Procedure to build VxWorks OS libraries and OpenSSL 1.0.1s

The following CDs are to be installed in the below order. The components to be installed are to be the same as that given under each CDs. Host system is Windows XP version 5.1 Service Pack 3.

[Note: Initial setup was using install products keys from WRKK, which did not enable kernel source for MIPS component and failed to build OS libraries. This was rectified after installing with customer(Iwatsu)'s install keys.]

Step 1:

Install CDR-R110214.1-1

Wind River Workbench 2.4

100-R110787	Wind River Workbench 2.4	
100-R110790	Wind River Workbench Debugger	
100-R110793	Debugger Support for VxWorks Target OS	
100-R110799	Debugger Support for Linux Desktop	
100-R110815	Wind River Target Server Connection Processor Support	Architecture:PPC
100-R110821	Wind River Target Server Connection Processor Support	Architecture:MIPS
100-R110830	Wind River Target Server Connection Processor Support	Architecture:SH
100-R110833	Wind River OCD Connection Processor Support	Architecture:PPC
100-R110836	Wind River OCD Connection Processor Support	Architecture:MIPS
100-R110851	Wind River System Viewer for VxWorks	

Step 2:

Install CDR-R110232.1-1

Wind River Compiler 5.3

100-R111199	Wind River Compiler	
100-R111215	Wind River Compiler for VxWorks 6.x	Architecture:MIPS
100-R111216	Wind River Compiler for VxWorks 6.x	Architecture:PPC
100-R111217	Wind River Compiler for VxWorks 6.x	Architecture:SH

Step 3:

Install CDR-R110233.1-1

Wind River GNU Compiler 3.3.2 for VxWorks 6.2

100-R111009	Wind River GNU Compiler for VxWorks	Architecture:PPC
100-R111015	Wind River GNU Compiler for VxWorks	Architecture:MIPS
100-R111021	Wind River GNU Compiler for VxWorks	Architecture:SH

Step 4:

Install CDR-R110234.1-1

VxWorks 6.2 and General Purpose Technologies

100-R111241	VxWorks	Architecture:PPC	
100-R111243	VxWorks	Architecture:MIPS	
100-R111244	VxWorks	Architecture:SH	
100-R111248	VxMP	Architecture:PPC	
100-R111250	VxMP	Architecture:MIPS	
100-R111251	VxMP	Architecture:SH	
100-R111255	VxWorks Processor Adapter	Architecture:PPC x	ProcessorFamily:PPC40X
100-R111256	VxWorks Processor Adapter	Architecture:PPC x	ProcessorFamily:PPC44X
100-R111257	VxWorks Processor Adapter	Architecture:PPC x	ProcessorFamily:PPC6XX
100-R111258	VxWorks Processor Adapter	Architecture:PPC x	ProcessorFamily:PPC7XX
100-R111259	VxWorks Processor Adapter	Architecture:PPC x	ProcessorFamily:PPC97X
100-R111260	VxWorks Processor Adapter	Architecture:PPC x	ProcessorFamily:MPC8XX
100-R111261	VxWorks Processor Adapter	Architecture:PPC x	ProcessorFamily:MPC52XX
100-R111262	VxWorks Processor Adapter	Architecture:PPC x	ProcessorFamily:MPC74XX
100-R111263	VxWorks Processor Adapter	Architecture:PPC x	ProcessorFamily:MPC82XX
100-R111264	VxWorks Processor Adapter	Architecture:PPC x	ProcessorFamily:MPC83XX
100-R111265	VxWorks Processor Adapter	Architecture:PPC x	ProcessorFamily:MPC85XX
100-R111272	VxWorks Processor Adapter	Architecture:MIPS x	ProcessorFamily:BCM12XX
100-R111274	VxWorks Processor Adapter	Architecture:MIPS x	ProcessorFamily:MTI4KX
100-R111275	VxWorks Processor Adapter	Architecture:MIPS x	ProcessorFamily:MTI5KX
100-R111276	VxWorks Processor Adapter	Architecture:MIPS x	ProcessorFamily:MTI24KX
100-R111279	VxWorks Processor Adapter	Architecture:MIPS x	ProcessorFamily:RM9XXX
100-R111281	VxWorks Processor Adapter	Architecture:MIPS x	ProcessorFamily:VR55XX
100-R111282	VxWorks Processor Adapter	Architecture:MIPS x	ProcessorFamily:TX49XX
100-R111283	VxWorks Processor Adapter	Architecture:SH x	ProcessorFamily:SH4
100-R111291	VxWorks Device Drivers	Architecture:PPC	
100-R111293	VxWorks Device Drivers	Architecture:MIPS	
100-R111294	VxWorks Device Drivers	Architecture:SH	
100-R111298	Wind River USB 2.2.2	Architecture: PPC	
100-R111300	Wind River USB 2.2.2	Architecture: MIPS	
100-R111301	Wind River USB 2.2.2	Architecture: SH	
100-R111312	Wind River PPP 2.2.1	Architecture: PPC	
100-R111314	Wind River PPP 2.2.1	Architecture: MIPS	
100-R111315	Wind River PPP 2.2.1	Architecture: SH	
100-R111319	Wind River TIPC 1.2	Architecture:PPC	
100-R111321	Wind River TIPC 1.2	Architecture:MIPS	
100-R111322	Wind River TIPC 1.2	Architecture:SH	

