

ProCalV5 Calibration Software
And
21 CFR Part 11 Electronic Signatures and Records

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Overview

On August 20th, 1997, the path for calibration software took a leap forward when the FDA set forth its ruling regarding electronic record keeping. This ruling allows companies to take advantage of the electronic technology that is available today which is equivalent to or takes the place of all master paper record forms.

Prime Technologies, Inc. & ProCalV5

ProCalV5 is powerful, sophisticated calibration software that has been specifically designed to provide the features necessary to satisfy the strictest of compliance requirements. It was developed by a team of calibration professionals who wanted a program that would finally give them what calibration professionals need: *more power and functionality, more speed, and easier set-up and operation*. Through the guidance of these professionals, ProCalV5 has become the most powerful, most intuitively easy-to-use calibration program available.

In today's complex working environment, many companies are focusing on increasing workplace efficiency and productivity, while managing the compliance issues and regulations facing their industry and more importantly, their organization. To accomplish this, they are seeking solutions that are cost effective, compliant ready, and provide the greatest ROI. With a ProCalV5 calibration management solution from Prime Technologies and our expert support, these benefits are proven to be easily achievable.

ProCalV5 Features that Address 21 CFR Part 11 ER/ES

21 CFR Part 11 Subpart B – Electronic Records

Part 11.10 – Controls for closed systems.

11.10 a – Persons who use closed systems to create, modify, maintain, or transmit electronic records shall employ procedures and controls designed to ensure the authenticity, integrity, and, when appropriate, the confidentiality of electronic records, and to ensure that the signer cannot readily repudiate the signed record as not genuine. Such procedures and controls shall include the following: Validation of systems to ensure accuracy, reliability, consistent intended performance, and the ability to discern invalid or altered records.

ProCalV5 has the tools that allow a system administrator to control access and to ensure the authenticity, integrity and the confidentiality of electronic records. This is accomplished by requiring authorized UserID and Password for logon and providing Record Type and Organizational Unit Data access discrimination by assigned user security group level. When administered and utilized in this way ProCalV5 is a secure Closed System.

The ProCalV5 tool set includes:

- Option of utilizing ProCalV5 standard UserID / Password authentication built into the application, which is designed to meet all of the requirements of 21 CFR Part 11, or utilization of LDAP authentication which refers to the User's networked corporate authentication methods, including established corporate UserID's and Passwords.
- Ability to set up unlimited user security groups that establish access levels for record viewing, creation / modification, and deletion, for segregation of records by organizational unit. This allows confidentiality of electronic records to selected access levels.
- Ability to prevent modification of Finalized Calibration and PM records. This provides the finalized state of these records against accidental or intentional changes.
- Ability to change Approved Instrument, Loop, Equipment and System records in a controlled 'off-line' version of the record. This maintains the current approved version in use until the updated version has been fully approved to replace it. Once records of these types have been initially approved, there will always be an Approved version in place for current work, never a need to have an unapproved version in place while modifications are developed and approved.
- A secure and permanent Audit Trail is available for all records, even those in Change Control mode. The Change Control Audit Trail entries are only merged with the Approved version Audit Trail when the modifications are complete, approved and have replaced the previous version.
- Ability to set Approval Policies for all records that can be calibrated; calibration records themselves and mass updated records. Approval Policies allow for regimented routing of unlimited signatories, ensuring the right responsible parties have reviewed and electronically signed off on the proposed new or modified record version before it is placed in production use.
- Ability to add permanent Notes to any record. Notes can not be altered once saved. This allows any User to add additional commentary, for any purpose, to any record, at any time, in a secure fashion.

ProCalV5 functionality has been designed, developed and rigorously validated as a COTS Product by Prime Technologies, specifically for the GxP requirement demands of the FDA Regulated Pharmaceutical industry. The same validation documents used internally are made available to ProCalV5 users for use 'as is', or modified to reflect the user's 'intended use' environment.

Part 11.10 – Controls for closed systems.

11.10 b – The ability to generate accurate and complete copies of records in both human readable and electronic form suitable for inspection, review, and copying by the agency. Persons should contact the agency if there are any questions regarding the ability of the agency to perform such review and copying of the electronic records.

