Enhanced OS-9 Release Notes

Version 3.2

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Chapter 1: Introduction

As part of Microware's policy of continued product development, Enhanced OS-9 version 3.2 represents a maintenance and update release to incorporate all of the improvements that have been introduced into the component parts.

Note

These release notes cover the changes made to the Enhanced OS-9 package in the time since the previous release. If upgrading from an earlier version, these release notes should be read in conjunction with the relevant older release notes.

Note

Files for OS-9 version 3.2 are updates to previous product releases. Although these files are intended to be installed on top or your existing version of OS-9, it is recommended that you complete a backup of your system before installation.

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Chapter 2: Operating System

This chapter provides an overview of the changes and improvements made to OS-9 since the last release. The following sections are included:

- **Operating System Notes**

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Operating System Notes

The following sections represent changes and updates for OS-9 version 3.2. The OS-9 kernel edition is 142.

Resolved Problems

- CF9912: The DEC21140 low-level driver does not work correctly when the flshcach module is not present in the system and the cache module is present in the bootfile.

  The flshcach module should be always present in the system. The Wizard does not allow the flshcach module to be excluded from coreboot.

  The flshcach module is required by the low-level driver to do cache flushing on buffers that may be cached and used by the chip for DMA. When the cache module is running caching is turned on for the system; thus, the low-level driver is expected to do cache flushes. In the absence of the flshcach module, you should integrate the cache flushing code in each low-level driver. The flshcach module allows for the cache flush code for the low-level system to be present in a single module rather than duplicating it in all drivers. Therefore, this module should be always used when using low-level drivers.

- CF12358: Intel pro 100 high level driver needs a way of over-riding MAC address.

  Edition #14 of the SPPRO100 driver now honors the MAC address supplied in the port specific `SPF/SPPRO100/DEFS/spf_desc.h` file. By default, support should be disabled for this feature since the MAC hardware address of the card needs to be resolved at the hardware level.

The MAC address held in the 82559 part and its setup information exist on the Intel Ethernet PRO series. To enable the MAC address override feature within the configuration Wizard, the following statement needs to be added:

```
The port specific ini file normally does not
display the MAC address. To display the MAC
address for editing with in the Wizard change the
SPF_MAC define to true. [SUPPORTED_MODULES]
```

```
SPF_MAC=TRUE
```

Additionally, set the port specific `.ini` file to make the SPF descriptor on each build. The following example shows how to change the X86-specific .ini file to make the SPF descriptor. Note the Ethernet_Controller numbers used.

```
[ETHERNET_CONTROLLERS]

ETHER_0=3COM PCI series

ETHER_1=3COM ISA EtherLink III

ETHER_2=3COM EtherLink III PC Card

ETHER_3=DEC 21140

ETHER_4=Intel Pro100 Series

ETHER_5=Realtek RTL8139A

ETHER_6=SMC 91C94/96

ETHER_7=LAN79C961/AM79C973

ETHER_8=NE2000

ETHER_9=NE2000 PC Card

ETHER_10=Spectrum24 Wireless Card

ETHER_11=Netgear FA311

ETHER_12=Cirrus Logic CS8900 (ISA)

ETHER_13=None

DEFAULT=0
```

In this case, the INTEL Ethernet PRO100 series card is `ETHER_4`. To enable SPF descriptors for the SPPRO100 driver to be made during Wizard build, add or change the following code:

```
;

;

[MAKE_SPF_DESC]

ETHER_4_RPATH=SPF\SPPRO100

CMD=Os9make

PARAMS=-f=spfdesc.mak COPTS=-dCONFIGURER clean all
```

The following lines should also appear in the `<PORT>SPF/SPPRO100/DEFS/spf_desc.h` file.

```
#if defined(CONFIGURER)

#include "../../../config.h"

#else

#define EA0 0

#define EA1 0

#define EA2 0

#define EA3 0

#define EA4 0

#define EA5 0

#endif
```

- CF12553: PCF and pcformat handled fsinfo structure in FAT32 incorrectly.

  After formating a disk with pcformat, a scandisk check under Windows 98 showed a corrupt disk. This has been fixed in pcforma; thus, once the disk is formatted with pcformat, scandisk on windows 98 should not report any problem. It was also checked it with pcdcheck; it passes the test as well.

- CF12637: PCF hanged the system if removable device was inized with FAT16 media, then removed and FAT32 media was installed and accessed.

  PCF allocated a FAT16 buffer and re-used the buffer when the FAT32 media was installed. Since a FAT32 buffer is larger than FAT16, this corrupted memory after the end of the buffer. PCF now returns and re-allocates the correct sizes of memory, depending on FAT type of media installed.

- CF12755: The `iop_id` field in the I/O process desc is no longer filled in.

  Since the introduction of threading (3.0), the `iop_id` field of an I/O process descriptor was not being filled in. This oversight has been corrected and ioman is now correctly initializing the value to be the initial process ID of the owner of the I/O process descriptor.

