# Experience use of BlueDV for Windows with ThumbDV
（Version1.0.0.9522）

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## Introduction

　Unlike DVmega and DV4mini, ThumbDV is a USB stick (below photo) that can use the reflector of the D-Star system with only a personal computer without using a digital transceiver. Recently, BlueDV for Windows Beta version 1.0.0.9522 for ThumbDV was uploaded to http://software.pa7lim.nl/BlueDV/BETA/Windows/ (PA7LIM, software creator David's Web).　Initially it was said to be BlueSpot and operated on its board and a set of DVmega with a cellphone. The name changed to BlueDV and a set of board and DVmega getting could be used on Windows PC. The version I experienced here is the best software for beginners' D-Star entrance experiences that can only be used with ThumbDV. It also supports DMR and Fusion. DVmega DVstick 30 is 100% compatible with ThumbDV.
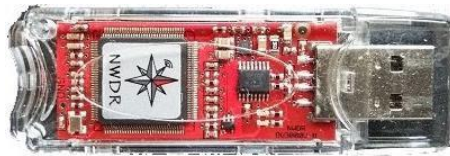


## Premise for use

・The software (Lhasa etc.) that decompresses the downloaded zip format compression software should be installed in advance on the Windows PC.
・My personal computer OS is a notebook type (64bit), a tablet type (32bit?) and Disktop type (32bit) is all Windows10. However, somehow the disc top type may not be usable because the received sound is interrupted in pieces. Be aware, the software may not work depending on the personality of personal computer and LAN environment.
・You have to have already acquired the 7 digit ID of CCS7. (For the method of obtaining, see APPENDIX at the end of the book)
・A radio is unnecessary but a microphone (about 1,000 yen) and a speaker has to be prepared for personal computers.
・Be aware that it is a beta version so changing versions.
　　The latest version is 1.0.0.9541.

## 1．Download and install software

　Open http://software.pa7lim.nl/BlueDV/BETA/Windows/ →
Click on BlueDV-09522-BETA.zip① with the opened page → Click "Save"② displayed at the　bottom of the page →Download completed③.　The download destination is Windows10 default folder "Download"④.
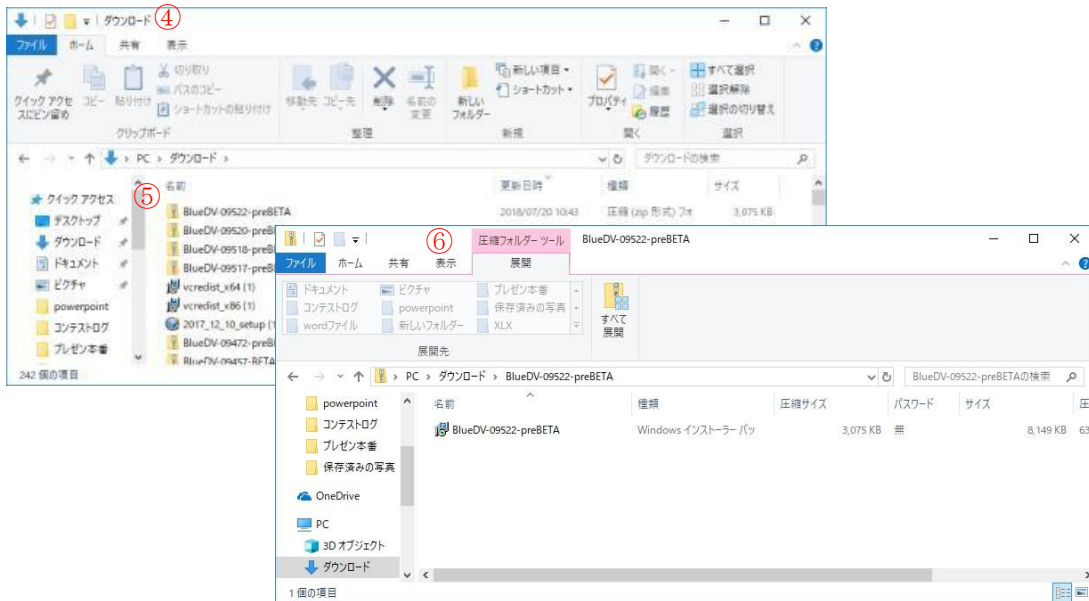
Unzip the BlueDV-09522-BETA.zip⑤ of the folder "Download"④ with the decompression software of Lhasa etc to generate the file BlueDV-09522-BETA (Windows Installer Package)⑥.



In my case, the file⑥ was created in the folder BlueDV-09522-BETA on the desktop, so clicking on that file displayed the following screen.
Click "Detailed information", then open the screen on the right and I click the "Execute" button.



Then "User Account Control"⑦ pops up and installation starts with clicking "Yes"⑧.
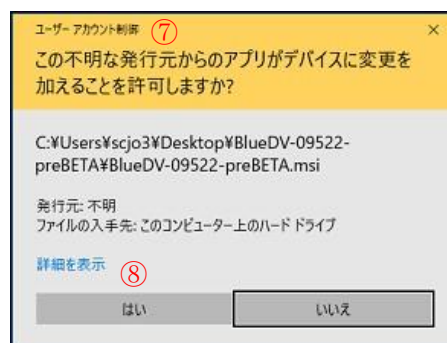


Next "Welcome to the BlueDV Windows setup Wizard"⑨ → "Select installation Folder"⑩ "Confirm installation" ⑪ → As the process progresses, the screen pops up. After clicking

