

FT8

Eine digitale Betriebsart

Übersicht

- Was ist FT8 (Abgrenzung zu anderen digitalen Modes)
- Technische Parameter zu FT8
- Wie werde ich QRV?

Quellen:

<http://wiki.oevsv.at/index.php?title=FT8>

Was ist FT8?

- Eine digitale QSO Betriebsart von Joe Taylor, K1JT
- Niedrige Leistung („QRP“)
- Ähnlichkeiten mit JT65, JT9, JT4 aber schnellere Durchgänge
- Automatische QSO Abwicklung
- Keine „labor“ Betriebsart wie PSK, CW, SSB, RTTY ...
- Es werden nur für ein QSO notwendige Informationen ausgetauscht (Empfangsstärke in dB, Locator 4 Stellig Rufzeichen)

Quellen:

<http://wiki.oevsv.at/index.php?title=FT8>

Technische Parameter

- 8-FSK (MFSK) Modulation
- 47,0Hz Bandbreite (8 Töne mit 5,875Hz Abstand)
- Ein Durchgang dauert 13,48 Sekunden
- Ein QSO kann in einer Minute abgewickelt werden
- Dekodierbar bis -20dB
- Vorwärtskorrektur

Technische Parameter

WSJT-X v1.9.0-rc3 by K1JT

File Configurations View Mode Decode Save Tools Help

Band Activity

UTC	dB	DT	Freq	Message
212045	-11	1.7	1349	~ KC3HFW YU5B -18
212100	-19	0.2	1255	~ CQ EA9ACE IM75
212115	-18	0.2	1825	~ GR7JWY 9A4ZM JN64
212130	-4	-0.3	692	~ KE4JD I4JED R-05
212130	-17	0.2	1255	~ WSUE EA9ACE +03
212130	-17	0.2	1702	~ VA3CTX IV3KEI R-11
212145	-20	0.1	1003	~ EA9ACE LZ7MM KN12
212145	-17	0.2	1825	~ GR7JWY 9A4ZM JN64
212200	-4	-0.3	692	~ KE4JD I4JED 73
212200	-14	-0.2	1087	~ CQ 9A6A JN75
212200	-19	0.2	1255	~ WSUE EA9ACE +03
212200	-20	0.2	1703	~ VA3CTX IV3KEI 73
212215	-15	-0.1	301	~ CQ IZ0DXD JN63
212215	-20	0.1	1003	~ EA9ACE LZ7MM KN12
212215	-13	0.8	1349	~ HP1RY YU5B KN04
212215	-18	0.2	1769	~ GR7JWY 9A4ZM JN64
212230	-10	-0.2	1087	~ CQ 9A6A JN75
212230	-20	0.2	1255	~ WSUE EA9ACE +03
212230	-15	0.2	1702	~ CQ IV3KEI JN65
212245	-11	-0.1	301	~ CQ IZ0DXD JN63
212245	-19	0.1	1003	~ EA9ACE LZ7MM KN12
212245	-19	1.2	1348	~ HP1RY YU5B -11
212245	-13	0.2	1769	~ GR7JWY 9A4ZM JN64
212330	-16	0.2	1255	~ WSUE EA9ACE RRR
212430	-11	0.2	1255	~ CQ EA9ACE IM75
212500	-14	0.6	1255	~ CQ EA9ACE IM75
212500	-11	0.0	1703	~ CQ IV3KEI JN65
212530	-13	0.1	1703	~ DF2AD IV3KEI -02
212600	-15	0.1	1703	~ DF2AD IV3KEI RRR
212630	-15	0.2	677	~ NZ9U 9A4ZM JN64

211515 Tx 917 ~ CQ DK9MBS JO52
211545 Tx 917 ~ CQ DK9MBS JO52
211615 Tx 917 ~ CQ DK9MBS JO52
211645 Tx 917 ~ CQ DK9MBS JO52
211715 Tx 917 ~ CQ DK9MBS JO52
211745 Tx 917 ~ CQ DK9MBS JO52
211815 Tx 917 ~ CQ DK9MBS JO52
211845 Tx 917 ~ CQ DK9MBS JO52
211915 Tx 917 ~ CQ DK9MBS JO52
211946 Tx 917 ~ CQ DK9MBS JO52
212324 Tx 917 ~ CQ DK9MBS JO52
212345 Tx 917 ~ CQ DK9MBS JO52
212415 Tx 917 ~ CQ DK9MBS JO52
212445 Tx 917 ~ CQ DK9MBS JO52
212515 Tx 917 ~ CQ DK9MBS JO52
212545 Tx 917 ~ CQ DK9MBS JO52
212615 Tx 917 ~ CQ DK9MBS JO52
212645 Tx 917 ~ CQ DK9MBS JO52

14,074 000

DX Call: IK1ZFO DX Grid: JN35

Az: 200 477 mi

2018 Mai 19 21:27:05

59 dB

Receiving FT8 Last Tx: CQ DK9MBS JO52

5/15 WD:6m

Technische Parameter

Diese Darstellung soll lediglich die Funktionsweise verdeutlichen.

