

Programming Manual Motorola Dx2000 and Dx4000 series Radios

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Telecommunications Security Standards {TESS+} www.wfp.org/telecommunications-security-standards tess@wfp.org

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Introduction

This manual is intended to use by radio technicians who are familiar with similar types of Motorola equipment. It contains service information required for the equipment described that gives technicians the technical knowledge of how to program radio equipment properly.

In this Guide

This programming manual covers the basic operation of programming MOTOTRBO radios that are using selective calling (SelV). It provides guidance on using the Customer Programming Software (CPS) for programming Motorola two-way radios.

Technical Support

Technical support is available to assist the technician in resolving any malfunction which may be encountered. Initial contact should be by electronic mail or opening a ticket wherever possible. When contacting Technical Support, be prepared to provide the product model number and the serial number of the unit.

Training

Contact {TESS+} or the ETC training teams.



Radio models covered by this manual

Handheld radios	
Motorola DP2400e <i>Features</i> : No keypad / display Available in VHF / UHF Supports up to 16 channels <i>Recommended for:</i> Network users	
Motorola DP4801 / DP4801e Features: Full keypad and display Available in VHF / UHF Supports up to 1000 channels Recommended for: Network users Network controllers	

Base / Mobile radios

Motorola DM2600

Features:

Keypad / display Available in VHF / UHF Supports up to 160 channels Basic microphone included

Recommended for:

Network users Network controllers (keypad microphone must be added)

Motorola DM4601 / DM4601e Features: Keypad / display Available in VHF / UHF

Supports up to 1000 channels Keypad microphone included **Recommended for:** Network users Network controllers







Items needed for programming

Programming Cables



Programming Software

Motorola Customer Programming Software CPS 16 <i>Applicable radios</i> : <*.ctb file extension / Radios on pre-R2.4.0 firmware and older are supported>	
Operating systems : Windows 7 and up	MOTOTRBO CPS
Motorola Customer Programming Software 2.0 Applicable radios: <*.ctb and *.ctb2 file extensions / Radios on pre-R2.4.0 firmware and older are not supported>	
Operating systems : Windows 7 and up	MOTOTRBO CPS 2.0

Contact tess@wfp.org for guidance on how to access the programming software.

UN standard Motorola codeplugs

Network user codeplug Features: Able to send PTT-ID and emergency calls	
Network controller codeplug <i>Features</i> : Able to send stun, un-stun and silent interrogate.	



The Network controller codeplug contains features that, when used incorrectly, can seriously disrupt network operations. Make sure to program this codeplug in Network controller radios only!

Check with your colleagues or email tess@wfp.org to request a copy of the standard codeplug.



Configuring the Motorola CPS software

Motorola CPS 16.0

Once the CPS has been installed on your computer, open it and make the following changes:

Open the CPS, and then click **View • Expert**.

File	Edit	View	Device	Features	Remote	Help							
RM	Open	>	Tool Bar Status Bar	te	Cut Copy	Paste	Search	Read	▶ Write	▶∯ Clone	Bluetooth	192.168.11.1	
			Help Pane										
			Basic										
			Frank	1.1									

Click Edit/Preferences, and then select Clone Radio Identity.

MO	TOTR	BO Custor	mer Prog	ramming Sc	oftware	
File	Edit	View	Device	Features	Remote	Help
6		Undo	C	trl+Z	X 🗈	æ
RM		Redo	C	:trl+Y	Cut Copy	Paste
		Add				
		Cut	c	trl+X		
		Сору	C	trl+C		
		Paste	C	∶trl+V		
		Delete		Del		
		Rename		F2		
		Sort		۱.		
		Software	System K	eys 🕨		
		Dealer In	fo			
		Preference	ces			
		Custom \	/iew			
		Search	c	trl+F		

Motorola CPS 2.0

There are no settings needed for admin functions and clone functions in CPS 2.0.



Connecting the Radio to the CPS

• Connect your radio via the appropriate USB cable (as specified above) to your computer.