100-R111326	Wind River VxWorks Simulator	Host:Windows	
100-R111329	VxWorks Utilities	Host:Windows	
100-R111332	VxWorks OS Source		
100-R111333	VxWorks Kernel Source	Architecture:PPC	
100-R111336	VxWorks Kernel Source	Architecture:SH	
100-R111340	VxMP Source		
100-R111341	Wind River USB 2.2.2 Source		
100-R111342	Wind River Network Stack 3.0 Source		
100-R111373	Wind River Network Stack 3.0 Platform Edition Source		
100-R111344	Wind River PPP 2.2.1 Source		
100-R111345	Wind River TIPC 1.2 Source		
100-R111346	Wind River VxWorks Simulator Source	Host:Windows	

Step 5:

Install CDR-R110236.1-1

VxWorks 6.2 BSPs for MIPS

100-R111236	VxWorks Reference BSPs	Architecture:MIPS

Step 6:

Install CDR-R110238.1-1

VxWorks 6.2 BSPs for PowerPC

100-R111238	VxWorks Reference BSPs	Architecture:PPC

Step 7:

Install CDR-R110513.1-1

Wind River Platform Technologies VxWorks Edition 3.2

100-R110985	Wind River Platform CD Common Source		
100-R110988	Wind River CAN 1.5.1 Source		
100-R110989	Wind River CLI	Web	MIBway 4.4.2 Source
100-R110990	Web	MIBway Tools 4.4: Windows	
100-R110991	Wind River DCOM 2.3.2	Source: Windows	
100-R110992	Wind River Firewall 2.1 Source		
100-R110993	Wind River IPsec and IKE 3.2 Source		
100-R110994	Wind River Learning Bridge 1.3.1 Source		
100-R110995	Wind River Media Library 4.1 Source		
100-R110996	Wind River NAT 2.1 Source		
100-R110997	Wind River OPC 3.1.1 Source: Windows		
100-R110998	Wind River OSPF 3.1.1 Source		
100-R110999	Wind River RADIUS Client 1.3 Source		

100-R111000	Wind River Security Libraries 1.1 Source		
100-R111001	Wind River SNMP 10.0.2 Source		
100-R111002	Wind River SNMP Tools 10.0: Windows		
100-R111005	Wind River SSL 1.1 Source		
100-R111006	Wind River Web Services 1.3 Source		
100-R111007	Wind River Wireless Ethernet Driver 2.2 Source		
100-R111008	Wind River Wireless Security 2.1 Source		

Step 8:

Install CDR-R110251.1-1

Wind River ScopeTools 5.4

100-R110763	Wind River StethoScope 7.8 for VxWorks 6.x
100-R110766	Wind River MemScope 3.6 for VxWorks 6.x
100-R110769	Wind River ProfileScope 4.8 for VxWorks 6.x

