Packaging of Control System Software

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OVERVIEW

☑ Software build procedure is fully automated to...
  ☑ ... avoid possibility of human error
  ☑ ... ensure reproducibility of the build at a later time (e.g., for patches and updates)
  ☑ ... improved efficiency of development
  ☑ ... enables continuous integration (i.e., rebuilding and running unit tests upon any change of code, and on a nightly basis)

☑ By packaging we mean preparing an installable package.
A package contains:
  ☑ files needed at run-time
  ☑ dependency information, i.e., what other packages need to be installed
  ☑ actions to take before and after installing, uninstalling or updating a package

WE PROVIDE PACKAGING FOR...

☑ In case of ITER CODAC, Red Hat Enterprise Linux was chosen as the operating system
  ☑ We support RPM packages.
  ☑ Portable – but not actively supported – to other RPM-based Linux distributions (e.g., CentOS and Scientific Linux)

☑ Packaging of EPICS IOCs:
  ☑ The IOC application (binary).
  ☑ Database files.
  ☑ Startup configuration (st.cmd).
  ☑ init.d startup script.
  ☑ IOC not running as root user (for improved security), so permissions are also set-up accordingly.

☑ Control System Studio
  ☑ BOY operator interface screens.
  ☑ BEAST alarm server configuration files (and automatic installation upon install of RPM package).
  ☑ BEAUTY archive server configuration files (and automatic installation upon install of RPM package).

☑ Linux kernel modules
  ☑ Compilation and packaging for all supported Linux kernel (currently real-time and non-real-time kernels).

WORKFLOW

EXAMPLE

Input (a snippet from Maven pom.xml):

```xml
<package name="MICloc">
  <include name="MIC-ICPCore" type="loc"/>
  <include type="Boy" file="***"/>
  <include type="databrowser" file="power.plt"/>
</package>
```

Intermediate output (a SPEC file for building a RPM package):

```bash
# SPEC file for package EPICS-py-tickle
# Generated by the packager Maven plugin.
# Date: Fri Sep 30 13:32:55 CEST 2011 ...
%define unit_version_full %(codac_version_full).v1.0gal
Name: %(_codac_rpm_prefix):rf-ich-sample-MICloc
Version: %(codac_version_full).v1.0gal
...
%Requires: %etp_current codac-core-3.0-epics-autosave
%description
%package (a snippet from Maven pom.xml):
%install
sed -r -i "s/epicsAutomat("DOP")/,\"","s/epicsAutomat("DOP","opt/codac-3.0/apps/rf-ich-sample")/\"","s/buildroot/opt/codac-3.0/apps/rf-ich-sample/
..." %buildroot/loc=ICPCore/epics pobli...
```

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