"Next" on each screen, a progress bar is displayed in "Installing BlueDV Windows"⑫ → "Installation Complete"⑬ pops up → Click "Close"⑭ button → Icon⑮ is created on the desktop and installation is completed.
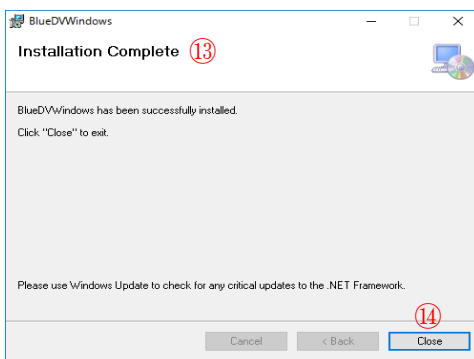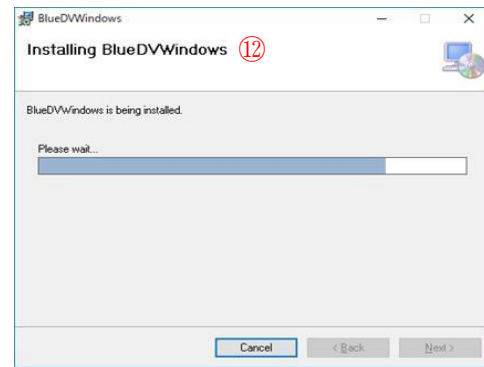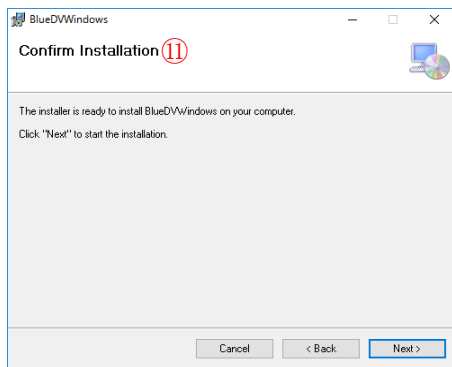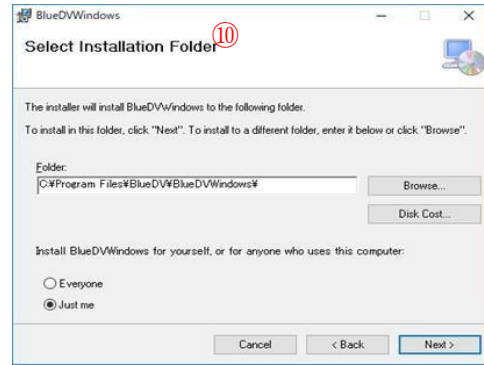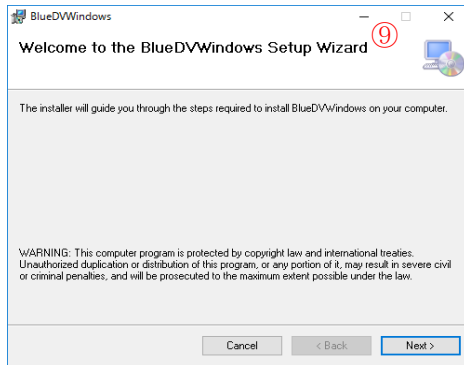


## 2. Confirm software installation destination

There is a folder BlueDV① in the Program Files of the C drive, and furthermore a folder BlueDVWindows② is generated. BlueDVWindows executable file BlueDV.exe③ is in it. BMhosts.txt④ is a list of Brandmeister. Dmrid.csv⑤ is a 7 digit ID list of CCS 7 and JA is allocated from 4400000.
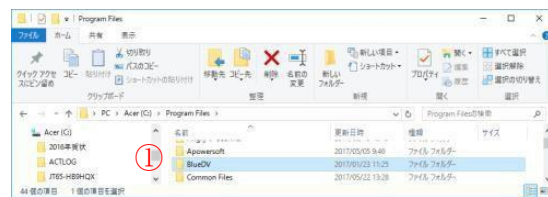
Since the most important file Update DSTAR hosts can not be found, you can not add and change the reflector yourself.
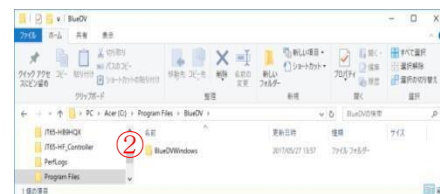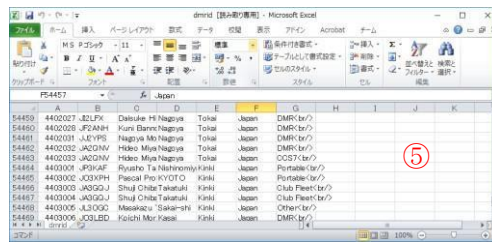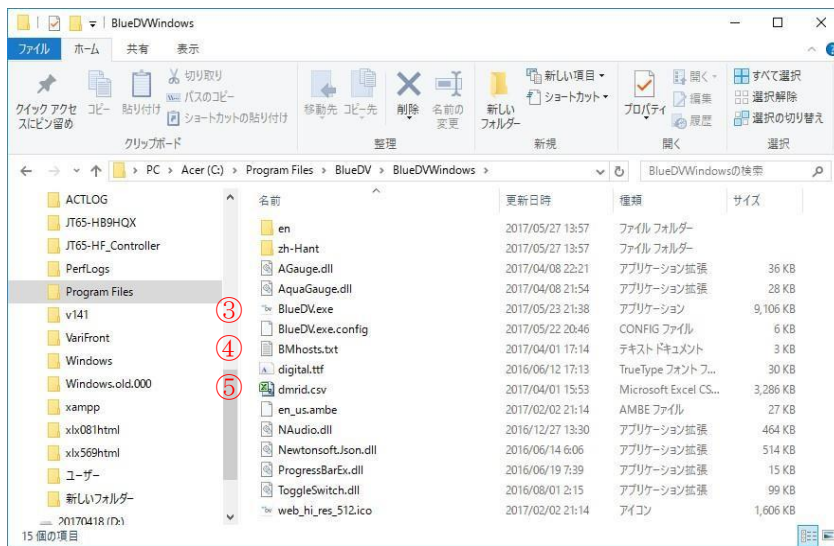
## 3. Confirm COM port