Step 9:

Install CDR-R110214.1-2

Wind River Workbench 2.4 Service Pack 1

100-R110787	Patch for Wind River Workbench 2.4	
100-R110790	Patch for Wind River Workbench Debugger	
100-R110793	Patch for Debugger Support for VxWorks Target OS	
100-R110799	Patch for Debugger Support for Linux Desktop	
100-R110815	Patch for Wind River Target Server Connection Processor Support	Architecture:PPC
100-R110821	Patch for Wind River Target Server Connection Processor Support	Architecture:MIPS
100-R110830	Patch for Wind River Target Server Connection Processor Support	Architecture:SH
100-R110833	Patch for Wind River OCD Connection Processor Support	Architecture:PPC
100-R110836	Patch for Wind River OCD Connection Processor Support	Architecture:MIPS

STEP 10:

Install CDR-R110234.1-2

VxWorks 6.2 and General Purpose Technologies Service Pack 1

100-R111241	Patch for VxWorks	Architecture:PPC	
100-R111243	Patch for VxWorks	Architecture:MIPS	
100-R111244	Patch for VxWorks	Architecture:SH	
100-R111272	Patch for VxWorks Processor Adapter	Architecture:MIPS x	ProcessorFamily:BCM12XX
100-R111274	Patch for VxWorks Processor Adapter	Architecture:MIPS x	ProcessorFamily:MTI4KX
100-R111275	Patch for VxWorks Processor Adapter	Architecture:MIPS x	ProcessorFamily:MTI5KX
100-R111276	Patch for VxWorks Processor	Architecture:MIPS x	ProcessorFamily:MTI24K

	Adapter		X
100-R111279	Patch for VxWorks Processor Adapter	Architecture:MIPS x	ProcessorFamily:RM9XXX
100-R111281	Patch for VxWorks Processor Adapter	Architecture:MIPS x	ProcessorFamily:VR55XX
100-R111282	Patch for VxWorks Processor Adapter	Architecture:MIPS x	ProcessorFamily:TX49XX
100-R111291	Patch for VxWorks Device Drivers	Architecture:PPC	
100-R111293	Patch for VxWorks Device Drivers	Architecture:MIPS	
100-R111294	Patch for VxWorks Device Drivers	Architecture:SH	
100-R111298	Patch for Wind River USB 2.2.2	Architecture: PPC	
100-R111300	Patch for Wind River USB 2.2.2	Architecture: MIPS	
100-R111301	Patch for Wind River USB 2.2.2	Architecture: SH	
100-R111319	Patch for Wind River TIPC 1.2	Architecture:PPC	
100-R111321	Patch for Wind River TIPC 1.2	Architecture:MIPS	
100-R111322	Patch for Wind River TIPC 1.2	Architecture:SH	
100-R111326	Patch for Wind River VxWorks Simulator	Host:Windows	
100-R111329	Patch for VxWorks Utilities	Host:Windows	
100-R111332	Patch for VxWorks OS Source		
100-R111341	Patch for Wind River USB 2.2.2 Source		
100-R111342	Patch for Wind River Network Stack 3.0 Source		
100-R111346	Patch for Wind River VxWorks Simulator Source	Host:Windows	

Step 11:

Install CDR-R110236.1-2

VxWorks 6.2 BSPs for MIPS Service Pack 1

100-R111236	Patch for VxWorks Reference BSPs	Architecture:MIPS

Step 12:

Install CDR-R110513.1-3

Wind River Platform Technologies VxWorks Edition 3.2 Service Pack 2

100-R110989	Patch - Wind River CLI, Web	MIBway 4.4.3 Source
100-R110993	Patch - Wind River IPsec and IKE 3.2.2 Source	
100-R111000	Patch - Wind River Security Libraries 1.1.1 Source	

Step 13:

Install CDR-R118135.1-1
VxWorks 6.2.1 Patch 00037220

VxWorks 6.2.1 Patch 00037220

Step 14:

Install CDR-R139703.1-1
VxWorks 6.2 Point Patch WIND00030127

VxWorks 6.2 Patch WIND00030127

Step 15:

Install CDR-R138426.1-1
VxWorks 6.2 Cummulative FS Patch 2

VxWorks 6.2 Cummulative FS Patch 2

Step 16:

InstallCDR-R140328.1-1
VxWorks 6.2 Point Patch WIND00110867

VxWorks 6.2 Patch WIND00110867

Step 17:

Install CDR-R122272.1-1
VxWorks 6.2 Point Patch WIND00062451

VxWorks 6.2 Patch WIND00062451

Installing IWE14057 patch and build Instructions

Step 18:

On DEV PC:

1. Unzip JPN-IWE14057-5705_rel.zip to a temporary directory. (e.g. c:\iwe14057\)

2. Overwrite following directories

   <WorkbenchInstallationDirectory>\VxWorks-6.2\target

   withtarget folder from unzipped directory.

   Example : C:\iwe14057\JPN-IWE14057-5705_rel\src\target

Step 19:

Modify following files as described below

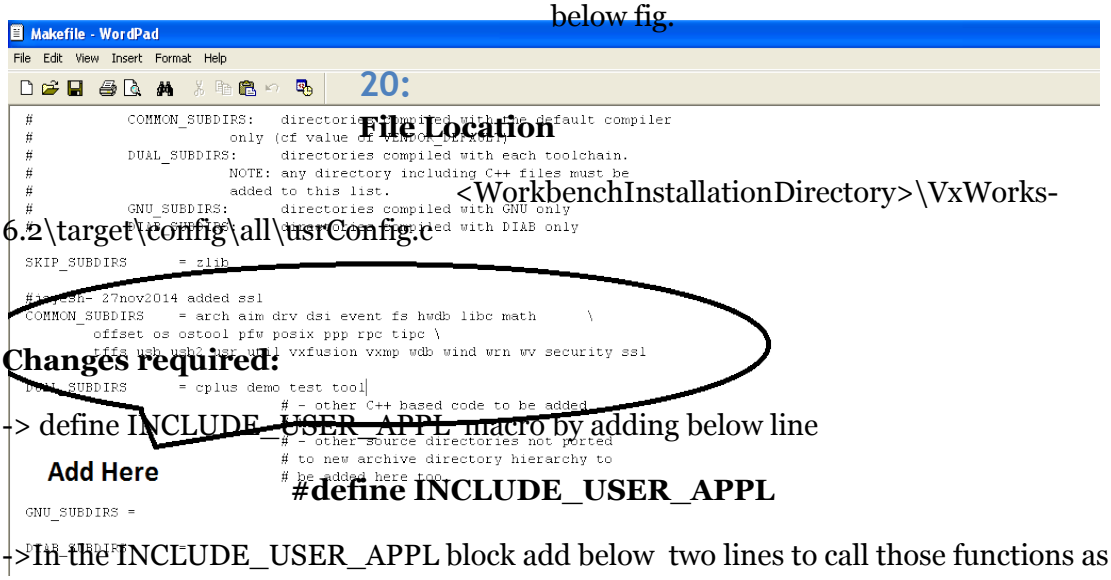
File Location

<WorkbenchInstallationDirectory>\VxWorks-6.2\target\src\Makefile

Changes required:

-> Search for "COMMON_SUBDIRS" (where you will see wind,wrn,wvlisted)

-> Append "security" and "ssl" to the list of COMMON_SUBDIRS as shown in below fig.