Known Issues

- CF11264, 11872: Killing FTP during login will cause the controlling shell to hang. FTPDC blocks the system if wrong user/password is used with FTP.

  This is a bug in the kernel in which file I/O is handled incorrectly for pseudo-threaded applications.

Chapter 3: IXP1200 Notes

This chapter provides an overview of the changes and improvements made to Enhanced OS-9 for IXP1200. The following sections are included:

- **Enhanced OS-9 for IXP1200 v3.2**

Enhanced OS-9 for IXP1200 v3.2

The following section represents changes and updates for OS-9 for IXP1200 version 3.2.

Enhancements

- A driver has been added for the Intel IXM1200 that supports the IXF440 Fast Ethernet and also initializes the ATM daughter card. This driver works in conjunction with the Microcode Solutions Library "atmeth" microcode, compiled as `uenginit_atmeth`. This driver build directory is `/MWOS/OS9000/ARMV4/PORTS/IXP1200/SPF/SPIXP_CMB`, and uses source from `/MWOS/SRC/DPIO/SPF/DRVR/SPETH_IXP`.

- The IXF440 Ethernet driver `SPETH_IXP` will now attempt to query the connected device in order to determine if the connection supports a full duplex connection. The link will be set to half duplex if the connected device is incapable of running full duplex; otherwise, full duplex is used. This is done in an attempt to prevent problems with the IXF440 that arise when connected to half duplex devices. This query is done only at driver initialization time.

Chapter 4: ARM/StrongARM Notes

This chapter provides an overview of the changes and improvements made to Enhanced OS-9 for ARM/StrongARM. The following sections are included:

- **Enhanced OS-9 for ARM/StrongARM v3.2**

Enhanced OS-9 for ARM/StrongARM v3.2

The following sections represent changes and updates for OS-9 for ARM/StrongARM version 3.2.

Resolved Problems

- CF11199: Configuration Wizard problem.

  Ipstart string is not needed in the default parameter list. The default value of IPSTART has been changed to FALSE in `armv4/ports/pid7t/boots/install/ini/pid7t.ini`.

- CF12008: sc1101 keyboard and mouse do not work on Assabet.

  The PS/2 keyboard and mouse driver has not been ported to the Assabet development board.

- CF12016: Low level Ethernet driver ll8900 problem.

  The low level ethernet driver ll8900 was trying to send packets when the link was down. The problem was fixed; a time out has been added to `send_packet`.

- CF12361: ATA bootdisk (PCMCIA).

  The RBF descriptors were not being built correctly. You can now make a boot disk in RBF format instead of PCF format for Assebet and GraphicsClient.

- CF12669: Problems using libgen to list extended information (`netapp.l`).

  `hw_svlib_tests.cpp` has been removed from the makefile because it is not necessary and can cause problems with libgen. The change is reflected in `netapp.l` edition #2.

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Enhancements

- CF11051: The ARMv4 compiler needs 64-bit long long support.

  The ARM targets for Ultra C/C++ now supports the data type "long long" as a 64-bit integer. Previously, the long long data type was accepted, but it was considered 32 bits. In addition, the `printf` and `scanf` family of functions have been enhanced to include the "L" modifier, which indicates that an object of type long long is being referred.

Compiler Issues

In order to reduce the memory usage, it was necessary to make C++ exception handling incompatible for SuperH. All code that uses exception handling need to be recompiled in order to be compatible with the C++ libraries. This change will result in significant savings in stack and global memory.

Chapter 5: MIPS Notes

No additions have been made to MIPS since the last release.

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For More Information

For the latest MIPS release notes, refer to the ***Enhanced OS-9 Release Notes v3.1*** document, included with this CD.

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Chapter 6: PowerPC Notes

This chapter provides an overview of the changes and improvements made to Enhanced OS-9 for PowerPC. The following sections are included:

- **Enhanced OS-9 for PowerPC v3.2**

Enhanced OS-9 for PowerPC v3.2

The following sections represent changes and updates for OS-9 for PowerPC version 3.2.

Resolved Problems

- CF9533: Watching IRQs by ROMBug.

  `Dbgserv/Rombug/dbgentry` changed to allow `ov` to work on virtual vectors when the high level system is up.

- CF10104: SCC registers in `cpm.h`.

  The SCC register defines have been corrected.

- CF10205: Three bugs in pcisub.

  The following subroutine and trap module numbers have been moved to `module.h` to avoid conflicts; all subroutine and trap module numbers should be defined in `module.h` in the future:

  ```
  #define  SLIB_CSL      0

  #define  SLIB_MATH     1

  #define  SLIB_PCI      2

  #define  SLIB_MAUI     8

  #define  SLIB_NETDB    9
  ```

- CF10380: Patch in `scspu` driver for PPC403.

  The `scspu` driver (`mwos/os9000/src/io/scf/drvr/scspu/term.c`) was modified so that when a non-inized device is written to and terminated, it will wait for the output buffer to empty before shutting it down.

- CF10614: pccard for 860FADS.

