U.S. Bank E-Payment Service

Technical Specifications

usbank.

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Trademark Acknowledgments

All product names are properly capitalized and are trademarks of their respective companies.

Chapter 1:   Web Session Transfer

In order for payers to access the U.S. Bank E-Payment Service site, the Biller passes the appropriate parameters to U.S. Bank via an Internet session transfer. Payers cannot bookmark any of the pages in E-Payment Service to return to later, as they must be passed in via a post from the Biller's website. The Session Transfer parameters are defined during the implementation process, with a customized session transfer provided to the Biller during implementation. A session transfer always includes a Biller group ID, Biller ID and may include product code, payer ID, amount due, due date, or any number of product parameters, all depending upon the options selected during Biller setup.

1.0   Session Transfer HTML

Every time a payer clicks into E-Payment Service, the biller's site will send session transfer data to control how the E-Payment Service application behaves for this payer. A payer may arrive at E-Payment Service with the intention of:
- Making a payment
- Inquiring about a payment
- Managing accounts

1.1   Payment Session Transfer Example

The following is an example of the Session Transfer HTML a biller may use to pass a payer to E-Payment Service to make a payment:

<HTML>

<body>

<form action="https://epayment.epymtservice.com/epay.jhtml" method="post">

<input type="hidden" name="billerPayorId" value="12345">

<input type="hidden" name="productCode" value="ProductOne">

<input type="hidden" name="MaximumAmountAllowed" value="100.00">

<input type="hidden" name="amountDue" value="nnn.nn">

<input type="hidden" name="dueDate" value="yyyy-mm-dd">

<input type="hidden" name="parameter" value="parameter value">

<input type="hidden" name="billerId" value="AAA">

<input type="hidden" name="billerGroupId" value="BBB">

<input type="hidden" name="disallowLogin" value="Y">

<input type="hidden" name="lastName" value="Payer">

<input type="hidden" name="firstName" value="Joe">

<input type="hidden" name="streetAddress1" value="5000 California Blvd.">

<input type="hidden" name="streetAddress2" value="Ste. 1000">

```
<input type="hidden" name="city" value="Chicago">

<input type="hidden" name="companyName" value="USBank">

<input type="hidden" name="stateRegion" value="IL">

<input type="hidden" name="zipPostalcode" value="12345">

<input type="hidden" name="countryCode" value="US">

<input type="hidden" name="emailAddress" value="joe.payer@aol.com">

<input type="hidden" name="phoneNumber" value="1234567890">

<input type="hidden" name="paymentMethod" value="Credit Card">

<input type="hidden" name="paymentType" value="Single"">

<input type="submit" value="Make Payment">

</form>

</body>

</HTML>
```

1.2   Payment Inquiry Session Transfer Example

Below is an example of the session transfer HTML that can be used to pass a payer to E-Payment Service to inquire about a payment or manage their account:

```
<HTML>

<body>

<form action="https://epayment.epymtservice.com/epay.jhtml" method="post">

<input type="hidden" name="billerId" value="ABC">

<input type="hidden" name="billerGroupId" value="ABC">

<input type="hidden" name="firstName" value="XXXXXX">
<input type="hidden" name="lastName" value="XXXXXX">
<input type="hidden" name="streetAddress1" value="XXXXXX">
<input type="hidden" name="streetAddress2" value="XXXXXX">
<input type="hidden" name="city" value="XXXXXX">
<input type="hidden" name="companyName" value="XXXXXX">
<input type="hidden" name="stateRegion" value="XXXXXX">
<input type="hidden" name="zipPostalcode" value="XXXXXX">
<input type="hidden" name="countryCode" value="XXXXXX">
<input type="hidden" name="emailAddress" value="XXXXXX">
<input type="hidden" name="phoneNumber" value="XXXXXX">
<input type="hidden" name="paymentMethod" value="XXXXXX">
<input type="hidden" name="paymentType" value="XXXXXX">

<input type="submit" value="Payment Inquiry">

</form>

</body>
```

</HTML>

1.3   Session Data

Below are the data layouts of the Web Session Transfer for each field. These data layouts are also used for Encrypted Session Transfers.

Key	Data Type	Length	Comments	Database Validations
billerGroupId	Char	25	Required Field Identifies the biller group to the system	Must be a valid biller group/biller combination found in BILLER where: biller_group_id = BillerGroupID and biller_id = BillerID
billerId	Char	25	Required Field Identifies the biller to the system.	Must be a valid biller group/biller combination found in BILLER where: biller_group_id = BillerGroupID and biller_id = BillerID
productCode	Char	25	Required if user is trying to make a payment for a specific product Identifies the product that the user is paying for	If the biller is trying to use the authorized products feature, the value must be "AUTHORIZED_PRODUCT"
billerPayorId	Char	25	Required if user is trying to make a payment and if configured in Biller Setup	Used to authenticate the user for ACH payments.
MaximumAmount Allowed	Decimal	16, 2	• This field must be enabled to use • Required if set to always pass • Optional if set to sometime passed • Must be all numeric • May contain a decimal point, but may only contain 2 digits after the decimal point	Used to set a maximum payment amount for a specific payer. Maximum payment amount applies to each session sent only.
amountDue	Decimal	16, 2	Required if user is trying to make a payment and if product defined it as required during Biller Setup If passed, this is the amount due for a given product code Must be all numerics May contain a decimal point, but may only contain two digits after the decimal point Not valid if the productCode equals 'AUTHORIZED_PRODUCT'	Field length cannot exceed eight digits to the left of the decimal point Is_amount_due_required must equal "Y" for the biller group/ biller/ product code combination in the biller_product table
dueDate	Date	10	Required if user is trying to make a payment and if product defined it as required during Biller Setup If passed, this is the due date for a given	Is_due_date_provided must equal "Y" for the biller group/ biller/ product code combination in the biller_product table

