# Manual for Real-Time PPP with MADOCA Products

Rev.B

This manual describes way of real-time PPP with MADOCA products using RTKLIB[1]. For this procedure, your own accounts are necessary.

Reference: [1] http://www.rtklib.com/

# 1. Installation

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Please download and install the latest version of RTKLIB from the follwing site.

RTKLIB sites : http://www.rtklib.com/

	LID. All O	pen Source	e Program Package for (	31155 F Ushfulling
1				
nload				
	Version	Date	Binary AP Package for Windows	Full Package with Source Programs
	2.2.0	2009/01/31	rtklib 2.2.0 bin.zip (10.7MB)	rtklib 2.2.0.zip (23.4MB)
	2.2.1	2009/05/17	rtklib 2.2.1 bin zip (15.3MB)	rtklib 2.2.1.zip (30.6MB)
	2.2.2	2009/09/07	rtklib 2.2.2 bin.zip (21.4MB)	rtklib 2.2.2.zip (33.8MB)
	2.3.0	2009/12/17	rtklib 2.3.0 bin.zip (26.7MB)	rtklib 2.3.0.zip (35.8MB)
	2.4.0	2010/08/08	rtklib 2.4.0 bin.zip (17.4MB)	rtklib 2.4.0.zip (26.5MB)
	2.4.1	2011/06/11	rtklib 2.4.1 bin.zip (16.5MB)	rtklib 2.4.1.zip (26.4MB)
	2.4.2	2013/04/29	rtklib 2.4.2 bin zip (30.4MB)	rtklib 2.4.2.zip (55.2MB)

#### 2. Real-time PPP with MADOCA products

(1) Please execute **RTKNAVI.exe** in the folder "(Install dir)/rtklib\_(ver)/bin" (double-click the icon).

	RTKNAVI ver.2.4.2			
	2000/01/01 00:00:00.	0 GPST I 000-+0-	+00 000 o   L	Input / Output / Log Stream
	E/N/U-Baseline	✓ Rover:Base SNR		
	Solution:	🗆	50	
	E: 0.0	100 m	50 40 30 20	
	N: 0.0	00 m	20	
	U: 0.0	100 m		
	E: 0.000 N: 0.000 U: 0.0 Age: 0.0 s Ratio: 0.0 # o:		40	
	Age: 0.0 \$ Maile: 0.0 # 0.		20	
Monitor Button 🗕			2	
Start 🗕	Start Stop	Plot Option:	5 <del>K Exit</del>	Positioning Setting

(2) Please click I button to set input Stream and check the boxes of Rover and Correction. In the case of PPP, Base Station are not required.

2000/01/01 0	0:00:00.0 GPS	T I 000→0→00000 0 L
E/N/U-Baseline		• Rover:Base SNR (dBHz) • •
Solution:	🗆	
E:	0.000 m	
N:	0.000 m	
	0.000 m 000 U: 0.000 m o: 0.0 # of Sat: 0	50 40 30 20
•	Þ.	

Input Stream		Туре	Op	t Cmd	Format	0
] 1) Rover	Seria	əl	▼][.		Javad	•](
(2) Base Station	Seria	al	*][.	F	RTCM 2	-
3) Correction	NTR	IP Client	•.		RTCM 3	• .
ransmit NMEA GPGG/	4 to Base	e Station				
DFF	-	0.000000	000	0.0	00000000	
nput File Paths						
						1
						16
						C

## (2.1) Rover Setting

Please select the stream type among the following types supported RTKLIB.

- (a) Serial : Input data from a serial port (RS232C or USB)
- (b) TCP Client : Connect to a TCP server and input data via the TCP connection
- (c) TCP Server : Accept a TCP client connection and input data via the TCP connection
- (d) NTRIP Client : Connect to a NTRIP caster and input data via the NTRIP.
- (e) File : Input data from a log file.

In this manual, the case of using JAVAD receiver via serial is introduced.