  The ability to boot an 860FADS board from the PCMCIA device was added. PCMCIA booter sources were added to the `/mwos/OS9000/821/PORTS/8XXFADS/ROM/PCCARD` directory. Also added were two libraries: `/mwos/OS9000/PPC/LIB/m821hba.l` and `/mwos/OS9000/PPC/LIB/pccislib.l`.

- CF10658: MAUI support for MVME2700.

  There was a conflict between the graphics card and the SCSI and ethernet controllers on the PCI bus. The solution was to recompile the SCSI and ethernet drivers with `PCI_IO_MAPPED` enabled.

- CF10838: The Wizard wants to put `csfd` in the init string (860TFADS).

  The `csfd` will still be added to the init string if it is selected in the build window whether it was there or not when you left the disk window.

- CF11023: SandPoint Rev 3 hardware changes cause OS-9 and Ethernet drivers to fail.

  The debug version (`-g`) of the makefile in the SPF driver (`/mwos/OS9000/8240/PORTS/SANDPOINT/SPF/SPE509/spfdrvr.mak`) was modified to statically link against the library rather than the subroutine module. When the driver is ready for production, you can link it against the subroutine module. Also, the module, `commcnfg`, was added to the `coreboot.ml` file in the Sandpoint port.

- CF11271: 16Mb RAM disk (Wizard for Sandpoint III).

  Even though there is 32M of RAM on the board, the high level memory split memory into two segments of 16M each. Therefore, there was not enough RAM to allocate a 16M RAM disk. This fix merged these segments together into on 32M contiguous piece of memory by removing one of the memory segments and expanding the initial segment to 32M. This change occurred in the `default.des` file in the `<MWOS>OS9000/8240/PORTS/SANDPOINT/INIT` directory. This allows the user to select a 16M RAM disk and build bootfile that has enough RAM to allocate the disk.

- CF11327: Empty `term_t1` is generated in MP5 directory.

  `/MWOS/OS9000/SRC/IO/SCF/DRVR/SC555/sc555.h` has been changed to conditionalize the `sc555.edm` inclusion, because without the condition, the makefile will crash.

- CF11479: The 600 series cache module does not support cache line invalidates.

  Edition #29 of the 603, 604, 750, 8240, 8260 cache modules now supports ranged cache invalidates, as well as cache store with no invalidate options.

- CF11573, 24963: Cache works fine on its own, but not if SSM is included.

  The bat3 segment search code for 604/750 has been fixed. It no longer incorrectly loads the wrong entry in bat3.

- CF11729: Problem with Rombug on PPC 401 - single step and breakpoints.

  The cachflush module did not correctly size all variants of the 401 processor. This has been corrected.

- CF11916: ROM vectors for PPC V1.4 ROMbug are broken.

  Dbgserv/Rombug/dbgentry has been changed to use exception/vectors instead of direct probes.

- CF12121: TFTP bootfile transfer sometimes hangs.

  Dbgserv/Rombug/dbgentry changed to use exception/vectors instead of direct probes. The direct probes could corrupt memory when the exception module was not present.

- CF12234: The PPC 600 series of cache modules is masking IRQ's during flushing operations.

  Edition #28 of the 603, 604, 750, 8240, and 8260 cache modules no longer masks IRQs during cache flushing, cache invalidating, or cache storing functions. There is still a small amount of needed IRQ masking when changing or altering system global variables.

- CF12296: Hawk does not show line number on bus trap.

  Previously, on a bus trap the PowerPC kernel would return memory trying to be referenced instead of returning the line number of the command causing the bus trap.

  The parameter returned on data and alignment exceptions has been modified; it is now the address of the instruction causing the exception instead of the memory trying to be accessed. This information allows Hawk to point to the line number of the instruction causing the bus trap.

Enhancements

- CF9889: long long (64bit integer) support needed.

  The PowerPC targets for Ultra C/C++ now supports the data type "long long" as a 64-bit integer. Previously, the long long data type was accepted, but it was considered 32 bits. In addition, the `printf` and `scanf` family of functions have been enhanced to include the "L" modifier, which indicates that an object of type long long is being referred.

- CF10470, 11787: Ultra C/C++ needs a 405 target. PowerPC 555 target for all Compiler elements.

  The compiler executive, `xcc`, now has PowerPC 405 and 555 targets. `cpu.l` was also updated to include functions to get and set 405 and 555 specific SPRs and DCRs. Refer to `\MWOS\OS9000\PPC\getset.h` for the new function names. editmod and mkdatmod were also changed to allow for 405 and 555 targets.

Chapter 7: SuperH Notes

This chapter provides an overview of the changes and improvements made to Enhanced OS-9 for SuperH. It covers both the SH-3 and SH-4 processor families. The following sections are included:

- **Enhanced OS-9 for SuperH v3.2**

Enhanced OS-9 for SuperH v3.2

The following sections represent changes and updates for OS-9 for SuperH version 3.2.

Resolved Problems

- CF10197: Power management on SH3 does not work.