Key	Data Type	Length	Comments	Database Validations
			product code Must be in the format of "YYYY-MM-DD" and be a valid date Not valid if the productCode equals "AUTHORIZED_PRODUCT"	
paymentType	N/A	N/A	For single payments the key value must be "Single" For recurring payments, the key value must be 'Recur'	If this is included, it will be the only type available for the payer
paymentMethod	N/A	N/A	For ACH payments, the payment type must be 'ACH' For credit card payments, the payment type must be "Credit Card"	If this is included, it will be the only method available for the payer
billerUserId	Char	16	Required if password is sent	Identifies the user for auto-signon
password	Char	30	Required if billerUserId is sent	User password for auto-signon
lastName	Char	30	Must have at least one letter Cannot be all spaces Characters allowed: Letters Dashes Spaces Periods Commas Parentheses	
firstName	Char	30	Must have at least one letter Cannot be all spaces Characters allowed: Letters Dashes Spaces Periods Commas Parentheses	
emailAddress	Char	256	Only one "@". No limits on "." As long as there is one after the "@". Characters not allowed: { | } < > & / \ ' ` = ^ ,	If a value is present, it must have the minimum format of x@x.x where 'x' is at least one alpha-numeric value, including '-', '_' or '.', + * $ % ! ? ~.
streetAddress1	Char	50	Required if City, State, ZipPostalCode and Country are provided	

Key	Data Type	Length	Comments	Database Validations
			Must have at least one letter Cannot equal a space Alphanumeric, special and control characters are allowed	
streetAddress2	Char	50	Alphanumeric, special and control characters are allowed	Can only a contain a value if StreetAddress1, City, State, ZipPostalCode, and Country all contain values
city	Char	30	Required unless "Use the Credit Card Billing Address Just Entered" is selected If a value is provided: Must have at least one letter Cannot equal a space Alphanumeric, special and control characters are allowed	If StreetAddress1, State, ZipPostalCode, and Country are provided, then this field is required
stateRegion	Char	2	This version is used when Biller Group does not accept International Addresses: Required unless "Use the Credit Card Billing Address Just Entered" is selected Required if City, StreetAddress1, and ZipPostalCode/ZipCode5 are provided If a value is provided: Must have at least one letter Cannot equal a space	Must be a valid code in the STATE_CODE table Codes may be found in the U.S. Bank E-Payment Service Technical Specifications
stateRegion	Char	40	This version is used when Biller Group does accept International Addresses: Required unless "Use the Credit Card Billing Address Just Entered" is selected Required if City, StreetAddress1, ZipPostalCode/ZipCode5, and Country are provided Allow only numbers, letters, hyphens, single spaces, apostrophes, commas, periods and parentheses.	If Country is US, must be a code in the STATE_CODE table. Codes may be found in the U.S. Bank E-Payment Service Technical Specifications
zipPostalcode	Char	12	If Country is US, must follow standard US zip format and be 5 digits only. If Country is not US, then only allow numbers, letters, hyphens, single spaces and periods. Cannot be single space/all spaces. If StreetAddress1, City, State and Country are provided then this field is required.	N/A
countryCode	Char	2	If StreetAddress1, City, State and Zip 5/ZipPostalCode are provided then this field is required	Must be a valid code in the COUNTRY table Codes may be found in the

Key	Data Type	Length	Comments	Database Validations
				U.S. Bank E-Payment Service Technical Specifications
companyName	Char	30	If value is entered, must have at least one letter; cannot equal a space Alphanumeric, special and control characters are allowed	N/A
phoneNumber	Char	3,3,4	Used when Biller Group does not accept International Addresses Numeric Only Phone number must be 10 digits Cannot be all spaces	* Character format: 3, 3, 4 Ex: 1234567890 Ex. 3334445555 area code, prefix, extension
phoneNumber	Char	20	Used when Biller Group does accept International Addresses Cannot be all spaces Must be 10 digits If CountryCode is "US" If CountryCode is not "US", Alphanumeric and special characters (numbers, hyphens, single spaces, parentheses and periods) are allowed.	
returnValue	Char	100	This field is optional This field is only passed if the return session transfer is enabled. Returns payer back to the site specified in the Return Session	Encrypted Session Transfers only.
returnURL	Char	256	Biller's address URL for Return Session must be a valid URL This field is optional This field is only passed if the return session transfer is enabled. Returns payer back to the site specified in the Return Session The protocol must be HTTPS	Encrypted Session Transfers only. Required for Return Session Transfer.
Product Parameter Name (Key name is the actual parameter name entered during biller setup)	Char	26	Required if product parameter specified as required (either passed via session transfer and/or pre-registration file) There can be 1-n of the following 2 Product Parameter fields as determined from Biller Setup. Parameters cannot contain any customer confidential information (i.e. social security #, credit card #, etc.)	Not valid if the productCode equals "AUTHORIZED_PRODUCTS"
Product Parameter Value (Key name is the	Char	80	Required if product parameter specified as required (either passed via session transfer and/or pre-registration file)	Not valid if the productCode equals "AUTHORIZED_PRODUCTS"

Key	Data Type	Length	Comments	Database Validations
actual parameter name entered during biller setup)			There can be 1-n of the following 2 Product Parameter fields as determined from Biller Setup. Parameters cannot contain any customer confidential information (i.e. social security #, credit card #, etc.)	
disallowLogin	Char	1	If equals "Y", it identifies the user is unregistered and should skip the welcome screen	Note: The "Y" is case sensitive.

Chapter 2: Session Transfer Encryption

The inbound Web Session Transfer can be passed to E-Payment Service either encrypted or unencrypted. E-Payment Service requires session transfer encryption if the biller is a) utilizing the "Auto-Login" functionality (see E-Payment Service User Guide for more detailed information on the Auto-Login component of E-Payment Service), or b) is enabled to receive a Return Session Transfer from E-Payment Service.

2.0   How to Obtain the Encryption Key

Security Officers may obtain the encryption key from the Main Menu of the E-Payment Service application by selecting "Manage Encryption Key" in the Manage Keys/Token section.

Manage Keys/Tokens
Manage Epay Message Token
Manage Encryption Key

Should you have more than one Biller ID, you will need to select the appropriate one from the following screen:

Biller Group Select

BILLER GROUP SELECTION

Biller Group: ABC

CONTINUE

Once selected, any previously generated encryption keys will be displayed.

