

D-STAR G2 Scripts & Utilities

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Installation Instructions

- G2 - <http://dstarusers.org/JoiningTheNetwork8.pdf>
 - [RS-RP2C Set Up Instructions - Icom Ameriaca \(PDF\)](#)
-

G2 Updates (NJ6N)

The *g2_updates* script does the following:

1. Validates *dsipsvd.conf* and *dsgwd.conf* configuration files, correcting problems as necessary, when possible.
2. Updates the postgres database server configuration file.
3. Installs the gateway scheduler script *gw_schedule* that enables the trust server team to remotely control the operation of each gateway.
4. Installs the gateway script updater *update_scripts_g2* that keeps the admin scripts up to date.
5. Installs a new *crontab* configuration file for *cron*, the utility that allows tasks to be automatically run in the background at regular intervals. The new crontab alters the execution frequency of the ICOM gateway scripts and enables the execution of the gateway scheduler script every 15 minutes.
6. Installs a new version of the ICOM *ipchk.sh* script that updates the trust server with the current IP address of your gateway.
7. Updates the ICOM gateway daemons and database cleanup utility to version 2.1
8. Updates the ICOM *dsgwd* gateway daemon to version 2.2
9. Replaces *MyFieldChecks.class* with new version that does validation on "pc_hostname" field.

Installation

```
cd /tmp
wget -N dsync.dstar.info/g2_updates
chmod 755 g2_updates
./g2_updates
```

