------------------------------

11-17	A7	--	record subtype identifier: Global:
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22-28	I7	--	Number of observations used in solution
-------	----	----	---

36-45	F10.3	psec	overall wrms of postfit delay residuals
-------	-------	------	---

50-59	F10.3	psec/sec	overall wrms of postfit delay rate residuals.
-------	-------	----------	---

Exception: the line with subtype identifier Global  
does not have rate, but has chi/ndg in fields  
62-71

2) Comment. The first character is #. Header comment contain the full name of the spool file.

3) Local statistics.

if ( GETPAR\_RMS format version 1.0 of 2001.05.25 ) then

Field	Format	Units	Meaning
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1-8	A8	--	record type identifier: RMS_DEL:
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11-20	A10	--	database name with leading dollar sign
-------	-----	----	--

22-28	I7	--	Number of observations used in solution
-------	----	----	---

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30:41 I12/F3.1 psec wrms of delay in psec \*  
If WRMS > 10 psec then format is I12,  
otherwise is F3.1

46:55 I10 fs/s wrms of delay rate.

if ( GETPAR\_RMS format version 2.0 of 2003.08.12 ) then

1-8 A8 -- record type identifier: RMS\_DEL:  
11-20 A10 -- database name with leading dollar sign  
22-28 I7 -- Number of observations used in solution  
30:41 F12.3 psec wrms of delay.  
47:58 I12 fs/s wrms of delay rate.

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Questions and comments about this guide should be sent to:

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