ProCalV5 is capable of quickly printing paper copies of records that display and print accurate and complete copies of compliance data to satisfy agency requests. Seagate

Crystal Reports is used to develop and print reports. ProCal also uses Seagate Crystal Reports to export record data in many electronic formats.

The ProCalV5 tool set includes:

- Standard application screens display system records in an organized manner that is both intuitive and detailed enough to provide all the information needed to satisfy Business, Technical, Administrative and Audit requirements in a validated environment.
- Reports are a validated method for viewing organized compliance data both on screen and via printed hard copy. This means that the use of ProCalV5 Reports is a secure way to represent system data.
- Over seventy Standard Reports that have been designed many times by Prime Technologies and our Customers. Many Standard Reports have designed to deliver the compliance reporting information needed to satisfy internal and agency audit requests. All of ProCalV5 Reports are written in Seagate Crystal Reports and can be modified to suit a specific set of User requirements.
- Custom Reports are easily created to address any specific reporting User requirements that are in addition to those addressed by the ProCalV5 Standard Reports. All of ProCalV5 Reports are written in Seagate Crystal Reports and can be developed and maintained by Prime Technologies or a qualified User.

Part 11.10 – Controls for closed systems.

11.10 c – Protection of records to enable their accurate and ready retrieval throughout the records retention period.

ProCalV5 has the tools that allow a system administrator to routinely back up the system database and periodically Archive calibration records and associated audit trail entries. Archived databases can be retrieved to the Production database for combined viewing and reporting or can be accessed independently.

The ProCalV5 tool set includes:

- Ability to backup and restore the system database on a regular basis using standard utilities.
- Ability to archive and retrieve Calibration Records and Audit Trail entries using the ProCalV5 Archive Utility. This allows the User view and report on system data in either the Production database or the Archived database, independently or combined, throughout the records' retention period.

Part 11.10 – Controls for closed systems.

11.10 d – Limiting system access to authorized individuals.

Allowing administrators to limit access for only those authorized individuals is another important feature of ProCalV5. This feature includes:

- Option of internal ProCalV5 UserID / Password authentication or User networked LDAP authentication.
- Ability to create system Employee Records for approved Users establishing system access.
- Ability to place individual Users in appropriate user security groups.
- User must establish and enforce physical security procedures to ensure that only authorized personnel have access to servers and computers associated with ProCal

Part 11.10 – Controls for closed systems.

11.10 e – Use of secure, computer-generated, time-stamped audit trails to independently record the date and time of operator entries and actions that create, modify, or delete electronic records. Record changes shall not obscure previously recorded information. Such audit trail documentation shall be retained for a period at least as long as that required for the subject electronic records and shall be available for agency review and copying.

The system audit trail is secure from modification and independently records the date and time of operator entries and actions that create, modify, or delete electronic records. The system audit trail maintains a record of all previously recorded information when a change or modification takes place. Audit Trail entries can be easily archived and retrieved.

The ProCalV5 tool set includes:

- Option of internal ProCalV5 UserID / Password authentication or User networked LDAP authentication.
- Independent Audit Trails are managed within the application for Approved and Change Control record versions and for Production and Mobile database record versions. The independent version Audit Trails are merged when record versions are rationalized to the appropriate next Production version.
- The capability to require that a modification reason be recorded for each record modification, Approval or Finalization, etc. Modification Reasons appear in the Audit Trail and are selected from a pre-defined drop down list for consistency.
- A Standard Audit Trail Report that can be reviewed electronically or printed out.
- ProCal V5 can be setup to not allow modification to Finalized Records. This assures that the saved Calibration record content is preserved.
- System ‘Notes’ cannot be modified or deleted after they have been saved. This assures that the original Note content is preserved.

Part 11.10 – Controls for closed systems.

11.10 f – Use of operational system checks to enforce permitted sequencing of steps and events, as appropriate.

ProCalV5 requires that certain steps, essential to the integrity of the record, must be completed before the record can be approved or finalized, some in chronological order

The ProCalV5 tool set includes:

- Ability to set certain record fields as ‘required’ to ensure that those fields are completed before the record can be approved.
- Ability to set Approval Policies that must be satisfied before a record version is placed into service. Signatures can be required to be applied sequentially or allowed to be applied in any order.
- Next Cal Date is sequenced based system setup options and the date the Calibration Event took place in relation to the current Scheduled Cal Date.