Example Run:

```
[root@soara ~]# cd /tmp
[root@soara tmp]# curl -0 dsync.dstar.info/g2_updates
% Total    % Received % Xferd  Average Speed   Time    Time     Time
Current
           Dload  Upload  Total  Spent  Left  Speed
 7 14500    7  1170    0     0  1216      0  0:00:11 --:--:-- 0:00:11 1216
```

```
100 14500 100 14500 0 0 9293 0 0:00:01 0:00:01 --:--:-- 22253
[root@soara tmp]# chmod 755 g2_updates
[root@soara tmp]# ./g2_updates
Wed Nov 28 13:24:30 PST 2012 ./g2_updates Starting, Log file =
/tmp/g2_updates-121128-212430.log
Wed Nov 28 13:24:30 PST 2012 Creating Backups directory: /dstar/backups
Wed Nov 28 13:24:30 PST 2012 Backing up current applications and configuration
files.
Wed Nov 28 13:24:30 PST 2012 Gateway Call is: K6SOA
Wed Nov 28 13:24:30 PST 2012 Valid TRUST_SERVER: usroot.dstarusers.org
Wed Nov 28 13:24:30 PST 2012 Valid DNS_ADDR: 10.0.0.1
Wed Nov 28 13:24:30 PST 2012 Valid DNS_MAC: 00-C0-80-25-02-1D =
00-C0-80-25-02-1D
Wed Nov 28 13:24:30 PST 2012 /etc/init.d/dstar_gw already patched.
Wed Nov 28 13:24:30 PST 2012 Installing gw_schedule DSync Scheduler script:
Wed Nov 28 13:24:30 PST 2012 Downloading gw_schedule.gz ...[OK]
Wed Nov 28 13:25:08 PST 2012 Verifying gw_schedule.gz ... [OK]
Wed Nov 28 13:25:08 PST 2012 Copying gw_schedule.gz to
/dstar/scripts/gw_schedule.gz ...[OK]
Wed Nov 28 13:25:08 PST 2012 Expanding /dstar/scripts/gw_schedule.gz ...[OK]
Wed Nov 28 13:25:08 PST 2012 Installing script_updater script:
Wed Nov 28 13:25:08 PST 2012 Downloading update_scripts_g2 ...[OK]
Wed Nov 28 13:25:09 PST 2012 Verifying update_scripts_g2 ... [OK]
Wed Nov 28 13:25:09 PST 2012 Copying update_scripts_g2 to
/dstar/scripts/update_scripts_g2 ...[OK]
Wed Nov 28 13:25:09 PST 2012 Expanding /dstar/scripts/update_scripts_g2
...[OK]
Wed Nov 28 13:25:09 PST 2012 Replacing root crontab with standard ICOM G2
version:
Wed Nov 28 13:25:09 PST 2012 Downloading g2-crontab ...[OK]
Wed Nov 28 13:25:09 PST 2012 Verifying g2-crontab ... [OK]
Wed Nov 28 13:25:09 PST 2012 Copying g2-crontab to /tmp/crontab ...[OK]
Wed Nov 28 13:25:09 PST 2012 Expanding /tmp/crontab ...[OK]
Wed Nov 28 13:25:09 PST 2012 Installing new crontab.
Wed Nov 28 13:25:09 PST 2012 Updating ipchk.sh script with standard ICOM G2
version:
Wed Nov 28 13:25:09 PST 2012 Downloading ipchk.sh ...[OK]
Wed Nov 28 13:25:10 PST 2012 Verifying ipchk.sh ... [OK]
Wed Nov 28 13:25:10 PST 2012 Copying ipchk.sh to
/opt/products/dstar/dstar_gw/dsipsvd/ipchk.sh ...[OK]
Wed Nov 28 13:25:10 PST 2012 Expanding
/opt/products/dstar/dstar_gw/dsipsvd/ipchk.sh ...[OK]
Wed Nov 28 13:25:10 PST 2012 Making
/opt/products/dstar/dstar_gw/dsipsvd/ipchk.sh executable
Wed Nov 28 13:25:10 PST 2012 Updating postgres configuration file with
standard ICOM G2 version:
Wed Nov 28 13:25:10 PST 2012 Downloading postgresql.conf ...[OK]
Wed Nov 28 13:25:11 PST 2012 Verifying postgresql.conf ... [OK]
```

```

Wed Nov 28 13:25:11 PST 2012 Copying postgresql.conf to
/opt/products/dstar/pgsql/data/postgresql.conf ...[OK]
Wed Nov 28 13:25:11 PST 2012 Expanding
/opt/products/dstar/pgsql/data/postgresql.conf ...[OK]
Wed Nov 28 13:25:11 PST 2012 Checking
/opt/products/dstar/dstar_gw/dsipsvd/dsipsvd directory ... [OK]
Wed Nov 28 13:25:11 PST 2012 Checking /opt/products/dstar/dstar_gw/dsgwd/dsgwd
directory ...[OK]
Wed Nov 28 13:25:11 PST 2012 Stopping ALL G2 Gateway Services ... [OK]
Wed Nov 28 13:25:17 PST 2012 Running IP port test to validate router port
forwarding configuration:
Wed Nov 28 13:25:21 PST 2012 Gateway router has passed the port forwarding
test
Wed Nov 28 13:25:21 PST 2012 Downloading updated G2 applications:
Wed Nov 28 13:25:45 PST 2012 Verifying updates ... [OK]
Wed Nov 28 13:25:45 PST 2012 Unpacking updates ... [OK]
Wed Nov 28 13:25:45 PST 2012 Adding /opt/products/dstar/pgsql/lib to
LD_LIBRARY_PATH configuration directory... [OK]
Wed Nov 28 13:25:45 PST 2012 Starting Gateway Applications... [OK]
Wed Nov 28 13:25:55 PST 2012 Checking for
/opt/products/dstar/tomcat/webapps/D-STAR/WEB-INF/classes/jp/co/icom/dstar/com
/utl/ ... [OK]
Wed Nov 28 13:25:55 PST 2012 Downloading new MyFieldChecks.class ... [OK]
Wed Nov 28 13:25:55 PST 2012 Checking status of "dstar" and "postgres"
accounts.
Wed Nov 28 13:25:55 PST 2012 dstar account has non default password, good.
Nothing done.
Wed Nov 28 13:25:55 PST 2012 postgres account has non default password, good.
Nothing done.
Wed Nov 28 13:25:56 PST 2012 *** NOTE: Backups of previous configuration
files, including the root crontab, can be found here: /dstar/backups ***
Wed Nov 28 13:25:56 PST 2012 *** Important: Install local crontab entries in
/etc/cron.d/{crontabname} ***
Wed Nov 28 13:25:56 PST 2012
**** Updates Installed ****

```

TCP/UDP Ports

It is very important to configure your router and any firewall software to pass the following ports along to the gateway box.