The radio contains a DNS server, and so will appear as a new network connection. An IP address of 192.168.10.2 is assigned to your machine, the radio will have an IP address of 192.168.10.1

N	etwork Connection Detail	5	x
	Network Connection Details:		
	Property	Value	^
	Connection-specific DN		
	Description	MOTOTRBO Radio #2	
	Physical Address	0A-00-3E-E6-CA-80	
	DHCP Enabled	Yes	
	IPv4 Address	192.168.10.2	
	IPv4 Subnet Mask	255.255.255.0	
	Lease Obtained	22 June 2014 22:36:09	
	Lease Expires	30 July 2150 05:04:55	=
	IPv4 Default Gateway	192.168.10.1	
	IPv4 DHCP Server	192.168.10.1	
	IPv4 DNS Server		
	IPv4 WINS Server		
	NetBIOS over Tcpip En	Yes	
	Link-local IPv6 Address	fe80::15b2:b8af.f2ab:bb39%18	
	IPv6 Default Gateway		
	IPv6 DNS Servers	fec0:0:0:ffff::1%1	
		fec0:0:0:ffff::2%1	-
			ose



Programming radios

Reading, Writing and Cloning

()	Check with your colleagues or contact TESS@wfp.org for the password for the standard code plugs.
	 Make sure of the following points before programming any radio: 1- Connect your computer to UPS or a fully charged laptop. 2- Use UPS to program base stations and make sure the vehicle battery is okay when programing mobile stations. 3- Portable battery should be over 70% charged before programing. 4- Do not unplug the USB cable during reading, writing and cloning code plugs.

Motorola CPS 16.0

Reading the radio

Click on the **Read** icon once the radio has been connected to the computer and the IP address has been assigned to the radio. Enter the password to open the radio codeplug (check with your colleagues or email <u>tess@wfp.org</u> for the password).

Writing the radio

Write is used to send a configuration or codeplug to the radio when the serial number in the codeplug or archive is the same as in the radio you are programming. For example, you read the codeplug from the radio, edit it, and write back to the same radio.

🗰 мо	TOTRBO	O Custo	mer Progr	amming Sc	oftware								
File	Edit	View	Device	Features	Remote	Window	Help						
RM	Open	Save	Reports	Delete	K Dopy	Paste	Q Search	Read	▶ Write	Clone	Bluetooth	192.168.11.1	•

You will then see the following message:



-	Connec	ted Devices		Interfactor and	×
	Model	Number	Serial Number	IP Address	
	H56JD	N9KA1AN	871TNR0070	192.168.10.1	
	` {}`	Hold SHIFT or CTF multiple devices to	L key to select clone.	<u>o</u> k <u>c</u>	ancel

If the serial numbers on the codeplug and the radio do not match, you will see the following error message because the codeplug you are trying to use was not read from this radio. In such cases, you need to perform a "clone" operation.

СР	s	Transmissioner Personnen	×
	8	Error #1638 Unable to write. Serial Number in archive and device must be same. Try clone device if applicable.	
		QK	

Cloning the radio

Clone is used to send a configuration or codeplug to the radio when the serial number in the archive is different from the radio you are programming. For example, you have read a codeplug from one radio, you then edit the callsign and SelectV ID, and you now want to send this configuration to another radio.

When using the standard codeplug for your area, you use the clone feature to programme a new radio.



If the codeplug version of your radio does not match the codeplug version for the archive you are writing, you will see the following error message. Note that this is not a problem. You can still proceed with writing the configuration to the radio.





Updating the Call Sign and SelV ID in radios.

Open the UN standard codeplug that matches your radio model (check with your colleagues or email tess@wfp.org to request a copy of the standard codeplug). Each time you need to program a new radio you will need to assign a new callsign with a matching SelectV ID. Recorded the ID in a central database so that there is no duplication as per your current SelectV analogue radio standard.

• Open the standard codeplug.