Bei FT8 kommt nicht MFSK mit M=4 sondern MFSK mit M=8 zum Einsatz!

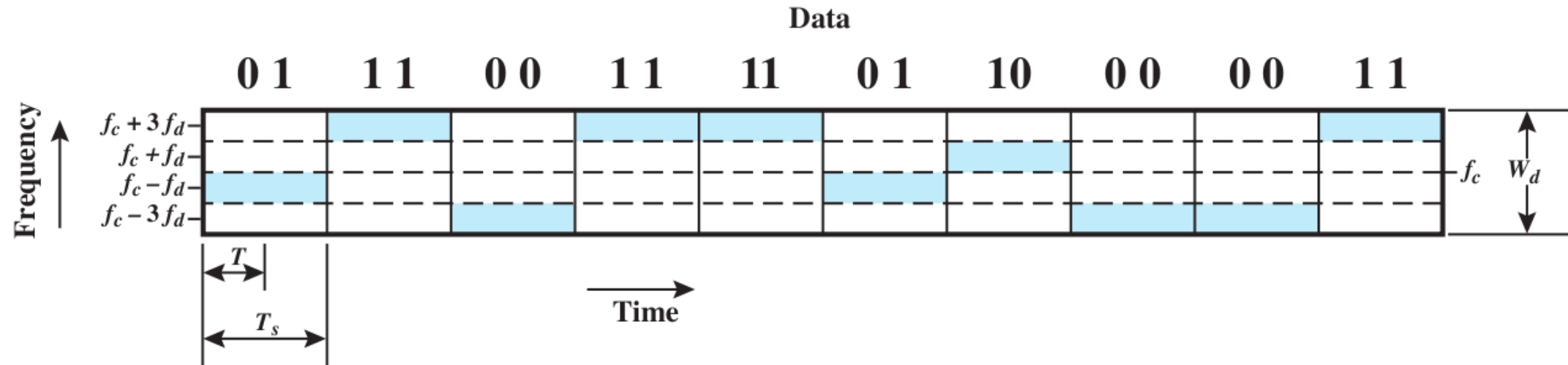


Figure 5.9 MFSK Frequency Use ($M = 4$)

Quellen:

http://pld.cs.luc.edu/telecom/mnotes/modulation_transmission.html

<https://pld.cs.luc.edu/courses/346/sum15/mnotes/cellular.html>

Wie werde ich QRV?

- Software downloaden
<https://physics.princeton.edu/pulsar/k1jt/wsjitx.html>
- Nach Anleitung installieren
- Handbuch lesen
https://physics.princeton.edu/pulsar/k1jt/wsjitx-doc/wsjitx-main-1.8.0_de.pdf
- Verbindung Soundkarte $\leftarrow \rightarrow$ Tx wie bei PSK oder anderen Betriebsarten
- NetTime bei Windows PC's (genauigkeit +- 1 Sekunde)
- Kontrolle der Uhrzeit (<https://time.is>)
- Tx immer USB

Quellen:

https://www.darc.de/fileadmin/filemounts/distrikte/c/ortsverbaende/09/FT8_Anleitung_1_13.pdf