Description	Port No.	Protocol
-------------	----------	----------

G2/G3: Data Sync & dplus	20001-20005	UDP / TCP
G2/G3: Voice Receive	40000	UDP
G2/G3: Data Receive	40001	TCP
G3: Position Request (PORT_SEARCH - dsipsvd.conf)	12345	UDP
G3: Position Registration (PORT_RENEWAL - dispsvd.conf)	12346	UDP
G2/G3: Web Server Registration Page	443	TCP

Note: Port 40002 is also used by the gateway software for OUTBOUND use only and does not need to be forwarded.

gw_schedule (NJ6N)

gw_schedule is a PERL script that runs every 15 minutes through the linux cron facility. It obtains information from the US Root trust server and executes any scheduled commands.

crontab entry:

```
0-59/15 * * * * /usr/bin/perl /dstar/scripts/gw_schedule
```

Current status from each gateway is reported to the [dsync G2](#) web site each time the script runs.

Installation

Installed by g2_updates, see above.

Optional Email notification of gw_schedule actions

- Create a file in /etc/gw_schedule.cnf using your favorite editor such as *vi* or *nano*
- Add the following lines:
 - FROM=email@address.com (enter a valid email address)
 - TO=email@address.com (enter your email address here)
 - SUBJECT=D-STAR Gateway Scheduler Notification (okay to set this to your liking)
- Please note that there is no longer a GW_CALL setting as in version 1. This is derived automatically from the dsipsvd configuration file.
- No reboot is required after making the changes.

- **Important: You will have to make sure that your linux box is capable of sending email!**
-

update_scripts_g2 (NJ6N)

update_scripts_g2 is a script that runs once daily at 01:10 AM. This script is used to update the US Root provided scripts as well as other commonly installed third-party software as well.

Crontab entry:

```
10 1 * * * /usr/bin/perl /dstar/scripts/update_scripts_g2
```

Installation

Installed by **g2_updates**, see above.

Currently updated software:

- /dstar/scripts/gw_schedule
 - /dstar/scripts/update_scripts_g2
 - /etc/init.d/dsm
 - /etc/init.d/dplus
-

DStarMonitor Gateway Usage Monitor / DPRS Service (AE5PL)

DstarMonitor Reports gateway usage to DStarUsers.org and sends D-PRS position reports to JFindU web site.

Installation

```
cd /tmp
curl -O http://dsync.dstar.info/dsm_installer_g2
sh ./dsm_installer_g2
```

D-STAR Web User/Admin Password Changer (AA4RC)

dstartpasswd changes the password of a user or admin in the gateway's database

Installation

```
cd /tmp
curl -O opendstar.org/tools/G2/dstartpasswd-install.sh
bash ./dstartpasswd-install.sh
```

Usage: /dstar/tools/dstartpasswd CALLSIGN password
e.g. /dstar/tools/dstartpasswd AA4RC IneedApass

Database Re-Synchronization

NOTE: This utility is NOT used to solve synchronization problems.

The purpose of this utility is **to clear your gateway of the database tables (sync_gip, sync_mng, sync_gip)** that are synchronized from the Trust Server if your gateway has been offline for a period of time. This utility will not solve synchronization problems. Your gateway must be capable of synchronizing with the trust server in order to reload the data. The "unsync_user_mng" table that contains user registration data will not be affected.

In order to receive a complete resynchronization of data, your gateway "synchro_time" must be set to the "EPOCH" (1970-01-01 00:00:00). Use the Trust Server [query tool](#) or [dsync.dstar.info](#) to determine the last synchronization date.

Installation

```
cd /tmp
wget dsync.dstar.info/resync
chmod 755 resync
./resync
```

Example Run:

```
[root@gb7nm tmp]# ./resync
Stopping gateway software
Stopping dstar_gw: [ OK ]
Re-initializing Database Tables
Restarting gateway software
Starting dstar_gw: [ OK ]
Resync Completed
```

NOTE: It takes a few minutes to reload the data from the next database sync operation (SYNC_DB_SYNC).

D-STAR Gateway User Information Tool (AA4RC)

dstarusersls Shows the current status of your gateway users

Installation

```
cd /dstar/tools
curl -O opendstar.org/tools/G2/dstarusersls
chmod 755 dstarusersls
```

Usage: /dstar/tools/dstarusersls

Local users requesting registration:

[CALL] [DATE TIME] [EMAIL] [NAME]

Local users registered with no terminals added:

[CALL] [DATE TIME] [EMAIL] [NAME]

Local users registered with terminals added:

[CALL] [DATE TIME] [EMAIL] [NAME]

dplus D-STAR Gateway Swiss Army Knife Utility Program (AA4RC)

dplus Enables added gateway functionality including:

- Support for DV Dongle users
- Echo test
- Gateway/reflector linking
- Voice mail, store and playback
- Ability to play pre-recorded AMBE DV audio files on specified module
- User invoked system ID message.
- Simulcast to all modules
- Extensive logging (/var/log/dplus.log)

dplus [revision](#) history

Installation

- Make sure port range 20001-20005 TCP/UDP is forwarded to your gateway.
- Make sure *iptables* firewall is either turned off or configured to allow the ports below:

```
cd /tmp
curl -O http://www.opendstar.org/tools/G2/dplus-install-g2.sh
sh ./dplus-install-g2.sh
```

To update from a previous version:

```
/dstar/tools/dplus-check.sh
```

Port Forwarding Test Utility (AA4RC)

The *IPPortTestClient.bin* application tests to make sure your gateway has the necessary ports open to run D-STAR gateway applications.

Installation

```
cd /dstar/tools
wget http://www.opendstar.org/tools/IPPortTestClient.bin
chmod 755 IPPortTestClient.bin
```

Usage:

Make sure you shut down ALL gateway daemons that might be using the ports you are testing first.

```
service dstar_gw stop
service dplus stop
service dssecd stop
/dstar/tools/IPPortTestClient.bin
```

Example Run:

```
# /dstar/tools/IPPortTestClient.bin
Connected to server 208.67.255.195:19999 from my IP 123.123.123.45:45261
Testing server to client UDP connection on port (20001) ...SUCCESS
Testing server to client UDP connection on port (20002) ...SUCCESS
```

```
Testing server to client UDP connection on port (20003) ...SUCCESS
Testing server to client UDP connection on port (20004) ...SUCCESS
Testing server to client UDP connection on port (20005) ...SUCCESS
Testing server to client UDP connection on port (40000) ...SUCCESS
Testing server to client TCP connection on port (40001) ...SUCCESS
Testing server to client TCP connection on port (20001) ...SUCCESS
Testing server to client TCP connection on port (20002) ...SUCCESS
Testing server to client TCP connection on port (20003) ...SUCCESS
Testing server to client TCP connection on port (20004) ...SUCCESS
Testing server to client TCP connection on port (20005) ...SUCCESS
Testing client to server TCP connection on port (20005) ...SUCCESS
Test complete with server 208.67.255.195:19999
```

If dstar_gw or dplus are still running, you will see the following:

```
/dstar/tools/IPPortTestClient.bin
Connected to server 208.67.255.195:19999 from my IP 72.194.86.33:45259
Testing server to client UDP connection on port (20001) ...FAILED (local UDP port BUSY)
Test complete with server 208.67.255.195:19999
```

Don't forget to start your gateway applications back up!

```
service dstar_gw start
service dplus start
service dssecd start (if you have this)
```

fixdns named repair utility (NJ6N)

The *fixdns* script removes domain name entries in the *dstar.local.db* that begin or end with hyphens and restarts named.

Installation

```
cd /dstar/tools
wget http://dsync.dstar.info/fixdns
chmod 755 fixdns
```

Usage:

```
/dstar/tools/fixdns
```

Example Run:

```
[root@gwcall tools]# /dstar/tools/fixdns
```

```
/dstar/tools/fixdns: No errors found!
```

dssecd D-STAR Gateway security enhancement application/daemon (AA4RC)

Robin, AA4RC has provided a security enhancement that automatically configures your system to protect D-STAR voice ports against unauthorized access. After installation, only Trust Server registered gateways will be able to route voice traffic to your D-STAR repeater modules.

Installation

```
cd /tmp
wget http://opendstar.org/tools/G2/dssecd-install.sh
sh dssecd-install.sh
```

ICOM RP2C Gateway Controller Setup Info

Standard Configuration for a full stack with all modules.

■ ID-RP2C (Rear panel)

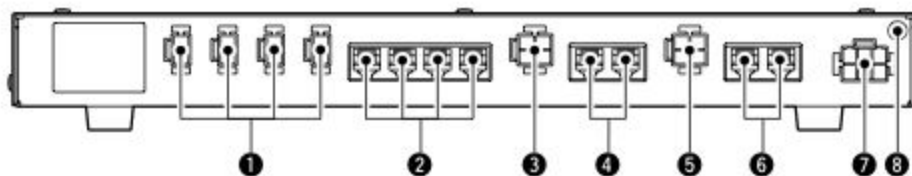


Figure 1 -

RP2C Rear Panel

- Ports are numbered 1 to 4, left to right, when looking at the rear of the RP2C Controller (see Figure 1, #2)
- Port 1 - 'A' - 23cm Data
- Port 2 - 'B' - 70cm Voice
- Port 3 - 'C' - 2m Voice
- Port 4 - 'A' - 23cm Voice

