Recommendations and Considerations for Designing UI Electronic Filing Systems

EXECUTIVE SUMMARY

State Workforce agencies typically have one opportunity in a decade to upgrade the core systems that will drive and define agency workload for the next ten years. In today's economic environment, no one can afford to waste resources unproductively. Given an opportunity, it is more important than ever to carefully consider design alternatives for electronic filing systems for employer wage and tax reports.

At present, states are in a period of sweeping change in electronic filing systems. These next generation filing systems raise opportunities to expand e-filing and increase operating and administrative efficiencies for state agencies, employers, and payroll service companies.

Payroll service companies have worked collaboratively with state workforce agencies to improve electronic filing systems for many years. We have developed this document to provide background information, best practices, and lessons learned related to Unemployment Insurance (UI) electronic tax and wage reporting systems. It contains consensus recommendations for UI agency administrators, Information Technology (IT) administrators, and system integrators and developers that will:

- improve data quality;
- leverage the best in new technologies;
- increase administrative efficiencies;
- reduce the burden to employers; and
- improve employer customer satisfaction.

Deliberate consideration may make the difference between effective, efficient systems, and permanently burdening agencies, employers and service providers with substantial and unproductive workload. Members of the NPRC look forward to working with each agency to develop the most appropriate electronic filing systems for employer wage and tax reporting.

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Background

The National Payroll Reporting Consortium (NPRC) is a non-profit trade association whose member organizations provide payroll, tax reporting, tax payment, and related services to more than 1.4 million employers nationwide, covering more than one-third of the private sector workforce.

The NPRC actively supports appropriate electronic filing and tax payment programs. In addition to our long-time association and interaction with state workforce/labor/UI agencies, we have long worked with the IRS and state revenue agencies, as well as the following organizations to develop and improve standards for electronic filing that make it easier for everyone to improve existing systems and develop new systems:

- National Association of State Workforce Agencies (NASWA)
- Association of Unemployment Tax Organizations (AUTO)
- Unemployment & Workers' Compensation Association (UWC)
- Federation of Tax Administrators (FTA)
- IRS Electronic Tax Administration Advisory Committee (ETAAC)
- TIGERS group under ANSI ASC X12

Many states have implemented or are planning to implement new electronic filing systems for employers and organizations that report on behalf of employers. These next-generation state electronic filing systems have many features and functions in common, which provide opportunities to dramatically increase functionality and administrative efficiencies, increase reporting coverage, and improve employer customer satisfaction.

NPRC recognizes that these systems must also provide for state-specific reporting requirements. However, in designing or modifying electronic filing systems, the use of standards and common data formats makes it easier for software developers to implement them, while minimizing costly post-implementation maintenance. The following standards and best practices will improve the systems, faciliate the development project, and bring more employers into electronic filing.

Our members have worked side-by-side with many state workforce/labor/UI agencies as they have migrated from paper-intensive tax/wage reporting systems, to magnetic tape/cartridge reporting systems, to more sophisticated electronic filing systems. As states continue to enable and enhance electronic filing by employers, our goal is to share the practical, "real-world" experience of state agencies, service providers, employers, and system developers that can provide a jumpstart to future system development design and implementations.

For more than 30 years, NPRC members have supported UI tax administration, wage reporting, tax payments, and reporting systems for employers in every state in the United States.

Our members, and the employers we represent, share the goal of providing state workforce/labor/UI agencies with the most timely and accurate wage and tax reporting information.

We understand the impact to UI trust funds nationwide to have accurate tax payments submitted on time, as well as the important role the information we submit serves to labor market information (LMI) analysts.

Our members understand agency data security and integrity reporting requirements, have demonstrated adherence to these requirements, and, when necessary, modified our own member systems as state agency requirements have evolved.

ELECTRONIC FILING SYSTEM DESIGN CONSIDERATIONS & RECOMMENDATIONS

Over one million small business employers and accountants use commercial off-the-shelf and Web-based payroll tax software (e.g., Quickbooks) to transmit their tax information and payments. An additional 1.4 million employers, who collectively employ over one-third of the private sector work force, pay and file employment tax reports (including annual W-2s, quarterly wage reports, and new hire reports) to the IRS, SSA, state workforce agencies, and municipal tax authorities through an NPRC member company.

Understandably, government software development staffs often concentrate on more-familiar stakeholders, who include individual taxpayers, small businesses, bookkeepers, and accountants who typically submit one return or payment at a time.

However, the Bureau of Labor Statistics (BLS) statistics show that although large employers represent less than 1/2 of one percent of employers, these large employers employ more than half of the U.S. workforce. Systems designed solely for individual submissions are not relevant for large employers and organizations that file in large volume (i.e., bulk or batch-oriented filers). These filers often file thousands of returns to each tax authority on any given day. Accommodating both individual and high-volume filers in system designs is necessary to enable broad electronic filing participation.

In addition, use of enrollment processes and edits can actually increase agency workload. Returns or payments that are rejected may result in manual processing in order to handle future claim verification.

The following pages describe design considerations and recommendations that can help with the development of electronic filing systems that are usable by all stakeholders. Separate appendices are also included to outline technical details.

1. Provide Ample Lead Time

Many businesses and private entities administer computer systems that are similar in scale and complexity to those administered by state agencies. Just as government agencies are typically not able to learn, design, program, test, and implement significant changes to their computer systems in a short time, payroll service providers cannot implement software changes in less than six months (after publication of final specifications). More than six months may be necessary depending upon the significance of the changes; for example, if new data elements are necessary. Insufficient time allowed for systems changes is among the foremost problems faced by both industry and the states.

Recommendation: State agencies are encouraged to provide a minimum of six months lead time prior to the related tax period end date (e.g., 6/30 for the period ended 12/31 for wage reports due 1/31) and after all final specifications have been published.

2. Avoid Mandatory 'Enrollment' for Electronic Filing

Several states have developed electronic filing systems that require employers, who are already registered with the tax authority, to re-register or "enroll" in the electronic filing system. These systems generally do not accept electronically filed returns or payments for employers who are not enrolled in the electronic filing system. This should be recognized as a departure from the paper (and even magnetic media) world. When an employer registers, it is assumed that they will file required returns. It is not necessary to tell the tax authority how they plan to file returns.

