WebSphere software

IBM

e business software

IBM's Service Management Framework™

BJ Hargrave
hargrave@us.ibm.com

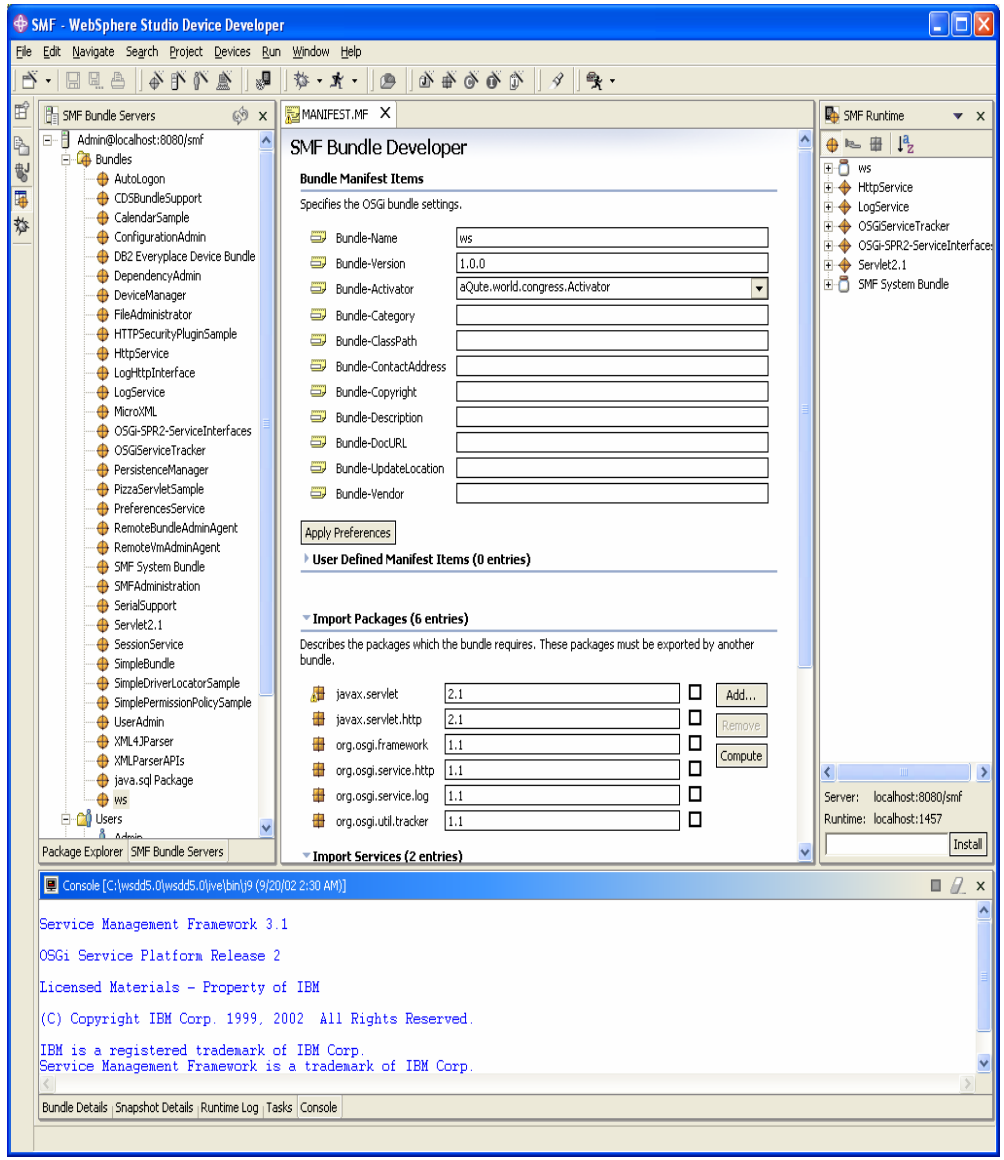
IBM Software Group

Design Goals

- Componentized Implementation
- Optimized for Embedded Use
- Enable viable deployment on resource constrained devices
- Integration with IBM WebSphere Everyplace family
- Integration with IBM WebSphere Studio development environment

