ICBS-R Basic Wireless and Network Trouble-Shooting Tips
Updated 4/25/2013

Three key components are necessary for the Symbol-Motorola wireless scan guns to communicate with the ICBS system and record various tasks that take place in the warehouse:

1. **The scan guns** (which includes the hardware device itself and the Symbol "DataWedge" software that allows it to work)
2. **The ICBS System components** (the Sterling "mobile terminal" software, and a couple of databases which are all hosted at the NITC data center in Kansas City)
3. **The network through which data is sent** (this includes the wireless local area network – the "WLAN" – which is installed in your cache, and the FS or BLM agency network that connects it to Kansas City where ICBS is hosted)

If a user experiences a problem in the scanning process, there are potentially several causes. This document will help you narrow down the cause so that it can be fixed as quickly as possible.

Reporting problems:

Because the ICBS-R Project Team supports the scan guns and the ICBS system, and the Forest Service and the BLM support the agency networks and cache WLANs, users are asked to report problems to different Helpdesks:

- Network/WLAN issues should be reported to the appropriate agency customer help desk (i.e. **the agency that provides the network** to the cache):
    - **Forest Service Customer Help Desk (CHD)** at: **1-866-945-1354.**
    - **BLM Customer Help Desk** at: **1-800-BLM-HELP (1-800-256-4357)**
    - **Two sources for local BLM network trouble-shooting:**
        - **For GBK:** BLM NIFC Local Helpdesk: 208-387-5734 or Natalie Wiklund: 208-387-5504
        - **For AKK:** AFS IT Trouble Line: 907-356-5588
- All other issues should be reported to the **ICBS Helpdesk** at: **1-866-244-7677 (**helpdesk@dms.nwcg.gov**).**

A list of caches with the agencies that provide their networks and WLANs, is found at the end of this document.

If you're ever in doubt, feel free to contact the ICBS Helpdesk with a detailed explanation of the problem and your efforts to trouble-shoot it. They will notify ICBS-R team members who will work with the various support organizations to

get to the bottom of the problem, and can assist you in filing an agency help desk ticket if necessary.

We'll look at two key places for clues on wireless problems: the scan gun screen where error messages will appear, and some of the key WLAN components.

Scan gun error messages and problems:

Scan gun users will see several messages during the course of a shift. Most are simply hints to help the user complete a task (e.g. "Please scan item or inventory container"). Less frequently seen are messages indicating that something needs to be performed on the PC-based console to correct a data problem (e.g. correct a SKU dedication, unfreeze a location, etc.) before a warehouse task can be performed (e.g. "Cannot override suggested SKU," "Retrieval strategy not configured," etc.).

For purposes of wireless trouble-shooting, we'll focus on the error messages and problems that could indicate there's something other than a data problem.

Error Message or Problem	Probable Cause	Solution
"System timed out" error	All the guns "time-out" if no activity is detected within 15 minutes	User needs to log back onto gun
Scan gun times out before 15 minutes	This indicates a problem with the scan gun "image" which contains the time-out setting. The gun will need to be shipped to the ICBS-R Team to be re-imaged. Another gun will be sent to your cache	Report the problem to the ICBS Helpdesk **(Note: you'll be asked to provide the scan gun serial number)**
The scan gun powers off by itself	The battery has run out of power	Replace the battery with a freshly charged one; log back in and resume work while the original battery recharges
Battery does not last for at least 4-5 hours of constant use	This indicates that either the battery is wearing out and needs to be replaced, OR that the gun is unnecessarily drawing down the battery and needs to be repaired	Try another fully-charged battery for a shift. If it lasts 4-5 hours, dispose or recycle the worn out battery according to local procedures If another fresh battery also loses a charge before 4-5 hours of use in the gun, the gun is probably improperly draining the battery and

Error Message or Problem	Probable Cause	Solution
		needs to be returned for repair or replacement. Report the problem to the ICBS Helpdesk **(Note: you'll be asked to provide the scan gun serial number)**
"Error Message cannot be displayed because an optional resource assembly containing it cannot be found" error message"	This usually indicates a problem somewhere in the network (either the WLAN, some portion of the agency network, DNS settings, etc.) (Note: this can also be caused by a critical file not being copied during an ICBS deployment, so if this occurs just after a new ICBS release, that could be the cause)	Report the problem to the appropriate agency customer help desk. In the case of a missing ICBS file, notify the ICBS-R team. They will have the O&M Team install the "NWCGrfutil.jspf" file to ICBS
"Unexpected error occurring on the Yantra mobile app"	This usually indicates a problem with the WLAN or network	Report the problem to the appropriate agency customer help desk
"Java null…" error message	This type of error message could indicate a range of problems. The ICBS-R Team will most likely have to research these	Report the problem to the ICBS Helpdesk providing the exact error message
User cannot successfully log on to one or more guns	This is often the result of incorrectly entering the user ID or Password, and usually occurs immediately after receiving a new account User ID or a new password	If you "copied and pasted" the User ID and/or password from an e-mail message, and created a scannable bar code of this information, make sure you didn't inadvertently include a space in the ID or password Make sure you're correctly entering any UPPER or lower case letters, numbers or special signs Make sure you're not incorrectly substituting a lower case "L", capital "I" or the number "1" for each other

