

# Avoiding Nintendo DS & Nintendo DSi Online Lotcheck Failures

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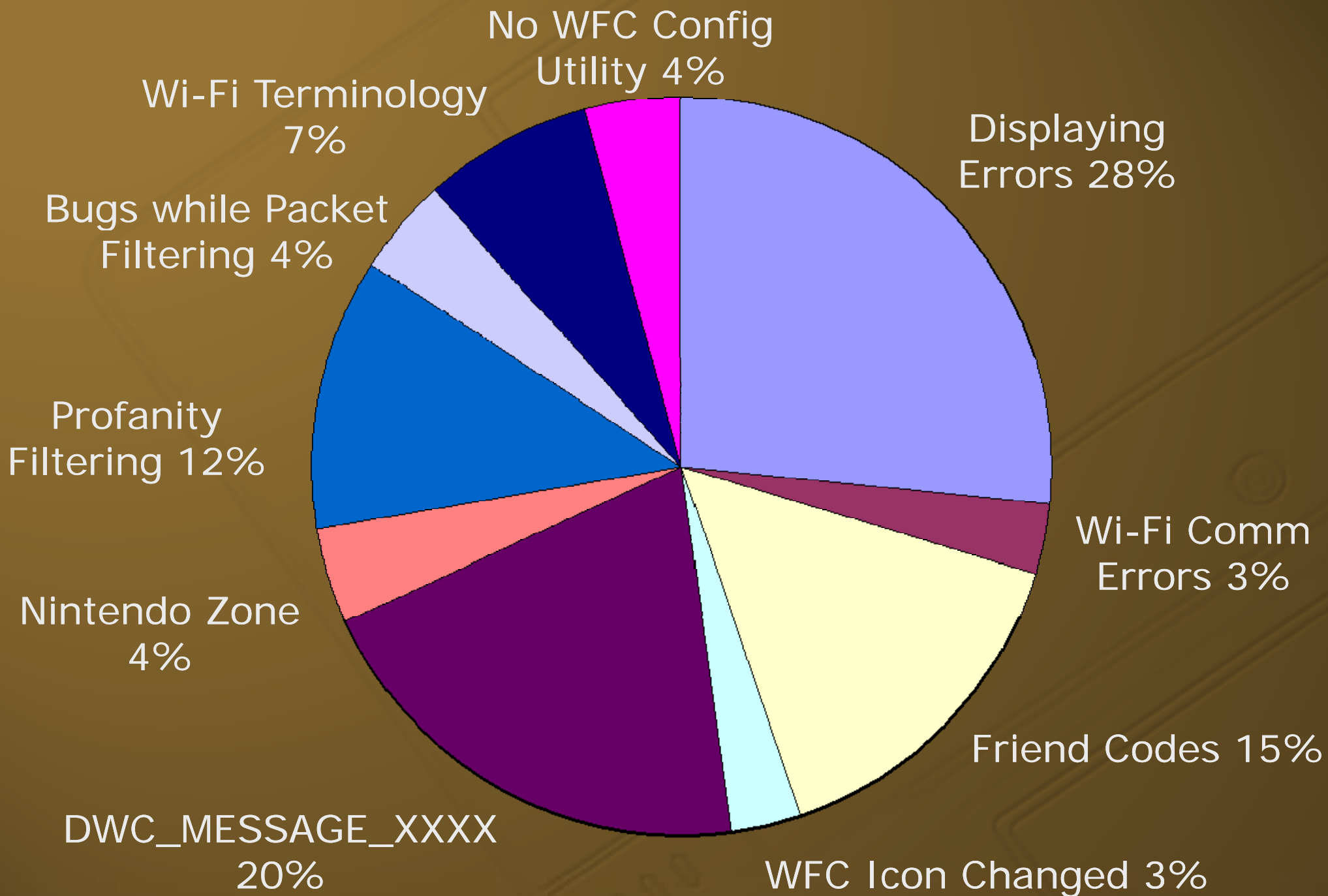
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# Nintendo Wi-Fi Connection Issues

- ◆ On average, adds about an extra Lotcheck submission
- ◆ Why?