2.1   Generate a New AES Encryption Key

E-Payment Service uses AES encryption (Advanced Encryption Standard) for session transfers.

> **Note**: Prior to implementing AES encryption, Blowfish encryption was used. The ability to generate a blowfish key is also available on the site. Blowfish encryption will eventually be phased out and we recommend that any new keys generated be done utilizing the new and more secure AES process.

To obtain a new key, click **Generate AES Key**.

Manage Encryption Key

BILLER GROUP: ABC

BILLER: DEF

The encryption key is used to generate encrypted session transfers.

Blowfish is a legacy encryption algorithm. Please use AES for all new session transfers.

List of Existing Encryption Keys:

Encryption Key	Algorithm Name	Initialization Vector	Key Bit Length	Action
Nothing found to display.				

GENERATE AES KEY   GENERATE BLOWFISH KEY   CANCEL

Your new encryption key will be displayed.

Manage Encryption Key

BILLER GROUP: ABC

BILLER: DEF

The encryption key is used to generate encrypted session transfers.

Blowfish is a legacy encryption algorithm. Please use AES for all new session transfers.

List of Existing Encryption Keys:

Encryption Key	Algorithm Name	Initialization Vector	Key Bit Length	Action
+ZKU3HghMPt/HtVizD/2ogg79rieEDf33aepfxJWHQo=	AES/CBC/PKCS5Padding	tppf5T8rgP0H9ACY	256	Delete

New key has been generated.
New key is: +ZKU3HghMPt/HtVizD/2ogg79rieEDf33aepfxJWHQo=

OK

2.2 Implementation

The encrypted session transfer contains two unencrypted elements: billerGroupID and billerID, and one encrypted element: session. The process to create the encrypted element is described below. All other parameters are encrypted.

Use the AES key, along with the supplied Initialization Vector to perform the encryption. These values are available from the Administrative site using instructions above or can be provided by your U.S. Bank Technical Implementation Consultant. The encryption keys displayed on the admin site have been Base-64 encoded. Here are the other details of the AES scheme E-Payment Service utilizes:

- Algorithm: AES
- Cipher Encryption Mode: Cipher Block Chaining (CBC)
- Padding Scheme: PKCS5Padding
- Key Length: 256

To perform encryption:

1. Construct your session transfer string. This consists of the parameters you need to send to E-Payment Service from this list above. These should be pipe delimited :
   productCode=Investments|amountDue=12.01|dueDate=2012-02-17

   Note: Please refer back to your Biller Setup for required parameters for Session Transfer.
2. The keys displayed on the E-Payment administrative site are base-64 encoded. Decode your AES key using a Base-64 decoder.
3. Encrypt your session transfer string from Step 1 with decoded AES key and the supplied Initialization Vector.

   Note: E-Payment service performs all encryption/decryption using an encryption mode of CBC (Cipher Block Chaining) and a padding scheme of PKCS5Padding. Consult your vendor documentation for how to perform AES encryption and decryption in your environment.
4. Encode the encrypted session transfer string created in Step 3 using a Base-64 encoder.
5. Once complete, create an HTML page like the one below. Place the value from Step 4 into the designated location. Clicking this button should successfully transfer you to E-Payment Service.

```
<HTML>
<body>
<form action="https://epayment.epymtservice.com/epay.jhtml" method="post">
<input type="hidden" name="session" value="value from Step 4 ">
<input type="hidden" name="billerId" value="DEF">
<input type="hidden" name="billerGroupId" value="ABC">
<input type="submit" value="Make Payment">
</form>
</body>
</HTML>
```

2.3   Payer Single Sign-On

For Billers that utilize a login process on their website, E-Payment Service provides a single sign-on option to make the user transfer to the U.S. Bank site seamless. In order to utilize single sign-on, Billers must first register their customers with E-Payment Service. This can be accomplished by utilizing the pre-registration file or by sending an API message. Through these, the Biller provides information about their customers that includes two pieces of data for authentication (User ID and Password) and basic demographic information.

Below are some important things to keep in mind when considering the Single Sign-On option:
- The data utilized for User ID must be unique across your customer base. Often Billers utilize the customers' account numbers for the User ID field.
- The password does not have to be unique across your customer base. Often Billers utilize information such as last four numbers of SSN, zip code or home phone number as the Password field.

- In most cases, the User ID and Password are used simply for authentication purposes and do not need to be values known by the customer.
- The User ID and Password provided to E-Payment Service via the pre-registration file are not required to be the User ID and Password the customer uses to login to the Biller site. In fact, if you allow your customers to change the User ID or Password they use on your site, you will not want to use these values for E-Payment Service.
- The User ID should not be a value that can be passed to another customer in the future. For example, if you are accepting payments for utilities and the account number is tied to the property and not to the customer, the account number should not be used as the User ID.

2.4   Real-Time Authorization and Registration

Billers can choose whether or not to use the E-Payment Service real-time authorization and registration (RTAR) feature. This feature allows billers to authorize payers real-time when they attempt to log into the E-Payment Service customer payment site or the Integrated Voice Response system. Billers can send new user information to register the user or update existing information when payers log into E-Payment Service.

2.5   Disallow Login

For Billers that do not utilize self-registration or pre-registration, E-Payment Service provides the option to skip the initial login/registration screen. To skip the initial login/registration screen, the Biller would simply include the following code in the session transfer.

> **Note**: this feature should only be used for users transferring to E-Payment Service for the purpose of making a payment.

<input type="hidden" name="disallowLogin" value="Y">

2.6   Authorized Products

For Billers that utilize the pre-registration file, E-Payment Service provides the option to manage customers' eligibility to pay through the use of the 'Authorized Product' record in the pre-registration file. In order for E-Payment Service to confirm eligibility, the product code in the session transfer must be set to AUTHORIZED_PRODUCT and not the actual product code setup for an application.

<input type="hidden" name="productCode" value="AUTHORIZED_PRODUCT">

Chapter 3:   Remittance File

A daily file is generated by E-Payment Service that provides the Biller with all transactions processed for settlement. The remittance file also includes totals by payment type to assist the Biller with reconciliation. Please note that there will be two Monday ACH deposits, one for transactions processed Friday evening and another for transactions processed Sunday evening.