https://physics.princeton.edu/pulsar/k1jt/wsjitx-doc/wsjitx-main-1.8.0_de.pdf

<http://www.timesyncctool.com/>

QRG's

Dial Frequency

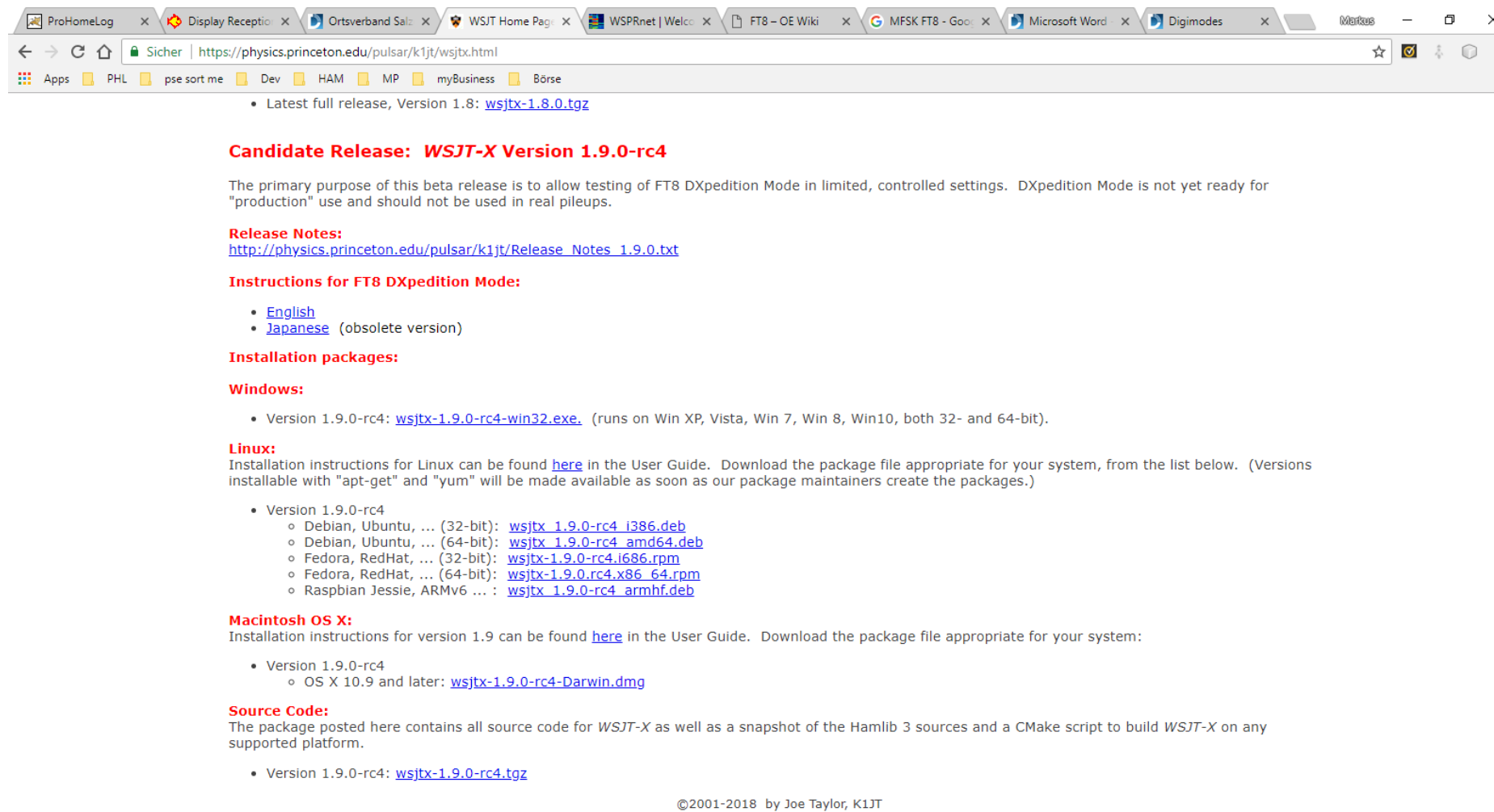
2190m	136,130 kHz
630m	474,200 kHz
160m	1,840 MHz
80m	3,573 MHz
60m	5,755 MHz
40m	7,074 MHz
30m	10,136 MHz
20m	14,074 MHz
17m	18,100 MHz
15m	21,074 MHz
12m	24,915 MHz
10m	28,074 MHz
6m	50,313 MHz
4m	70,100 MHz
2m	144,174 MHz
70cm	432,500 MHz

Tx / Rx immer auf dem oberen Seitenband („USB“) betreiben.

Quellen:

<https://wiki.oevsv.at/index.php?title=FT8>

Webseite von Joe Taylor



• Latest full release, Version 1.8: [wsjtx-1.8.0.tgz](#)

Candidate Release: WSJT-X Version 1.9.0-rc4

The primary purpose of this beta release is to allow testing of FT8 DXpedition Mode in limited, controlled settings. DXpedition Mode is not yet ready for "production" use and should not be used in real pileups.

Release Notes:
http://physics.princeton.edu/pulsar/k1jt/Release_Notes_1.9.0.txt

Instructions for FT8 DXpedition Mode:

- [English](#)
- [Japanese](#) (obsolete version)

Installation packages:

Windows:

- Version 1.9.0-rc4: [wsjtx-1.9.0-rc4-win32.exe](#). (runs on Win XP, Vista, Win 7, Win 8, Win10, both 32- and 64-bit).

Linux:
Installation instructions for Linux can be found [here](#) in the User Guide. Download the package file appropriate for your system, from the list below. (Versions installable with "apt-get" and "yum" will be made available as soon as our package maintainers create the packages.)

- Version 1.9.0-rc4
 - Debian, Ubuntu, ... (32-bit): [wsjtx_1.9.0-rc4_i386.deb](#)
 - Debian, Ubuntu, ... (64-bit): [wsjtx_1.9.0-rc4_amd64.deb](#)
 - Fedora, RedHat, ... (32-bit): [wsjtx-1.9.0-rc4.i686.rpm](#)
 - Fedora, RedHat, ... (64-bit): [wsjtx-1.9.0-rc4.x86_64.rpm](#)
 - Raspbian Jessie, ARMv6 ... : [wsjtx_1.9.0-rc4_armhf.deb](#)

Macintosh OS X:
Installation instructions for version 1.9 can be found [here](#) in the User Guide. Download the package file appropriate for your system:

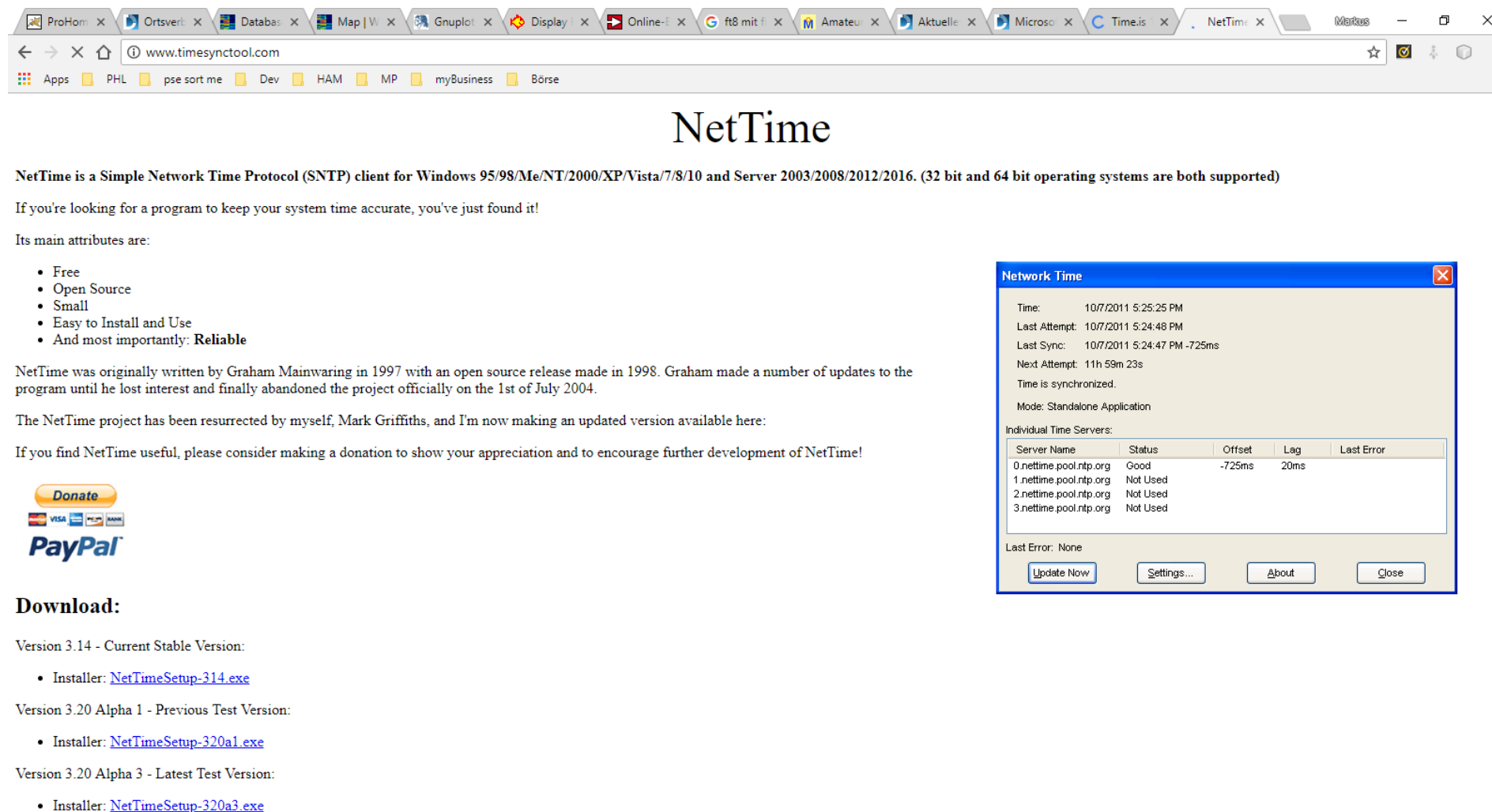
- Version 1.9.0-rc4
 - OS X 10.9 and later: [wsjtx-1.9.0-rc4-Darwin.dmg](#)

Source Code:
The package posted here contains all source code for WSJT-X as well as a snapshot of the Hamlib 3 sources and a CMake script to build WSJT-X on any supported platform.

- Version 1.9.0-rc4: [wsjtx-1.9.0-rc4.tgz](#)

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Download NetTime



NetTime

NetTime is a Simple Network Time Protocol (SNTP) client for Windows 95/98/Me/NT/2000/XP/Vista/7/8/10 and Server 2003/2008/2012/2016. (32 bit and 64 bit operating systems are both supported)

If you're looking for a program to keep your system time accurate, you've just found it!

Its main attributes are:


- Free
- Open Source
- Small
- Easy to Install and Use
- And most importantly: **Reliable**

NetTime was originally written by Graham Mainwaring in 1997 with an open source release made in 1998. Graham made a number of updates to the program until he lost interest and finally abandoned the project officially on the 1st of July 2004.

The NetTime project has been resurrected by myself, Mark Griffiths, and I'm now making an updated version available here:

If you find NetTime useful, please consider making a donation to show your appreciation and to encourage further development of NetTime!