# More Opportunities

- ◆ Adding Nintendo Wi-Fi Connection adds about 90% more guidelines
  - 71 Required and 9 Recommended in *Nintendo Wi-Fi Connection Programming Guidelines for Nintendo DS v1.3.8*
  - 48 Required and 6 Recommended in *Nintendo Wi-Fi Connection Concept Guidelines for Nintendo DS v1.3.1*



2008 Lotcheck Data

# What Are the Common Failures?

- ◆ Displaying Errors
- ◆ DWC\_MESSAGE\_XXXX
- ◆ Friend Code Handling
- ◆ Profanity Filtering
- ◆ Signal Strength Icons
- ◆ Displaying Animation
- ◆ Ranking Server Access Frequency
- ◆ Sleep Mode Considerations

## 6.2.2 Display Errors



ERROR CODE  
85010

- ◆ "If an error occurs while Nintendo Wi-Fi Connection is in progress, display the error code and message on the screen."
  - *Nintendo Wi-Fi Connection Programming Guidelines for Nintendo DS*
- ◆ Two possibilities
  - Wrong 5-digit error code
  - Wrong error message

# Issue: Wrong 5-Digit Error Code

- ◆ Lotcheck expects certain error codes to be returned when performing certain actions
- ◆ Can be puzzling-you don't have control over what error code is returned



# Wrong 5-Digit Error Codes

- ◆ Check the return value after every DWC call
- ◆ Report the 5-digit error code returned by `DWC_GetLastErrorEx()`, along with correct message from the Message List
  - Never hardcode a 5-digit error code