Registration may be necessary to enable an individual employer to submit one-at-a-time transactions via a state Web site. But with respect to reports submitted by transmitters and bulk filers (who file on behalf of well over one-third of the private sector work force), enrollment should not be a requirement prior to filing. Many clients begin using a payroll service provider or decide to file electronically from their software on short notice, sometimes just before a return is due. Requiring enrollment prior to accepting a submission is a major barrier to electronic filing. In practice, e-file enrollment systems have become an end to themselves, becoming in effect a pre-filing filing involving detailed editing, acknowledgements, and so on. These systems require as much development and ongoing maintenance by both the state and the private sector, as the actual electronic filing system. In any event, electronic filings should not be rejected due to lack of enrollment. It benefits the states, as well as the taxpayer, if all otherwise valid and properly formatted electronically filed returns are accepted.

Recommendation: States should consider automatically enrolling each taxpayer for electronic filing, or otherwise preparing the electronic filing system to accept returns without a separate enrollment transaction. If it is absolutely necessary to maintain an enrollment function, use existing mechanisms between payroll service providers or transmitters and tax authorities to populate the enrollment database. Avoid requirements that individual clients of a service provider take action to establish any necessary enrollment or authorization with the agency.

3. Establish Appropriate Edits

When designing next-generation systems, there are opportunities to improve the tax reporting process by reevaluating whether existing legacy error conditions are necessary and beneficial. It is also tempting to expand or add new edits when designing new electronic filing systems, but this can have the adverse effect of making it harder to file electronically than on paper.

Edit Enforcement NPRC members understand the importance of timely reporting and accuracy of employer tax wage and tax payment information. We also understand the importance of having this information posted as soon as possible to the agency's wage file in the event a UI claim is filed. As a result, the following recommendations are offered for edit enforcement strategies.

Recommendation (a): Entire transmissions containing multiple employers should not be rejected for errors in one employer's return. Correct data should be accepted and posted. Only returns with errors should be rejected, or moved to a suspense file for subsequent resolution.

Recommendation (b): If rejection is necessary, the employer's entire return should be rejected. State agencies should not reject certain employee-level records while accepting others within an employer's return, wage report, or W-2 submission. Payroll reporting systems track employer- level submissions and are not designed to track, correct, or resubmit, individual employee records within an employer's filing. In addition, if certain employee records are not accepted, the total of the supporting detail wage or W-2 reports will no longer equal company-level totals reporting on UI contribution returns or W-2/W-3 reconciliation returns, and will no longer match the payment amounts.

Recommendation (c): Identify all error conditions within rejected files. A few states have rejected files when encountering the first few errors without reading the entire file to identify all error conditions. This has the effect of making the filing process iterative, especially for very large wage/data submitters who must repeatedly resubmit entire files to identify all errors. (As each error is identified, it is resolved or removed, and the entire file is resubmitted to identify the next few errors, and so on.)

Recommendation (d): Provide clear, unambiguous, and actionable error messages to prevent phone calls to clarify the nature of the error. Apply the same error codes consistently to all submission types (prefiling validation, filings, amendments, etc.). [See Appendix V for specific recommendations.]

4. Consistency with SSA, IRS, and Other State Agencies

Just as every state agency wants all incoming data to be correct and perfect, every employer and NPRC member wants each new worker to arrive with accurate, current identifying information. However, the reality is that employers are often assessed significant penalties for failing to pay workers on time. Furthermore, new coordination procedures between the SSA and Department of Homeland Security often result in delays of several months in issuing new SSNs - even to workers who are legally in the United States with a valid work authorization. As a result, employers have demanded very fault-tolerant payroll and reporting systems. However, in every case, NPRC members and the employers they represent follow SSA and IRS reporting guidelines and requirements. [See App endix II for specific guidelines.]

Social Security Number Edits A common misconception exists that the SSA and/or IRS require employers to obtain valid SSNs that match the worker's name on file with the SSA and/or IRS. Employers are required to solicit SSNs from workers, but if a worker fails to provide one, or provides an incorrect SSN, the worker must still be paid, and the worker must still receive a W-2. SSA reporting specifications (EFW2) provide that W-2s without valid SSNs should be reported with zeros in the SSN field.

Name and Address Edits State-specific rules related to employee names and addresses are often inconsistent from state to state. For example, some states prohibit numerics or punctuation or limit special characters, which can cause such common names as John Smith, III, John Smith Jr., or John O'Hara to be rejected. Some states require compound surnames to be connected by a hyphen, while other states prohibit the use of hyphens. Some states prohibit any punctuation in addresses, i.e., N. 3rd St.

Keep in mind that neither the SSA nor the IRS rejects employer submissions due to errors in SSNs, name formatting, or missing or incorrect addresses, etc. The federal agencies will generally only reject submissions when they are improperly formatted (i.e. cannot be read).

Recommendation: State agencies should adopt longstanding edits published by the SSA. Minimal 'hard' edits (i.e., resulting in rejected returns) are most appropriate for UI wage and tax reporting. The only edits that should be considered for such treatment are:

- State employer identification numbers must be valid and active.
- SSNs must be numeric.
- Required names cannot begin with a space (i.e., employee last name).
- Wage amounts must be numeric and greater than zero.

5. Recalculation of UI Taxable Wages

Some states have implemented, or are considering, new filing systems that recalculate taxable wages to validate employer-reported wage totals. Some new Internet-based tax systems automatically generate the employer contribution (tax) report based on wages reported. This may be useful for small employers; however, a number of complexities make this impractical for large employers, employers with multiple business locations, payroll services, and other high-volume filers. For example, almost every state allows credit for wages paid by the same employer in any other state. In mergers and acquisitions, states permit successor employers to include wages paid by predecessor employers in taxable wage calculations. Large employers also frequently correct SSNs or wages reported. Each of these situations will result in discrepancies with any automatic taxable wage recalculation program, which would create substantial new workload for State Workforce Agency (SWA) staff and employers. A more detailed impact analysis is available from NPRC.