Part 11.10 – Controls for closed systems.

11.10 g – Use of authority checks to ensure that only authorized individuals can use the system, electronically sign a record, access the operation or computer system input or output device, alter a record, or perform the operation at hand.

ProCalV5 allows logon of authorized personnel only, as established by a User with Administrator access creating, activating and maintaining the Employee record.

The ProCalV5 tool set includes:

- Ability to create system Employee Records for approved Users establishing system access and electronic signature authority.
- Option of internal ProCalV5 UserID / Password authentication or User networked LDAP authentication.
- Security Logs that allow monitoring of certain Logon activities.

Part 11.10 – Controls for closed systems.

11.10 k – Use of appropriate controls over systems documentation including: (1) Adequate controls over the distribution of, access to, and use of documentation for system operation and maintenance. (2) Revision and change control procedures to maintain an audit trail that documents time-sequenced development and modification of systems documentation.

It is generally recommended that system specific documentation be created and managed in a controlled environment. This includes Product, Project, Validation and System documents.

Part 11.50 – Signature manifestations.

11.50 a – Signed electronic records shall contain information associated with the signing that clearly indicates all of the following: (1) The printed name of the signer; (2) The date and time when the signature was executed; and (3) The meaning (such as review, approval, responsibility, or authorship) associated with the signature.

11.50 b – The items identified in paragraphs (a)(1), (a)(2), and (a)(3) of this section shall be subject to the same controls as for electronic records and shall be included as part of any human readable form of the electronic record (such as electronic display or printout).

Electronic Signature manifestations within ProCalV5 displays include: (1) The printed name of the signer; (2) The date and time when the signature was executed; and (3) The meaning associated with the signature. ProCalV5 Standard Reports also include this information when signature manifestations are needed and it can be added to any Custom Report.

The ProCalV5 tool set includes:

- The signature manifestation of Finalized Calibration (Instruments, Loops & Test Instruments), Work Order Result and Maintenance Result Records clearly indicate the User Name of the user who signed the record, that it was signed as ‘Final’ and the date & time of the signing.
- The signature manifestation of Approved Master Instrument, Loop, Test Instrument, Work Order & SOP Records clearly indicate the User Name of the user who signed the record, that it was signed as ‘Approved’ and the date & time of the signing.
- Ability to set Approval Policies for all records that can be calibrated; calibration records themselves and mass updated records. Approval Policies allow for regimented or parallel routing of unlimited signatories each with an individual user configured meaning. Approval Policy signature manifestations clearly indicate the User Name of the User who signed the record, that it was signed with the defined meaning and the date & time of each signing and can be incorporated on any report.
- Ability to add User Defined Electronic Signatures to any record for any purpose. User Defined Electronic Signatures signature manifestations clearly indicate the User Name of the User who signed the record, that it was signed with the defined meaning and the date & time of each signing and can be incorporated on any report.

Part 11.70 – Signature / record linking.

Electronic signatures and handwritten signatures executed to electronic records shall be linked to their respective electronic records to ensure that the signatures cannot be excised, copied, or otherwise transferred to falsify an electronic record by ordinary means.

Signature data is imbedded into a ProCalV5 record and becomes an integral part of the record. It cannot be excised, copied, or otherwise transferred to falsify an electronic record by ordinary means.

The ProCalV5 tool set includes:

- Electronic signatures are stored directly on a record, or in a linked table to the approved record. Approval and finalization signatures are part of the audit trail, and therefore become a permanent part of the electronic data.

- Finalized Records are locked to ensure that records reviewed by management cannot be changed after their approval. This ensures that the content and electronic signatures of a finalized record are permanent.

21 CFR Part 11 Subpart C – Electronic Signatures

Part 11.100 – General Requirements.

11.100 a – Each electronic signature shall be unique to one individual and shall not be reused by, or reassigned to, anyone else.

ProCalV5 will not allow a user ID contained in the database to be reused by, or reassigned to, anyone else.

Part 11.200 – Electronic signature components and controls.