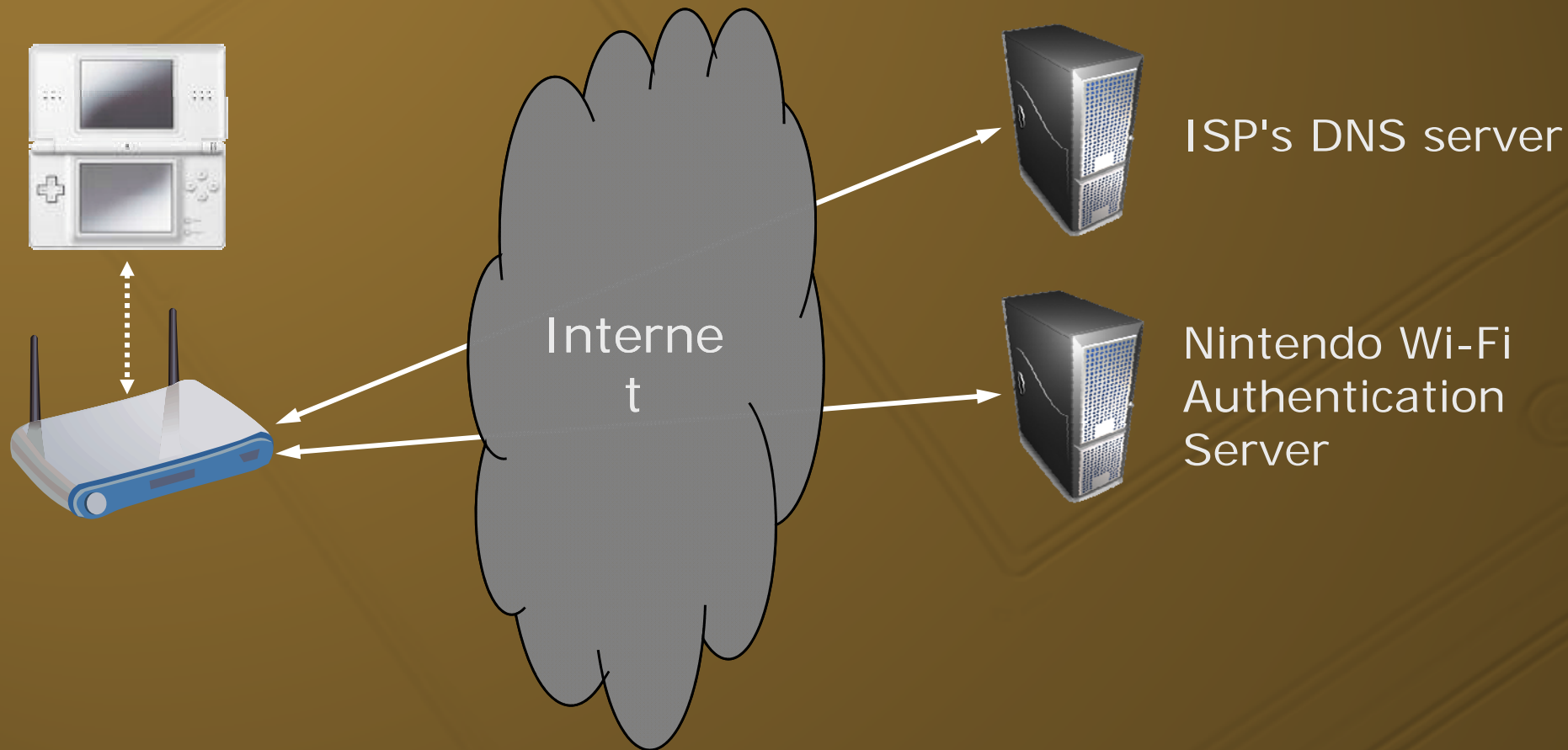
# Wrong Error Message

- ◆ Message List requires different processing for fatal errors
  - Did `DWC_GetLastErrorEx()` return an `errorType` of `DWC_ETYPE_FATAL`
- ◆ Use error messages verbatim
- ◆ Before you submit, verify you are still using the latest Message List

# Testing 5-Digit Error Codes

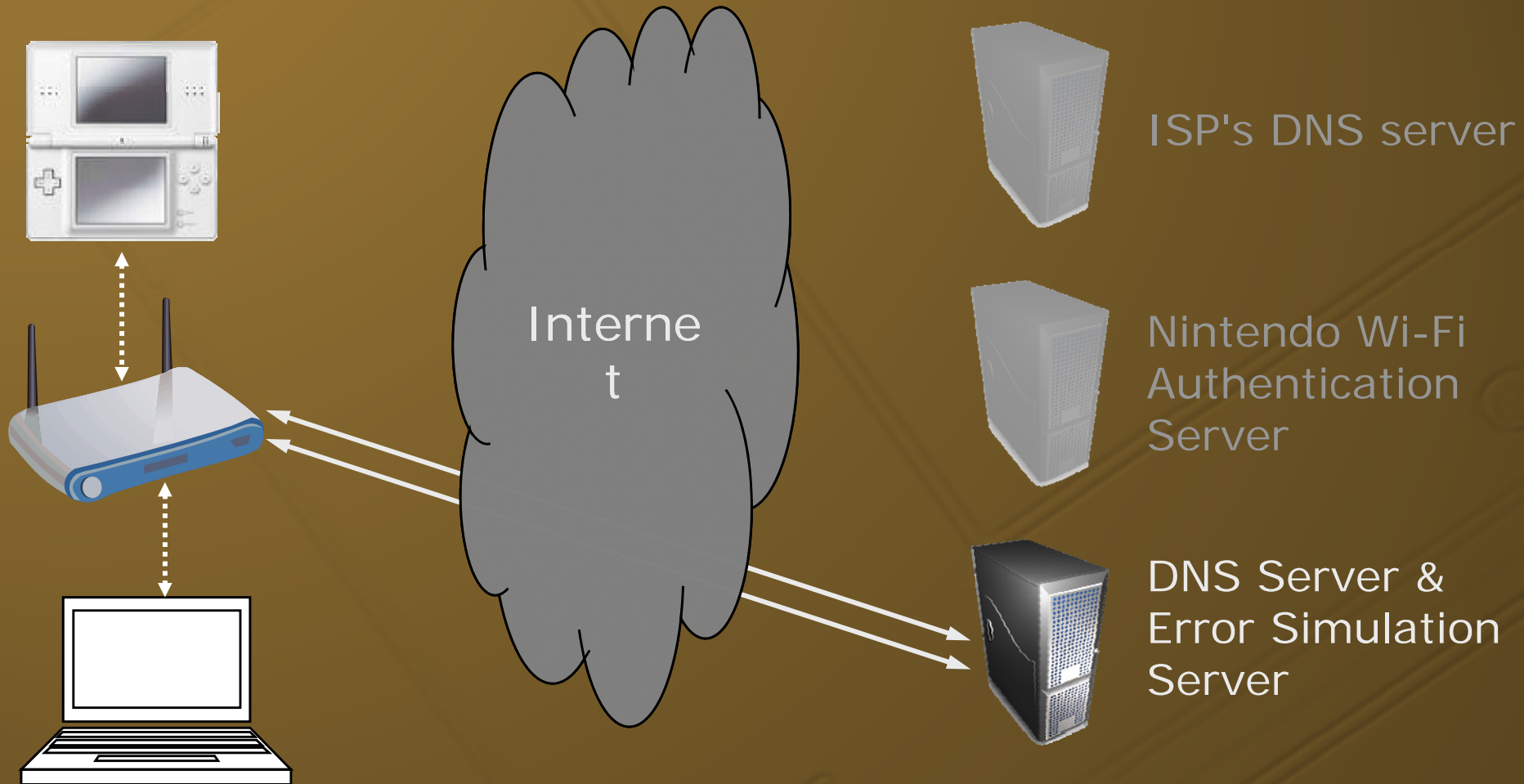
- ◆ Use the Nintendo Wi-Fi Connection Error Simulation Server
  - See the *Nintendo Wi-Fi Connection Error Simulation Manual DS Version*