Recommendation: Since the taxable wage recalculation feature is beneficial to small employers, it should be considered in new system designs on an optional basis. Employers who interact directly with the SWA's Internet tax filing system could have this feature as a default option, while being optional for employers and service providers who upload wage files. SWAs should continue to accept the employer's/service provider's calculation of taxable wages and tax due for such files.

6. Offer ACH Credit and Debit for Electronic Tax Payments

ACH Debit is appropriate for individual one-at-a-time transactions and transmitters that do not take possession of employer funds. ACH Credit is a requirement and industry standard for large payroll service providers, which routinely originate thousands or even tens of thousands of tax payments to each agency on any given day.

Embedding ACH Debit instructions within electronic returns is not appropriate for high volume submissions. When there are file submission or processing problems and a file (or part of it) is rejected, it is not clear whether banking instructions were released and for which returns. This raises the risk that when corrected files are submitted, duplicate bank transactions will result. It is best to keep tax payments and tax reports separate.

Payroll service providers are also generally prohibited from permitting external organizations to access their bank accounts directly for corporate control and risk management purposes. Payroll service providers maintain appropriate edits and conduct routine data exchanges to verify client entity information prior to submitting tax payments or filings to ensure error-free payment posting. Some service providers that use ACH Debit systems prefer batch applications with a single debit to the service provider's bank account. Others prefer batch applications with separate debit authorizations for each client's bank account.

Recommendation: States are encouraged to offer both debit alternatives as well as ACH Credit. States should strive to enable all tax payments and filings to be made electronically. For emergencies, same day delivery of payments, such as via wire transfer, should be accommodated.

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7. Integrate Pre-Filing Data Exchanges with High-Volume Filers to Improve Data Quality

Decades of experience with client taxpayers and tax authorities have proven the necessity of verifying client entity information prior to filing if at all possible. Clients are often not knowledgeable about their status with the tax authorities and are occasionally unsure of their own employer identification number (EIN), current tax rates or other requirements for filing and depositing payroll taxes. They may provide critical information (e.g., assigned tax rate) that is incorrect or outdated. If there have been entity changes such as the purchase of a business, merger, or change in partners., the incorrect EIN or other information may be provided.

In terms of agency correspondence (e.g., balance due notices) related to tax returns filed, one large payroll service provider found that agencies that conduct routine data exchanges eliminate over 97 percent of errors that would otherwise necessitate a notice. Said another way, tax authorities that do not take advantage of such programs generate as much as thirty times the correspondence per filing as the agencies that do. Verifying such data on a pre-filing basis is easily cost-justified in terms of improving accuracy and efficiencies for both the tax authority and the submitter.

Routine data exchanges typically take the form of electronic client lists that include every data element deemed by the tax authority to be important for the accurate processing of a tax return; usually state EINs, taxpayer name, assigned filing and deposit schedule, tax rates, and any other data element that may vary by taxpayer and that should appear on the tax form for proper posting to the tax account.

The TIGERS organization is currently working within the Federal State Employment Tax (FSET) project to develop a format for this data exchange, which would accommodate all service models. See www.statemef.com/fset.shtml for details ("Enrollment Data Exchange Schemas"). NPRC has also drafted an implementation guide which explains the intended scope and use of such programs. Click here to view the Pre-Filing Tax Information Verification Guide.

Recommendation: Integrate routine data exchanges to identify error conditions in advance of filing due dates, so that any errors can be corrected before a return is filed.

1. Early Collaboration in Design Phases

One of the easiest ways to ensure broad acceptance and a smooth transition is to involve industry partners early in the development cycle. This communication will help the industry to implement modifications successfully by:

- improving understanding of the changes;
- allowing for orderly allocation of resources;
- providing a communication channel for concerns or implementation challenges to the agency; and
- allowing for negotiation of practical implementation issues, testing, and timelines.

By providing early warning and proposed specifications, developers can benefit from the experience of organizations that have implemented similar systems in other states.

Recommendation: State agencies are encouraged to engage NPRC member companies as well as employers during the design process so that new UI systems are a win-win for all parties.

2. Use of Standards

Standards facilitate programming for multistate software developers and service providers. Use of nationwide standards, such as the FSET-based systems, and/or fixed file formats such as EFW2, for reporting wages and taxes reduces programming changes and costs, and improves administrative processes for state agencies, employers, and NPRC members. Even when standards are used, detailed implementation guides are necessary to specify such elements as:

- Transmission and security protocols
- XML schemas and versions (if applicable)

- Formatting preferences
- Listing of tax returns/return types supported (e.g., amended returns, supplemental returns)
- Business rules and edits
- Detailed information about data elements (e.g., those that are mandatory, optional, conditional, name tag protocol, minimum/maximum field length)
- Detailed information related to enrollment processes, rules, and edits

Recommendation: State agencies are encouraged to publish detailed draft implementation guides as early as possible, and collaborate with NPRC members and other industry organizations to refine these standards. [See Appendix I for specific guidelines.]

3. Consider Cost-Effectiveness of Automation

Automating every element of UI tax reporting is probably not cost-effective for the state agency or employers. For example, automation of amended return reporting can be far more complex than automation of original returns, requiring separate analysis and programming to convert to electronic filing. Amended returns represent less than one percent of all UI tax filing volume, yet the size and scope of the separate systems development required to support electronic filing of amended returns may exceed that of the core new system. To avoid unnecessary development costs and maximize usage of existing systems, consider alternative approaches for reporting of corrections such as using existing filing formats and protocols for corrected submissions in replacement mode. [See Appendix III for specific guidelines.]

Recommendation: State agencies are encouraged to examine all aspects of new system development and automate only those functions that are cost effective for the agency and reporting entities.

4. Publish all Edits in Specifications

Specifications should clearly distinguish which data conditions will result in non-acceptance (fatal errors) of records or files from more general guidance and recommendations (warnings). For example, guidance such as "omit titles and suffixes (e.g., Jr.) from employees' names" should explicitly state whether records with titles or suffixes will result in a rejection or warning.