Check whether COM port recognizes ThumbDV by opening Device Manager (see "How to open" APPENDIX at the end of this page). In this example, COM3 is the port that recognized ThumbDV.
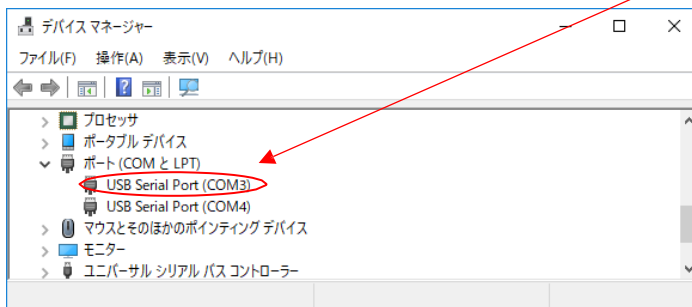


## 4. Start up software

Confirm that the COM port recognizes ThumbDV and click on the desktop icon then the control panel BlueDV for Windows (below figure) pops up.　Make sure Firmware "AMBE 3000 R" is displayed on the screen.



When ThumbDV is not recognized,　"Not detected" is displayed there.

## 5. Setting before use

Click the "SERIAL" button on the control panel BlueDV for Windows → Blue color turns White → Firmware display is hidden (*) → Select the "Menu" tag → Click "Setup"① → Open the setting screen②.
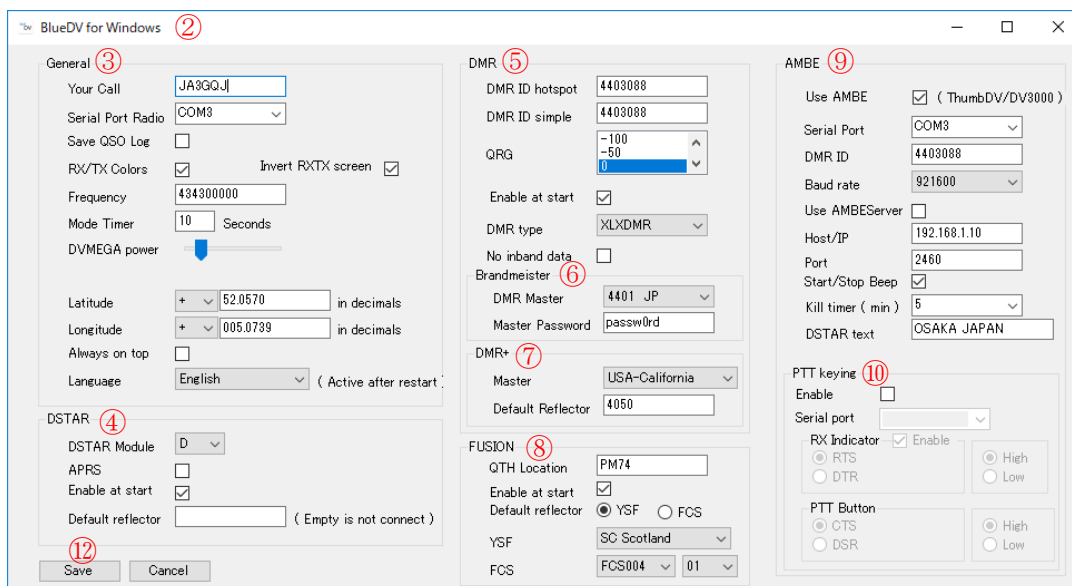




## 5.1 Setting items

A) General③flame

・Your Call: Input your call sign

・Serial Port Radio : It differs depending on personal computer for automatic recognition, but in this example it is COM3.

・Save QSO Log : It may be the default.

・RX/ TX Color : When you put a check mark, the color of the screen changes when sending and receiving.

・Invert RX/TX screen : With the check mark, the color of the screen is red on transmitting, green on receiving and vice versa when there is no check mark.

・Frequency : Since DVmega is not used, it can be the default number.

・Mode Time : Default OK. However, since it depends on a personal computer, adjustment may be necessary afterwards ...

・DVMEGA power : If DVMEGA is not used, the set value can be the default.

・Latitude,Longitude : Enter latitude and longitude of your QTH, (+) is probably north latitude and east longitude, (-) is south latitude and west longitude.

・Always on top：To show the control panel always at the top of the screen, put a check mark.

・Language：Since domestic transceivers are all displayed in English, it is recommended to choose English here as well.

B)　DStar④flame
・DSTAR Module：Default D
・Enable at start：Put a check mark.
・APRS ：Default
・Default reflector：Leave the default and not connect anywhere at startup.

C)　DMR ⑤flame
・DMR ID hotspot：Enter the 7 digit ID of CCS 7 obtained by referring to the APPENDIX at the end of the book.
・DMR ID simple：Enter the same value as DMR ID hotspot.
・QRG：Default
・Enable at start：Tick a check mark
・DMR type：Three types of BM, DMRPLUS, XLXDMR can be selected in the pull-down menu. I select and set BM here.
・No inband data：Default

D)　Brandmeister ⑥ flame
・DMR Master ：Select TG (talk group) from the pull-down menu.　I select and set 3108 US here.
・Master Password ：It is set to the default passw0rd. I can now　use Brandmeister DMR. There is a list called TG (talk group) equivalent to a module such as XLX reflector in the pull-down menu.

E)　DMR+⑦flame
　Select desired talk group in Master's pull-down menu. The right (A) is the contents (list) of Brandmeister 's pull-down menu and (B) is the contents (list) of DMR + pull-down menu.

(A)　　　　(B)

F)　FUSION ⑧flame
　Since I do not use, the setting remains the default.