MOTOTRBO Customer Programming Softwa	re - [DP 2400e DF 8.ctb]	– 0 ×
He Edit View Device Features	Remote Window Help	- & ×
Image: Constraint of the second se	Copy Paste Search Read Write Clone Bluetooth 192.168.11.1	
□- DP2400e ^	General Settings	
General Settings		
Accessories	Top CWID Audio Profile Microphone Battery Saver Alerts Over-the-Air Programming Persistent LRRP Requests	Lone Worker Password and Lock 5 Tone Radio ID
Text Messages	Radio Name UAE DF 8	^
Security	1. General Settings	
Network		
Announcement	Private Calls 🔽	2. Insert Radio Call sign
(1) User Defined 5 Tone	Site Search Timer (sec) 15	
🚍 🚖 5 Tone	ARS Initialization Delay (min)	
	TV Draamble Duration (ms)	
The Syst	TX Inhibit Quick Key Override	
1 Sys1	Monitor Type Open Squeich 🔻	
🖃 🗠 🔁 Digital Emergency		
Encoder	Min Speaker Volume Level (dB) Muted	
Sequences	Unlink Monitor	
(1) Add Ack		~
(3) Called		~
(4) Emergency		
(5) LW Emergenc		
(6) Telephone		
Decoder		
🚊 🔁 Definitions		
(1) Called In Y		\sim
General Settings		Expert View C ΔP
		Und Und

Click General Settings > Radio Name to insert the allocated callsign.

Scroll to the bottom of the General Tab and edit the 5 Tone Radio ID.



M Open Save Reports Delete Cut	Ba tea Copy Paste Search Read Write Clone Blueboth 192.168.11.1 ▼	
DP2400e ^	General Settings	
Accessories Accessories Buttons Text Messages Accessories Accessories	Ioo CWID Audio-Profile Microphone Batter/Saver Alerts Over-fie-Ar: Programming Persistent LRRP Requests Lor Response Timer (min) 10 군 Reminder Timer (sec) 10 군 Smart PTT Periodic Time (sec) 30 군 Carrier Gone Timer (sec) 0 군 Patssword and Lock Enable	e Worker Password and Lock 5 Tone Radio IC
C upik-Call II □ □ □ Quik-Call II □ □ □ □ Digital Emergency □ □ □ Encoder Encoder Encoder	Password 1111 5 Tone Radio ID U1 U2 U3 U4 U5 U6 U7 U8	Insert Radio ID
Decoder		

		51	one	Rad	dio II	D		
U1	U2	U3	U4	U5	U6	U7	U8	
1	0	9	0	6	9	0	1	

You have now edited all necessary fields to use the radio in SelV analogue mode.

If the serial number of the codeplug matches with the radio, write to your radio, else clone the radio.

Adding channels to the UN standard codeplugs.

Update the Channel details.

Open the standard codeplug, and then select **Channels** > **Analogue Network** > **Add** > **5-Tone Channel**



General Settings					Zanat						
V Accessories					Zonen						
Buttons				Drag ch	annels to desired po	sition					
🖂 Text Messages			Set Voice Fil	Set voice Files Clear voice Files							
Security Security Security Network Owner	Position	Channel Name	Voice Announcement File	Channel Bandwidth (kHz)	Dual Capacity Direct Mode	Timing Leader Preference	Scan List	Scan/Roam List			
Signaling Systems	1 1	CH 1 SX	None	12.5	Г	N/A	None	N/A			
Channels Channels Channels Channels Channels Channel Cut Ctri- Cut	Analog Digital C G Tone v el 2	I Channel Shift+F Channel Shift+F 9 Channel Shift+F	s 6 4 add 5	tone channe	el from the	e channel tre	20				
Sort	•										

- o Choose Channel bandwidth (12.5 kHz is the standard)
- Update the **TX and RX Frequencies**, **Squelch Type** and **TPL Frequency** as per the current analogue standards.



Do not copy/paste the channels from one codeplug into another. Edit the below details individually when adding frequencies. The reason for this is that there can easily be mistakes when copy/pasting settings.



• Choose **TPL** as **Squelch Type**



- o Choose TPL code 4A, 141.3 Hz (UN standard)
- Choose Admit Criteria should be set as Always.