[Donate](#)



Download:

Version 3.14 - Current Stable Version:

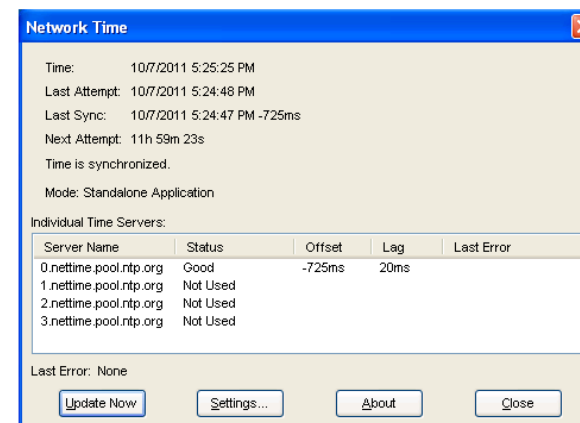
- Installer: [NetTimeSetup-314.exe](#)

Version 3.20 Alpha 1 - Previous Test Version:

- Installer: [NetTimeSetup-320a1.exe](#)

Version 3.20 Alpha 3 - Latest Test Version:

- Installer: [NetTimeSetup-320a3.exe](#)



Kontrolle der Uhrzeit



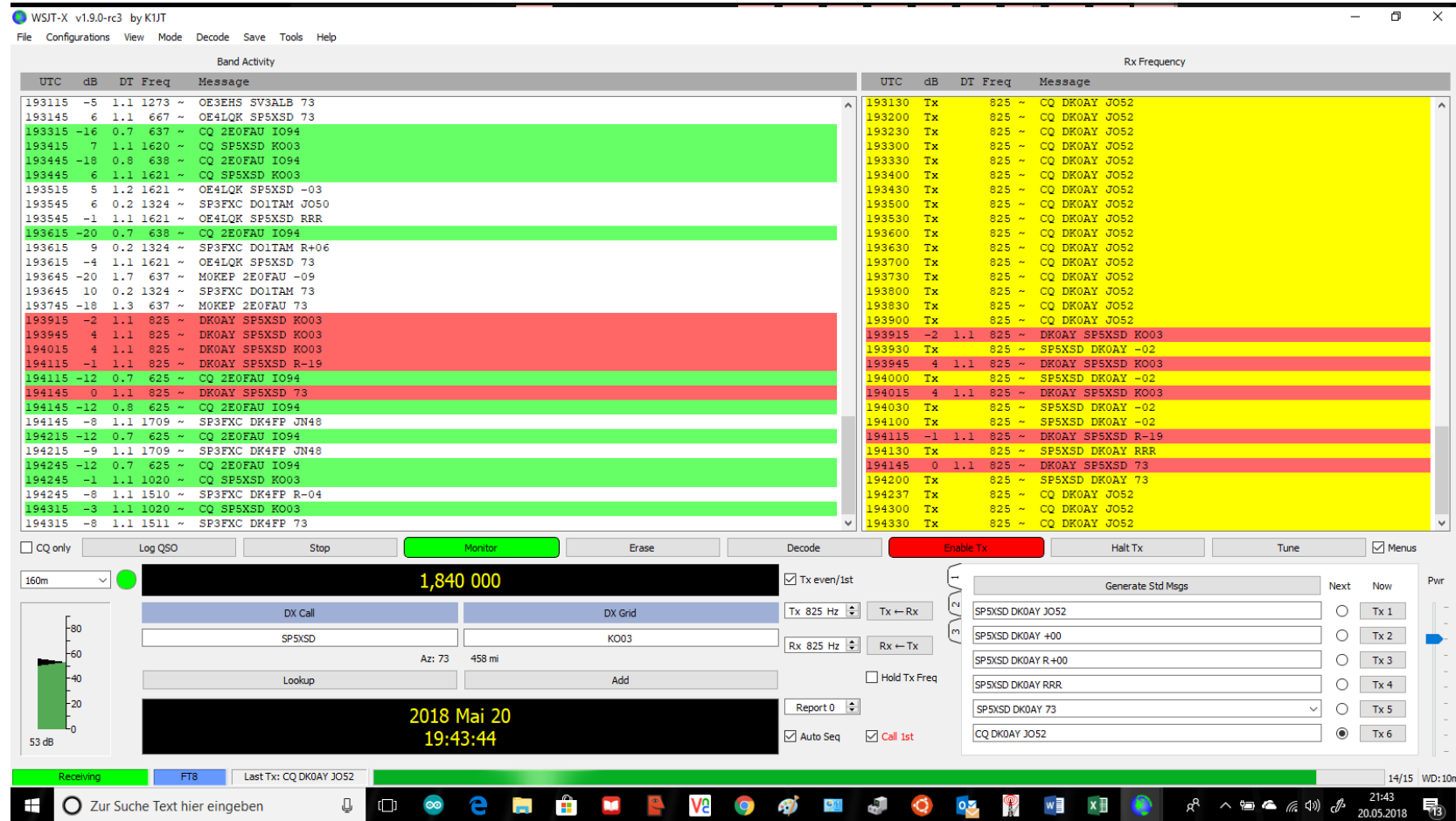
The screenshot shows a web browser window with the URL <https://time.is>. The page content includes:

- Time.is logo
- Message: "Deine Uhr hat exakt die richtige Zeit!"
- Text: "Der Unterschied zu Time.is betrug -0,010 Sekunden (≠0,024 Sekunden)." and "Aktuelle Zeit in Salzgitter, Kreisfreie Stadt Salzgitter, Niedersachsen, Deutschland:"
- Large digital clock display: **12:21:04**
- Date and week: Montag, 21. Mai 2018, Woche 21
- Sunrise/Sunset: Sonne: ↑ 05:15 ↓ 21:16 (16h 1m) [Weitere Informationen](#)
- World clock table:

Los Angeles 03:21	New York City 06:21	London 11:21	Paris 12:21	Moskau 13:21	Peking 18:21	Tokio 19:21
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At the bottom, there is a Tableau advertisement for "2018 Top 10 Business Intelligence Trends" with a "SEE THE TRENDS" button. A status bar at the very bottom indicates "Warten auf c.pub.network..."

Betriebstechnik



WSJT-X v1.9.0-rc3 by K1JT

File Configurations View Mode Decode Save Tools Help

Band Activity					Rx Frequency				
UTC	dB	DT	Freq	Message	UTC	dB	DT	Freq	Message
193115	-5	1.1	1273	~ OE3EHS SV3ALB 73	193130	Tx	825	~	CQ DK0AY J052
193145	6	1.1	667	~ OE4LQK SP5XSD 73	193200	Tx	825	~	CQ DK0AY J052
193315	-16	0.7	637	~ CQ 2E0FAU IO94	193230	Tx	825	~	CQ DK0AY J052
193415	7	1.1	1620	~ CQ SP5XSD KO03	193300	Tx	825	~	CQ DK0AY J052
193445	-18	0.8	638	~ CQ 2E0FAU IO94	193330	Tx	825	~	CQ DK0AY J052
193445	6	1.1	1621	~ CQ SP5XSD KO03	193400	Tx	825	~	CQ DK0AY J052
193515	5	1.2	1621	~ OE4LQK SP5XSD -03	193430	Tx	825	~	CQ DK0AY J052
193545	6	0.2	1324	~ SP3FXC D0LTAM J050	193500	Tx	825	~	CQ DK0AY J052
193545	-1	1.1	1621	~ OE4LQK SP5XSD RRR	193530	Tx	825	~	CQ DK0AY J052
193615	-20	0.7	638	~ CQ 2E0FAU IO94	193600	Tx	825	~	CQ DK0AY J052
193615	9	0.2	1324	~ SP3FXC D0LTAM R+06	193630	Tx	825	~	CQ DK0AY J052
193615	-4	1.1	1621	~ OE4LQK SP5XSD 73	193700	Tx	825	~	CQ DK0AY J052
193645	-20	1.7	637	~ MOKEP 2E0FAU -09	193730	Tx	825	~	CQ DK0AY J052
193645	10	0.2	1324	~ SP3FXC D0LTAM 73	193800	Tx	825	~	CQ DK0AY J052
193745	-18	1.3	637	~ MOKEP 2E0FAU 73	193830	Tx	825	~	CQ DK0AY J052
193915	-2	1.1	825	~ DK0AY SP5XSD KO03	193900	Tx	825	~	CQ DK0AY J052
193945	4	1.1	825	~ DK0AY SP5XSD KO03	193915	-2	1.1	825	~ DK0AY SP5XSD KO03
194015	4	1.1	825	~ DK0AY SP5XSD KO03	193930	Tx	825	~	SP5XSD DK0AY -02
194115	-1	1.1	825	~ DK0AY SP5XSD R-19	193945	4	1.1	825	~ DK0AY SP5XSD KO03
194115	-12	0.7	625	~ CQ 2E0FAU IO94	194000	Tx	825	~	SP5XSD DK0AY -02
194145	0	1.1	825	~ DK0AY SP5XSD 73	194015	4	1.1	825	~ DK0AY SP5XSD KO03
194145	-12	0.8	625	~ CQ 2E0FAU IO94	194030	Tx	825	~	SP5XSD DK0AY -02
194145	-8	1.1	1709	~ SP3FXC DK4FP JN48	194100	Tx	825	~	SP5XSD DK0AY -02
194215	-12	0.7	625	~ CQ 2E0FAU IO94	194115	-1	1.1	825	~ DK0AY SP5XSD R-19
194215	-9	1.1	1709	~ SP3FXC DK4FP JN48	194130	Tx	825	~	SP5XSD DK0AY RRR
194245	-12	0.7	625	~ CQ 2E0FAU IO94	194145	0	1.1	825	~ DK0AY SP5XSD 73
194245	-1	1.1	1020	~ CQ SP5XSD KO03	194200	Tx	825	~	SP5XSD DK0AY 73
194245	-8	1.1	1510	~ SP3FXC DK4FP R-04	194237	Tx	825	~	CQ DK0AY J052
194315	-3	1.1	1020	~ CQ SP5XSD KO03	194300	Tx	825	~	CQ DK0AY J052
194315	-8	1.1	1511	~ SP3FXC DK4FP 73	194330	Tx	825	~	CQ DK0AY J052

