WiiWare Tutorial

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Roadmap

- **How to build a WiiWare game**
- How to incorporate the Users Manual
- Summary

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Requirements

- Revolution Development Environment
  - NDEV, Firmware 17.2.0 or 21.2.2, RVL SDK 2.4 patch 2+, RSO Library (2006/12/19), CodeWarrior RVL v3.0 Alpha 5, Cygwin bash, make, OpenSSL v0.98b-1 (older version; get it from WarioWorld)
- NADK v1.5 Nmenu patch + common patch
- VCMV v1.8 patch 5
- NAND Application Guidelines & Lotcheck documents

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NADK

- NAND application development kit
- Usual game on NDEV: data files stored in DvdRoot folder
- NAND applications: collect into .wad file
- Use CNT API to access files in .wad
- NAND apps cannot access optical drive

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Steps

- 1. Create the application
- 2. Convert to a NAND application
- 3. Import into NAND
- 4. Execute NAND application

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1. Create the Application

- Place data in special location
- Write code to access data using CNT API
- Build and test .ELF

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Data Files

- Pick N sequentially starting from 2
  - VCMV demo uses 2 through 5
- We'll use N = 6 for this demo
- Create a folder contentN in DvdRoot
- Place all data files in a contentN folder in DvdRoot

CNT API

- CNT API modeled on DVD API
- Code Changes Overview
  - Write code using CNTxxxx API calls
  - Or change existing DVDxxxx calls to CNTxxxx
- Can switch between DVD or NAND versions of CNT API through build process
  - No need to change code or #ifdef code

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Initialize

```
#include <revolution/cnt.h>
#define TARGET_CONTENT 6

s32 rv;     CNTHandle Cnt;

CNTInit();
rv = CNTInitHandle(TARGET_CONTENT,
              &Cnt,
              &Allocator1);
```

Open File

```
CNTFileInfo  fileInfo;

rv = CNTOpen(&Cnt, fileName,
        &fileInfo);
```

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Read File

```
fileSize = CNTGetLength(&fileInfo);

buf = (u8*)MEMAllocFromAllocator(
        &Allocator1,
        OSRoundUp32B(fileSize));

rv = CNTRead(&fileInfo, (void*)buf,
      (u32)OSRoundUp32B(fileSize), 0);

CNTClose(&fileInfo);
```

Build and Test .elf

`$ make dvdrun`

- Internally, performs these steps:

`$ make`

`$ ndrun bin/RVL/cntdemoD.elf`

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2. Convert to NAND app

`$ make nandrun`

- This actually
  - Builds the .wad file
  - Runs N Menu
  - Imports the .wad file
  - Runs the .wad file

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Making the .wad

- Internally, performs these steps:
- darchD.exe
  - Packs files in contentN folder into .arc file
- makedol.exe
  - Converts .elf file into a Revolution executable format call .dol
- makeWad.exe
  - Converts the .dol file + .arc file into a .wad file
  - Use -m switch to add a banner

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3. Import into NAND

- Use N Menu to import, delete or run NAND apps
  - Text version of System Menu's Wii Channels

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N Menu

- Three interactive modes
  - Import Mode
    - Import .wad from viewer folder in DvdRoot
  - Title List Mode
    - View .wad files in NAND
    - Select .wad file to execute
  - SD Browser Mode
    - Import .wad from SD Card

Import

- If N Menu isn't in Import Mode, press B Button repeatedly until screen says "Import List"
- Highlight .wad file and press A Button to Import

4. Execute NAND app

- If N Menu isn't in Title List Mode, press B Button repeatedly until screen says "Title List"

- Highlight title and press A Button to launch

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Setting Game Information

- setncountrycode [jp | us | eu]
  – Specifies the region encoding
- setnparentalcontrol ESRB6
  – Sets E for Everyone (see manual for all)
  – Also CERO, USK, PEGI, OFLC
- Issue commands before makeWad.exe
- Use makeWad.exe to set game code

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GAMETITLE

Wii

TABLE OF CONTENTS
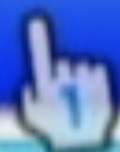
:Choose entries / scroll   Ⓐ:View entries   ⦿:Close the manual

Operations Manual

- No printed manuals!
- On-line manual accessed via Home Button Menu
- Author manuals in HTML using provided templates
- Archive all pages using darchD.exe
- Use Virtual Console Manual Viewer (VCMV) package to display manual