Published edits generally reflect an agency's requirements concerning the content of data fields. It is important to identify each edit, associated error code, and whether the edit results in a fatal error or a warning. However, in practice, specifications often contain a mix of actual edits, preferences, and general guidance, while occasionally omitting actual edits. When published edits reflect preferences, specifications may imply that records may be rejected with the identified condition, and private sector software developers may inappropriately prevent needed information from reaching the agency. [For a list of suggested error codes see Appendix IV.]

Recommendation: State agencies can increase compliance with new electronic filing systems if design specifications explicitly describe all edits. If new edits or changes to error handling are planned, state agencies should analyze data previously reported by employers in existing electronic formats to determine whether employers are generally complying with longstanding published edits. When a new electronic filing system will impose new edits, state agencies should recognize and plan for a significant educational effort to advise employers of these changes.

5. Backup/Contingency Systems

It is important to consider backup and contingency options for electronic filing when extraordinary circumstances result in an inability to timely file.

Recommendation: State agencies should consider accepting data in the same format (e.g., EFW2) in a variety of media such as cartridge tapes and CDs. State agencies should also consider offering an alternate transmission method such as a backup secure FTP server or paper filings in the event of some problem with the filing or transmission systems. State system developers should consider enabling authorized state personnel to accept and post electronically filed returns received after the deadline as timely to accommodate temporary problems with the electronic filing systems, and to suppress automated notices.

6. E-Services

State system developers must often focus limited resources on completing a task of limited scope, for example enabling electronic filing of certain tax returns. State agencies may see greater system usage and administrative efficiencies and cost savings by considering all interactions and stakeholders.

Recommendation: State agencies should consider offering incentives of interest to employers. For example, the IRS and some states have made electronic services available to electronic filers. These services benefit the state agencies by enabling authorized self-service applications, which free up state personnel from handling routine requests via phone or correspondence. These systems should include the ability to view transactions posted to client accounts, as authorized, and can also include electronic notices, error handling, secure e-mail, and account resolution capabilities. New state systems should enable employers to view their account to verify that returns and payments are being credited to their account.

7. Authentication of Payroll Service Providers

In the environment of next-generation electronic filing systems, individual staff members of payroll service providers will need to establish their authorization with various government authorities in order to review filing results such as acknowledgements and error information, access client accounts, and use the various electronic services made available by government agencies.

Depending on the nature of electronic transactions

available and the sensitivity of available data, different administrative approaches may be warranted.

Recommendation: Contact NPRC for details on this subject. A number of states have implemented appropriate solutions for this industry. Authorized individuals should be able to act on behalf of, and have access to, each client of the payroll service provider via a single PIN/password.

8. Authorizations for Payroll Service Providers

All clients of payroll service providers sign a limited power of attorney, usually based on the IRS Form 8655, Reporting Agent Authorization. Form 8655 includes authorizing language related to state and local taxes. This form expressly permits the service provider to deposit and file specified taxes on clients' behalf, and to receive otherwise confidential information from the taxing authority. This latter authorizaton (to receive information) is specifically intended to enable the payroll service provider to verify the relevant information of each client with the tax authority in order to perfect the accuracy of the data before filing a return.

Most agencies, including the Social Security Administration (which processes employer W-2 reports) have found it unnecessary to track authorizations between taxpayers and payroll service providers. If it is thought to be necessary, the simplest approach is to record which organization filed a return. Payroll service providers have on file a copy of each authorization signed by clients. Many SWAs rely on a "Memorandum of Understanding" (MOU) between the agency and the payroll service provider to establish that the payroll service organization has such forms on file for each client and will provide a copy of any authorization on request. This approach saves the state from the considerable administrative workload involved in recording and storing copies of paper authorization forms for each client.

Recommendation: State workforce agencies should rely on a memorandum of understanding between the agency and the payroll service provider to establish that the payroll service organization has authorization forms on file for each client. Where it is necessary to track relationships between payroll service providers and their clients, the simplest way is to record the transmitter of each return, or alternatively use existing data exchanges for this process. Where paper copies of authorization forms are unavoidable (e.g., required by statute), the state should accept the federal Form 8655, Reporting Agent Authorization, and authorized "substitute" forms.

Appendices: Technical

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Appendix I:
Format, Protocols, Gateway Specification and Testing Recommendations

Format

A separate consideration from the mechanics of how to send and receive electronic files (electronic filing protocols) is the specification of the format of the electronic files. The file format specifies in detail what data elements should be included, along with related requirements (such as whether a particular data element is always required; whether it must always be numeric, etc.), as well as placement and sequencing within the file and/or data element or field tag details (if applicable).

Recommendations:

- An electronic filing system can follow a number of established electronic file formats, such as the Social Security Administration's EFW2 format (http://www.ssa.gov/employer/08EFW2.pdf), National Association of State Workforce Agencies/Interstate Conference of Employment State Agencies (NASWA/ICESA) (http://www.workforceatm.org/articles/template.cfm?results_art_filename=uitable.htm), or Federal-State Employment Tax (FSET). (http://www.statemef.com/fset.shtml)
- By using a format that already is in use by other federal and/or state agencies, states will benefit from the experience of others in development and testing. Additionally, it is less expensive for private industry to support a format that is similar to those already in use, and states will find a broader audience that is prepared to electronically file using widely accepted standard formats.
- Providing a clear mapping from the data currently collected on paper forms to the electronic format will reduce interpretation errors and ensure that intended results are achieved. Consistent standards across electronic filing, magnetic media, and paper also facilitate faster development and more accurate quality control, increasing the volume of electronically filed returns.

Alternative Format:

- The FSET standard was developed by the TIGERS organization, which is part of the American National Standards Institute's Accredited Standards Committee (ASC) X12 for data interchange standards.
- The current approach is to continue to use existing fixed-format file formats such as the NASWA/ICESA standard or the SSA EFW2 format, and simply ask reporting entities to embed these files within the FSET or XML transmission envelope. This approach minimizes programming requirements to implement state electronic filing systems and takes advantage of long-standing reporting systems. Existing fixed file formats can accommodate periodic company-level tax return filing requirements in addition to the supporting employee-level detail (quarterly wage reports, etc.).
- Usage of XML schemas can significantly increase file size. Agencies are encouraged to allow compression of files, especially if they are using XML formats.