CQ only Log QSO Menus

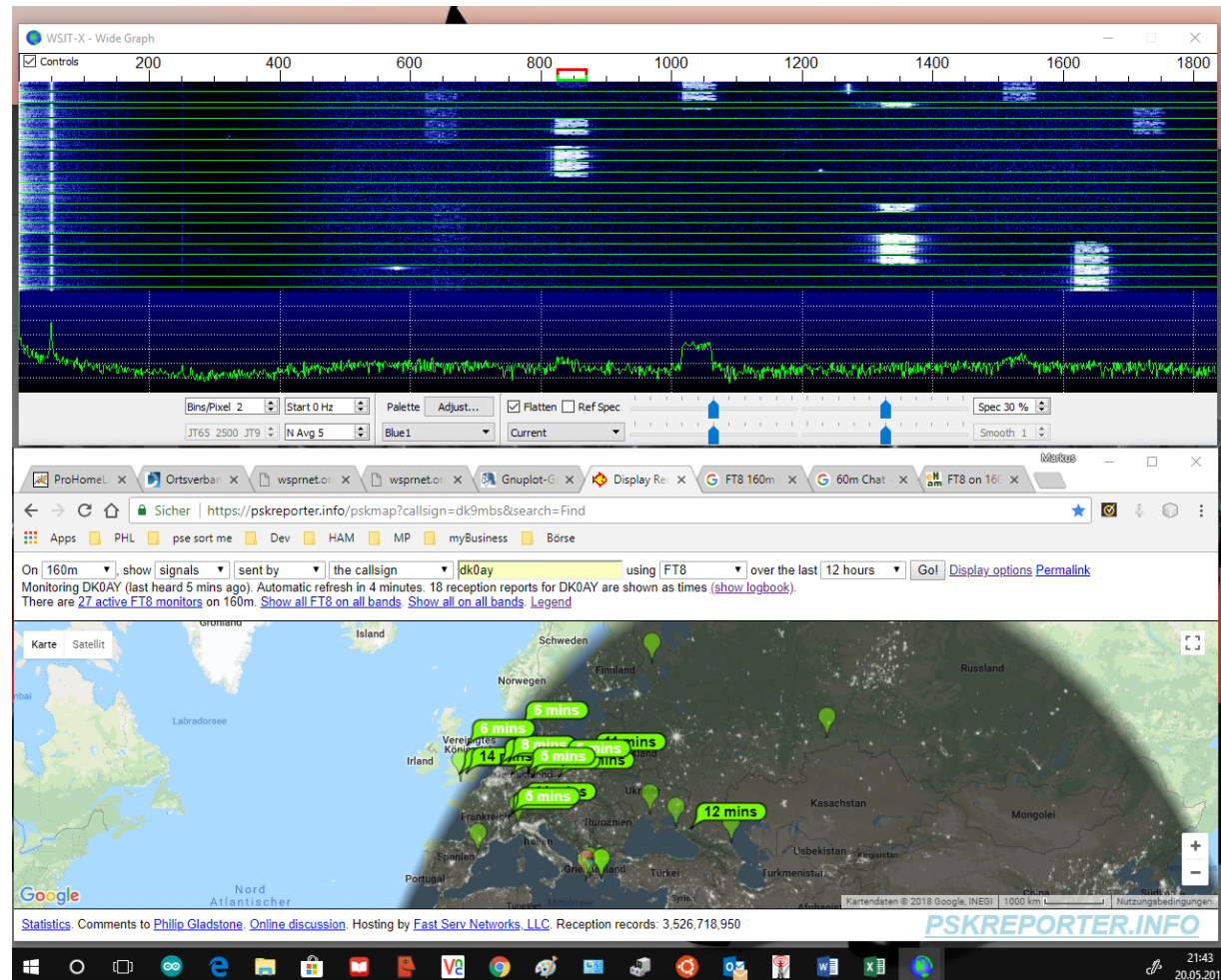
160m Tx even/Ist Tx 825 Hz Tx ← Rx Rx 825 Hz Rx ← Tx Hold Tx Freq Auto Seq Call 1st