# Normal Operations



- ◆ The Nintendo DS communicates with ISP's DNS server and Nintendo's Wi-Fi Authentication Server

# Using the Error Simulation Server



- ◆ Laptop is used to control the Error Simulation Server

# Test: Blocking

- ◆ Block access to
  - the matchmaking server
  - the ranking server
  - The Nintendo download server
- ◆ Lotcheck uses a D-Link® DGL-4300 GamerLounge™ Gaming Router

# DWC\_MESSAGE\_XXXX

- ◆ In addition to error messages for 5-digit error codes, there are 13 flow messages that need to be supported
- ◆ See section 5.1 & 10 of the *Nintendo Wi-Fi Connection Programming Guidelines for Nintendo DS v1.3.8*



# Friends, Rivals, and Strangers

- ◆ 4.4 Friend Code Entry, Friend Roster Maintenance (4.4.3 requires offline)
- ◆ *Nintendo Wi-Fi Connection Concept Guidelines for Nintendo DS v1.3.1*
- ◆ 4.7 Confirm Friendship still exists before Free Communication
- ◆ 8.3.3 Ranking server information does not conform to Free Communication restrictions



## 6.5 Profanity Filtering

A white speech bubble with a black outline, containing the symbols % \$ # @ ! in a bold, black, sans-serif font.

- ◆ Must check every time, not just at time of creation
  - Possible for name to become profane in the future

# Profanity Filtering

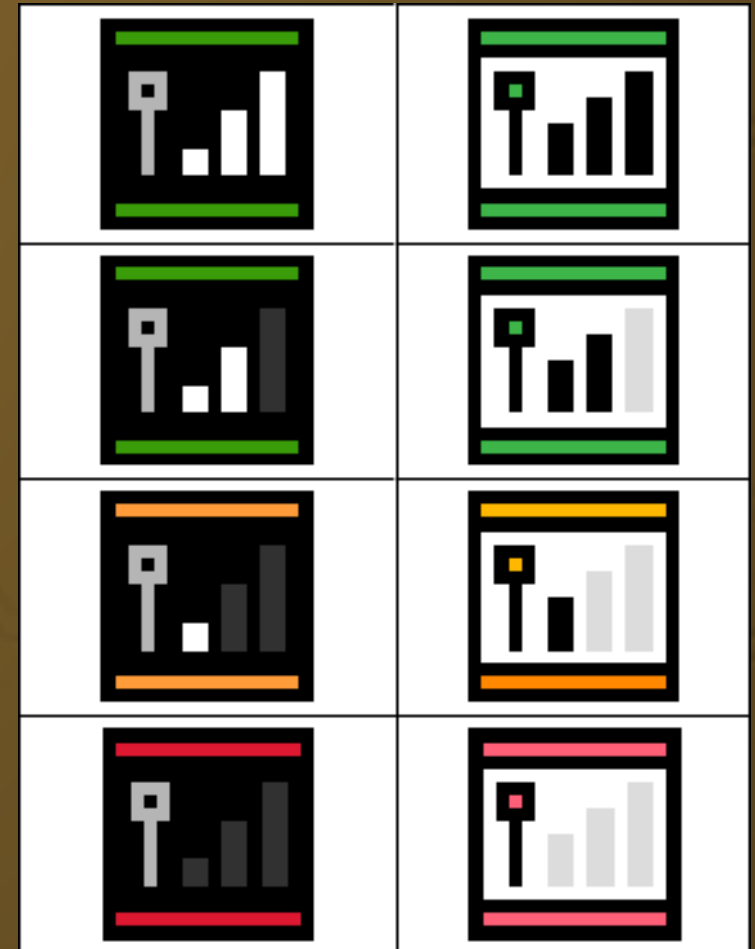


Player

- ◆ Code must provide way to change (guideline 6.5.2)
- ◆ If you use `DWC_CheckProfanityExAsync()` instead of `DWC_LogInAsync()`, code should log in with empty name