Input Stream	Туре	Op	t Cmd	Format	3	Op
🗸 (1) Rover	Serial	▼ [		lavad	•	
(2) Base Station	Serial			RTCM 2	+	
(3) Correction	NTRIP Client	-		RTCM 3	-	
ransmit NMEA GPGGA	to Base Station	7633				
OFF .	0.000000	000	0.0	00000000		
input File Paths						
						1

(2.1.2) Please click Opt button and set port, bitrate and so on. As necessary, please click Cmd and set commnd to receiver.

Serial Optio	ns			(	x
Port	COM18		Parity	None	•
Bitrate (bps)	115200	•	Stop Bits	1 bit	•
Byte Size	8 bits	•	Flow Control	None	•
			ок	Cancel	

	IE, WE, EN, QE}	*
Commands	at shutdown	÷
		^
		-

(2.1.3) Please click Format button and select your format.

Input Stream	Туре	(	Opt	Cmd	Format		Ор
🗸 (1) Rover	Serial	•			Javad	-	
(2) Base Station	Serial	Ŧ			RTCM 2	-	
🕖 (3) Correction	NTRIP Client	-			RTCM 3	-	
ransmit NMEA GPGGA	to Base Station						
OFF 1	0.00000	00000		0	.000000000		
Input File Paths							
							][.
							1
							Ì

# (2.2) Correction Setting

Please set <u>Ntrip Client</u> from the stream types and click <u>Opt</u> button to set Ntrip caster of MADOCA products. Please set NTRIP Client options as below.

Input Stream	Туре	Opt Cmd		Opt	NTRIP Caster H	lost	Port
🔽 (1) Rover	Serial		Javad		madoca.ntri	ip-mgm.net	<b>~</b> 2101
(2) Base Station	Serial	×	RTCM 2	····	Mountpont	User-ID	Password
📝 (3) Correction	NTRIP Client	·	RTCM 3	<b>_</b>	MDC1	★ *******	
OFF Input File Paths	-	000 0.	.000000000		String		
					Ntrip	0	Cancel
Sector Description	0 5	ОК					

(3) If you need output streams, please click O button and check the boxes of Solution1 and Solution2.

2000/01/01 0	0:00:00.0 GPST	
E/N/U-Baseline	÷	Rover:Base SNR (dBHz) 🔹 🔹
Solution:	🗋	5
E:	0.000 m	3
N:	0.000 m	
U:	0.000 m	5
	000 U: 0.000 m .o: 0.0 # of Sat: 0	3
<		

Output Stream	Туре	Option	Format
(4) Solution 1	TCP Server	▼	Lat/Lon/Height
5) Solution 2	File	•	Lat/Lon/Height

## (3.1) TCP Setting

Please set TCP server as stream type and click "Option" to set port of output stream. Please click Format button and select the solution format you like.

Output Stream	Туре	Option	Format
🗸 (4) Solution 1	TCP Server	▼	Lat/Lon/Height
(5) Solution 2	Serial	w	Lat/Lon/Height
	-		<u></u>
Output File Paths			

TCP Server Addr	ess	Port
localhost		✓ 12345
Mountpont	User-ID	Password
	w	
String		

# (3.2) FILE Setting

Please set File as stream type and select the solution format you like. Please insert output file path.



File Swap Interval

If time-tag is needed, please check the following box. .

Output Stream	Туре	Option	Format
🗹 (4) Solution 1	TCP Server	▼	Lat/Lon/Height
🗹 (5) Solution 2	File	▼	Lat/Lon/Height
Output File Paths			

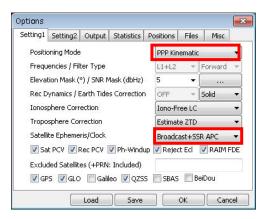
(4) Please click L button to save the stream log, if needed. These settings are same as output setting (refer to (3)).