Error Message or Problem	Probable Cause	Solution
		Have another user log onto the same scan gun to make sure the gun is not faulty If these don't solve the problem, request a new password from the ICBS Helpdesk
Scanning problems are isolated to a single gun	This indicates a problem with the gun itself	Report the problem to the ICBS Helpdesk **(Note: you'll be asked to provide the scan gun serial number)** Resume work using another scan gun
Scanning problems are seen on multiple guns	This indicates a problem with some part of the network, or the ICBS system	Find out if users in another cache are experiencing a similar problem. If not, it's probably due to a WLAN/Network problem. Report the problem to the appropriate agency customer help desk
Extremely slow system response after scan gun actions	This usually indicates a problem with some part of the network. Less often, this can indicate a problem with one or more ICBS databases that could use some "tuning."	Report the problem to the appropriate agency customer help desk; or report it to the ICBS Helpdesk

Sometimes a scan gun experiencing problems can be fixed by simply rebooting it and logging back on the network.

Wireless Local Area Network (WLAN) LED indicators:

Users will see several Cisco® Aironet access points ("APs") mounted on or near the ceiling of a cache that has a WLAN. The APs look like book-sized rectangular white boxes and have three small colored LED lights on the end where cables and power cords connect to the device. Once the WLAN is powered up, these LEDs indicate the operational status of the APs, radio transmissions, and the Ethernet.

If a user seems to be dropping off the network in a certain area of the cache, as indicated by the scan gun signal strength icon, there could be a problem with an access point that normally provides wireless coverage in that part of the warehouse.

There are literally dozens of LED color combinations – including LEDs that are off, blinking on and off, and blinking between two colors – that indicate a specific condition.

The following colors *generally* indicate a *healthy condition*:	green, light green, blue, blue green, dark blue and steady pink
The following colors *generally* indicate *some sort of error, or that some sort of error recovery is in process:*	amber, yellow, red, pink blinking off and on, blinking red and yellow, or blinking red and blue green

ICBS users, ICBS Helpdesk technicians, and agency helpdesk technicians are *not* expected to diagnose access point or WLAN problems, but this information might be helpful in narrowing down the problem to a network versus some other type of problem.   If you suspect the WLAN or an AP is not operating properly, report it to the agency customer help desk.

The LED colors you observe might be helpful for agency network specialists, but be advised, that when looking at access points from 15 or more feet away, it can be very hard to distinguish between the various LED color shades.

Other components, other potential problems and follow-up:

Other WLAN/Network components that users might see in their cache are wireless controllers and various switches. If multiple guns are experiencing scan problems (therefore probably not a faulty gun or battery), users should contact the appropriate agency customer help desk to investigate. Under **no circumstances** should anyone attempt to reboot (turn off and restart) a network component unless under specific instructions from an agency network specialist.

Another network problem is worth mentioning: **IP conflicts.** Each cache has a certain number of IP addresses assigned for its arsenal of scan guns, printers, PCs and other network devices. If users notice that when more users log on to PCs or scan guns, they lose connectivity (as indicated by a scan gun error message), this could indicate that there aren't enough IP addresses to go around. This is a problem that the agency IRM organization will have to resolve, and should be reported to the appropriate agency customer help desk

Another problem we've encountered is that changes made to **network DNS (Domain Name Servers)**, or DNS servers that have not been kept up to date, can cause the WLAN in one or more caches to no longer be able to communicate with the LDAP server at NITC. This is often the culprit if a user can log onto the FS or BLM network, but cannot get to the ICBS application via the scan gun.

This situation will be diagnosed and fixed by agency network specialists, but one test a user can try is to connect wirelessly to their cache WLAN with a laptop. Next, launch Internet Explorer and enter "Google.com". If the laptop fails to find Google.com, enter its internet address: 74.125.224.50 in Internet Explorer. If it Google.com comes up, this points to a DNS error.

Two other tests that indicate a network problem between a cache WLAN and the LDAP server at NITC include:

1. A user can log in to ICBS via the console/PC, but cannot log in via a scan gun connected to the wireless network, and
2. The LDAP Administrator (Dan Ervin) cannot see unsuccessful or successful log-in attempts for a known user log in attempt when he looks at the LDAP application dashboard

Once reported to the agency customer help desk, apparent network or WLAN problems can be tracked down fairly quickly by network specialists using sophisticated monitoring tools. If the problem turns out to be system-related problem rather than an agency network issue (perhaps a server at Kansas City), the network specialists can report their findings to the ICBS Helpdesk or directly to the ICBS-R Team for additional follow-up.

List of Caches and Networks

Cache Location / ID	Network Provider	Network/WLAN Status
Lakewood, CO (RMK)	USFS	Operational
Prescott, AZ (PFK)	USFS	Operational
Silver City/Hurley, NM (SFK)	USFS	Operational
London, KY (SAK)	USFS	Operational
Grand Rapids, MN (NEK)	USFS	Operational
Redding, CA (NCK)	USFS	Operational
Ontario, CA (LSK)	USFS	Operational
Missoula, MT (NRK)	USFS	Operational in main warehouse (Warehouse #1)
Coeur d'Alene, ID (CDK)	USFS	Operational
Billings, MT (BFK)	USFS	Operational

Cache Location / ID	Network Provider	Network/WLAN Status
Redmond, OR (NWK)	USFS	Operational
Wenatchee, WA (WFK)	USFS	Operational
LaGrande, OR (LGK)	USFS	Operational
Boise, ID (GBK)	BLM	Operational
Fort Wainwright, AK (AKK)	BLM	Operational