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VCMV

- Manual viewer based upon Opera browser
- Memory footprint while running
  - 7 MB of MEM1 for component browser RSO
  - ~28 MB of MEM2 during usage (component browser heap, memory resident fonts, rendering buffers & texture buffers, browser work memory, HBM resources, manual contents (up to ~1.5 MB)
- Memory released when browser not in use

Custom Home Button Menu
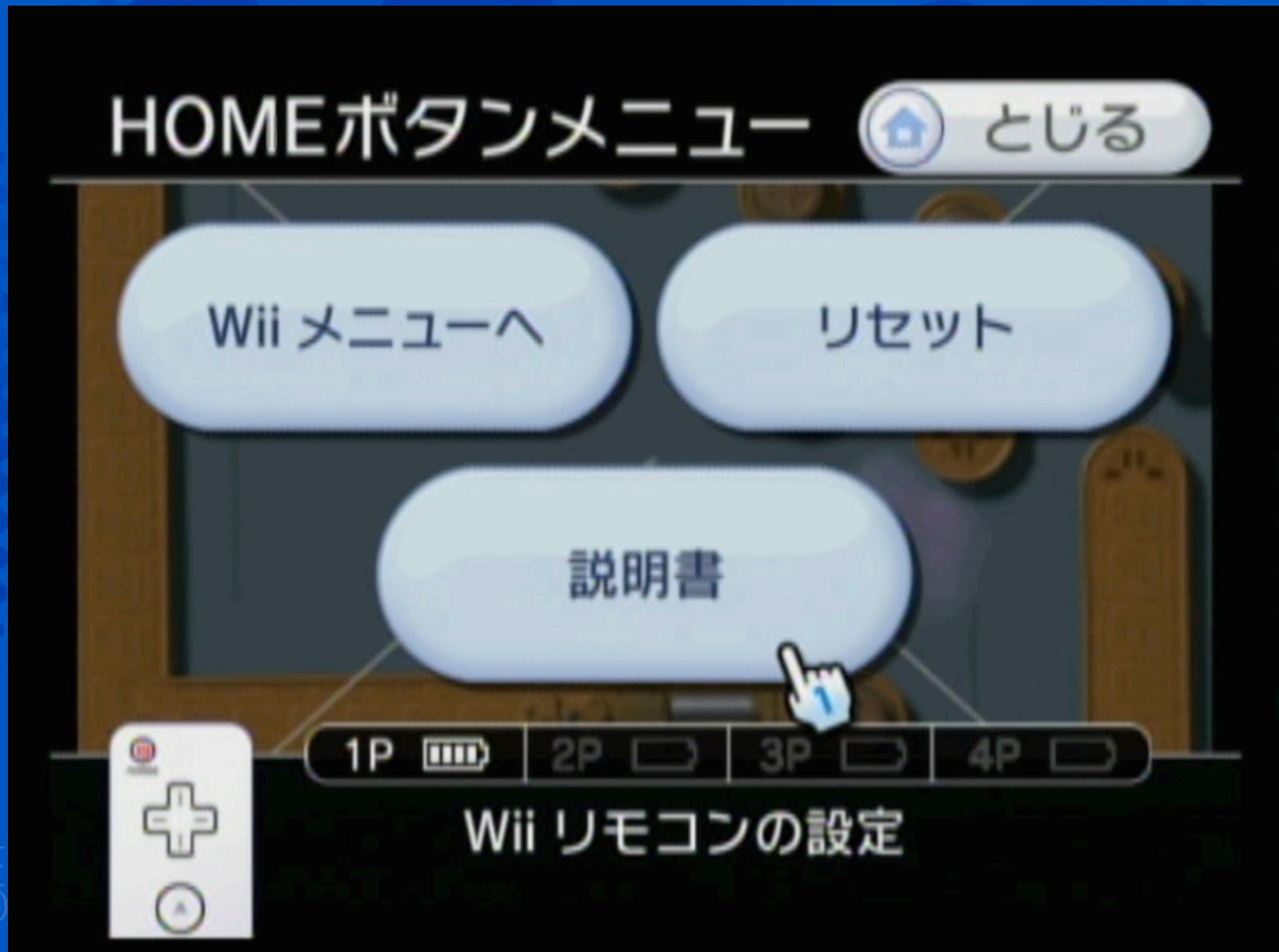
NAND Memory Limits

- 40 MB limit for the WiiWare game
- 16 MB limit for the save data

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Summary

- You can start today!
- Use CNT API instead of DVD API to work with files
- Write manual using HTML
- Incorporate manual using VCMV
- Limit of 40 MB code + data size

Questions?

Ask me during the reception/breaks

Or e-mail support@noa.com

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