3.0   Schedule

E-Payment Service provides several same-day and next-day schedule options for the remittance file. Billers can define their own end of day for each payment method: by selecting from the following cut-off times: Billers who elect same-day remittance must select the same cutoff times for all payment methods.

CUT-OFF TIME	Available for Credit/Debit Card Payments	Available for ACH and Cash Payments	Same Day Remittance Available
1 p.m. CT	Yes	Yes	Yes
3 p.m. CT	Yes	Yes	Yes
5 p.m. CT	Yes	Yes	Yes
8 p.m. CT	Yes	Yes	Yes
1:30 a.m. CT	Yes	No	No

3.0.1 Next-Day Remittance File

The next-day remittance file is available for transactions processed the previous day(s). E-Payment Service begins creating remittance files by 6 a.m. CT, Monday through Friday, excluding Federal holidays (See **Appendix B: Federal Holidays** for a list of the Federal holidays). Please allow at least two hours to pick up the file.

If you choose to retrieve the remittance file prior to 8 a.m. make sure that your program has the ability to re-try if the file is not available. The following graph illustrates the payments that will be included in the daily remittance files in various scenarios for next day remittance files.

Next Day Remittance Examples

Payment Made (Payment Initiation Date)	Payment Processed	Remittance File Delivery (no later than)	Funds Settlement	ACH Returns
Weekday Examples: Monday – Thursday (up to Thursday cutoff)				
Tuesday before cutoff	Tuesday at cutoff time	Wednesday morning	Wednesday	Thursday
Tuesday after cutoff	Wednesday at cutoff time	Thursday morning	Thursday	Friday
Weekend Examples: Thursday (after cutoff) – Sunday				
Friday after cutoff (or any later up to cutoff on Sunday)	Sunday at cutoff time	Monday morning	Monday	Tuesday

Sunday after cutoff	Monday at cutoff time	Tuesday morning	Tuesday	Wednesday
Holiday Example: Monday Holiday				
Thursday after cutoff (or any later up to cutoff on Friday)	Friday at cutoff time	Tuesday morning	Tuesday	Wednesday
Friday after cutoff (or any later up to cutoff on Tuesday)	Tuesday at cutoff time	Wednesday morning	Wednesday	Thursday

3.0.2 Same-Day Remittance File

Same-day remittance files are available for Billers at various times and contain transaction detail for payments processed the current day. Billers must select the same cut-off time for both ACH and credit/debit cards for same-day remittance. E-Payment Service begins creating remittance files after the cut-off time, Sunday through Friday, excluding Federal holidays (See **Appendix B: Federal Holidays** for a list of the Federal holidays). Due to volume and additional processing (if applicable), please allow at least two hours to pick up the file.

If you choose to retrieve the remittance file before two hours have elapsed after your cut-off time, make sure that your program has the ability to re-try if the file is not available. The following table illustrates the payments that will be included in the daily remittance files in various scenarios.

Same Day Remittance Examples

Payment Made (Payment Initiation Date)	Payment Processed	Remittance File Delivery (no later than)	Funds Settlement	ACH Returns
Weekday Examples: Sunday through Friday				
Tuesday before cutoff	Tuesday at cutoff time	Tuesday 2 hours after cutoff	Wednesday	Thursday
Tuesday after cutoff time	Wednesday at cutoff time	Wednesday 2 hours after cutoff time	Thursday	Friday
Weekend Examples: Friday (after cutoff) through Sunday:				
Friday after cutoff (or any later up to cutoff on Sunday)	Sunday at cutoff time	Sunday 2 hours after cutoff time	Monday	Tuesday
Sunday after cutoff	Monday at cutoff time	Monday 2 hours after cutoff time	Tuesday	Wednesday
Holiday Example: Monday Holiday				
Friday after cutoff (or any later up to cutoff on Sunday)	Sunday at cutoff time	Sunday 2 hours after cutoff time	Tuesday	Wednesday
Sunday after cutoff (or any later up to cutoff on Tuesday)	Tuesday at cutoff time	Tuesday 2 hours after cutoff time	Wednesday	Thursday

3.03   Grace Period

To ensure that any payer who is in the process of making a payment at the cutoff time receives credit for that payment prior to the cutoff time, a fifteen minute grace period following the cutoff time is used.

3.1   Format

The standard remittance files are variable length files that are available in XML and CSV formats. Custom file formats are available for an additional charge.

3.2   Distribution

Remittance files are available for download through the E-Payment Service administrative site or delivery via U.S. Bank Data Distribution Services. Files will be available on the administrative site for 60 days after they are posted. U.S. Bank Data Distribution Services supports multiple delivery methods including Secure FTP and electronic mailbox.

3.3   Naming Convention

The default file name is <Biller Group Abbreviation>_<Biller Abbreviation>_YYYY_MM_DD.

3.4   File Layout

Here is the most recent version of the E-Payment Service remittance file layout:

3.4.1   Header Record

Field Name	Max Length	Comments/Format
RecordType	20	CSV only field, "Header"
VersionNumber	4	"6.0"
BillerGroupID	3	Biller Group ID
BillerGroupShortName	16	Biller Group Short Name
BillerID	3	Biller ID
BillerShortName	16	Biller Short Name
FileIndicator	15	Remittance File
ProcessDate	8	MMDDYYYY – File creation date.
BillerReportName	80	Biller Report Title

3.4.2   Detail Record

Field Name	Max Length	Comments/Format
RecordIndicator	20	CSV only field, "Detail"
TransactionConfirmationId	15	Transaction Confirmation ID
CFTransactionConfirmationID	15	Convenience Fee Transaction Confirmation ID

Field Name	Max Length	Comments/Format
RecurringRefId	15	Recurring Reference Id from the recurring payment schedule, if the transaction is a part of a recurring payment
BillerPayorId	32	Payer ID from transaction, if user was required to enter this value
BillerProductCode	32	• Biller Product Code • Biller Product Code + "Fee," if this is a convenience fee transaction
AmountDue	16	Numeric Only, explicit decimal point.
DueDate	8	The original payment due date passed in the session transfer or in the pre-registration record. YYYMMDD

PaymentAmount	16	• If convenience fees are not charged or are charged as 1 transaction = Payment Amount
		
		• If convenience fee is charged as 2 transactions:
		
		    – 1st Transaction (Payment) = Payment Amount
		
		    – 2nd Transaction (Convenience fee) = 0.00
		
		• If transaction is a payment or return (debit), this amount is greater than 0.
		