G)　AMBE ⑨flame （This is important）
・Use AMBE：Be sure to add a check mark in order to recognize ThumbDV.
・Serial port ：Enter the same number as the Serial Port Radio of the General③ frame (here, COM 3).
・DMR ID：Enter the 7 digit ID of CCS 7 obtained by referring to the APPENDIX at the end of the book.
・Baud rate：Select and set the baud rate 460800 or 921600 from the pull-down menu.
・Use AMBE serve：Leave as default
・Hosts/IP, Port ：Leave as default
・Start/Stop Beep：With the check mark and sound a beep when successfully received. If

you become accustomed to the operation and become harsh, remove the check mark.
・Kill timer(min) : You can set a transmission time of up to 5 minutes.
・DSTAR text : Set the characters displayed on the partner side.
This completes the setting. Click "Save"⑫ (figure on page 5) to close the screen.
Since I don't use radio, the PTT keying⑩ frame under the AMBE frame is default state.
Although the sound card is automatically selected by default, you can also select the
sound card with the AMBE tag of the control panel BlueDV for Windows in the figure
below. If you can not hear the received sound or the sound has not reached the other
party, It is subject to check.
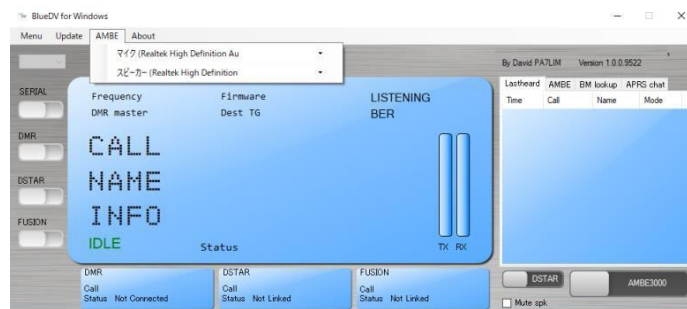


## 5.　Update data

After complete setting, open the Update tag① and update the data of D-Star hosts,
call database, DMR master. Especially DMR master update is essential for experiencing
DMR with XLX reflector.
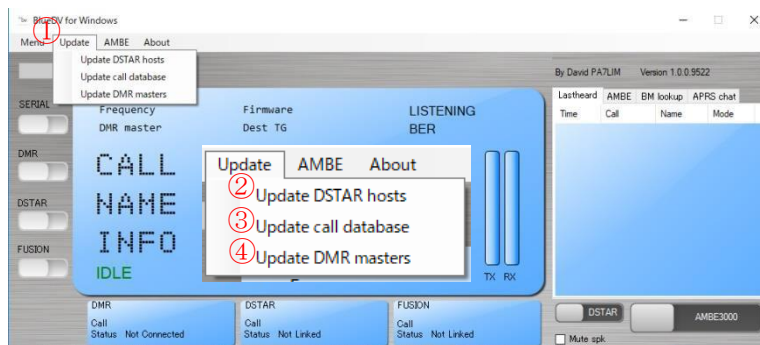


Update of D-Star hosts② Just click "Yes" on the first popup screen and click "OK" on the
next popup window to finish. In addition, because the screen with three "OK" buttons is
displayed overlapping, click the button in order from the top.
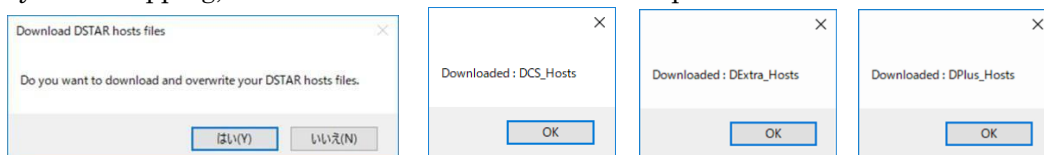


Update of call database③ Just click "Yes" on the first popup screen and click "OK" on
the next popup screen.
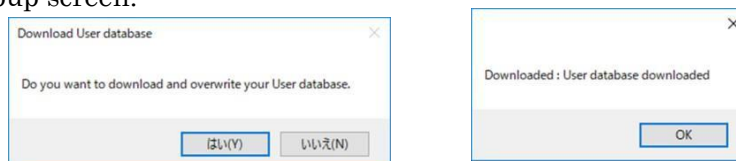


Update of DMR master④ Just click "Yes" on the first popup screen and click "OK" on

the next popup screen.
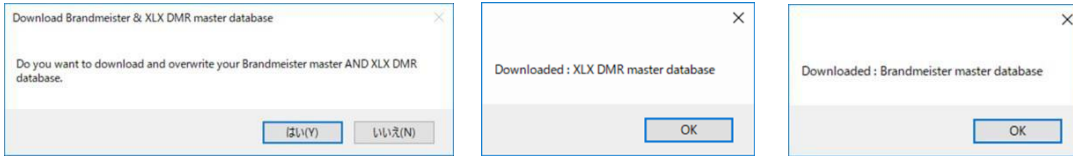


Next, it is necessary to quit the software once with "Exit"⑤ of the control panel BlueDV for Windows.



## 6.　Restart software

　Click on the desktop icon again after setting and updating the data → soft start → control panel BlueDV for Windows① popup. 　On the screen below SERIAL② is ON (the left half is blue) → Operation is normal when AMBE 3000R③ is displayed in Firmware.

When resetting items (especially DMR Type change) after starting use SERIAL② must be set to OFF (the left half is white), the SETUP function of the MENU tag will not work and the setting screen will not open.



Next, click the DMR button④ and DSTAR button⑤ (left half blue) and the following items will be displayed.

・Reflector selection pull-down menu ⑥
・Module selection pull-down menu ⑦
・Link, Unlink button ⑧⑨
・Protocol (REF, DCS, XRF, XLX) selection radio button ⑩
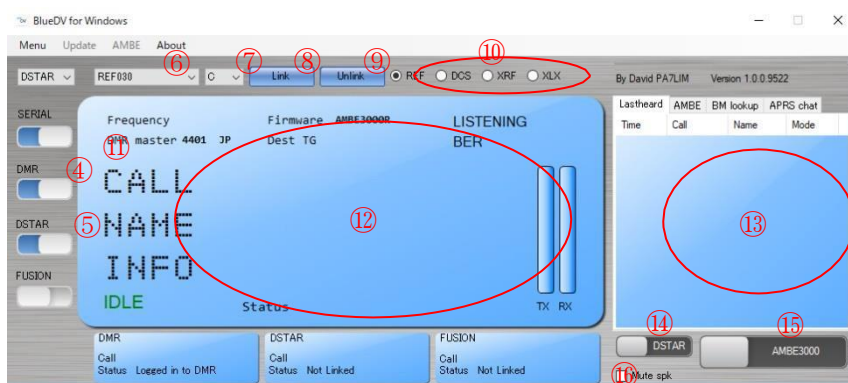
DMR master⑪ shows the data of Brandmeister and DMR + selected in the previous setup. When XLXDMR is selected, nothing is displayed. There are the following 11 items in the status screen⑫ with large letters and small letters together.