  This is a problem with a mismatch between the `.des` file that made the serial descriptor and the `.h` file for the driver. The added fields needed for power management was being included in the `.des` file, and as a result, the serial descriptor. The driver was not being compiled with the PWRAWARE flag, so the logical unit data area allocated for the driver was not being allocated the extra fields needed for power management.

  When the serial descriptor was inized, the `init_data` that copied logical unit data from the descriptor to the driver's logical unit data area would corrupt memory. This mismatch has been corrected, so compiling the driver and descriptor with the PWRAWARE on or off will result in the same structure.

- CF10454: The Wizard cannot build pflashrom from ROM with SH-4 v1.1, but can in SH-3 v1.1.

  A makefile in the SH7750SE directory was corrected to enable the making of a boot that could burn the flash with a ROM image.

- CF11578: idbgen, TLB miss in csl.

  idbgen has been recompiled to eliminate this problem.

- CF11756: `input_error_irq()`, SH-3 and SH-4.

  The way in which input error ISR detects and clears the framing, over-run, and parity errors in SH-3 and SH-4 SCI drivers has been fixed.

Enhancements

- CF8763: Enhance pc-relative move code in optsh.

  The SH-3 and SH-4 assembly code optimizers were enhanced to try to put PC-relative data where it more naturally fits--after unconditional branches or function returns. This results in fewer run-time branches over in-line data.

- CF12010: Update `systype.h` input clock definition (Xtal on MS7750SE01)

  `INPUT_CLOCK` in the SH-4 port SH7750SE has been changed from 30000000 to 33333333 to more precisely reflect the value of crystal-clock oscillator on the board.

- CF12147: `/kx0` freeze, sc8042k.

  Code was added for SH-4 to the sc8042k driver to flush the keyboard buffer before deinitializing the device. Previously, the keyboard device was still causing interrupts; this locked the system.

Compiler Issues

In order to reduce the memory usage, it was necessary to make C++ exception handling incompatible for SuperH. All code that uses exception handling need to be recompiled in order to be compatible with the C++ libraries. This change will result in significant savings in stack and global memory.

Chapter 8: X86 Notes

This chapter provides an overview of the changes and improvements made to Enhanced OS-9 for X86. The following sections are included:

- **Enhanced OS-9 for X86 v3.2**

Enhanced OS-9 for X86 v3.2

The following sections represent changes and updates for OS-9 for X86 version 3.2.

Resolved Problems

- CF12498: Adding PPP in PCAT **Beginner** mode makes the boot too big for a floppy.

  PPP configuration is now grayed out for PCAT in **Beginner** mode; this stops user from including PPP modules and making the boot too big. PPP configuration is still available for PCAT in **Advanced** Mode.

- CF8171: Vectors in X86 is not setting the vector for the NMI.

  The vector T_NMI can not be used with _os_irq to catch the NMI (Vector 2) because the vector table is not initialized with a jump to the vector code.

  This was fixed in edition #9 of 80386 vectors.

- CF8398: Date utility missing from mw86sm.tar resident installation.

  This problem has been fixed.

- CF9293: X86 Ed2 does not return an error on non-existent IDE device access (UK23978).

  If a device is accessed that does not pysically exist on the system, an indefinte hang up occurs and no error code is returned.

  This problem has been fixed in Edition #48 of the RB1003 driver. Now, if a device is accessed that does not physically exist on the system, the following error will appear:

  "000:246 E$NotRdy - device not ready."

Also, Edition #39 of the RB1003 driver introduced a timeout during the init process. However, while this works on primary IDE drives, it does not handle the case of secondary drives. Because the same controller is used for both the primary and secondary drives, the only failure will occur on the actual drive init of the given device.

Edition #48 of the IDE driver will now return error status on the drive init, `initdrv`. Typing `dir /hd1` will now return an error if either the drive or contoller is not found. Therefore, there should be no more lockups or hangs.

Note

The time allowed for drive spin-up in init can be set via the `ds_timeout` field of the descriptor.

- CF9972: Problems with RealTek RTL8139A Ethernet driver.

  Transfers of large files using FTP from OS-9 target to a PC is very slow. There is also an MBUF leakage problem.

  This problem has been fixed. Queued packet support has also been added and an `m_offset` offset alignemt issue fixed.

Note

Data must be quad word aligned.

SPF stops responding after entering ROMBUG

This problem has been fixed. `SS_RombugOff` has been enhanced to use IMR mask.

- CF10077: A20 line handling fails on some laptops.

  This problem has been fixed. The A20 code is in `sysinit` in coreboot. Two coreboots have now been built for X86. One contains a simple A20 toggle and the other contains a more complex toggle

with error checking. The ladder is the default, but in some cases the former coreboot may work where the other fails. The Microware Configuration allows selecting either of the A20 line handlers.

- CF10140: The MediaGX graphic driver fails to update drawmap position in viewport. The `gfx_set_vport_dmpos()` call shows that the MediaGx graphic driver has no effect on the display.