		• If transaction is a refund (credit), this amount is less than 0.
		
		• Explicit decimal point

Field Name	Max Length	Comments/Format

ConvenienceFee	16	• If convenience fees are not charged = blank
		
		• If convenience fee is charged as 1 transaction = Convenience Fee Amount
		
		• If convenience fee is charged as 2 transactions:
		
		    − 1st Transaction (Payment) = 0.00
		
		    − 2nd Transaction (Convenience fee) = Convenience Fee Amount
		
		• If transaction is a payment or return (debit), this amount is greater than 0.
		
		• If transaction is a refund (credit), this amount is less than 0.
		
		• Explicit decimal point

TotalAmount	16	• Payment Amount + Convenience Fee • If transaction is a payment or return (debit), greater than 0. • If transaction is a refund (credit), less than 0. • Explicit decimal point
PaymentEffectiveDate	8	Scheduled payment date, as provided by the user or as calculated by E-Payment Service YYYYMMDD
BillerBusinessDate	8	YYYYMMDD (this date value is assigned to ACH payments only)
InitiationDate	8	Date payment was initiated YYYYMMDD
InitiationTime	6	HHMMSS, 24 hour clock, Central Time
PaymentMethod	3	ACH,, CC, ATM or CSH

Field Name	Max Length	Comments/Format
CardType	4	• AMEX = American Express • DISC = Discover • VISA = Visa • MC = MasterCard • ATM = ATM Debit If PaymentType = 'ATM', then CardType is also = 'ATM'
AVSCode	1	The Address Verification Service response code returned to E-Payment Service by the card issuer.
CVDCode	1	The Card Verification Data response code returned to E-Payment Service by the card issuer.
BankRTN	9	The ABA Routing number provided by the payer
BankName	50	The ABA Bank Name provided by the payer
SECCode	3	The SEC code assigned to the ACH payment
LastFourAccountNumber	4	The last four digits of the card or bank account number
PaymentAuthorization	15	• IF ACH = ACH Trace # • IF Credit Card or ATM Debit Card = Authorization #
PaymentStatus	4	For versions 1-5: • "SENT" = payment or refund processed for settlement. Refunds initiated on the same day as the original payment will be shown as REFN (see below). • "RETN" = payment returned by Receiving Financial Institution • "REFN" = this status will only appear on the remittance file for payments refunded the same day as the payment is initiated (credit card only) For version 6: • "PROCESSED" replaces SENT • "RETURNED" replaces RETN • "REFUNDED" replaces REFN
ACHReturnCode	4	If status is RETN, return code.
ReasonDescription	48	If status is RETN, reason description
ReturnDate	8	If status is RETN, return date

Field Name	Max Length	Comments/Format
Payment Channel	3	• The channel on which the payment was initiated • "WEB", "IVR", "CSR" or "KIOSK"
AdminOrgID	16	Admin Organization ID number that was used to process a payment from the E-Payment Service Admin Site Will be 'NULL' if payment was made via pre-registration file Will be 'NULL' if payment was made via API and value was not provided
AdminUserID	25	Admin User ID that was used to process a payment from the E-Payment Service Admin Site Will be a space if payment made via pre-registration file Will be a space if payment was made via API and value was not provided
UserId	16	Alphanumeric if WEB only, Numeric if IVR or BOTH (no spaces)
FirstName	50	Can contain letters, numbers, or spaces Cannot be all spaces or all numbers
LastName	50	Can contain letters, numbers, or spaces Cannot be all spaces or all numbers
CompanyName	30	Can contain letters, numbers, or spaces (Not Required)
Phone	20	Can contain numbers, letters, and special characters (Not Required)
StreetAddress1	30	Cannot be all spaces
StreetAddress2	30	Not Required
City	30	Cannot be all spaces or all numbers
State	40	State / Province / Region
ZipPostalCode	12	Alpha-numeric
ZipCode4	4	Numeric Only (Not Required)
Country	2	Two character country code value (See Appendix)
Email	256	Not Required

Field Name	Max Length	Comments/Format
For card payments, the below billing address information will display under card detail. For more information, please see XSD.		
StreetAddress1	30	Cannot be all spaces
		If payment method is CSH, will be a single space for CSV and not displayed for XML
		If payment method is ACH or CC (card present), will be a single space for CSV and <ADDRESS> header only for XML
		Required for CC (card not present) payments
StreetAddress2	30	Not Required
		If payment method is CSH or CC (card not present), will be a single space for CSV and not displayed for XML
		If payment method is ACH or CC (card present), will be a single space for CSV and <ADDRESS> header only for XML
City	30	Cannot be all spaces or all numbers
		If payment method is CSH, will be a single space for CSV and not displayed for XML
		If payment method is ACH or CC (card present), will be a single space for CSV and <ADDRESS> header only for XML.
		Required for CC (card not present) payments
State	40	State / Province / Region
		If payment method is CSH, will be a single space for CSV and not displayed for XML
		If payment method is ACH or CC (card present), will be a single space for CSV and <ADDRESS> header only for XML.
		Required for CC (card not present) payments
ZipPostalCode	12	Alpha-numeric
		If payment method is CSH, will be a single space for CSV and not displayed for XML
		If payment method is ACH or CC (card present), will be a single space for CSV and <ADDRESS> header only for XML.
		Required for CC (card not present) payments
ZipCode4	4	Numeric Only (Not Required)
		If payment method is CSH or CC (card not present), will be a single space for CSV and not displayed for XML
		If payment method is ACH or CC (card present), will be a single space for CSV and <ADDRESS> header only for XML