I MOTOTRBO Customer Programming Sol	ftware - [DP 2400e DF 8.ctb]	– 0 ×
File Edit View Device Featur	es Remote Window Heip & Ban Ra Q President President (192.168.11.1 - Copy Pasts Search Read Write Clone Buetooth (192.168.11.1 -	_ @ ×
DP2400e	CH 1 SX	
Ceneral serrings Ceneral serrings Ceneral serrings Ceneral serrings Ceneral serrings Ceneral serrings Ceneral	Iop RX IX 5. Tone Decode Squeth Type TPL 0.00000 Squeth Type TPL TPL DPL Code (Octal) DPL Invert TPL Frequency (Hz) DPL Invert TPL Frequency (Hz) TPL Code DPL Invert TDC Code DPL Invert TDC Code DPL Invert TDC Invert TDC Invert TDC	mit Criteria should et to Always.
Help View	ARTS Interval (sec) 25 V	CAP

• Change **Encoder Hold Time** to 0:

MOTOTRBO Customer Programming Software - [Ad	min DM 2600.ctb]			- c
📅 File Edit View Device Features Remo	te Window Help			
RM Open Save Reports Delete Cut Copy	Paste Search Read Write Clone Bluetooth	UN Comn	non 1	
		<u>Top RX TX 5 Tone Env</u>	code <u>5 Tone Decode</u> Repeater Access and Radio ID Telegram Radio ID Telegram Tel1	<u>-</u>
□ · · · · · · · · · · · · · · · · · · ·			Admit Criteria Not Applied in Auto	_

• Choose Tel3 as Call 1 in the 5-Tone Encode settings:



	RBO	Customer Programming Softwar	re - [Ad	min PT	TID DP4801	e.ctb]											
File	Ed	it View Device Features	Remo	te Wi	ndow He	lp											
RM O	pen	Save Reports Delete Cut	Сору	Paste	Q Search	Read Wr	te Clone	Bluetooth	192.168.11.1	•							
	0	ea MDC 	^										Channel1				
	0	Quik-Call II		_						Top	<u>RX</u>	<u>TX</u>	5 Tone Encode	5 Tone Decode	d Time (ms)	lun A	1
	0	🧰 Digital 												Admit Criteria Not Ap	plied in Auto	□ □	3
	0	Capacity Plus												-	Reset Mode		
Ĺ	-	Phone Phone										51	one Encode	2			
_	-	Digital											Call 1 Tel3		•		
	-	Capacity Plus											Call 2 None		•		
	-	Flexible RX List											Call 3 None		•		
<u> </u>		Channels															
	P -	Analogue Network											Call b None		•		
		IIN Common 2											Call 6 None		•		

• Add the **SelV** functions to the **Decode Telegrams**:



Write alt. Clone radio.





Motorola CPS 2.0

Reading the radio

Click on the **Read** icon once the radio has been connected to the computer and the IP address has been assigned to the radio.

Enter the password to open the radio codeplug.



Writing the radio

Write is used to send a configuration or codeplug to the radio when the serial number in the codeplug or archive is the same as in the radio you are programming. For example, you read the codeplug from the radio, edit it, and write back to the same radio.

Admin PTT ID DP4801e.ctb2 - MOTOTRBO CPS 2.0			
File Device Licenses Tools Help			
Open Save Read Write Clo	La =a a table me Clone Express Update	★ ★ E Register Activate	
Admin PTT ID DP4801e			
Set Categories P		Feature Sets	
Configuration			
Device Information			
General	Feature Name	Status	
Job Tickets	Digital	Free & Used	
Systems	- Indoor Location Trac	cing Available for Purchase	
Encoder	- Bluetooth Permanen	Discoverable Available for Purchase	
Decoder	- Multi Button PTT	Available for Purchase	

Cloning the radio

Clone is used to send a configuration or codeplug to the radio when the serial number in the archive is different from the radio you are programming. For example, you have read a codeplug from one radio, you then edit the callsign and SelectV ID, and you now want to send this configuration to another radio.

When using the standard codeplug for your area, you use the clone feature to programme a new radio.