TRANSMISSION PROTOCOLS AND SECURITY

Recommendations:

- Unattended (application-to-application) transmission and processing should be supported; i.e. server-to-server capabilities for high-volume filing, versus browser-to-browser. Large service providers often generate and transmit files from mainframes. Additionally, browser-based file uploads rely on human interaction, which is subject to error. To accommodate browser-based systems, scripts are written to automate the interaction; however, such programs then need periodic modification. Browser-based systems have been difficult because of the need to coordinate routine Web site changes (e.g., screen layouts), and additional steps necessary to capture data such as acknowledgements and error messages.
- The Application Programming Interface (API) for Application-to-Application (A2A) transmission should address all of the elements listed under "Minimum Agency Gateway Specifications" on page 13. The API document should be updated at least six months before any changes to the system, and should include a well-defined data format and a secure transmission protocol.
  - o The purpose of the API is to document what must be done at the technical level in order to interact successfully with the agency's system.
- Systems will need to be capable of accepting early and late electronic filings.
  - o For example, large employers who go out of business mid-year are required to electronically file Forms W-2 with the SSA shortly after they cease to do business.
- The A2A transmission protocol should support batched submissions; that is, single transmissions with multiple filings and payments. This is necessary to meet the throughput requirements of large transmitters; the filings and payments may or may not be related to each other.
- The agency should acknowledge the receipt of each batch, or the filings within each batch, in real-time. This does not imply that the agency must accept or reject each tax return in real-time, but it should provide some level of validation of the transmission to ensure authorization, completeness, and correctness of the transmission.
- Adopt industry security standards for Web services such as WS-Security, that allow for well-documented, interoperable, vendor, and tool-supported security implementations. Privacy and confidentiality concerns are paramount in A2A transactions. The IRS MeF system has chosen SAML as a security mechanism. Many systems rely on Secure Sockets Layer (SSL) for encryption and server authentication. The manner in which clients are authenticated varies considerably and remains a matter of concern.

Alternative Solution:
- XML Documents over HTTPS (Web services) is an industry standard for A2A transmission. This format has been adopted by the new IRS Modernized E-file system.
  - o Web Services typically uses a Web Service Definition Language (WSDL) document to specify the API between the communicating applications. Web Services can also be implemented without a WSDL by simply posting an XML document via HTTPS.
  - o Private sector companies should generally not be asked to install software developed by the agency or an external source. Some arrangements may violate software development control environments. Also, not all software is compatible with industry languages and development tools.

MINIMUM AGENCY GATEWAY SPECIFICATION

The following is intended to outline the specifications needed to exchange information with payroll service providers. All of these elements should be included in the Application Programming Interface (API) mentioned above.

Transport Protocol Options (in order of preference):

I.   POINT-TO-POINT (P2P)

1.   SFTP using SSH (SSH File Transfer Protocol): This protocol supports batch and bulk e-filing, with security being addressed at the SSH2 protocol. Optionally file-level encryption can be supported via use of PGP encryption. This is the safest alternative, with encryption at both the channel and payload levels.

2.   FTP over SSL channel encryption has the same benefits as above, but security is addressed at the session level by the use of SSL (Secure Socket Layer). Optionally file-level encryption can be supported via use of PGP encryption. This is also a safe alternative, with encryption at both the channel and payload levels.

3.   FTP with PGP data encryption is easy and widely used, running on virtually every conceivable operating system and platform. FTP supports "batch" and "bulk" e-filing. Security is addressed at the file level using PGP.

4.   Third Party Vendor Software supporting TCP/IP over Internet (such as Axway/Tumbleweed Secure File Transfer, Axway/Cyclone Interchange, Inovis IPNet , SterlingCommerce Connect: Direct – supporting AS1, AS2, AS3 protocol): This is the "Cadillac" version for e-filing, and can be very costly for agencies and their trading partners. This type of solution will address security/ privacy, authentication of sender/receiver, and the integrity of exchanged files is guaranteed with non-repudiation. It is very suitable for high-volume "bulk" electronic filing applications.

II.   APPLICATION-TO-APPLICATION (A2A)

1.   Web services application-to-application allows employers to communicate with the agency leveraging an industry standard. With this style of interaction, data is exchanged in SOAP messages using the request-response model transport mechanism over an HTTPS connection. Acknowledgements must be retrieved from the same channel that was used to submit the return.
   o   The employer needs to have web service client software developed/installed on their machine following the WSDL specification from the agency. The employer software will send web service requests to the agency web services end-point, and submission data will be attached to the request messages. The employer software shall also handle the web services responses. Web services client software is developed by third-party software developers, not the agency system.
   o   The web service client software should be based on J2EE/.NET or other open source technologies. MIME with MTOM attachment standard is recommended.
   o   The agency should publish the specifications of the WSDL and the schema of the submission, return, proof of filing or transmission receipt, and the acknowledgements or responses.

- o When using the P2P approach, the employer sends a transmission file to the agency. When using the A2A interation, the employer client application sends a message to the agency.
- o A2A is not recommended for the filing of a single return.
- o The structure of the web services message used to transmit submissions use SOAP with attachments is as follows:
  - An e-file transmission file (or eSubmission) is a MIME multi-part document that:
  - Conforms to SOAP 1.1+ with attachments standard
  - Conforms to WS-I Basic Profile 1.1+ standard for interoperability
  - Consists of:
    - » A SOAP envelope (also called Transmission Envelope), which contains:
      - A header - the "Transmission Header"
      - A body - the "Transmission Manifest"
    - » One or More SOAP attachments
      - Each Attachment is a self-contained return, which is one MIME multi-part document (nested within another, the transmission file)
    - » MIME boundaries and content headers
  - A return is a MIME multi-part document. A return (within an eSubmission) is a MIME multi-part document and contains XML documents and/or binary attachments:
    - » XML structure
      - The "Return Header" contains information that is common for the whole return
      - The "Return Data" contains all of the XML return documents
      - Binary attachments are non-XML documents