Field Name	Max Length	Comments/Format
Country	2	Two character country code value (See Appendix)
		If payment method is CSH, will be a single space for CSV and not displayed for XML
		If payment method is ACH or CC (card present), will be a single space for CSV and <ADDRESS> header only for XML.
		Required for CC (card not present) payments
Product Parameter Fields (Repeated for every parameter selected for this transmission)		
NOTE: Parameters are not sorted in a particular order. We recommend processing both the name and value of each parameter.		
ParameterName (1)	26	
ParameterValue (1)	80	
Parameter (PayerBankRTN)	9	If a product has opted in to display this parameter on remittance report, the full bank RTN will show for ACH payments
Parameter (PayerBankAccountNumber)	17	If a product has opted in to display this parameter on remittance report, the full bank account number will show for ACH payments
Parameter (UADevice Info)	10	If biller has opted in to display this parameter on remittance report, payments made on WEB payment channel will display Desktop, Smartphone or Tablet. Will be blank for other payment channels.

3.4.3 Credit Card Summary Record

Field Name	Max Length	Comments/Format
RecordType	20	CSV only field, "CreditCardSummary"
CCDebitsPaymentCount	6	Number of credit card sale (debit) payment transactions (excludes conv fee trans)
CCDebitsPaymentAmount	18,2	Sum of payment amounts for credit card sale (debit) payment transactions (excludes conv fee trans)
CCDebitsCFCount	6	Number of credit card sale (debit) convenience fee transactions
CCDebitsCFAmount	18,2	Sum of payment amounts for credit card sale (debit) convenience fee transactions
CCDebitsTotalCount	6	CCDebitsPaymentCount + CCDebitsCFCount
CCDebitsTotalAmount	18,2	CCDebitsPaymentAmount + CCDebitsCFAmount
CCCreditsPaymentCount	6	Number of credit card refund (credit) transactions (excludes conv fee trans)
CCCreditsPaymentAmount	18,2	Sum of payment amounts for credit card refund (credit) transactions (excludes conv fee trans)

Field Name	Max Length	Comments/Format
CCCreditsCFCount	6	Number of credit card refund (credit) convenience fee transactions
CCCreditsCFAmount	18,2	Sum of payment amounts for credit card refund (credit) convenience fee transactions
CCCreditsTotalsCount	6	CCCreditsPaymentCount + CCCreditsCFCount
CCCreditsTotalAmount	18,2	CCCreditsPaymentAmount + CCCreditsCFAmount
CardProcessorCCDebitsCount	6	Number of credit and ATM Debit card sale (debit) transactions for all terminal ids for this biller, as reported by Elavon
CardProcessorCCDebitsAmount	18,2	Sum of payment amounts for credit and ATM Debit card sale (debit) transaction for all terminal ids for this biller, as reported by Elavon
CardProcessorCCCreditsCount	6	Number of credit and ATM Debit card credit transactions for all terminal ids for this biller, as reported by Elavon
CardProcessorCCCreditsAmount	18,2	Sum of payment amounts for credit and ATM Debit card credit transaction for all terminal ids for this biller, as reported by Elavon
CCDebitsCountDiff	6	NovaCCDebitsCount – CCDebitsTotalCount
CCPaymentsAmountDiff	18,2	NovaCCDebitsAmount – CCDebitsTotalAmount
CCCreditsCountDiff	6	NovaCCCreditsCount – CCCreditsTotalCount
CCCreditsAmountDiff	18,2	NovaCCCreditsAmount – CCCreditsTotalAmount
VisaPaymentsCount	6	Number of records in this file where CreditCardType = "VISA"
VisaPaymentsAmount	18,2	Sum of the TotalAmount field for all records in this file where CreditCardType = "VISA"
MCardPaymentsCount	6	Number of records in this file where CreditCardType = "MC"
MCardPaymentsAmount	18,2	Sum of the TotalAmount field for all records in this file where CreditCardType = "MC"
DiscPaymentsCount	6	Number of records in this file where CreditCardType = "DISC"
DiscPaymentsAmount	18,2	Sum of the TotalAmount field for all records in this file where CreditCardType = "DISC"
AmexPaymentsCount	6	Number of records in this file where CreditCardType = "AMEX"
AmexPaymentsAmount	18,2	Sum of the TotalAmount field for all records in this file where CreditCardType = "AMEX"
Summary Record		

3.4.4 ATM Summary Record

Field Name	Max Length	Comments/Format
RecordType	20	CSV only field, "ATM Summary"

Field Name	Max Length	Comments/Format
ATMDebitsPaymentCount	6	Number of ATM debit transactions (excludes conv fee trans)
ATMDebitsPaymentAmount	18,2	Sum of payment amounts for ATM debit transactions (excludes conv fee trans)
ATMDebitsCFCount	6	Number of ATM debit convenience fee transactions
ATMDebitsCFAmount	18,2	Sum of payment amounts for ATM debit convenience fee transactions
ATMDebitsTotalCount	6	ATMDebitsPaymentCount + ATMDebitsCFCount
ATMDebitsTotalAmount	18,2	ATMDebitsPaymentAmount + ATMDebitsCFAmount
ATMCreditsPaymentCount	6	Number of ATM refund (credit) transactions (excludes conv fee trans)
ATMCreditsPaymentAmount	18,2	Sum of payment amounts for ATM refund (credit) transactions (excludes conv fee trans)
ATMCreditsCFCount	6	Number of ATM refund (credit) convenience fee transactions
ATMCreditsCFAmount	18,2	Sum of payment amounts for ATM refund (credit) convenience fee transactions
ATMCreditsTotalCount	6	ATMCreditsPaymentCount + ATMCreditsCFCount
ATMCreditsTotalAmount	18,2	ATMCreditsPaymentAmount + ATMCreditsCFAmount
Summary Record		