<u>Large letters</u>



・CALL : A call sign of the opposite station, a use rig, and the like are displayed.
・NAME : The name of the opposite station is displayed.
・INFO : Information on the opposite station (QTH, DMR ID, etc.) is displayed.

<u>Small letters</u>

・ Frequency : The frequency of DVmega set on page 6 is displayed.
・DMR master : DMR master other than XLXDMR set on page 6 is displayed.
・Dest TG : When BM or DMR + is used, the talk group being used is displayed, and it seems that the DMR ID is displayed when it is used XLXDMR. Dest is Destination.
・IDLE : For D-Star transmission / reception, character "Idl" changes to DSTAR display in red, and character "IDLE" changes to DMR display in red when transmitting / receiving DMR. Both sending and receiving are in standby while character "IDLE" is displayed.
・Firmware : "AMBE 3000 R" is displayed here as ThumbDV product symbol (description). (In the case of DVmega, it is displayed as DVMEGA_NR 3.07 etc.)
・LISTENING : Regardless of D-Star or DMR, the display changes to TX at transmission and RX at reception.
・BER : Short for bit error rate. It seems that it represents the ratio of data bit missing during DMR transmission.
・Status : It means the state. When None is displayed or nothing is displayed, the operation is normal. If ThumbDV is not installed, "Can not open COM port" is displayed here.
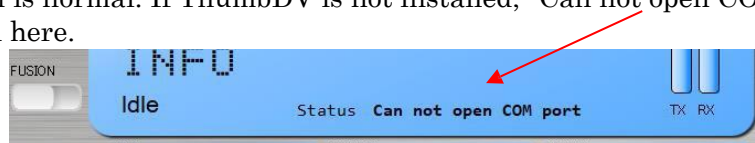


On Page 8, the screen on the screen⑬ on the right of the status screen⑫ changes with the four types of tags (Lastheard, AMBE, BM lookup, APRS chat). In addition, ⑭ at the bottom of the screen⑬ is theDMR and D - Star changeover switch at the time of transmission, and ⑮ is the PTT switch. If you put a check mark in Mute spk ⑯ , the sound of the speaker disappears.

・Space key of PC can be used instead of PTT switch⑮.(Page 8)

Ⓐ<u>Lastheard tag</u> : The communication time, call sign, name, mode (D-Star or DMR) are

displayed on the screen of the Lastheard tag. It seems that the registered name is displayed when acquiring the 7 digit ID of CCS 7. Clicking on the call sign opens QRZ.COM of the corresponding station.
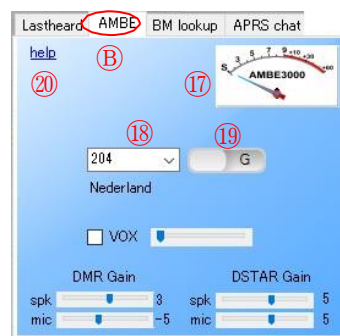
Ⓑ AMBE tag : On next page, There is a level indicator⑰ corresponding to S meter on the screen of this tag. The number 204 in the DMR reflector number entry column⑱ is the TG (talk group) of the DMR of the Netherlands selected by default. On the right side, ⑲ is a button for switching between group (G) and individual (P) (in this example, default G). I have never used VOX. Below that there are speaker (skp) and microphone (mic) gain adjustment bar for the DMR and D-Star. I think that the adjustment is slightly critical in relation to the adjustment function of the PC's sound card. Clicking on this tag's help⑳ opens an English explanation web .

・When BM is selected in the setting Echo test can be done by entering 9990 in the DMR reflector number input field ⑰ and clicking the PTT switch⑮ with the mouse or pressing the space key on the PC. However, in my case, echoes have not returned depending on the TG (talk group) to be selected.

�?BM lookup tag : This screen seems to be a screen for specifying callsign and talk group and searching. Search results are reflected in ⑰ of the AMBE tag.

Ⓓ APRS chat tag : Not confirmed use of this.
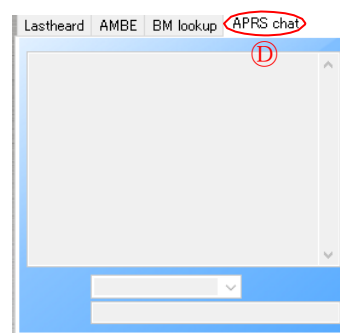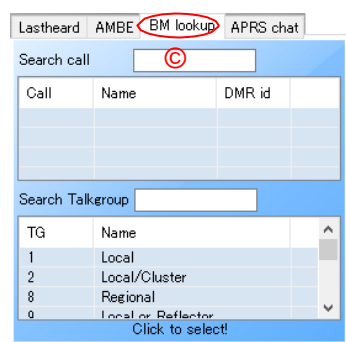
## ８．Reception

Reception is a dual watch of D‐Star and DMR. Switch on page 18 ⑭ can be either "D‐Star" or "DMR". However, switching between the three modes of DMR (BM, DMR +, XLXDMR) requires rebooting of software after setting change in Menu tag → Setup each time.