# Wireless Reception Strength Icons

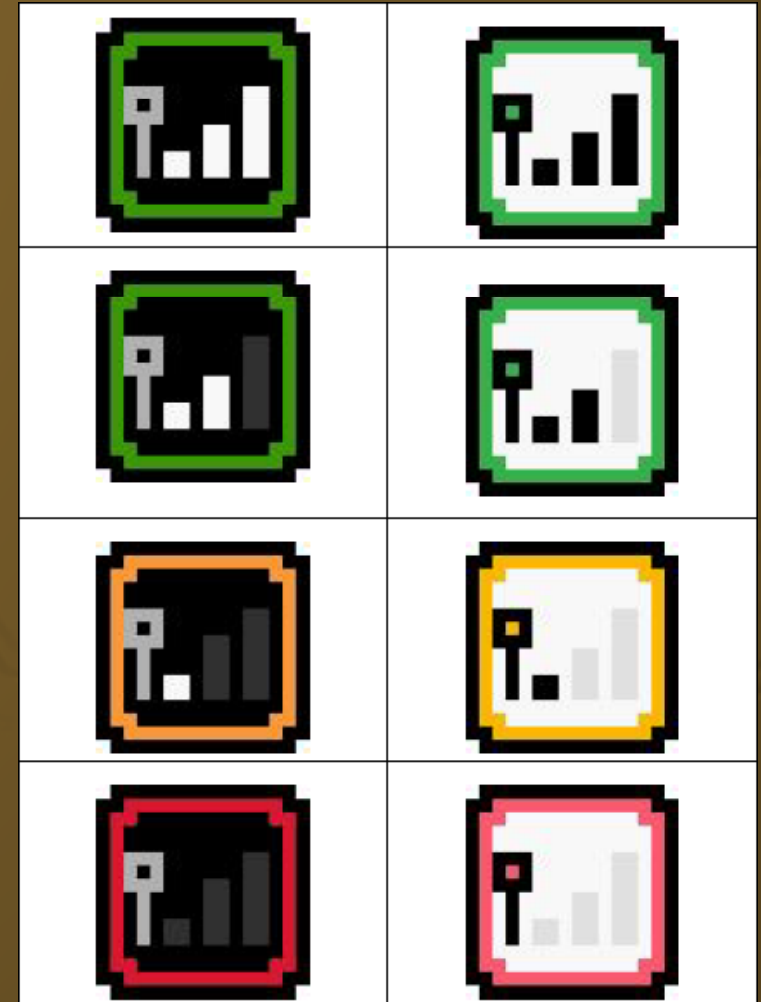
- ◆ When the radio is active, the Reception Strength Icons need to be displayed
- ◆ There are Reception Strength Icons for DS Wireless Communications. . .



For DS Wireless  
Communications

# 6.4.1 Wi-Fi Reception Strength Icons

- ◆ . . . and separate Wi-Fi Reception Strength Icons for Nintendo Wi-Fi Connection
- ◆ Do not edit any icons



For Nintendo WFC

# Sluggish Signal Strength Update

- ◆ If there is no traffic, the signal strength can't update
- ◆ Consider sending keep-alive packets

# Signal Strength Update Test Apparatus

- ◆ When the signal strength display is on screen, the game enters the Faraday cage

## 6.2.4 Displaying Animation

- ◆ Animate something on-screen so users don't think that the DS has frozen
- ◆ Consider allowing the user to cancel the operation