3.4.5 ACH Summary Record

Field Name	Max Length	Comments/Format
RecordType	20	CSV only field, "ACHSummary"
ACHDebitsPaymentCount	6	Number of ACH debit transactions (excludes conv fee trans)
ACHDebitsPaymentAmount	18,2	Sum of payment amounts for ACH debit transactions (excludes conv fee trans)
ACHDebitsCFCount	6	Number of ACH debit convenience fee transactions
ACHDebitsCFAmount	18,2	Sum of payment amounts for ACH debit convenience fee transactions
ACHDebitsTotalCount	6	ACHDebitsPaymentCount + ACHDebitsCFCount
ACHDebitsTotalAmount	18,2	ACHDebitsPaymentAmount + ACHDebitsCFAmount
ACHCreditsPaymentCount	6	Number of ACH refund and return (credit) transactions (excludes conv fee trans)
ACHCreditsPaymentAmount	18,2	Sum of payment amounts for ACH refund and return (credit) transactions (excludes conv fee trans)
ACHCreditsCFCount	6	Number of ACH refund and return (credit) convenience fee transactions

Field Name	Max Length	Comments/Format
ACHCreditsCFAmount	18,2	Sum of payment amounts for ACH refund and return (credit) convenience fee transactions
ACHCreditsTotalCount	6	ACHCreditsPaymentCount + ACHCreditsCFCount
ACHCreditsTotalAmount	18,2	ACHCreditsPaymentAmount + ACHCreditsCFAmount

3.4.6 Cash Summary Record

Field Name	Max Length	Comments/Format
RecordType	20	CSV only field, "CashSummary"
CashDebitsPaymentCount	6	Number of cash debit transactions (excludes conv fee trans)
CashDebitsPaymentAmount	18,2	Sum of payment amounts for cash debit transactions (excludes conv fee trans)
CashDebitsCFCount	6	Number of cash debit convenience fee transactions
CashDebitsCFAmount	18,2	Sum of payment amounts cash debit convenience fee transactions
CashDebitsTotalCount	6	CashDebitsPaymentCount + CashDebitsCFCount
CashDebitsTotalAmount	18,2	CashDebitsPaymentAmount + CashDebitsCFAmount
CashCreditsPaymentCount	6	Number of cash refund (credit) transactions (excludes conv fee trans)
CashCreditsPaymentAmount	18,2	Sum of payment amounts for cash refund (credit) transactions (excludes conv fee trans)
CashCreditsCFCount	6	Number of cash refund (credit) convenience fee transactions
CashCreditsCFAmount	18,2	Sum of payment amounts for cash refund (credit) convenience fee transactions
CashCreditsTotalCount	6	CashCreditsPaymentCount + CashCreditsCFCount
CashCreditsTotalAmount	18,2	CashCreditsPaymentAmount + CashCreditsCFAmount

3.4.7 Detail Summary Record

Field Name	Max Length	Comments/Format
RecordIndicator	20	CSV only field, "DetailSummary"
TotalRecordCount	4	Total number of all Detail records in the file
RecordCountSent	4	Total number of PROCESSED detail records in the file
PaymentAmountSent	18,2	Calculated payment value of the total number of detail records in the file (includes PROCESSED and REFUNDED transactions). Last two characters are post decimal point
CFAmountSent	18,2	Calculated payment value of the total number of convenience fee detail records in the file (includes PROCESSED and REFUNDED

Field Name	Max Length	Comments/Format
		transactions).
		Last two characters are post decimal point
TotalAmountSent	18,2	Calculated payment and convenience fee value of the total number of detail records in the file (includes PROCESSED and REFUNDED transactions).
		Last two characters are post decimal point.
RecordCountRefund	4	Total number of detail records in the file that are REFUNDED transactions.
PaymentAmountRefund	18,2	Calculated payment value of the total number of detail records in the file that are REFUNDED transactions.
		Last two characters are post decimal point
CFAmountRefund	18,2	Calculated value of the total number of convenience fee detail records in the file for REFUNDED transactions.
		Last two characters are post decimal point
TotalAmountRefund	18,2	Calculated payment and convenience fee value of the total number of detail records in the file for REFUNDED transactions.
		Last two characters are post decimal point.
RecordCountReturned	4	Total number of detail records in the file that are RETURNED transactions.
PaymentAmountReturned	18,2	Calculated payment value of the total number of detail records in the file that are RETURNED transactions.
		Last two characters are post decimal point
CFAmountReturned	18,2	Calculated value of the total number of convenience fee detail records in the file for RETURNED transactions.
		Last two characters are post decimal point
TotalAmountReturned	18,2	Calculated payment and convenience fee value of the total number of detail records in the file for RETURNED transactions.
		Last two characters are post decimal point.

Chapter 4:   Real Time Payment Confirmation

The real-time payment confirmation feature allows Billers to receive payment information in real-time each time a payment is initiated or modified from E-Payment Service. This feature allows the Biller to update their systems in real-time.

4.0   Schedule

E-Payment Service sends the real-time payment confirmations to the Biller for the following payment actions:

- Single Payments

  - Same day eCheck (ACH) , ATM debit, credit card, or cash payment is initiated
  - Warehoused eCheck (ACH), ATM debit or credit card payment is initiated
  - Warehoused eCheck (ACH), ATM debit or credit card payment is edited
  - Warehoused eCheck (ACH) , ATM debit or credit card payment is cancelled
  - Warehoused credit or ATM Debit card payment is declined
  - eCheck (ACH) or credit card payment is refunded

- Recurring Payment Schedule

  - eCheck (ACH), ATM debit or credit card recurring payment schedule is created
  - eCheck (ACH), ATM debit or credit card recurring payment schedule is edited
  - eCheck (ACH), ATM debit or credit card recurring payment schedule is stopped

- Recurring Payment Instance

  - Recurring eCheck (ACH), ATM debit or credit card payment instance is processed
  - Recurring eCheck (ACH), ATM debit or credit card payment instance is refunded
  - Recurring ATM Debit or credit card payment instance is declined

4.1   Format

The Real-Time Payment Confirmation messages are sent in XML format. These specifications contain payment layouts for Version 2 of the XML format which includes additional data fields. Information on prior version layouts is available from your Technical Implementation Coordinator.