## 8.1 D-Star

Activate software → turn on SERIAL button and DSTAR button (blue) → confirm that D-Star, DMR selection pull-down menu (*) is DSTAR →Reflector selection pull-down menu⑥ to select a reflector →　Module selection pull-down menu⑦ to select a module →Adjust the speaker volume of the PC → Click the Link button⑧ → (There is an announcement to the effect that a female voice has connected) →Receive standby⑨.
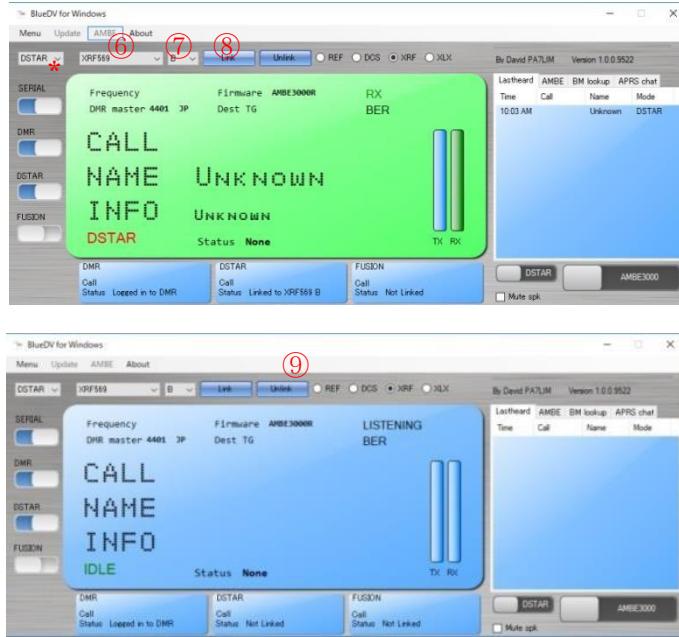




In this example, DMR is set to BM, 4401 JP in Setup, and DMR is automatically connected since it is selected. D-Star has selected XLX reflector (XRF).

In addi ion, the reception screen⑩ when you put check mark on the RX / TX Color and Invert RXTX Screen in the previous setting and the reception screen⑪ when the check mark is not added to RX / TX Color are different.(See below) You can see that the level meter⑯ of the AMBE tag is operating. It seems that "CALL" shows the callsign of the partner station, "NAME" shows the name of the partner station etc when you registered in CCS7, etc. Information of the other station is displayed in "INFO".

The red "DSTAR" character under it was "Idle" when it was in the reception standby state. Furthermore, "Status None" on the right means that the reception status is good and there is no problem.





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## 8.2 BM(Brandmeister) DMR

Select DMR Type as BM in the DMR frame (page 7) of the Setup screen, select DMR Master from the pull down menu (e.g. 3108 US), set it → Restart the software → Set the SERIAL button and the DMR button to ON (blue) → Enter 9990 in the DMR reflector selection field of the AMBE tag → Switch the group (G) and individual (P) switching to "P" → Press the Space key on the PC keyboard to echo test① Confirm that it will return ② (receive) → wait for reception.
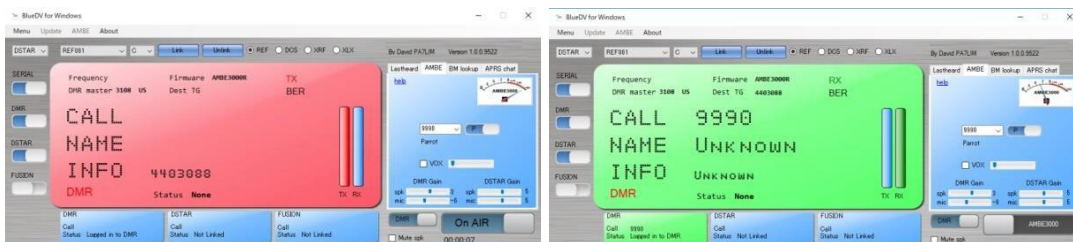


When you actually receive it, information on the other party's call sign etc. will be displayed (beep sound is heard) as follows. In the figure below, the left side is the screen when RX / TX Color is checked in the previous setting、and the right side is the screen when not check marked.



## 8.3 XLXDMR

Select DMR Type to XLXDMR in the DMR frame (6 pages) of Setup screen → Restart software → Turn DMR① and DSTAR② switch on the control panel BlueDV for Windows ON (blue) → Select the DMR with the D-Star, DMR selection pull-down menu③ → Select the XLX reflector with the reflector selection pull-down menu④ (for example, XLX 569) → In DMR reflector number input field⑤, decide one of 4001 to 4026 corresponding to modules A to Z of XLX reflector (input 4002 corresponding to module B, for example) → switch DMR and D-Star switch⑥ to DMR → Car chunk → wait for reception.
By the way, XLXDMR can not echo test.



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Received screen when check mark is on RX / TX Color in the previous setting.



Receive screen when check mark is not on RX / TX Color in the previous setting.



<u>Important</u>：Suppose XLX595 and XLX 569 were interlinked with module B. When you send from XLXDRM module 4002 of XLX 569, unmodulated signal is received by B module of XLX595 of D-Star. At this time, if you answer from B module of D-Star's XLX 595, that voice will be heard at module 4002 of XLX DMR of XLX 569. Therefore, when using XLXDMR it is important to check the interlink destination of the reflector. The XLX reflector can use 26 modules from A to Z. As domestically, modules A to D are mainly used for interlinks, so when using XLXDMR it may be better to use other modules.

## 9. Transmission

The operation method differs somewhat depending on whether it is sent with D-Star or DMR.

### 9.1 D-Star

In the reception standby state in the procedure of Section 8.1 "Receiving D-Star" on page 10, after confirming that the switch① of D-Star and DMR is D-Star, press PTT② to send. Adjustment of microphone gain③ is somewhat critical as it relates to the sound card of PC. Make sure that the peak of the level meter's needle does not exceed 9 and get the report from the other station. VOX④ is not used because adjustment is critical.

When you check the RX / TX Color with the previous setting, the screen color turns red when sending → "LISTENING" of the screen becomes TX⑤ → PTT display changes to On Air⑥ and the transmission time⑦ is displayed below it .



Transmission screen when check mark is not on RX / TX Color in the previous setting.



