



## vCurrent® Mobile Firmware Over-the-Air Update Solution

Eliminate mobile phone recalls, ensure reliability and enhance customer satisfaction using Red Bend's vCurrent® Mobile firmware over-the-air (FOTA) update solution. vCurrent Mobile dramatically shrinks update file size and overcomes barriers to reliable and cost-effective updating of firmware on mobile phones already in the hands of users.

vCurrent Mobile enables mobile phone manufacturers and operators to create and manage firmware updates for mobile phone handsets and to deploy and install the updates over-the-air.

Based on Red Bend's patented technology, vCurrent Mobile is comprised of two primary components: an update generator and an update installer.

vCurrent Mobile's Update Generator identifies the essential changes from an existing firmware version to a new, updated version and automatically creates an extremely compact package of the updated firmware. The Update Generator also supports updating a handset's file system,

which typically stores images, sounds, configuration information, settings, design themes, icons, menus, system status and other information that affects device appearance, configuration and branding.

vCurrent Mobile's Update Installer resides on the mobile handset itself and performs the update installation. Optimized for the limited memory available within the handset, the vCurrent Mobile update installer applies the updates to the phone's firmware accurately and reliably. It performs this installation on both basic phones with a single firmware image, and on enhanced feature phones and smartphones with compressed, multi-section images.

### vCurrent Mobile Advantages

**Proven and patented Red Bend delta-update technology overcomes bandwidth and memory constraints.**

Proven in hundreds of millions of updates, Red Bend's patented delta-update technology extracts only the essential changes between update package versions, reducing update file size by up to 97% and lowering device memory and bandwidth requirements, while maintaining 100% accuracy.

**vCurrent Mobile supports advanced phone architectures.** Using advanced algorithms, vCurrent Mobile supports Symbian OS and other architectures that employ compressed multi-section images, read-only file systems, a combination of NAND and

NOR flash and other advanced features.

**vCurrent Mobile speeds up flash reprogramming.**

By creating compact update packages and using unique methods for managing memory reflashing, vCurrent Mobile significantly reduces the time the handset is out of service for updating and minimizes the user's inconvenience.

**vCurrent Mobile optimizes on-device memory.** Using a unique "in place update" algorithm, vCurrent Mobile requires only minimal working memory to perform updates, and it provides control over the amount of flash memory required. This patented technology resolves complex "read before write" issues so that firmware can be updated rapidly without adding costly memory.

**vCurrent Mobile can be integrated quickly into handset firmware.** Owing to the product's unique technology and the QuickPort™ process, handset manufacturers are not required to restructure device firmware or intrude

into the firmware development tool chain. As a result, integration has been proven to be significantly faster and less expensive than alternative solutions.

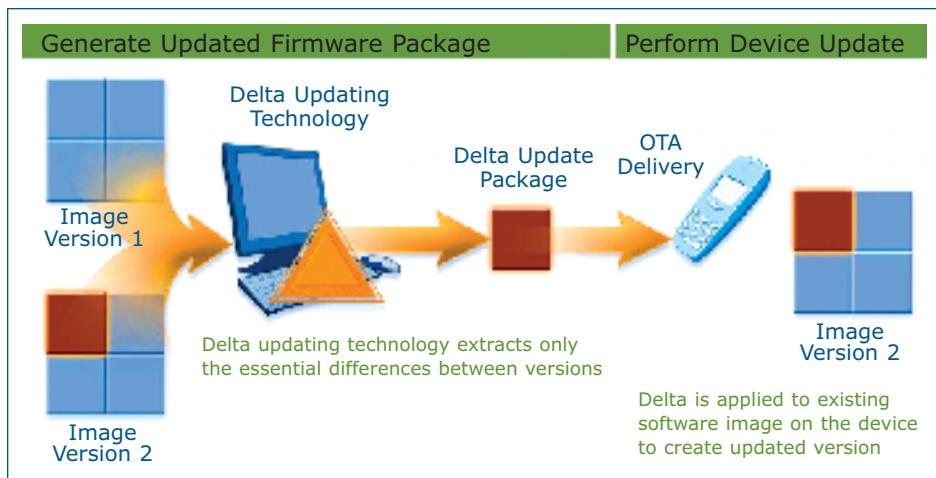
vCurrent Mobile ensures 100% fault-tolerant update integrity and completion. vCurrent Mobile eliminates the risk of disabling devices due to errors or unexpected disruptions in the update process. In the event of a power loss, it automatically resumes the update from the point of interruption.

vCurrent Mobile ensures security for all stages of the update process. Using a patented pre-installation verification technique, vCurrent Mobile software verifies that the newly created software version is 100% accurate, bug-free and will install properly, prior to the update process getting underway.

vCurrent Mobile operates with other device management solutions. vCurrent Mobile works with existing mobile device management solutions and supports all standard protocols and devices. Its simple, modular architecture adapts easily to support any update and distribution process.

vCurrent Mobile Update Installer minimizes the on-device footprint. The Update Installer software requires only one flash sector of 64KB as permanent allocation for the client agent (about 20KB) and one to be allocated upon running for the update-specific data, to ensure start-to-finish integrity of the update install process.

vCurrent Mobile Update Installer is update-able over the entire device lifecycle. The Update Installer software itself can be quickly updated over the air, allowing it to be embedded during the manufacturing process and upgraded remotely and transparently, as required, throughout the life of the device.



#### Benefits to mobile handset manufacturers and operators

- Accelerate the time-to-market and adoption of new features & services
- Reduce the cost of repair, service and troubleshooting
- Increase ROI and extend product life cycle
- Improve customer satisfaction, strengthen customer loyalty, and boost revenue per subscriber.

#### vCurrent Mobile Advantages

- Smallest possible update files
- 100% reliability and security
- Optimized use of on-device memory
- Fast, accurate updating; minimal downtime
- Rapid integration into handsets
- Unobtrusive to firmware development tool chain
- Proven technology

#### Red Bend Software

Red Bend Software helps mobile phone manufacturers and operators accelerate the adoption of new services and features, respond rapidly to customer problems, and reduce the support costs through firmware over-the-air (FOTA) updates. Founded in 1999, Red Bend develops advanced technology that enables reliable, risk-free installation and personalization of critical software through its vCurrent® product line. Red Bend Software is a privately-held, venture capital-financed company with corporate headquarters in Framingham, Massachusetts and offices in China, Israel, Japan, and the UK.



[www.redbend.com](http://www.redbend.com)

175 Crossing Boulevard,  
Suite 320  
Framingham, MA 01702  
+1.508.270.4590  
+1.508.270.4595 fax