DX Call: SP5XSD DX Grid: KO03 Az: 73 458 mi

2018 Mai 20 19:43:44

Receiving FT8 Last Tx: CQ DK0AY J052 14/15 WD:10m

Betriebstechnik



Betriebstechnik

WSJT-X v1.9.0-rc3 by KIJT

File Configurations View Mode Decode Save Tools Help

Band Activity

UTC	dB	DT	Freq	Message
200215	-14	1.1	1023	~ CQ SP5XSD KO03
200215	-8	1.1	1170	~ CQ PE1HHU JO21
200215	0	1.0	1432	~ UB7K DL7RU JO54
200245	-2	1.1	366	~ DK0AY EW3EO KO22
200245	-6	1.2	530	~ RA3LD EA6AAJ RRR
200245	-10	1.1	1023	~ DC5ES SP5XSD -21
200245	-6	1.1	1170	~ DL2TR PE1HHU -12
200245	2	1.0	1432	~ UB7K DL7RU JO54
200315	-9	1.1	365	~ DK0AY EW3EO R-13
200315	-10	1.1	1170	~ DL2TR PE1HHU RRR
200345	-5	1.2	367	~ DK0AY EW3EO R-13
200345	-13	1.2	531	~ IZONRG EA6AAJ -16
200345	-12	1.1	1023	~ DC5ES SP5XSD -21
200345	-6	1.1	1170	~ DL2TR PE1HHU 73
200415	-1	1.1	366	~ DK0AY EW3EO R-13
200415	-9	1.2	531	~ IZONRG EA6AAJ RRR
200415	-9	1.1	1023	~ DC5ES SP5XSD -21
200445	0	1.1	367	~ DK0AY EW3EO 73
200445	-6	1.4	531	~ IZONRG EA6AAJ 73
200445	-16	1.1	925	~ DC5ES DL2TR +05
200445	-10	1.1	1023	~ DC5ES SP5XSD -21
200515	-2	1.1	366	~ UB7K EW3EO KO22
200515	-4	1.2	531	~ CQ EA6AAJ JM19
200515	-14	1.1	925	~ DC5ES DL2TR +05
200515	-8	1.1	1023	~ DC5ES SP5XSD -21
200545	-2	1.1	366	~ UB7K EW3EO R-09
200545	-7	1.2	531	~ CQ EA6AAJ JM19
200545	-12	1.1	925	~ DC5ES DL2TR RRR
200545	-8	1.1	1023	~ DC5ES SP5XSD -21
200545	-6	1.1	1435	~ CQ PA2W JO22

Rx Frequency

UTC	dB	DT	Freq	Message
195715	2	0.4	830	~ DK0AY DC5ES JO31
195730	Tx	825	~ DC5ES DK0AY +02	
195745	-4	0.4	830	~ DK0AY DC5ES R-15
195800	Tx	825	~ DC5ES DK0AY RRR	
195815	-5	0.4	830	~ DK0AY DC5ES 73
195830	Tx	825	~ DC5ES DK0AY 73	
195900	Tx	825	~ CQ DK0AY JO52	
195930	Tx	825	~ CQ DK0AY JO52	
195945	-13	1.1	826	~ DK0AY DL2TR -01
200000	Tx	825	~ DL2TR DK0AY R-13	
200015	-15	1.1	826	~ DK0AY DL2TR RRR
200030	Tx	825	~ DL2TR DK0AY 73	
200045	-8	1.1	826	~ DK0AY DL2TR 73
200130	Tx	825	~ CQ DK0AY JO52	
200200	Tx	825	~ CQ DK0AY JO52	
200230	Tx	825	~ CQ DK0AY JO52	
200245	-2	1.1	366	~ DK0AY EW3EO KO22
200300	Tx	825	~ EW3EO DK0AY -02	
200315	-9	1.1	365	~ DK0AY EW3EO R-13
200330	Tx	825	~ EW3EO DK0AY RRR	
200345	-5	1.2	367	~ DK0AY EW3EO R-13
200400	Tx	825	~ EW3EO DK0AY RRR	
200415	-1	1.1	366	~ DK0AY EW3EO R-13
200430	Tx	825	~ EW3EO DK0AY RRR	
200445	0	1.1	367	~ DK0AY EW3EO 73
200500	Tx	825	~ EW3EO DK0AY 73	
200515	-2	1.1	366	~ UB7K EW3EO KO22
200538	Tx	825	~ CQ DK0AY JO52	
200545	-2	1.1	366	~ UB7K EW3EO R-09
200600	Tx	825	~ CQ DK0AY JO52	

CQ only

 Menus

160m
 1,840 000
 Tx even/1st

DX Call: EW3EO DX Grid: KO22 Tx 825 Hz Tx ← Rx
 Az: 81 622 mi Rx 367 Hz Rx ← Tx

Hold Tx Freq

Auto Seq Call 1st

Next Now Pwr

EW3EO DK0AY JO52	<input type="radio"/>	Tx 1
EW3EO DK0AY +00	<input type="radio"/>	Tx 2
EW3EO DK0AY R+00	<input type="radio"/>	Tx 3
EW3EO DK0AY RRR	<input type="radio"/>	Tx 4
EW3EO DK0AY 73	<input type="radio"/>	Tx 5
CQ DK0AY JO52	<input checked="" type="radio"/>	Tx 6

2018 Mai 20
20:06:27

Receiving FT8 Last Tx: CQ DK0AY JO52 12/15 WD:10m

Schnelldurchlauf

- Was ist FT8 (Abgrenzung zu anderen digitalen Modes)
- Technische Parameter zu FT8
- Wie werde ich QRV?

Ende



ENDE