If the codeplug version of your radio does not match the codeplug version for the archive you are writing, you will see an error message. Note that this is not a problem. You can still proceed with writing the configuration to the radio.



Updating the Callsign and SelV ID in radios.

Open the UN standard codeplug that matches your radio model. Each time you need to program a new radio you will need to assign a new callsign with a matching SelectV ID. Record the ID in a central database so that there is no duplication as per your current SelectV analogue radio standard.

• Open the standard codeplug.

Click General > General Settings > Radio Alias to insert the allocated callsign.



• Scroll to the bottom of the General Settings and edit the **5-Tone Radio ID**.



Admin PTT ID DP4801e.ctb2 - MOTOTRBO CPS 2.0						-	o ×
File Device Licenses Tools Help Device Licenses Tools Help Device Licenses Tools Help H를 보고 가을 보고 가을 보고 다음	ĺ.						
Admin PTT ID DP4801e 🔸 General Settings							×
Set Categories General CWID Audio Profile Microphone Backli	ght Battery Saver	Alerts	Persistent LRRP Requests	Lone Worker	Power Up	Password ar	nd Lock
Configuration Front Programming Password Delete All 5 Tone ID							
Device Information							
▼ 🗇 General							^
Welcome Bitmap	Test Massace						
Language Packs	lek Tielete						
🗋 General Settings 🔅	Call Log	H					
C Accessories	User Contacts						
Control Buttons	oser contacts						
Text Messages S Tone ID	/	~					
Telemetry	U1	7					
Menu		-	1				
Security	02	0					
Network	U3	2					
Voice Announcement	U4	0					
Ci lob Tickets		-					
> D Systems	05	D					
Encoder	U6	9					
Decoder	U7	0	1				
Contacts	110	0	1				
RY Group Liete	00	0					
Validation Results Warning Messages Search Results Help	_	-	_	_	c.	arial Number	071TTM7716
	and the second second				31	12-7	7
H \mathcal{P} Type here to search				^	🗐 🌈 🕼	SWE 26/05/	2020 3

You have now edited all necessary fields to use the radio in SelV analogue mode.

If the serial number of the codeplug matches with the radio, write to your radio, else clone the radio.

Adding channels to the UN standard codeplugs.

Update the Channel details.

 Open the standard codeplug, and then select Zone/Channel Assignment → Zone → Analogue Network → Add

e Device Licenses Iools Help								
Dpen Bave P m P m H	Image: angle of the second	☆ Register A	★ 🖬 ictivate					
t Categories 🛛								
Configuration			Zo	one Name	Analogue Netw	vork		
Device Information			Voice Announce	ement File	None			
General	Tono Long							
- Flux rate	Zone tems							
Job Lickets								
Job Tickets Systems	e 🕀 🗇 💬	A V						
Job Tickets Systems Encoder	Add		Channel Name	Voice Appor	uncament Eile	Channel Pandwidth (klir)	Scan/Roam Liet	Auto Scar
Job lickets Systems Encoder Decoder	Add	Channel Type	Channel Name	Voice Annou	uncement File	Channel Bandwidth (kHz)	Scan/Roam List	Auto Scar
Job Tickets Systems Decoder Decoder Contacts Contacts		Channel Type	Channel Name UN Common 1	Voice Annou None	uncement File	Channel Bandwidth (kHz) 12.5	Scan/Roam List None	Auto Scan
 Job Tickets Job Tickets Encoder Decoder Contacts Contacts RX Group Lists Conc/Channel Assignment 		Channel Type 5 Tone 5 Tone	Channel Name UN Common 1 UN Common 2	Voice Annou None None	uncement File	Channel Bandwidth (kHz) 12.5 12.5	Scan/Roam List None None	Auto Scar
 job lickets Systems Encoder Decoder Contacts RX Group Lists Zone/Channel Assignment Q Zone 		Channel Type 1 5 Tone 2 5 Tone 3 5 Tone	Channel Name UN Common 1 UN Common 2 UN SX	Voice Annou None None None	uncement File	Channel Bandwidth (kHz) 12.5 12.5 12.5	Scan/Roam List None None	Auto Scar A
 Job Tickets Systems Encoder Decoder Contacts RX Group Lists Zone/Channel Assignment ✓ Zone Malague Network 		Channel Type Channel Type Solution Channel Type Solution Solution Solution Channel Type Solution Solution Channel Type Solution S	Channel Name UN Common 1 UN Common 2 UN SX UN_Not active	Voice Annou None None None None	uncement File	Channel Bandwidth (kHz) 12.5 12.5 12.5 12.5	Scan/Roam List None None None	Auto Scar A A A A
 job Tickets Systems Encoder Decoder Contacts RX Group Lists Zone/Channel Assignment Cone Channel Pool 		Channel Type 1 5 Tone 2 5 Tone 3 5 Tone 4 5 Tone	Channel Name UN Common 1 UN Common 2 UN SX UN_Not active	Voice Annou None None None None	uncement File	Channel Bandwidth (kHz) 12.5 12.5 12.5 12.5	Scan/Roam List None None None	Auto Scar A A A