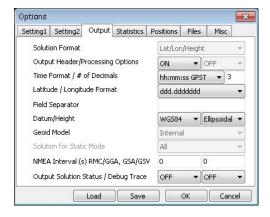
RTKNAVI ver.	2.4.2		C.
2000/01/01 0	0:00:00.0 GPST	I 000-+0-000	] O L
E/N/U-Baseline	•	Rover:Base SNR (dBHz)	
Solution:	🗆		
E:	0.000 m		
N:	0.000 m		
2009 CONSTRUCTION CONST	0.000 m 000 U: 0.000 m o: 0.0 # of Sat: 0		50 40 30 20
	Þ		27
Start	Stop	ot Options	Exit

(5) Please click Options... to configure the positioning settings. In this manual, an example is shown.

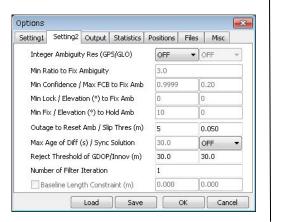
2000/01/01 0	0:00:00.0	GPST	I		0 000	L
E/N/U-Baseline			Rov	er:Base SNR (dBHz)	-	•
Solution:	100000					-50
E:	0.000	m				-30
N:	0.000	m				_
U: E: 0.000 N: 0. Age: 0.0 s Rati		m				-51 -41 -31 -21
<		N				_
						?
Start	Stop	Plo	ot	Options	Exit	-

### Example of Setting





Setting1	Setting2	Output	Statistics	Positions	Files	Misc
Rover						
Lat/Lon,	'Height (de	g/m) 👻				
90,0000	00000	0.00	0000000	-6	6335367.6	285
Anter	nna Type (*	: Auto)		Delta-E/N	I/U (m)	
*			0.0000	0.0000 0.0000		
Base Sta	tion					
Lat/Lon,	'Height (de	g/m) 💌				
90.0000	00000	0.00	0000000	-6	6335367.6	285
Anter	nna Type (*	: Auto)		Delta-E/N	I/U (m)	
			-	0.0000	0.0000	0.0000
	osition File					
Station P						



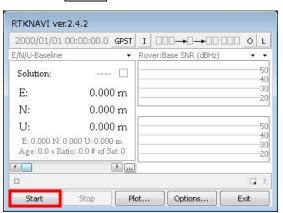
Setting1	Setting2	Output	Statistics	Pos	sitions Files		: Misc	
Measure	ment Error	s (1-sigma	a)					
Code/Carrier-Phase Error Ratio L1/L2					1000		1000	
Carrier-Phase Error a+b/sinEl (m)					0.003 0.		0.003	
Carrier-Phase Error/Baseline (m/10km)				0.000				
Doppler Frequency (Hz)				1.000				
Process	Noises (1-s	igma/sqrti	(s))					
Receiver Accel Horiz/Vertical (m/s2)				1.00E	1.00E+01 1.00E+01			
Carrier-Phase Bias (cycle)				1.00E-04				
Vertical Ionospheric Delay (m/10km)				1	1.00E-03			
Zenith Tropospheric Delay (m)					1.00E-04			
Sat	ellite Clock	Stability (:	s/s)		5.00E-12			
		Load	Save			ок	Ca	

Setting1	Setting2	Output	Statistics	Positions	Files	Misc	
Satellite/P	eceiver Ar	ntenna PC	V File ANTE	X/NGS PCV			E (
C:¥igs08.	atx						
C:¥igs08.	рсм						ſ,
Geola Dat	a rile						
DCB Data	File						
EOP Data	mile.						le
EOP Data	File						_6
Ocean Lo	ading BLQ I	Format					0
I							
FTP/HTTP	Local Dire	ctory					
C:¥Temp							

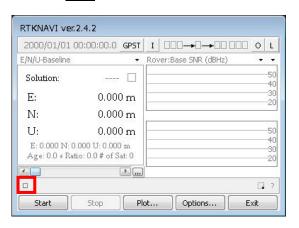
#### [B] Change of Sat

#### Ephemeris/Clock

(6) Please click Start button to start the calculation of PPP.



(7) Please click  $\Box$  button to monitor status of PPP if needed.



(8) Please click Plot button to plot the solution using **RTLPLOT.exe** if needed. Please click [Edit] – [Option] for changing plot settings.