- Config = "D:V:V:V"
- Check corresponding boxes for installed modules

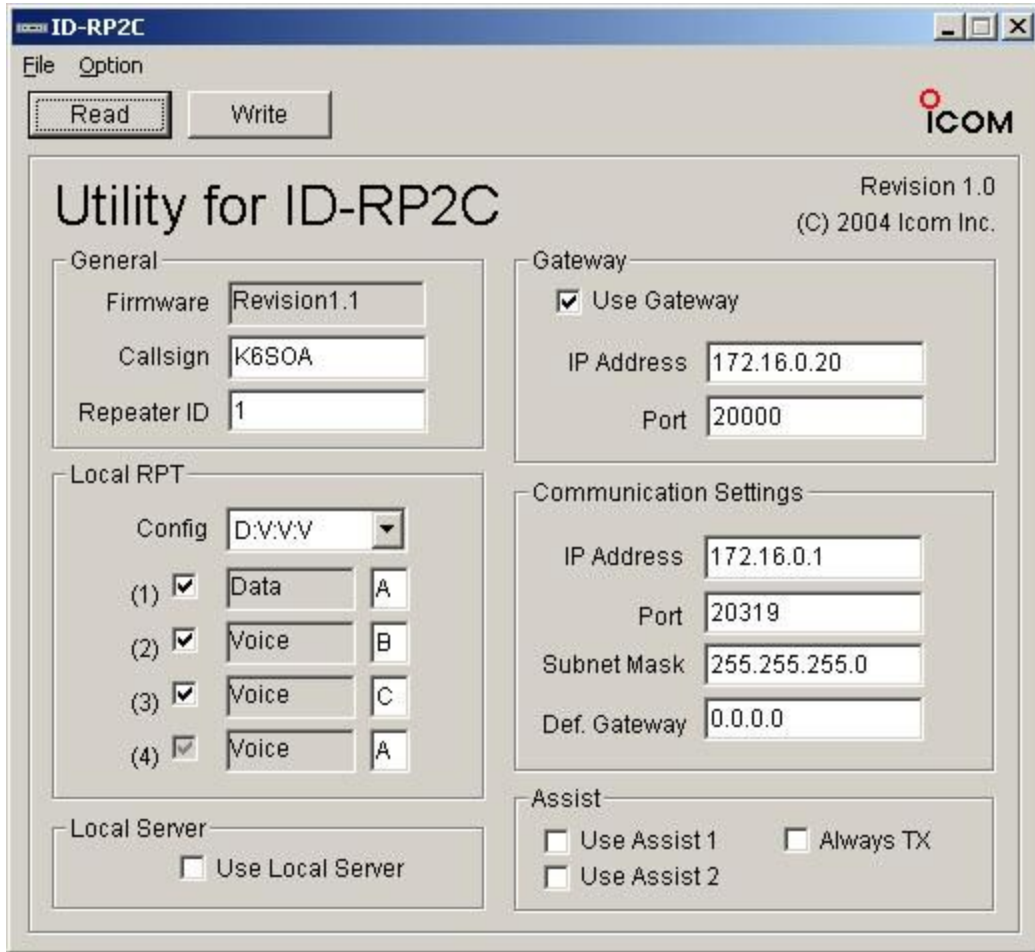


Figure 2 - ID-RP2C Configuration Program

D-STAR G2 Gateway System Links

- [DSync Gateway Status Page](#)
- [DStarUsers Web Site](#)
- [D-STAR Admin Yahoo Group](#)
- [D-STAR Gateway Yahoo Group](#)
- [ICOM America D-STAR Forums](#)
- [CentOS - Community ENTerprise Operating System Site](#)

Registering with *dstargateway.org*

Registering your gateway in the dstargateway.org domain will enable your users to browse to your gateways **{callsign}.dstargateway.org**.

To register, fill out this form:

<https://regist.dstargateway.org/dstargateway/register/>

D-STAR Application Links

- [DV Dongle Web Site](#)
- [Robin, AA4RC's DstarGateway site](#)
- [Pete, AE5PL's D-PRS Interface Information D-PRS White Paper](#)
- [NJ6N's sync_watch PERL script](#). Measures time between synchronization with the trust server.

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