Step 20:

File Location

<WorkbenchInstallationDirectory>\VxWorks-6.2\target\config\all\usrConfig.c

Changes required:

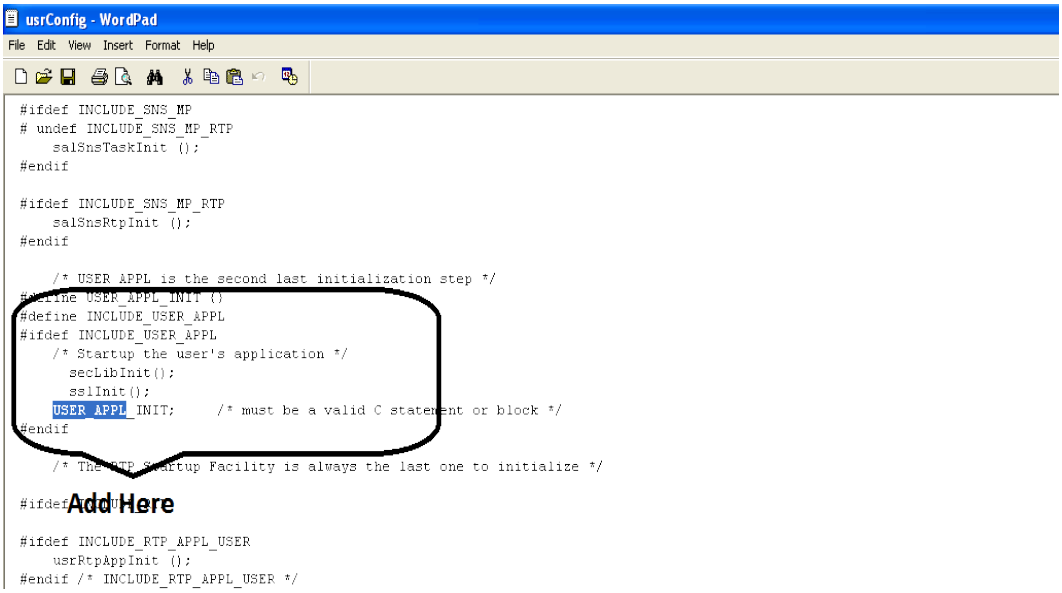
-> define INCLUDE_USER_APPL macro by adding below line

#define INCLUDE_USER_APPL

->In the INCLUDE_USER_APPL block add below two lines to call those functions as shown in below fig.

```
secLibInit();
```

```
sslInit();
```



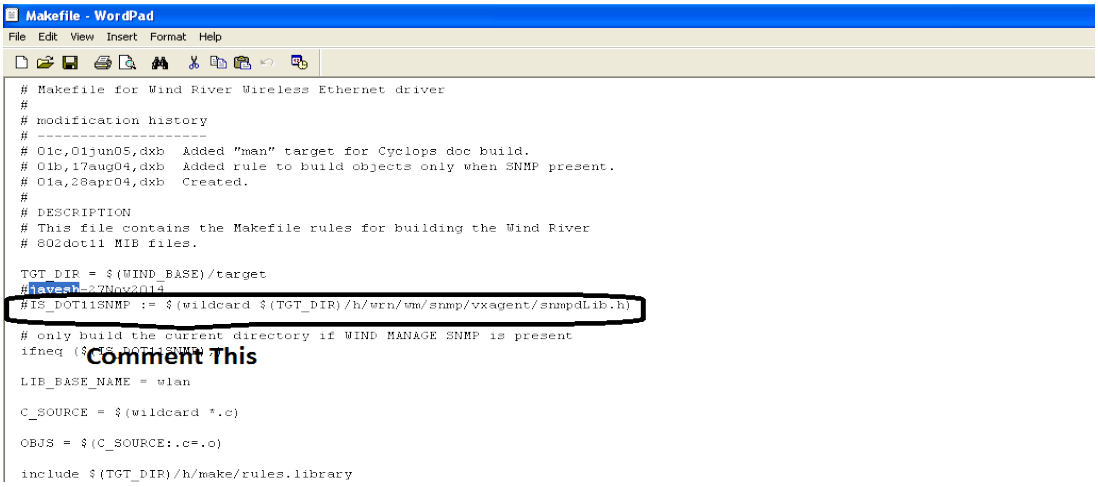
Step 21:

File Location

<WorkbenchInstallationDirectory>\VxWorks-6.2\target\src\drv\wlan\management\Makefile

Changes required:

- search for "IS_DOT11SNMP" and comment that line as shown in below fig.