III. WEB BROWSER CONSIDERATIONS

1. Point-to-Point transmission over HTTP with SSL
   - o HTTP over SSL through basic authentication and basic form upload/download of compressed/encrypted payloads: The normal protocol for secure web pages exchange; it can be used to send/receive compressed/encrypted eFiling submissions.
     - The agency needs to publish the specifications of the compression/encryption methods (e.g. PKZIP/WINZIP or PGP).
     - Exchanged compressed/encrypted files should not exceed 4MB (practical limitation).
2. Interactive eFiling over HTTP with SSL
   - o As stated under the General Recommendations, unattended transmission and processing is much preferred by bulk processors (which includes both the P2P and A2A options described above) over the web browser file upload option. Browser-based file uploads rely on human interaction with the agency's website. Complicated scripts must be written to automate this interaction, and any time changes are made to the agency's website, even minor changes, the scripting programs must be modified to simulate the human interaction to incorporate the new web page functionality.
   - o Interactive Browser-based systems have been difficult because of the need to coordinate routine Web site changes (e.g. screen layouts), and additional steps necessary to capture data such as acknowledgements and error messages.

o   This alternative is not appropriate for high volume filers as file sizes (or compressed files) larger than four megabytes (for Unix-based servers) or two to three megabytes (for Windows-based servers) are not recommended.

o   Given the volume of employers that service providers represent, it could take several days or weeks to upload many small files using a browser.

o   The integrity of the eFiling is questionable when there is a drop in connectivity. Both the bulk provider and the agency have to go through extensive manual processes to restart the transmission.

TESTING

Recommendations:

- Allow organizations to submit live data to testing environments. This allows organizations to more fully test the system (e.g., the detailed edits that will take effect in production). States should be clear about whether the test environment is secure, or whether submitters should use test data only. Test environments should include all elements of the production environment, including error handling and reporting, file and return acknowledgements, security, naming convention, etc. This enables a robust test capable of identifying any issues that may arise in production.
- Test environments should use the same client API as the production environment, and should be made available at least 90 days prior to implementation. Sufficient leadtime is necessary because developers will almost immediately begin sending test files to the agency in order to understand the new electronic system, the authorization process, edits, and acknowledgments. All of the findings are used in creating the design for interacting with the agency's new system.
- States should consider issuing separate authenticaiton credentials (PINs/passwords) for production and test environements. This measure has proven valuable in ensuring that test data is not mistakenly submitted as live production data.

Guidelines for Testing Process:

Set forth below are guidelines for a testing process; however, agencies and payroll service providers should remain flexible when applying them. NPRC recommends a formal (documented) certification process for testing. In practice, informal test procedures too often lead to problems in live production.

Assurance Testing:

- Assurance testing is a twofold process -- Set-up test profile registration/contact information and return filing.
- Test scenarios should be provided by the tax authorities, but their use should be optional.
- Along with the raw test data, there should also be completed returns showing the correct tax computations, reports, or other results for each test scenario.

Test Profile Registration/Contact Information:

- The payroll service provider or transmitter must be successfully authenticated using test profile and connected to the agency gateway, and also be able to contact technical support.

Return Processing:

- Successfully connect to the agency interface or gateway to the agency's back-end system when initiating the transmission of a test file.
- Successfully transmit ALL the relevant transaction types (withholding, unemployment insurance, combined, annual reconciliations and/or associated payments) according to the test schedule.
- Successfully connect to the agency gateway system and retrieve the appropriate acknowledgement file.

The following represents excerpts of general guidance from the Social Security Administration to employers. (http://www.ssa.gov/employer/Guide501.doc, http://www.ssa.gov/employer/08EFW2.pdf) The SSA does not reject Forms W-2 when reported names and/or Social Security Numbers do not meet the recommendations below.

Employee Names

DO: Separate compound surnames with either a hyphen or a blank space.
DO: Connect single letter prefixes, i.e., "O" or "D" with the rest of the surname or join with an apostrophe.
DON'T: Include titles in prefixes such as Doctor, Dr., RN, Captain, Mr., Mrs., etc.
DON'T: Include titles or academic degrees in suffixes such as Senior, Junior, II, III, MD, Ph.D., CPA, etc.

Social Security Numbers

Rules for the Social Security Number (SSN)

- Only numeric characters
- Omit hyphens
- May NOT begin with an 8 or 9
- May NOT be fictitious (for example, 111111111, 333333333, or 123456789)
- If there is no SSN available for the employee, enter zeros (0)

Addresses

Employer Addresses

- The SSA does not edit for missing addresses
- The EFW2 layout does provide guidance to "fill with blanks" if unavailable

Employee Addresses

- The SSA does not edit for missing addresses
- The EFW2 layout does provide guidance to "fill with blanks" if unavailable
- Because having an address is not a condition of employment, don't jeopardize a filing for a few missing addresses

Recommendations

Consideration should be given to automating highest volume processes first. Since amended returns represent less than one percent of total filing volume and require an additional amount of development equal to or exceeding original returns, it may not be cost effective for state agencies or third parties to also automate this process. If it is absolutely necessary to do so, use the same formats for both original and amended returns. The simplest approach is to permit filers to submit corrected files in the same format as the original return but marked as a replacement filing. This is intended to overlay original submissions with accompanying supplemental payments for additional amounts due when applicable. Agency back-end systems compare the revised return liabilities and payments to prior liabilities reported and payments to determine any remaining balance due.

With respect to amending reported amounts at employee level (i.e., annual W-2s or quarterly wage reports), corrected amounts could be reported only for the employee records with changes, a replacement mode, which would overlay the existing record. An amended employer wage report or W-2 submission may need to be coded as replacing only the employee records included in the present (amended) submission so that the state system does not replace the entire original employer report.

Amendments to Change Employer Identification Numbers

It is surprisingly common, in this environment of mergers and acquisitions, for employers to amend reported data to have it posted to a corrected EIN. This may involve correcting the EIN associated with the entity's entire company (all employees) in a prior quarter, or part of the company. It may involve an entire quarter or quarters, or it may reflect an EIN change that was effective in mid-quarter where all or some of the employees should be reported under a different ID number.