SMF Bundle Developer

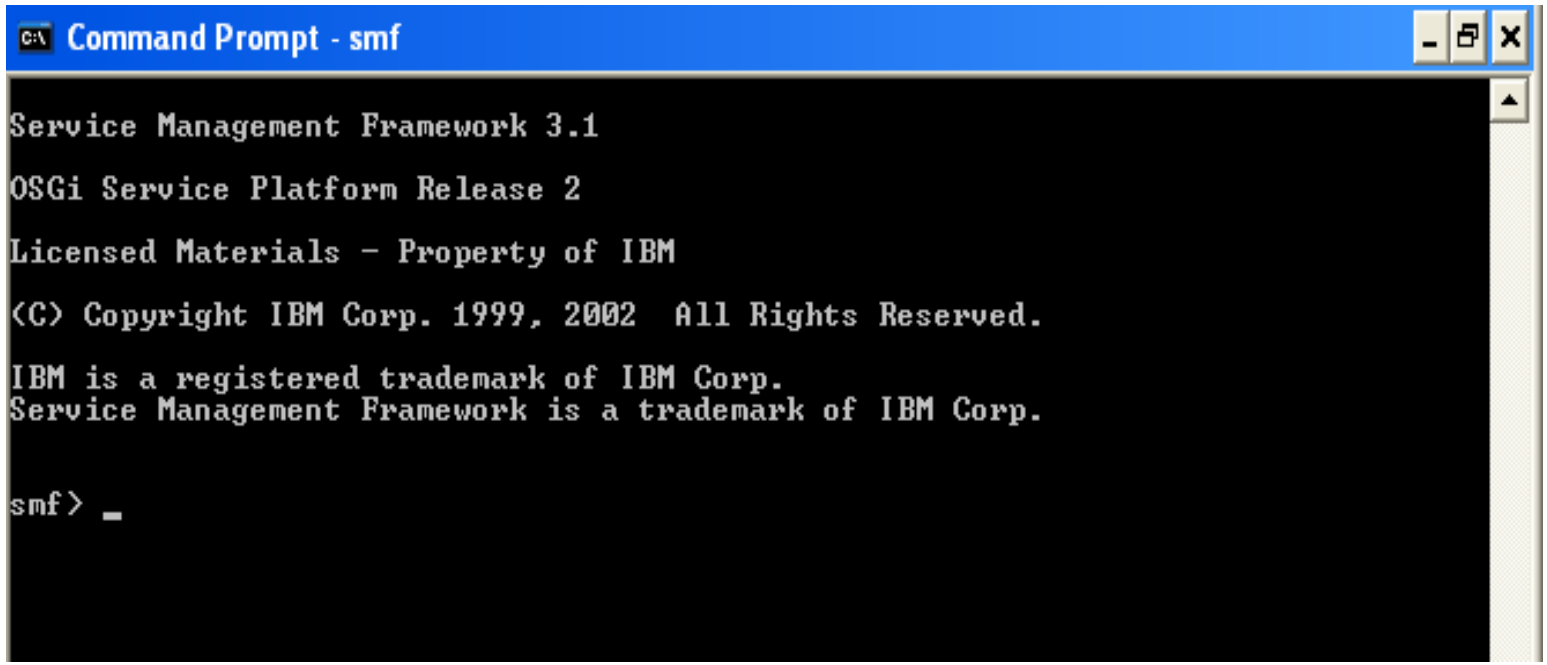
- Available as part of IBM WebSphere Studio Device Developer 5.0
- Eclipse plugins provide
  - Bundle Developer Perspective
  - Bundle Smart Guides
    - Manifest editing
    - Bundle building
  - SMF Runtime Views
  - SMF Bundle Server Views
- SMF Bundle Server
  - Server maintains bundle catalog
  - Can be shared by multiple developers
  - Interacts with management agent
- Management agent for SMF Runtime
  - Can manage unlaunched SMF
  - Bundle “snapshots”
  - Dependency checking
    - Package
    - Service



WebSphere software

SMF Runtime

- Integrates with SMF Bundle Developer integrated development environment
- IBM J9 Virtual Machine exploitation
- Pluggable Platform implementation



IBM J9 Virtual Machine exploitation

- JXE support
  - Framework can be a JXE
  - Bundles can be in JXE format
    - Support for mixed bundle environment - JAR format and JXE format bundles
- Enforceable Resource Constraints (Resource Management)
  - Per bundle
    - Memory – maximum
    - Threads – maximum number, maximum priority
    - Sockets – maximum simultaneously open
    - Bundle Data Area Files – maximum created, maximum quota
  - Optional
    - Can be configured into SMF Runtime
- Custom Java Class Libraries supported
  - jclGwp
    - Conforms to proposed OSGi Minimum Execution Environment
  - jclRM
    - jclGwp with integrated resource management support
  - jclMax
    - Superset of jclGwp

Pluggable Platform Implementation

- SMF Runtime startup option
  - -platform:*PlatformClassName*
- Used to customize SMF Runtime for specific embedded environments
  - Bundle persistent storage details
  - Mapping location string to InputStream
  - Bundle Data File area details
  - Bundle Native Code details
- DefaultPlatform
  - Default implementation for file system based persistent storage
- FlashBundleStore
  - An implementation for flash memory based persistent storage
  - JXE bundles are “executed in place” from flash memory
  - Simulated flash memory and actual flash memory implementation available

Service Management Framework (SMF)

- Current - Release 3.1
  - OSGi Service Platform Release 2 certified compliant implementation
    - All optional services implemented
  - Free evaluation download
    - WebSphere Studio Device Developer 5.0
      - http://www.ibm.com/embedded
    - SMF Runtime Toolkit
      - http://www.ibm.com/pvc/products
  - Footprint
    - Base runtime requirements on J9 jclGwp ~815KB
    - Also runs on J2ME (CDC/Foundation) and J2SE
- Delivered as part of:
  - IBM WebSphere Everyplace Embedded Software (WEES)
    - Intel PCA developers kit, National Semiconductor EVK, etc.
  - IBM WebSphere Everyplace Access (WEA)
    - WebSphere Everyplace Access Client
  - IBM WebSphere Studio Device Developer (WSDD)
    - Embedded java developers toolkit
- OSGi
  - Release 1 – May 2000
  - Release 2 – Oct 2001
  - Release 3 – 1Q 2003 (planned)
- IBM SMF
  - SMF 2.0 – May 2000
  - SMF 3.0 – Oct 2001
  - SMF 3.1 – Oct 2002
  - SMF 4.0 – 1Q 2003 (planned)