  Since the MediaGX hardware does not support setting `vport` to positions other than the upper left corner (0,0), the driver now returns an error `EOS_MAUI_BADPOS` in `fe_set_vpdmap()` and `fe_set_vpdmpos()`.

- CF11840: Ethernet initialization fails. If a target machine (using a 3Com Ethernet card) is booted without a live connection to a network, the driver does not initialize the card correctly; this results in the error 000:175 (hardware damage) and the target must be rebooted. This problem was originally found using an EtherLink III ISA card.

  A `NO_LINK_BEAT` option has been added in `spe509/defs/spf.desc.h`. If your 3Com Ethernet card is not initializing correctly when there is no live connection, set `NO_LINK_BEAT` to 1 in `spe509/defs/spf.desc.h` and recompile the descriptor. The driver then automatically sets the `MEDIA_LINK_BEAT_OK` flag, which allows the `MEDIA_LINK_BEAT_ENABLE` flag to be set. By default, however, `NO_LINK_BEAT` is set to 0, allowing the code to execute the same as it did prior to the change.

Enhancements

- CF12359: Intel PRO 100 low level driver needs way of over-riding MAC address.

  Edition #20 of the LLPRO100 driver now honors the MAC address supplied in CNFGDATA. By default, support should be disabled for this feature since the MAC hardware address of the card must be resolved at the hardware level. On the Intel Ethernet PRO series, there is setup information along with the MAC address held in the 82559 part itself.

  To enbale the MAC address override feature within the configuration Wizard the following statement needs to be added:

  ```
  The port specific ini file normally does not
  display the MAC address. To display the MAC
  address for editing with in the Wizard change the
  SPF_MAC define to true.
  ```

  ```
  [SUPPORTED_MODULES]
  ```

  ```
  SPF_MAC=TRUE
  ```

  Make sure that ROM/cnfgdata.des includes the following override:

  ```
  /* Example cnfgdata.des entry */
  #if defined(ROM_ETHERNET_IP_MAC_OVERRIDE)
  #define ROM_ETHERNET_IP_MAC ROM_ETHERNET_IP_MAC_OVERRIDE
  #else
  #define ROM_ETHERNET_IP_MAC 00:00:00:00:00:00
  #endif
  string lleth_name = LLETH_NAME;
  init llpm_interface_data[1] {
  ip_address = ROM_ETHERNET_IP_ADDRESS;
  subnet_mask = ROM_ETHERNET_IP_SUBNET;
  brdcst_address = ROM_ETHERNET_IP_BROADCAST;
  mac_address = ROM_ETHERNET_IP_MAC;
  gw_address = ROM_ETHERNET_IP_GATEWAY;
  ```

```
hwtype = LLPM_ETHER;
if_name = lleth_name;
port_address = LLETH_PORT_ADDRESS;
if_vector = LLETH_IF_VECTOR;
if_priority = LLETH_IF_PRIORITY;
if_level = LLETH_IF_LEVEL;
};
```

The Wizard creates a config.h file, which is included in the *.des files for Wizard overrides of cnfgdata data. Once the above changes are made, the new MAC address entered via the Wizard dialogs will be used for the low-level Ethernet driver.

Chapter 9: Host Applications

This chapter contains release notes for host applications used with OS-9 version 3.2. It includes the following sections:

- **Configuration Wizard Notes**
- **Hawk Notes**
- **HawkEye Notes**
- **TECH-CHECK Notes**

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Configuration Wizard Notes

The following sections represent changes and updates for the Configuration Wizard, edition 1.75.

Resolved Problems

- CF4825: Problems with Wizard's Init Options screen.

  You can now see the entire initialization string in the dialog box. In addition, users can keep a given string in a 20-item round-robin History List or a 20-item Protected List. Items may be moved freely between lists. A warning will appear when the maximum number of Protected items is reached.

- CF10264: The Wizard is modifying the memlist table in a wrong way.

  This issue occurs when the .ini file is modified incorrectly. An error message will now appear when the ROMSTART+ PAD_SIZE definition does not match an entry on the memlist from the .ini file.

- CF11119: The Wizard makefiles get confused with user-runable makefiles.

  The Wizard makefiles can be run with os9make once the Wizard has created install.com and core.ml, boot.ml, or both. Makefiles in all BOOTS/INSTALL/PORTBOOT directories have been modified to check whether or not Wizard-generated files exist. If Wizard-generated files do exist, the makefile continues as before. If not, os9make terminates, but not before you are advised to run the Wizard to create the missing files.

- CF11150, CF11137: Error in contents of error_log.txt.

  When a module designed to be included in a bootfile is missing and you opt to terminate the build, the last line of error_log.txt will read, "Can't open <missing_module> in <file.ml>!" When you opt to continue the build from here, another message is written to error_log.txt stating, "Module <module> in <file.ml> not included."

Enhancements

General Enhancements

- Initialization parameters are limited to 994 characters.

  A bootfile build will fail when the initialization parameters string is larger than 994 characters. A counter on the user-defined initialization string screen warns when space is running short.