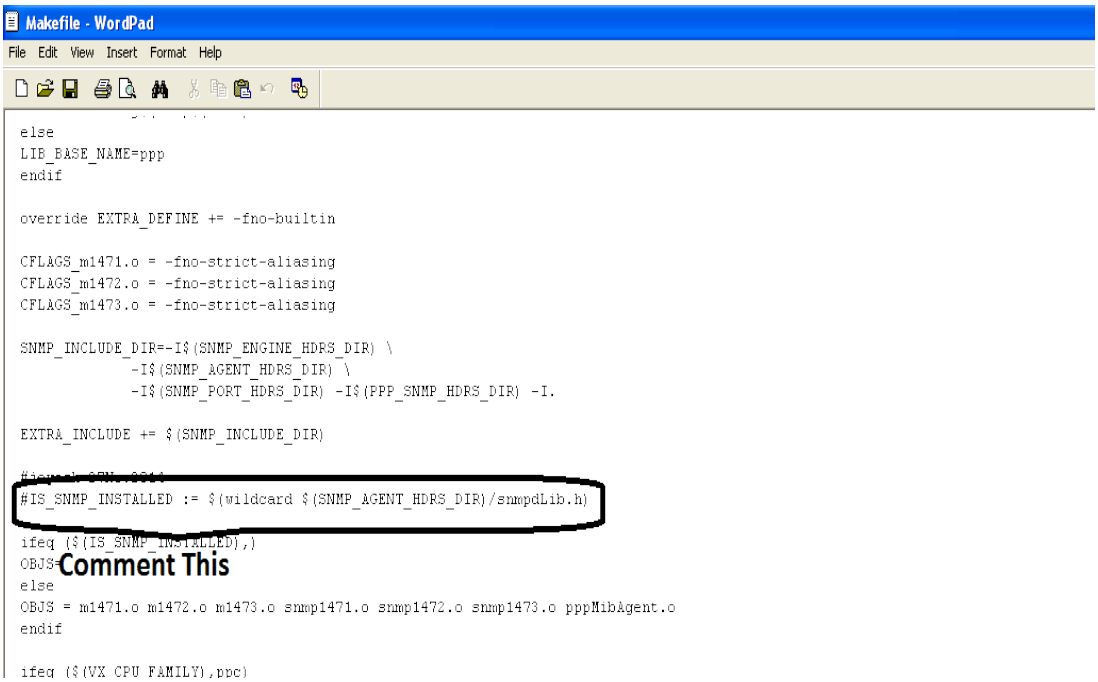
Step 22:

File Location

<WorkbenchInstallationDirectory>\VxWorks-6.2\target\src\ppp\management\snmpAgent\Makefile

Changes required:

- search for "IS_SNMP_INSTALLED" and comment that line as shown in below fig.



Step 23: IWE216532-TLS bug-fixes and task lock release

Procedure to apply code changes:

Note : Assume that secLibInit() function is used to initialize WRsecurity library as part of OS startup.(typically,usrRoot() in~\target\config\all\usrConfig.c)]

Replace following files in the environment by corresponding current fix files

~\target\src\security\compatibility\vxworks\sslMemoryRoutines.c
~\target\src\security\compatibility\rsa\rsa_cci.c
~\target\config\comps\src\usrCertsInit.c

Step 24:

1. Build VxWorks-6.2 for specific CPU(for ex: PPC32,MIPS64) by following below steps:

    1. Open **VxWorksDevlopmentShell(start->all programs->windriver->vxworks-6.2->vxworks development shell).**
    2. Goto directory <WorkbenchInstallationDirectory>**\VxWorks-6.2\target\src**