## 8.3.7 Ranking Server Access Frequency

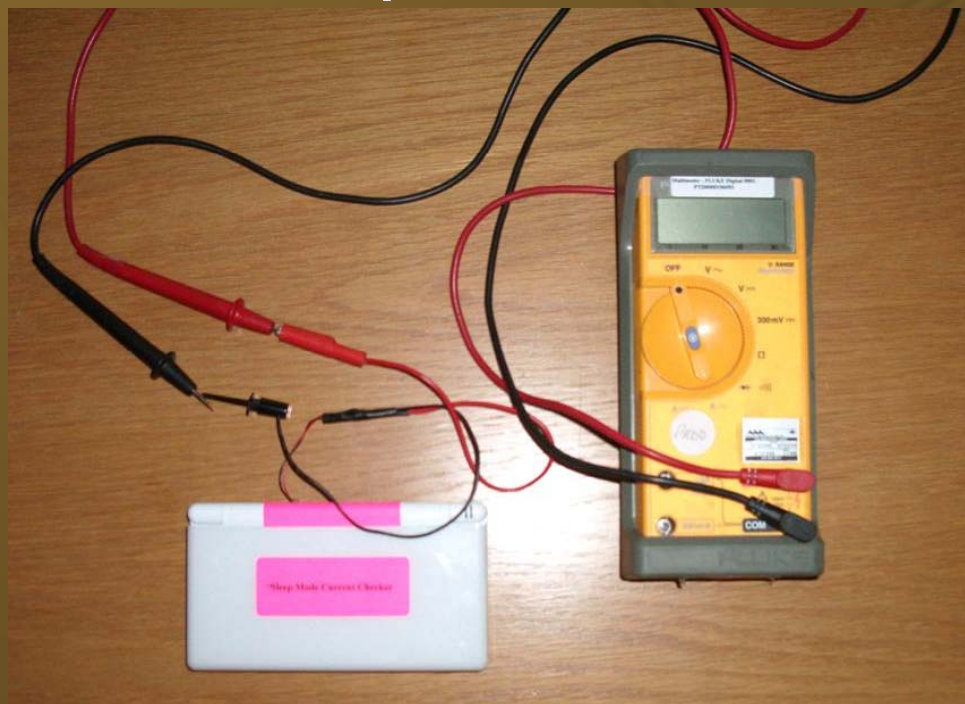
- ◆ Limit is 10 times per 5 minutes
- ◆ Most games are carefully designed to fit within limits
- ◆ But some games still fail
  - Why?

# Ranking Server Access Frequency

- ◆ Failures usually due to Lotcheck testing corner cases
  - Repeatedly entering and exiting leaderboard screen

# DS Wireless Communications Sleep Mode Considerations

- ◆ [DS] 5.2.3 Turn off DS Wireless Communications before entering sleep mode
  - Lotcheck uses special HW test rig



# DS Wireless Communications Sleep Mode Considerations

- ◆ [DS] 5.2.3 Turn off DS Wireless Communications before entering sleep mode
  - SW test rig: TWL SDK now OS\_Panic()
  - See 2008/08/01 ni tro. wi rel ess post

# Nintendo WFC Sleep Mode Considerations

- ◆ 7.3 Prohibiting Transition to Sleep Mode During Communications
  - Takes precedence over these Nintendo DS Programming Guidelines:
    - 2.5.17 Sleep Mode Processing
    - 5.2.3 Mode Transitions During Backup and Communication
    - 6.5.1 Transitioning from Active Mode to Sleep Mode

# Nintendo Authentication Server Failures

- ◆ Not Communicating With Authentication Server
  - Please call `DWC_Logi nAsync()` or `DWC_NASLogi nAsync()`
- ◆ Communicating with Debug Authentication Server
  - Please link with **Final** library instead
- ◆ Lotcheck tests by blocking the authentication server



# Nintendo WFC Configuration Utility

- ◆ Guideline 5.6: save any game data before performing Nintendo Wi-Fi Connection Configuration
- ◆ Choose the same language for the utility as the game
  - See man page for `DWC_StartUtility*()`





# Wireshark

- ◆ Used by Lotcheck to capture packets
  - Confirm production authentication server use
  - Confirm ranking server access frequency
  - Confirm GameSpy servers use
  - Confirm servers being used
- ◆ Tests performed inside Faraday cage to eliminate extraneous packets

# Summary

- ◆ Carefully review error reporting code
- ◆ Consider and test corner cases
- ◆ Review both Guideline documents

# Summary

- ◆ Theories allow us to understand the intent behind the guidelines
- ◆ As you read each guideline, think about why it exists
  - Make sure the game doesn't look broken
  - Provide a consistent experience to the player
- ◆ This helps you to remember the guideline while developing your game

# Questions?

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