- There are no more defaults for hostname and domain name.

  Warnings are given when DNS is enabled and relevant DNS information (hostname and search string) is not given. The Wizard no longer fills in hard-coded hostname and domain name defaults when these items are not defined by the user.

- CF11137: Better error messages needed when add-ons are not installed.

  A new "file not found" message has been designed to appear during builds. This message will remind you to be certain all add-ons are properly installed. You can then choose to continue the build without the missing module or to abort the build. Any skipped modules are listed in the build output window.

TFTPBOOT and BOOTP Support Enhancement

The Wizard now includes support for TFTPBOOT. Board ports must be modified slightly for this functionality. The Wizard also supports BOOTP Request configuration, but no booter exists at this time.

For More Information

Refer to `MWOS/SRC/TOOLS/WIZARD/DOC/WizardChanges.doc`, pages 29-34, for details and instructions on using this new functionality.

Rejected Enhancements

- CF12386: The Wizard does not include spenet and enet in the boot when Ethernet is disabled.

  spenet and enet are the driver and descriptor for Ethernet; thus, they are not included when Ethernet is disabled.

- CF12551,10264: Have Wizard ignore wrong memlist information instead of destroying table.

  The Wizard will deliver an error message and terminate the build when the wrong memlist information is defined by the user.

Hawk Notes

The following sections represent changes and updates for Hawk 2.3.

Resolved Problems

- CF12175: Default CPU for project is wrong. When opening an existing project, the chip type on the **General** tab (**Project** -> **Properties**) shows a default of "68000" regardless of whether or not OS-9 for 68k was installed.

  This problem has been fixed. Currently, instead of 68000, the default is the first processor found installed on a user's system.

- CF12434: Access violation in `hawkprj.dll` 2.2.4.10 when changing project properties.

  Previously, if you selected **Project** -> **Properties**, then modified the properties and closed the dialog, an access violation would occur.

  This access violation occurred when the **Project Properties** dialog closed because it was trying to save material from the component properties, not the project properties. This problem has been corrected.

- CF12435: Hawk 2.2 is showing the contents of a project/component in a wrong order.

  The sort "A to Z" has been fixed so that the first time it is clicked it will sort from A to Z. Previously, it was sorting from Z to A if things were already in order. A "by build order" option was also added to the sort menu so that the source files will be put in the order in which they are compiled.

- CF12587: Add "force" option, return error (unlink module)

  A check box with the caption "Force Unlink" has been added to the **Unlink** dialog box. If this item is checked when the **Unlink** button is clicked, the specified module will unlink. The method used to unlink modules will return a boolean value when an unlink is attempted. Previously, if "false" was returned (meaning the unlink failed), no evidence of a failure was displayed. Currently, if false is returned, an error box will appear with a message stating that the unlink failed.

- CF12606: Cannot clear component description.

  Previously, it was not possible to clear the description from a component. Clearing the field caused a change to the **Edit** mode. In addition, when the green check was pressed, the description remained unaltered even though the dialog returned to **Browse** mode; closing and re-opening the dialog showed the original description unchanged. Hawk was incorrectly handling a case in which there was already a description for a component, and it was being reset to NULL. This problem has been fixed.

- CF12678: Hawk bug moving projects.

  On some occasions, moving a project used to result in the incorrect changing of some paths to source files. Initially, the filenames in the project were inserted with a full path instead of a relative path. This caused problems if the project was moved. This problem has been fixed. Currently, the filenames are inserted with a relative path; therefore, moving a project is acceptable.

Enhancements

- CF12244: In the Hawk Profiler, the **Function** column does not sort like all of the other columns on the main and function screens.

  The Profiler has been enhanced. It will now select the manner in which functions are sorted by clicking on the headings of the table in the **Functions** screen.

- CF12482: Hawk Profiler.

  A grid has been added to the CPU and Memory usage tables in the Profiler. The amount of time elapsed between vertical lines in the grid is now also displayed on the Profiler. The horizontal lines of the grid are 25%, 50%, and 75%.

- CF12589: When adding a unit, default to current component (not first one).

  Previously, if you attempted to insert files into Hawk, Hawk would try to insert the files into the first component in the project. An enhancement has been made to Hawk concerning this problem. Now, Hawk will make the currently selected component the default component in the dialog. This component will then appear when files are added using the drag-and-drop method.

- CF12671: `mwdock22.dat` should be saved in `MWOS\DOS\BIN`.

  Previously, the directory in which Hawk launched was the same directory that contained the file `mwdock22.dat`, which stored docking information for that Hawk session. Potentially, a user could have several different copies of `mwdock22.dat` on his/her machine. This problem has been solved. Currently, Hawk looks in `MWOS\DOS\BIN` when opening and saving `mwdock22.dat`.

- CF12681: Load modules from the DOS command line of the Host machine.

  An "-L" option has been added to `hawkdbgr` to allow for the loading of modules from a DOS command line. Formerly, the command, `hawkdbgr -T=neptune -L=d:\projects\cf12681`, would load modules onto the target neptune.