• Choose Set Type **5-Tone**



Admin PTT ID DP4801e.ctb2 - MOTOTRBO CPS 2.0							Ø
File Device Licenses Tools Help Image: Copen Save Image: Copen Image: Copen Image: Copen Admin PTT ID DP4801e > Zone > Analogue Network	료법 구료법 ↑료 ☆ Jone Clone Express Update Regis	र ★⊟ Activate					
Set Categories 5 ▼ □ Configuration ■ □ Ceneral ▶ □ Job Tickets ▶ □ Systems ▶ □ Encoder	Zone Items	Zone Name Voice Announcement File	Analogue Networ	k			
Decoder	Time	Analog	uncement File	Channel Bandwidth (kHz)	Scan/Roam List	Auto Sca	1
Contacts	iype	Analog	1.	2.5	None	1	N
RX Group Lists	35.0	Digital	1.	2.5	None	1	N
 Zone/Channel Assignment 	- 35 0	Capacity Dive 2	1	2.5	None	1	Ν
Cone Analogue Network Channel Pool	4 5 Tone	Capacity Plus Personality (Linked) 5 Tone		2.5	None		•
Capacity Plus Lists	4 items found (0 currently selected	ed).					



Do not copy/paste the channels from one codeplug into another. Edit the below details individually when adding frequencies. The reason for this is that there can easily be mistakes when copy/pasting settings.

o Double click the **newly created channel**

Admin PTT ID DP4801e.ctb2 - MOTOTRBO CPS 2.0							-
File Device Licenses Tools Help Open Bave Read Write Clone Admin PTT ID DP4801e Zone Analogue Network*	-=च च Clone Express Update	☆ Register	★ ⊟ Activate				
Set Categories 4 © Configuration* <u>i</u> Device Information > © General > > Job Tickets > > Systems 	Zone Items 💉 💮 💬 😳	▲ ▼	Z Voice Announc	one Name Analogue Network	vork		
Encoder	Position	Channel Type	Channel Name	Voice Announcement File	Channel Bandwidth (kHz)	Scan/Roam List	Auto Scan
Contacts	229	1 5 Tone	UN Common 1	None	12.5	None	٨
RX Group Lists	220	2 5 Tone	UN Common 2	None	12.5	None	٨
 Zone/Channel Assignment 		3 5 Tone	UN SX	None	12.5	None	٨
V DZone	15.0	A . 5.T.	UN_INDU ACTIVE	None	12.3	None	٨
Analogue Network	5 items found (1 curre	5 5 Tone	Channel5	None	12.5	None	>,



o Add Channel name and Channel Bandwidth (12.5 kHz is the standard)

Admin PTT ID DP4801e.ctb2 - MOTOTRBO CPS 2.0	-	- 0
File Device Licenses Tools Help	Image: Second secon	
Set Categories 4	General RX/TX 5 Tone Encode 5 Tone Decode	
General Job Tickets Gystems Encoder Decoder	Channel Type 5 Tone Channel Name Channel5 Voice Announcement File None Channel Bandwidth (KHz) 12.5	-
Contacts Contacts Arx Group Lists D Zone/Channel Assignment D Zone analogue Network Φ Channel Deal	Scan/Roam List None Auto Scan No Squelch Normal Voice Emphasis De & Pre	