## 9.2 BM(Brandmeister)DMR

In the reception standby state in the procedure of Section 8.2 "Receiving BM (Brandmeister) DMR" on page 11, switch the D-Star and DMR switch① to confirm that DMR is set, then press PTT② to send.



When RX / TX Color is checked in the previous setting, the color of the screen will be the same as that of D-Star when BMDMR is sent but CALL and NAME will not be displayed (below figure). Note that microphone gain is different from D -Star and XLXDMR.

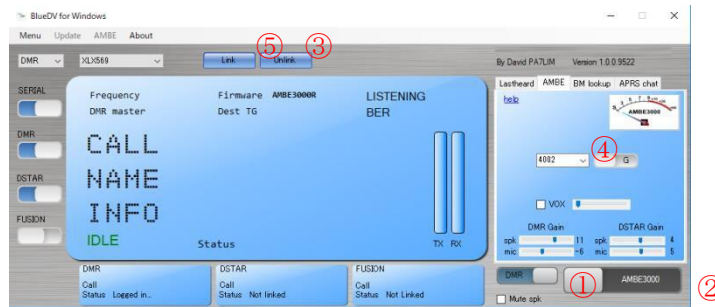Transmission screen when check mark is on RX / TX Color in the previous setting.

Transmission screen when check mark is not on RX / TX Color in the previous setting.



## 9.3 XLXDMR

In the reception standby state in the procedure of Section 8. 3 "Receiving BM (Brandmeister) DMR" on page 11, switch the D-Star and DMR switch① to confirm that DMR is set, then press PTT② to send. To change 26 modules from 4001 (A) to 4026 (Z), disconnect the previous connection with the unlink button③ first, put the corresponding number in the module input field④ and connect with the Link button ⑤ newly. Even if you change only the module number, the module before change remains set.





Transmission screen when no check mark at RX / TX Color in the previous setting.

Even when XLXDMR is transmitted, the screen will be red as the D-Star, but CALL and NAME will not be displayed. Note that microphone gain⑧ is different from D-Star and BMDMR. How to use the switch⑨ to switch between individual (P) and group (G) clears its meaning in the process of using XLXDMR. The announcement from the connection point does not return like BMDMR. However, as shown in the figure below, after the small screen under the big screen turns green, the call sign of the local station is displayed and then it becomes the screen waiting for reception (page 11 downward).
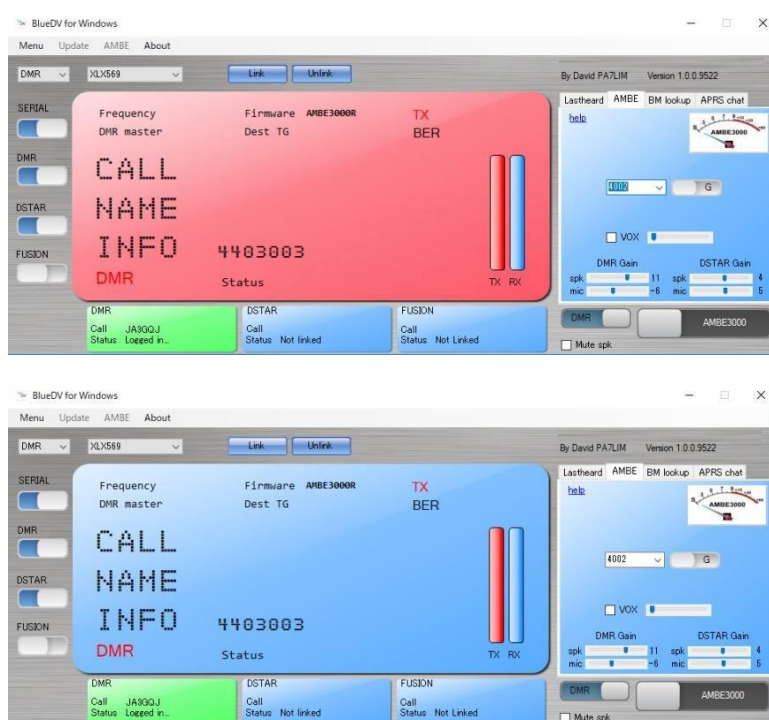




At this time, your call sign is recorded in the dashboard list of the connected XLX reflector. (The figure below, connect with module B, pay attention to Protocol)



10. Relationship between D-Star and DMR

Please note, the following is a memorandum of my understanding that poor knowledge of that field. Since the protocol transcoding between various protocols is handled separately from the audio signal that it places on the XLX server, the same unmodulated signal as the radio can be received between D-Star and DMR. Audio signals in each protocol are handled separately by the AMBE server (transcoder). Therefore, XLX reflectors that do not have an AMBE server (transcoder) can not convert to audio signals compatible with each other's protocols, so QSO between D-Star ⇔ DMR can not be done. However, I think that QSO can be done if the mode is the same (comrades of DMR or D-Star). This time, when I send the module of XLX

569 (DMR) alternately according to the module of XRF569 (D-Star), I know that they are receiving each other, but I experienced that I can not hear the voice.

Schematic diagram of only sound processing
・I attaching ThumbDV on USB terminal of Windows PC and enjoy D-Star and DMR with software called "BlueDV for Windows".
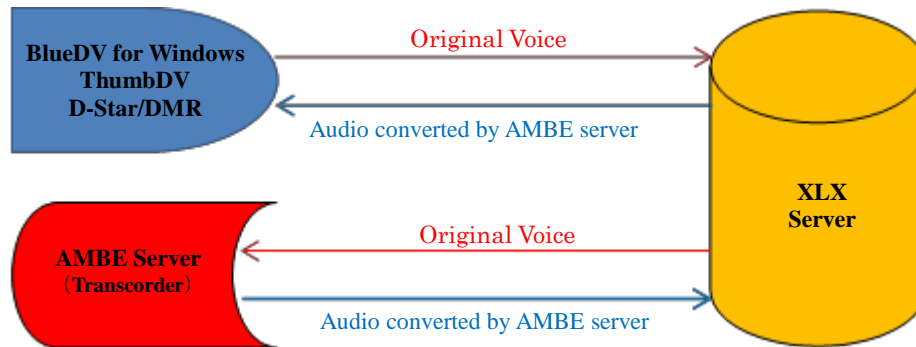


・Since AMBE server (transcoder) was constructed with 2 ThumbDVs and Raspberry Pi, cross-communication between D-Star and DMR is now possible on the XLX595 reflector.
・Search the website for the meaning of transcoding.