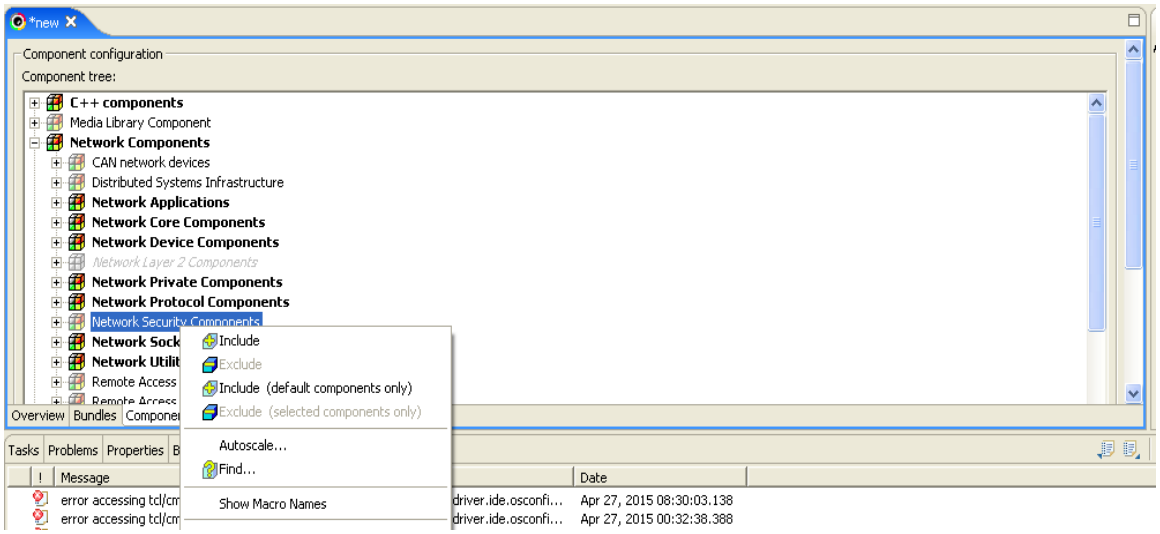
3. Build using 'make' command as make CPU=<cpu name> TOOL=diab

e.g :makeCPU=MIPS64 TOOL=diab

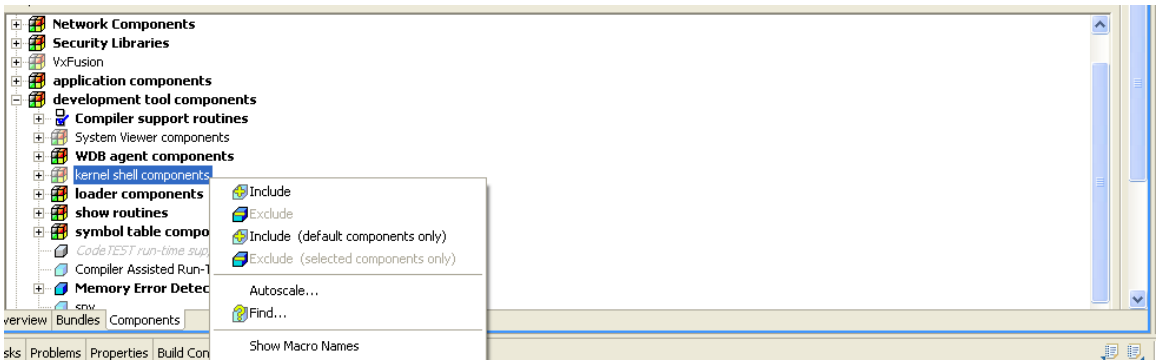
Step 25:

1.Create Image Project Under WindRiver Workbench

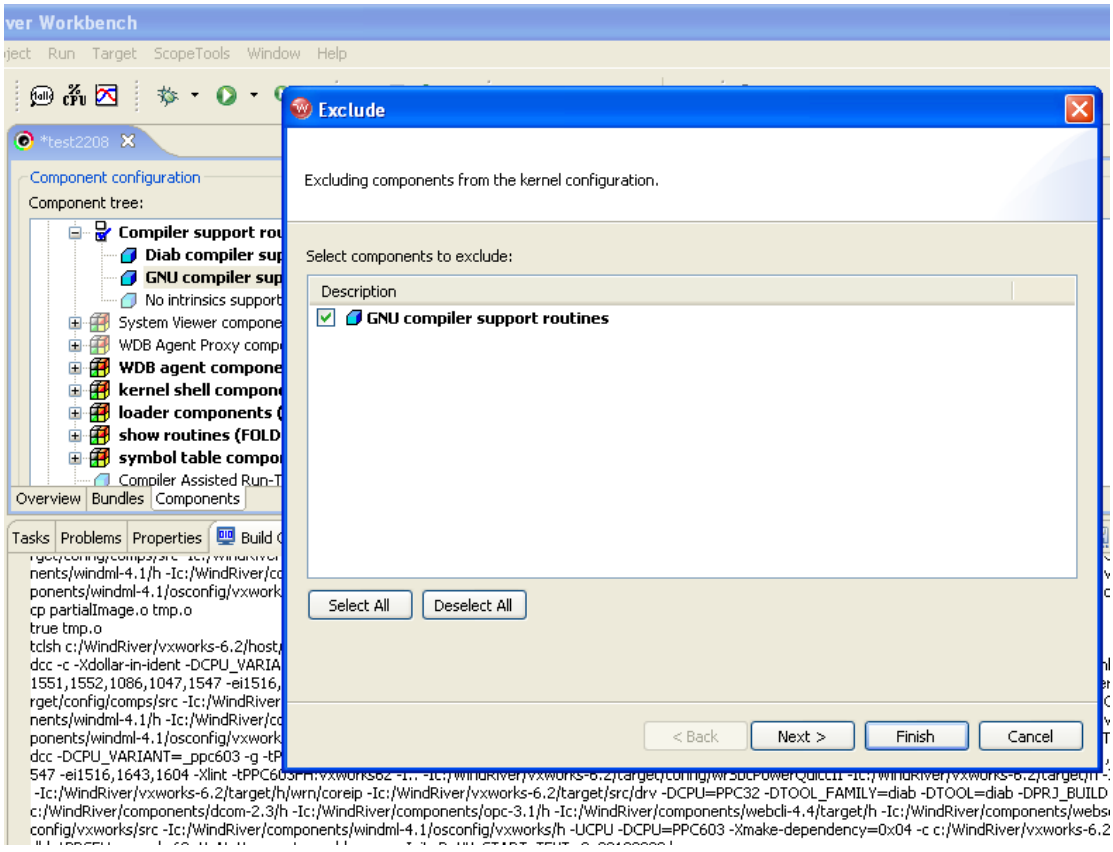
1. Open Workbench GUI(**start->All programs->windriver->workbench 2.4**).
2. Create new VxWorksimage project from Workbench-2.4 menu(**file->new->vxworks image project**).
3. Give project name and click on 'next' .
4. Select BSP(Board Supporting Package) and tool chain and click on 'finish'. Goto kernel configuration of the project from project window.
5. In component tree, enable vxWorkscomponentsINCLUDE_SSL and INCLUDE_SSL_APPS by including **network security components** under **network components** as shown in below fig.



6. Include **Kernel shell Components**under**Development Tools Components(select all)**



7. Exclude “GNU compiler support routines” in “compiler support routines”



8. Build/Rebuild Project.

9. By default VxWorks image will be present in following directory.<WindRiverInstalledDirectory>\workspace\project_name\default\VxWor

ks

Steps To Build For Tasklock:

Test code is included under Testcode directory in attachment..
To use test code,
BSP directory:
Modify config.h in bsp directory (~\target\config\<bspdirname>\config.h) to define following macro.

```
#define USER_APPL_INIT \
{ \
IMPORT int wrkkssltest (); \
        taskSpawn ("tWrkkssltest", 30, 0, 3000, wrkkssltest, 0, 0, 0,0,0,0,0,0,0,0); \
}
```

(Make sure INCLUDE_USER_APPL is defined and USER_APPL_INIT is invoked from usrRoot() in ~\target\config\all\usrConfig.c)
Add following files from attachment to BSP directory and edit BSP Makefile to add them to MACH_EXTRA

        wrkkssltest.c
        wrSSLTest.c

Execute step No:24

/EOD