• Update the **TX and RX Frequencies**

Admin PTT ID DP4801e.ctb2 - MOTOTRBO CPS 2.0		- 0
File Device Licenses Tools Help Open Save Image: Constraint of the state of t	Image: Bar and a set of the set of th	
Set Categories 4	General RX/TX 5 Tone Encode 5 Tone Decode	
Device Information General	Signaling Pre-emphasis/De-emphasis	
Job Lickets Systems Encoder	RX TX	
	Frequency (MHz) 136.025000 Frequency (MHz) 136.025000 Squelch Type TPL Offset (MHz) Squelch Type TPL DPL Code (Octal) 0.23 Dx00000 DPL Code (Octal) 0.23	
▼ D Zone analogue Network \$	DPL Invert No TPL Frequency (Hz) 141.3 TPL Frequency (Hz) 141.3	

- Choose PL as Squelch Type
- Choose TPL code 4A, 141,3 Hz (UN standard)
- Choose Admit Criteria should be set as Always.





• Change **Encoder Hold Time** to 0:

Admin PTT DM4601e.ctb - MOTOTRBO CPS 2.0	- 1	٥
File Device Licenses Tools Help Image: Open Save Image: Open Image:		
Set Categories General RX/TX 5 Tone Encode 5 Tone Decode		
▼ ○ Configuration ARTS Interval (sec) 25 ● Device Information PTT Keyup Mode Disabled ▶ □ General PTT Keyup Encode Tel1 > □ Job Tickets PTT Deky Encode Tel2 > □ Decoder Repeater Access and Radio ID Tel1 > □ Decoder Repeater Access and Radio ID Tel1 > □ Contacts Radio ID Telegram Tel1 > □ Zone/Channel Assignment Encoder Hold Time (ms) 0 • □ Zone Admit Criteria Not Applied in Auto 0		•

• Choose Tel3 as Call 1 in the 5-Tone Encode settings:

Admin PTT ID DP4801e.ctb2 - MOTOTRBO CPS 2.0		-	٥
File Device Licenses Tools Help	= Clone Express Update Register Activate		
Set Categories 4 Configuration* Device Information General Job Tickets Systems Encoder Decoder Contacts RX Group Lists The rest of the rest of	General RX/TX 5 Tone Encode 5 Tone Decode Encoder Hold Time (ms) 140 Admit Criteria Not Applied in Auto Reset Mode Call 1 Tel3 Call 2 Tone Call 3 None		

• Add the **SelV** functions to the **Decode Telegrams**:

e Device Licenses Tools Help	료	☆ ★ Begister Activate		
min PTT ID DP4801e 🕨 Zone 🕨 Analogue Network 🕨 Z tt Categories	one Items 🕨 Channel5*	General RX/TX 5	Tone Encode 5 Tone Decode	
	Available		(1) Called In (2) Stun (3) Unstan (4) Silant Int	
Decoder Contacts RX Group Lists Zone/Channel Assignment Q Tare		_	(f) John Ming Emgcy (f) Emgcy Exit (7) Ack1 (9) PTT-ID	
Channel Pool		R	emove	

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• Write alt. Clone radio.





Annex A – Troubleshooting

Trouble Reading / Writing / Cloning a radio

When connected to a radio via the USB cable, ensure that a network connection is properly created to the radio, and you have been assigned an IP address.

If you are unable to connect the radio to the CPS via USB cable, follow the procedure given below:

- o Disable firewall.
- Change the firewall settings to let the Mototrbo CPS through.
- Disconnect from all other networks/internet.
- Turn the radio OFF and then back ON.
- Try another USB port.
- o Check that you are using the correct USB cable, double check the part number with the list.

If you still cannot connect to the radio to the CPS via the USB cable, try connecting via the Bluetooth.