11. List of D-Star reflectors and DMR masters

The original of the D-Star reflector and DMR master list to be downloaded with "BlueDV for Windows" are registered in the following URL.

    h t tp://xlxapi.rlx.lu/api.php?do=GetReflectorList
    http://xlxapi.rlx.lu/api.php?do=GetReflectorHostname
    http://xlxapi.rlx.lu/api.php?do=GetXLXDMRMaster
    http://xlxapi.rlx.lu/api/exportdmr.php

API ( Application Programming Interface )
When examined on the website, the function of a certain computer program (software) It explains the rules that define procedures, data formats, etc. to call and use data to be managed from other external programs.

Conclusion
・DMR + has been omitted since it has not been received at this time.
・In the previous version, the color of the screen being received was red, while it was transmitting, it became green, and the display of "LISTENING" changed to "RX" during transmission and "TX" during reception, which made us feel discomfort. However, in this version it has become possible to choose by setting.
・The QSO of XLXDMR comrades is very stable.

Shu    As of July 28, 2018

APPENDIX

１．Acquisition of CCS 7 number
　"CCS" is short for "Callsign Communication System".
In Japan it was not familiar, but recently it has become necessary to set up the dongle
software to use DCS, REF, XRF reflector as the opening of XRF reflector progresses.

To obtain the CCS 7 number, register it in the following URL. If you do not
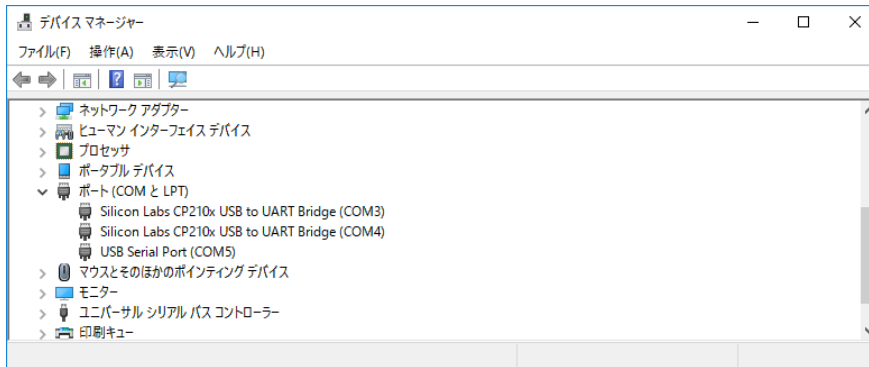know well, send mail to sc201711@nifty.com.


https://register.ham-digital.org/
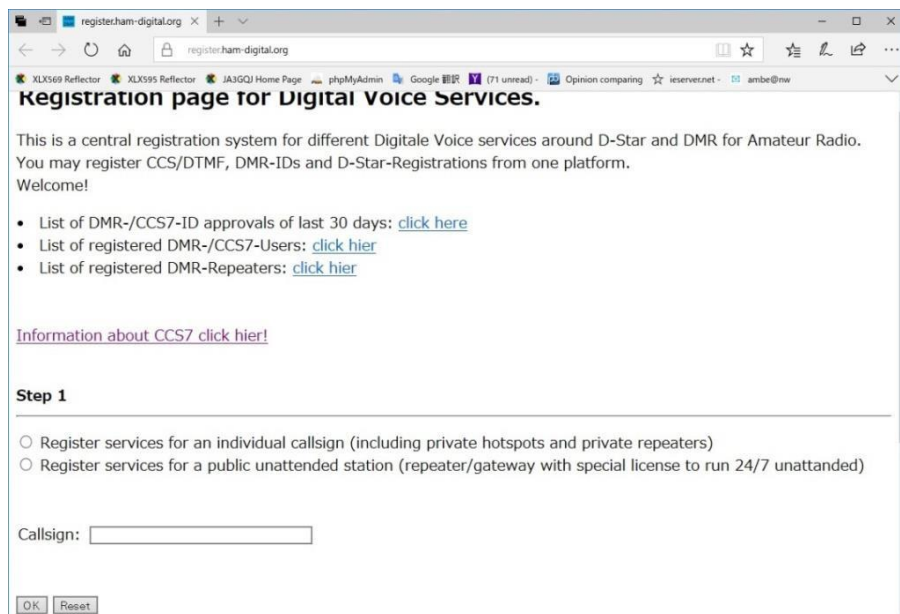


２．How to display Device Manager
　Right-click on the window type icon in the lower left corner of the disc top screen①
→ Select "Device manager" ② on the popup window → Device manager opens③ →
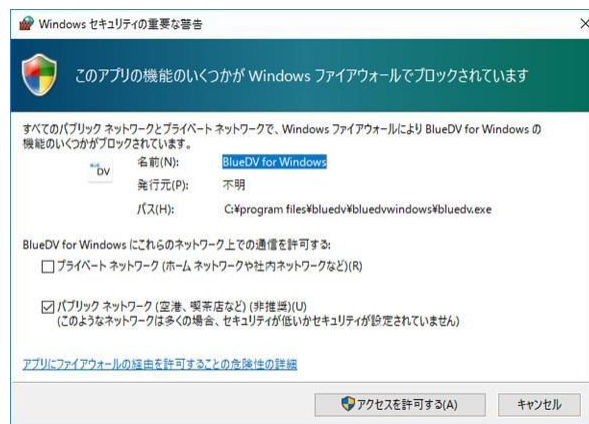Click "Port (COM and LPT)" ④

## ３．When first run the software

In "Windows Security Important Warning" displayed when starting the software for the first time, click the "Allow Access (A)" button.



The end