  If more than module is loaded, use a `;` to delimit the list of modules (such as `hawkdbgr -t=neptune -L=d:\projects\cf12681;c:\module`). For a full list of available command line options, type `hawkdbgr -?`.

- CF2686: Profiler launcher application needs rewriting.

  The shell window that contains the Java command used to launch the Profiler is no longer displayed when the Profiler is launched from Hawk.

HawkEye Notes

No additions have been made to HawkEye since the last release.

For More Information

For the latest HawkEye release notes, refer to the *Enhanced OS-9 Release Notes v3.1* document, included with this CD.

TECH-CHECK Notes

No additions have been made to TECH-CHECK since the last release.

For More Information

For the latest TECH-CHECK release notes, refer to the *Enhanced OS-9 Release Notes v3.1* document, included with this CD.

Chapter 10: Components

This chapter contains target processor-independent release notes for OS-9 components. It includes the following sections:

- **OS-9 Compiler Notes**
- **PersonalJava Solution for OS-9 Notes**
- **Networking Notes**
- **MAUI Notes**
- **SNMP Notes**
- **OS-9 Utilities Notes**

RadiSys.

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OS-9 Compiler Notes

The following sections contain release notes for the OS-9 Compiler v2.5.

Resolved Problems

- CF2677: Linker cannot set file attributes on `.stb` file.

  The linker was changed to do a better job of setting the requested file attributes on the `.stb` and `.dbg` files generated for a particular executable.

- CF2768: Shifting is inconsistent.

  The RISC processor assemblers no longer cause the right shift of external symbols to be done unsigned. The assemblers were already right shifting internal symbols in a signed fashion. Thus, the right shift of a symbol is now consistent with regard to the assembler and linker, both for internal and external symbol references.

- CF7424: Floating Point Emulation Problems.

  This was a problem with the `pow()` function in RISC C libraries. It was incorrectly handling underflow in some situations. This problem has been fixed.

- CF9886: Some strange things with `Cpp` using maps.

  The demonstration program caused problems because it generated symbol names near 2130 characters in length. `rdump` and the linker have been fixed to handle these long symbol names. (Previously, they were limited to 2048 characters.) They now accept any length symbol name. Edition #32 or better of `rdump` and edition #160 or better of the linker correct this problem.

- CF10265: C++ using `rw/tvslist.h` cannot be compiled.

  The header file `\MWOS\SRC\DEFS\rw\stdex\defs.h` is now included by `\MWOS\SRC\DEFS\rw\stdex\slist.h`. This allows `slist.h` to be included by any C++ application.

- CF10798: Different modules from Win98/2000, UltraC.

  In the icode optimizer there is a data structure called a "set", which may be ordered or unordered. For an ordered set, a comparison function is generally specified to determine how to order the items in a given set. Previously, if no comparison function was specified, the default compared the addresses of the items. This caused ordering discrepancies between the same sets on hosts of with different memory environments.

  Currently, if no comparison function is specified, the set will remain unordered. All new items will be added at the end of the list of items in the set. Thus, the set will always be ordered the same way and optimization decisions will be made on with the same data ordering method.

- CF10815: iopt could do better CSEs in ll8139.

  The I-code optimizer was modified do generate more optimal code on processors with 32 or more general purpose registers. It was being too optimistic about the memory addressing capabilities of the underlying machines.

- CF11156: R68 leaves zero-byte file if assembler fails.

  All assemblers were changed to, by default, delete any output file in the case of errors. A new option (-k) was added to allow the incomplete output file to be kept.

- CF11176: xcc file name limit.

  The temporary directory name (-td option) was limited to about 60 characters. This problem has been corrected. There is now no limit to the length of a temporary directory name.

- CF11236: The linker's thread violation error message is difficult to comprehend.

  The threading violation linker error/warning message was fixed to include meaningful information about the reason for the threading violation. It now includes both the threading status of the violating object and the prior objects.

- CF11605, 11606: Inaccurate help on Ultra C front end. The help text for `cpfe` is incomplete.

  The help for the front end was fixed. Necessary options have been added. A few other options contained inaccurate descriptions; these were corrected. The listing was then alphabetized by short option and secondarily by long option.

- CF11742: C++ exception handling failed when using multiple threads.

  Exception handling used certain globals that were being corrupted due to multiple threads using them simultaneously. These globals were changed to use thread-local data instead of global variables.

- CF11853: Compiling certain files causes `appc.exe` to crash.

  This problem only occurs in rare circumstances when a program is being compiled for debug (`-g`).

- CF11854: Wrong modifications in `\MWOS\SRC\DEFS\queue` causes C++ not to compile.

  The following files were modified: `\MWOS\SRC\DEFS\queue`, `\MWOS\SRC\DEFS\iterator`, and `\MWOS\SRC\DEFS\istream`. Some incorrect modifications to these files were causing friend template functions to be instantiated although they were not referenced anywhere in the program. The files were reverted back to their previous state, only requiring the friend template functions to be instantiated if they were used in the program.