Some state electronic filing systems do not provide for this issue, and directed affected employers to electronically file an original report under the corrected EIN and an amended report to reduce wages/taxes reported under the prior EIN. But the original report is handled by the system as a late return, subject to penalties and interest, which the employer has to negotiate after the fact. If state e-file systems make it difficult for agency staff to post such corrections or resolve resulting penalties, this issue may be a drain on agency resources as well.

This is a complex area in which standards have not been developed, but at a minimum it would benefit all involved if the new systems permitted tax, wage, and W-2 reports to be transferred to a different EIN.

As each State Revenue and/or Workforce Agency has begun development of their next-generation electronic filing systems, they have often defined perceived error conditions uniquely; when in reality the conditions that tend to occur in such reporting are common to all. Each agency independently decides what conditions it considers to be an error (e.g., incorrect state employer identification number; missing ZIP code; punctuation in a last-name field); determines the severity (warning or fatal); establishes a unique description for the condition, and assigns a unique error number that is only applicable to that agency.

This approach requires additional work on each state's part, as agency software developers must independently "reinvent the wheel" in establishing and maintaining their own set of error conditions (e.g., adding as they become aware of new error conditions, and subsequently modifying the list as experience is gained.)

The NPRC has created a consolidated list of error conditions and messages that are in use by several state agencies, and modified terminology where needed for additional clarity. Recommendations were also added for the treatment of filings with these conditions (warning message, file-fatal error, or employer-level reject). A unique numeric code was assigned for each error type.

NPRC suggests that most error conditions that occur in wage and employment tax reporting are well known and common to all states. It would help states in their development efforts if they would adopt this set of error conditions, along with the associated codes and suggested severity ratings. At a minimum, this comprehensive set of error codes would help states by ensuring that they at least considered what other states have determined and what the NPRC recommends should be an error or warning. It can be used as a helpful starting point, if not a comprehensive set to be adopted.

This comprehensive list improves clarity by appropriately distinguishing often-ambiguous error descriptions (such as 'EIN invalid', which could mean 'never issued', 'not found', 'inactive', 'predecessor with/without active successor'; 'invalid character/number of characters' etc.), making them immediately actionable information, and avoiding calls to state staff to more specifically identify the problem.

This list will improve electronic filing volume by facilitating private sector adoption. Software and service providers would otherwise have to build databases of each agency's error definitions, and their associated codes and handling. Maintaining such lists would be even more difficult. This issue acts as a barrier to electronic filing.

For additional reference, the IRS has created a list of error messages for XML filings. A link to their document is attached for convenience:
http://www.irs.gov/pub/irs-schema/error_code_matrix_-_version_1.pdf

ERROR MESSAGE	ERROR CODE	ERROR LEVEL	REJECT/WARNING
File was empty (contained 0 bytes)	000003	TRANSMISSION	File-level Reject
Too many concurrent files - transmission failed.	000111	TRANSMISSION	File-level Reject
Duplicate transmission. File has been rejected and deleted.	000112	TRANSMISSION	File-level Reject
File size greater than <<#>> - connection was lost. Entire file has been rejected and deleted.	000113	TRANSMISSION	File-level Reject
Unable to authenticate.	000114	TRANSMISSION	File-level Reject
XML name/tag error.	000115	FILE	File-level Reject
Virus detected in file. Entire file was rejected and deleted.	000116	FILE	File-level Reject
File must be zipped.	000117	FILE	File-level Reject
Compressed file must contain only one data file.	000118	FILE	File-level Reject
Incorrect compression method used. Correct method is <<value>>.	000119	FILE	File-level Reject
Could not unzip file.	000120	FILE	File-level Reject
Incorrect file name extension used. Correct extension is <value>	000121	FILE	File-level Reject
Incorrect file name convention/format used. File name convention is <value>.	000122	FILE	File-level Reject
File record must be <<#>> bytes in length.	000123	FILE	File-level Reject
Transmitter User ID is required in file.	000272	FILE	File-level Reject
Test User ID <<value>> cannot be used in a production file.	000273	FILE	File-level Reject
Year/quarter <<value>> cannot be submitted electronically.	000274	FILE	File-level Reject
Year/quarter <<value>> is not yet open for electronic filing.	000275	FILE	File-level Reject
Period end date on file <<value>> does not match period end date selected <<value>>.	000276	FILE	File-level Reject
Period date <<value>> does not exist.	000277	FILE	File-level Reject
Invalid date format of <<value>> provided for Period End Date.	000278	FILE	File-level Reject
Transmission header is missing.	000279	FILE	File-level Reject
Record type <<value>> does not exist.	000280	FILE	File-level Reject
File must contain only one transmitter record.	000281	FILE	File-level Reject
Transmitter record is required as first record type.	000282	FILE	File-level Reject
Transmitter FEIN is missing.	000283	FILE	File-level Reject
Transmitter FEIN <<#>> does not match FEIN <<#>> provided in registration information.	000284	FILE	File-level Reject
Transmitter FEIN <<#>> is not authorized to submit electronically.	000285	FILE	File-level Reject
Transmitter name is missing.	000286	FILE	Warning
Transmitter street address is missing.	000287	FILE	Warning
Transmitter city is missing.	000288	FILE	Warning
Transmitter state is missing.	000289	FILE	Warning
Transmitter ZIP Code is missing.	000290	FILE	Warning
Transmitter ZIP Code Extension is missing.	000291	FILE	Warning
Transmitter contact name is missing.	000292	FILE	Warning
Transmitter contact phone number is missing.	000293	FILE	Warning
Transmitter record must only appear in first position of the file.	000294	FILE	File-level Reject
Transmitter record must precede an employer record.	000295	FILE	File-level Reject
Transmitter record must precede an employee record.	000296	FILE	File-level Reject
File must contain at least one employer record.	000310	FILE	File-level Reject
Employer record must precede an employee record.	000311	FILE	File-level Reject
Total employer records does not match employer total reported in final record.	000312	FILE	File-level Reject
Employer record count must total one or more per transmission.	000313	FILE	File-level Reject
An employer record is required as the second record type.	000314	FILE	File-level Reject
File does not contain any employee records.	000315	FILE	Warning
An employer total record must immediately precede the final record.	000316	FILE	File-level Reject