11.200 a – Electronic signatures that are not based upon biometrics shall: (1) Employ at least two distinct identification components such as an identification code and password. (i) When an individual executes a series of signings during a single, continuous period of controlled system access, the first signing shall be executed using all electronic signature components; subsequent signings shall be executed using at least one electronic signature component that is only executable by, and designed to be used only by, the individual. (ii) When an individual executes one or more signings not performed during a single, continuous period of controlled system access, each signing shall be executed using all of the electronic signature components. (2) Be used only by their genuine owners; and (3) Be administered and executed to ensure that attempted use of an individual's electronic signature by anyone other than its genuine owner requires collaboration of two or more individuals.

ProCalV5 electronic signatures employ two distinct identification components, a valid identification code and a valid password. The User is required to log on using both identification components. User *log on* begins a single, continuous period of controlled system access, which is ended by any log off. Only the individual that is logged on to the session can execute a signing during the session. Each electronic signature requires the logged on User to re-enter their password.

The ProCalV5 tool set includes:

- Option of internal password authentication or networked LDAP password authentication
- Internal password authentication forces automatic expiration of passwords after a specified time
- Internal password authentication prevents reuse of a specified number of expired passwords
- Internal password authentication requires a specified minimum number of password characters

- Disabling a user ID after a specified number of consecutive invalid password attempts
- Allowing only a user with Administrator access the capability of creating an Employee Record establishing a UserID and initial password
- Logging of invalid log on attempts after a specified number of consecutive attempts using a valid User ID & invalid passwords
- Logging any log on attempt using an invalid User ID
- Logging each Log on, Log-off, Forced Log-off and Password Change
- Any User with appropriate access can access the logs

Part 11.300 – Controls for identification codes / passwords.

Persons who use electronic signatures based upon use of identification codes in combination with passwords shall employ controls to ensure their security and integrity. Such controls shall include:

11.300 a – Maintaining the uniqueness of each combined identification code and password, such that no two individuals have the same combination of identification code and password.

ProCal will not allow a user ID contained in the database to be reused by, or reassigned to, anyone else.

Part 11.300 – Controls for identification codes / passwords.

Part 11.300 b – Ensuring that identification code and password issuances are periodically checked, recalled, or revised (e.g., to cover such events as password aging).

ProCalV5 ensures that ID and security controls are monitored regularly via specific tools. This tool set includes:

- Option of internal password authentication or networked LDAP password authentication
- Internal password authentication forces automatic expiration of passwords after a specified time
- Internal password authentication prevents reuse of a specified number of expired passwords
- Internal password authentication requires a specified minimum number of password characters
- Allowing only a user with Administrator access the capability of creating an Employee Record establishing a UserID and initial password

Part 11.300 – Controls for identification codes / passwords.

Part 11.300 c – Following loss management procedures to electronically deauthorize lost, stolen, missing, or otherwise potentially compromised tokens, cards, and other devices that bear or generate identification code or password information, and to issue temporary or permanent replacements using suitable, rigorous controls.

Procedure must be in place and enforced to ensure that potentially compromised user passwords are de-authorized and to issue temporary replacements using ProCalV5 rigorous controls.

Part 11.300 – Controls for identification codes / passwords.

Part 11.300 d – Use of transaction safeguards to prevent unauthorized use of passwords and/or identification codes, and to detect and report in an immediate and urgent manner any attempts at their unauthorized use to the system security unit, and, as appropriate, to organizational management.

ProCalV5 logs all attempts at unauthorized use of valid User ID's with invalid passwords.

The Future of ProCalV5

By expanding its applications to permit further compliance reporting, as well as providing enhanced automation functionality, ProCalV5 has positioned itself for the future. ProCalV5 will continue to take the lead in meeting calibration and compliance needs by constantly monitoring the pharmaceutical and biotechnology industries.

About Prime Technologies, Inc.

Prime Technologies is committed to the development of quality compliant software. ProCalV5 systems are installed in many of the top pharmaceutical and ISO certified organizations. Our software development and testing procedures have been fully audited and approved by numerous fortune 100 companies.

ProCalV5 represents the latest in our ongoing quest to provide the ultimate in sophisticated calibration management solutions. All ProCalV5 products are validated by our quality staff before release and successfully validated by our customers under intense internal Quality and Regulatory scrutiny. A full complement of additional staffing is available to assist you with all aspects of your project implementation needs.

References

- 21 CFR Part 11 - FDA