- CF11895: Threading libraries should not default to stack checking.

  The threading libraries were changed have stack checking disabled for those functions that only used a little stack. This resulted in significant performance improvement in the threading libraries.

- CF12058: Process const pointer lost when signal arrives if using subroutine module.

  The `intercept()` and `signal()` library routines could, under certain circumstances, call your signal handler with an incorrect constant pointer in place. The following criteria must be met in order for this to be a problem:

  - program compiled for processor with a constant pointer
  - constant pointer required by the signal handler
  - I-code linked program
  - `-bepg` not used
  - non-CSL subroutine module being employed

  If a signal arrives while the current PC is in the subroutine module, the CP set for the signal handler will be that of the subroutine module. This problem has been corrected with the setting of CP properly in all cases. `_os_intercept()` will still suffer from this problem.

- CF12159: Compiler is generating huge program.

  The front-end was changed so that it does not automatically generate zero-filled initialized data for C++ arrays. The arrays will still be initialized to zero, just not as part of the initialized data.

- CF12191, 12372: A bug in three string library functions in `clib.l`. Compiler is generating wrong Initialized Data for Structure.

  The Ultra C front end was duplicating some padding when generating the initializer for an array of structures with initialized unions.

Enhancements

- CF2738, 9082: Allow C++ style comments within C code.

  An executive (xx) command line option, `-cq`, was added to allow C++ style comments (comments beginning with "//" and ending at the end of a line) in C programs. This option can also be executed by passing the option `--cpp_comments_allowed` to the front end.

- CF7036: Linker should report location of offending reference (RFI).

  The linker was enhanced to include more information when symbols are out of range. The symbol that was out of range is reported. Also, the error message has better documentation on correcting the problem.

- CF10229: Add a command line option to the linker to set the module revision.

  The linker has been modified so that the attribute/revision field variable in the module header can be modified via the linker command line or by using an assembly language statement to set a global definition.

  There are several global definitions that are examined to determine the attribute revision word. Currently, `_m_attrev` and `_sysattr` will override any other values; in addition, `m_attrev` will have precedence over `_sysattr`. The modification causes the linker to override the revision portion of the attrev value set in any other location. This global definition, named `_m_rev`, overrides the rev part of attrev set by any other means, including `_m_attrev`, and `_sysattr`. If none of `_m_rev`, `_m_attrev`, or `_sysattr` is set, the revision value set on the command line is used for the revision number. The command line option is `R`, the syntax is `-R=nnn` (where nnn is less than 256). A value greater than 255 causes a fatal link error.

PersonalJava Solution for OS-9 Notes

No additions have been made to PersonalJava since the last release.

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For More Information

For the latest PersonalJava release notes, refer to the *Enhanced OS-9 Release Notes v3.1* document, included with this CD.

Networking Notes

The following sections include the release notes for SoftStax/LAN Communications Pak v3.6.

Protocol Modules

- spip

  CF12565: In some situations spip can generate occasional bad checksums.

  This problem has been fixed.

Utilities

- ftpd

  CF11264 and CF11872: The FTP server causes the system to hang.

  Under some situations, typing an incorrect password would cause the entire system to hang. This was due to a file I/O problem with non-threaded applications. The problem has been fixed.

- ping

  Exits when an ICMP redirect is received.

  This no longer happens. Currently, when an ICMP redirect is received, a notification will be printed and ping will continue to wait for a response.

- dhcp

  If the hostname is set, it is now included in DISCOVER and REQUEST packets.

Drivers

- PPP

  CF12481, CF12322: The sppscf driver, which handles the interaction between the SCF serial driver and the SoftStax PPP drivers, was not setting the SCF driver's global pointer correctly. This stopped any SCF driver using global data from working properly with PPP. Currently, the sppscf driver performs this task correctly; all SCF drivers should now work with PPP.

  CF10563: Both the 10Mbit (sps8260) and 100Mbit (spf8260) now work correctly with the data cache enabled. Previously, occasional packet loss occurred.

MAUI Notes

No additions have been made to MAUI since the last release.

For More Information

For the latest MAUI release notes, refer to the *Enhanced OS-9 Release Notes v3.1* document, included with this CD.

SNMP Notes

No additions have been made to SNMP since the last release.

For More Information

For the latest SNMP release notes, refer to the *Enhanced OS-9 Release Notes v3.1* document, included with this CD.

OS-9 Utilities Notes

The following section represents changes and updates for the OS-9 utilities.

Enhancements

- CF8597: Add additional queue information to `procs -x`.

    procs has been modified so that the queue status is now given in words when option `-x` is used. When a user-state process is waiting for an event, the Event ID of that event is given.

Product Discrepancy Report

To: Microware Customer Support

FAX: 515-224-1352

From:_____

Company:_____

Phone:_____

Fax:_____Email:_____

Product Name:

Description of Problem:

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Host Platform_____

Target Platform_____

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