ERROR MESSAGE	ERROR CODE	ERROR LEVEL	REJECT/WARNING
An employer total record must immediately follow an employee record.	000317	FILE	File-level Reject
File must contain at least one total record.	000318	FILE	File-level Reject
Final record is required as the last record type in the file.	000319	FILE	File-level Reject
Final record must only appear in the last position of the file.	000320	FILE	File-level Reject
Number of employee records in the final record must match the actual employee record count.	000321	FILE	File-level Reject
The file must contain only one final record.	000322	FILE	File-level Reject
Missing end of record indicator.	000323	FILE	File-level Reject
Employer <<#>> must have only one employer total record.	000503	EMPLOYER	File-level Reject
Employer FEIN <<#>> cannot be reported on multiple employers within the file.	000504	EMPLOYER	Warning
Employer account number <<#>> can only be reported on one employer record within the file.	000505	EMPLOYER	Employer-level reject
Account number <<#>> in first employee record for employer must be the same on all employee records for same employer.	000506	EMPLOYER	Employer-level reject
FEIN is not nine digits for account number <<#>>.	000507	EMPLOYER	Employer-level reject
FEIN is not numeric for account number <<#>>.	000508	EMPLOYER	Employer-level reject
FEIN does not match FEIN on file for employer account number <<#>>.	000509	EMPLOYER	Warning
Employer account number <<#>> is not <<#>> characters.	000510	EMPLOYER	Employer-level reject
Employer account number <<#>> located, but is not active. No successor found.	000511	EMPLOYER	Warning
Employer account number <<#>> located, but is not active. Successor account number located.	000512	EMPLOYER	Warning
Employer account number <<#>> could not be found.	000513	EMPLOYER	Warning
Employer account number <<#>> is not numeric.	000514	EMPLOYER	Warning
Reported secondary identifier* does not match employer account number <<#>>.	000515	EMPLOYER	Warning
Employer name is missing for account number <<#>>.	000516	EMPLOYER	Employer-level reject
Employer name does not match for account number <<#>>.	000517	EMPLOYER	Warning
Address is missing for employer <<#>>.	000518	EMPLOYER	Warning
The city provided for employer <<#>> does not match zip code supplied.	000519	EMPLOYER	Warning
Employer zip does not match state/province supplied. Correct zip should be <<#>>.	000520	EMPLOYER	Warning
Employer zip format does not match postal guidelines for account number <<#>>.	000521	EMPLOYER	Warning
Subject wages less excess wages does not equal taxable wages for account number <<#>>.	000522	EMPLOYER	Employer-level reject
Subject wage totals do not match reported employee detail records for account number <<#>>.	000523	EMPLOYER	Employer-level reject
Taxable wages are missing or non-numeric for account number <<#>>.	000524	EMPLOYER	Employer-level reject
Subject wages are missing or non-numeric for account number <<#>>.	000525	EMPLOYER	Employer-level reject
Excess wages are missing or non-numeric for account number <<#>>.	000526	EMPLOYER	Employer-level reject
Tax amount is missing or non-numeric for account number <<#>>.	000527	EMPLOYER	Employer-level reject
Account number <<#>> should not have taxable wages.	000528	EMPLOYER	Warning
Incorrect deposit frequency for account number <<#>> and tax period.	000529	EMPLOYER	Warning
Incorrect filing form/type for account number <<#>> and tax period.	000530	EMPLOYER	Warning
Incorrect unemployment rate for account number <<#>> and tax period.	000531	EMPLOYER	Warning
Incorrect supplemental/special tax rate for account number <<#>> and tax period.	000532	EMPLOYER	Warning
Incorrect payment method for account number <<#>> and tax period.	000533	EMPLOYER	Warning
Filing received after due date for employer <<#>>.	000534	EMPLOYER	Warning
Monthly employee count value is missing for employer <<#>>.	000535	EMPLOYER	Warning
Monthly employee count value should not be greater than total employees reported for employer <<#>>.	000536	EMPLOYER	Warning
Employee first name for <<SSN#>> should not be less than one character.	000800	EMPLOYEE	Warning

ERROR MESSAGE	ERROR CODE	ERROR LEVEL	REJECT/WARNING
Employee last name for <<SSN#>> should not be less than two characters.	000801	EMPLOYEE	Employer-level reject
Employee name for <<SSN#>> should not include non-alpha characters.	000802	EMPLOYEE	Warning
Employee address for <<SSN#>> is missing.	000803	EMPLOYEE	Warning
Employee address city for <<SSN#>> does not match zip code supplied.	000804	EMPLOYEE	Warning
Employee zip for <<SSN#>> does not match state/province supplied.	000805	EMPLOYEE	Warning
Employee zip format for <<SSN>> does not match postal guidelines.	000806	EMPLOYEE	Warning
Employee subject wages for <<SSN#>> must be greater than zero.	000807	EMPLOYEE	Warning
SSN is blank or non-numeric.	000808	EMPLOYEE	Warning
SSN <<#>> is not nine digits.	000809	EMPLOYEE	Employer-level reject
Duplicate SSN of <<#>> reported under same employer.	000810	EMPLOYEE	Employer-level reject
SSN <<#>> does not meet SSA formatting guidelines**.	000811	EMPLOYEE	Warning

* Secondary identifier; e.g., FEIN, when a state/jurisdiction employer identification number is the primary employer ID number. Other examples would be additional state ID numbers for related state agencies; EFT access codes, or other employer identifiers.

** Any other restrictions defined by the state agency. See SSA guidelines related to correct SSN formats.

General Guidelines For Error Code Messaging and Handling of Rejects:

- Include a reject code (max 6 characters) for each type of reject.
- Always include employer account number in employer-level acknowledgements/warnings.
- Always include EIN and SSN in employee-level acknowledgements/warnings.
- Acknowledgments should include record type (example: RE).
- Do not reject at the employee record level. Reject the entire employer if one or more employees is incorrect.
- For Web browser processes, allow upload and export of acknowledgment files instead of online screen visibility.
- Delimited characters are preferred.
- Identify all errors before returning the file and report all errors found, do not return as each error is found, one at a time.
- Confirmation numbers should include the posting date (to serve as proof of timely filing).

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