Code Plug Versions in Archive and Device Do Not Match

If the codeplug version in the radio does not match with the standard codeplug, you will see the following error message. It is safe to ignore this message and proceed with writing/cloning your codeplug to the device.





Annex B – Connecting to the radio via Bluetooth

Depending on your computer the process of connecting the radio will be slightly different.

o On DP4801 or DM4601, press the **OK** Button to open the Main Menu.

Select **Bluetooth** > **My Status**.

Change the Bluetooth status to **On**.

A Bluetooth symbol appears on the main screen.



Press the **OK** Button on the Main Menu.

Select **Bluetooth > My Name.**

The default name is Motorola, you can leave the name as it is, or change it to include your name or call sign, for example, Motorola – JF9.8.1.

Y

Press the **OK** Button again, and then select **Bluetooth** → **Find Me** to enable the Bluetooth and to make the radio discoverable.

To connect the radio to your computer, search for the Bluetooth Devices, and select the radio name assigned in Step 0.

Click **Next** to add the radio to the computer.

🕞 🧗 Add a d	evice	and and		-		
Select a o	device to add to this cou ill continue to look for new de	mputer vices and display ti	hem here.			
	LG-A290 Bluetooth Phone Motorola Jf981 Bluetooth Phone	الله الم	itel it2050 Bluetooth Phone			
What if Wir	idows doesn't find my device?					
				Next	Cancel	

On the radio and the computer, select **Accept** to pair the radio's Bluetooth with the computer's Bluetooth.

Upon accepting the connection requests on the radio and computer, the computer installs device drivers. Once the Bluetooth enabled radio has been added to the computer, you need to connect to the radio.

On the computer, navigate to **Devices and printers.**



🕫 Devices and F	Printers						
$\leftrightarrow \rightarrow \cdot \cdot \uparrow$	Control Panel >	Hardware and So	und > Devices and P	rinters >		ٽ ~	, Search D
Add a device	Add a printer						
∨ Devices (5)							
				\checkmark			
DF 8	FOXTROT 8.3	Motorola	WFPAEDUBORCB S88	Wireless Receiver			
∨ Printers (7)							
Ŕ							
Fax	FITTEST B&W	FITTEST Color	Hewlett-Packard	Microsoft Print	Microsoft XPS	OneNote for	

Right click on the added Bluetooth device and choose **Connect using access point.**

💼 Devices and	Printers						
$\leftarrow \rightarrow \cdot 1$	🔨 🛱 > Control Panel >	Hardware and So	und > Devices and P	rinters		ٽ ~	Q
Add a device	Add a printer Co	nnect using 🔻	Remove device				
∨ Devices (5)							
_	Connect using	> Access p	point				
	Create shortcut						
	Remove device			~			
D	Troubleshoot	Motorola	S88	Wireless Receiver			
✓ Printer	Properties						
5							
Fax	FITTEST B&W	FITTEST Color	Hewlett-Packard	Microsoft Print	Microsoft XPS	OneNote for	

Once the radio is connected to the computer, the radio displays the Bluetooth symbol with a dot next to it, as illustrated below:



Open the CPS and click on the **Bluetooth** symbol on the top of the screen.

The standard IP address of the radio in Bluetooth mode is **192.168.11.1**. Do not change the IP address. The computer is now connected via Bluetooth to the radio and can read, write and clone in the same way as you would with a USB cable.





Annex C – Quick programming instructions

If you want quickly to program a radio with just changing the SelV ID read the "**Programming Manual Quick manual changing callsign and SelV Motorola**" document or do the following:

1- Open the CPS 16 or CPS 2.0 depends on the firmware of your radio equipment.

2- Open the standard code-plug for the intended radio and choose between User or Network Admin depends on the useage in the SOC or in the field.

3- Change the radio call sign and radio ID from:

- A- General setting \ Radio name
- B- General setting \ 5-tone radio ID
- 4- Go to channels and change the following:
 - A- Channel name to appropriate name based on standard channel plan in the country
 - B- Channel frequency of Tx/Rx as per the frequency plan licensed in the country
 - C- TPL to approriate one as per the frequency plan licensed in the country
- 5- Clone the radio