- XML: the message is sent in standard XML format and fields are tagged with field names, similar to HTML tags (i.e. the field called DueDate would appear as "<DueDate>yyyy-mm-dd</dueDate>"). The DTD for the XML message is posted on E-Payment Service server and is referenced in the actual XML file for validation

Sample Single Payment XML message:

<?xml version="1.0" encoding="UTF-8"?>

<!DOCTYPE PaymentInfo SYSTEM "https://epayment.epymtservice.com/dtds/RTPC-ver2_0.dtd">

<PaymentInfo>

<ConfirmationId>ABCABC000001566</ConfirmationId>

```
<UserID>1234567</UserID>

<BillerProductCode>Payment</BillerProductCode>

<PaymentMethod>ACH</PaymentMethod>

<PaymentChannel>WEB</PaymentChannel>

<PaymentAmount>133.00</PaymentAmount>

<ConvenienceFee>1.00</ConvenienceFee>

<PaymentEffectiveDate>2012-06-07</PaymentEffectiveDate>

<AmountDue>133.00</AmountDue>

<DueDate>2012-06-06</DueDate>

<TransactionMode>PAYMENT</TransactionMode>

<Parameter>

<ParameterName>PassedReq</ParameterName>

<ParameterValue>abc123</ParameterValue>

</Parameter>

<Parameter>

<ParameterName>CollectNum</ParameterName>

<ParameterValue>123</ParameterValue>

</Parameter>

<PayerFirstName>John</PayerFirstName>

<PayerLastName>Smith</PayerLastName>

<PaymentAddress>

<StreetAddress1>123 Main St.</StreetAddress1>

<StreetAddress2>Street Address2</StreetAddress2>

<City>Chicago</City>

<State>IL</State>

<Zip>60103</Zip>

<Country>US</Country>

</PaymentAddress>

<PayerPhoneNumber>6308554686</PayerPhoneNumber>

<PayerEmail>john.smith@usbank.com</PayerEmail>
```

<LastFourAccountNumber>0001</LastFourAccountNumber>

<BillerBusinessDate>2012-06-06</BillerBusinessDate>

</PaymentInfo>

Sample Recurring Payment XML message:

<?xml version="1.0" encoding="UTF-8"?>

<!DOCTYPE RecurringPaymentInfo SYSTEM
"https://epayment.epymtservice.com/dtds/RecurringRTPC-ver2_0.dtd">

<RecurringPaymentInfo>

<RecurringReferenceId>ABCABCR00000087</RecurringReferenceId>

<UserID>1234567</UserID>

<BillerProductCode>Product</BillerProductCode>

<PaymentMethod>CC</PaymentMethod>

<PaymentChannel>WEB</PaymentChannel>

<PaymentAmount>133.00</PaymentAmount>

<ConvenienceFee>2.00</ConvenienceFee>

<FirstScheduledPaymentDate>2012-06-06</FirstScheduledPaymentDate>

<AmountDue>133.00</AmountDue>

<OriginalDueDate>2012-06-06</OriginalDueDate>

<TransactionMode>START</TransactionMode>

<Frequency>BI_WEEKLY</Frequency>

<RemainingPayments>2</RemainingPayments>

<PaymentAmountType>Fixed</PaymentAmountType>

<Parameter>

<ParameterName>PassedReq</ParameterName>

<ParameterValue>abc123</ParameterValue>

<Parameter>

<ParameterName>CollectNum</ParameterName>

<ParameterValue>123</ParameterValue>

<PayerFirstName>John</PayerFirstName>

<PayerLastName>Smith</PayerLastName>

<PaymentAddress>

<StreetAddress1>123 Main ST.</StreetAddress1>

<StreetAddress2>APT 2</StreetAddress2>

<City>Chicago</City>

<State>IL</State>

<Zip>60625</Zip>

<Country>US</Country>

</PaymentAddress>

<PayerPhoneNumber>6308554686</PayerPhoneNumber>

<PayerEmail>john.smith@usbank.com</PayerEmail>

<LastFourAccountNumber>5454</LastFourAccountNumber>

<CardType>Master Card</CardType>

</RecurringPaymentInfo>

4.2   Processing

The real time payment confirmation message is sent over the Internet via http or https as defined during set-up. If the biller opts to use https, an X.509 certificate is required as described below. In order to receive the message:

- The Biller must open their firewall to the following IP addresses:

    - 170.135.241.45
    - 170.135.176.108
- The Biller must open the appropriate port:

    - Port 80 for http
    - Port 443 for https
- The Biller must allow a "POST" to their server

    - The message will be within the POST submission from E-Payment Service.
- The Biller must provide the complete path during implementation, including IP address and sub-directories for the server accepting the message (this is included in the Implementation Questionnaire)

    - For http, either an IP address or host / URL name is required in the path name (i.e. http://123.45.678.90/echeck/payments)

– For https, the URL name associated with the certificate is required in the path name (i.e. https://www.biller.url/echeck/payments)

4.3   X.509 Certificate

U.S. Bank uses X.509 certificates to ensure proper authentication. Organizations who have a site secured using SSL (https:// instead of http://) and using their own internal certificate authority or a "self-signed" certificate will need to provide U.S. Bank with this certificate.

4.4   Responses

E-Payment Service expects a response in a single line, in standard http protocol response format. The valid responses from the Biller and a description of how they are processed by E-Payment Service are provided below:

- "EPAY_OK": the Biller has received and processed the message successfully
- "Failed_Auth": the Biller has received the message but could not authenticate the Client ID or Client Password. The send attempt is stopped and an email is sent to the Biller.
- No response: If no response or an invalid response is received from the Biller, E-Payment Service will initiate up to three additional attempts at 20-minute intervals.

If the message fails on the fourth attempt, E-Payment Service will stop sending the message and initiate an email to the Biller indicating that there may be an issue with the real-time payment confirmation. The email address for this message is provided by the Biller during setup.

4.5   Message Layout

E-Payment Service sends two separate message types, Single Payment and Recurring Payment Schedule. A Single Payment Message is sent to the Biller for all Single Payments and Recurring Payment Instances. A Recurring Payment Schedule Message is sent to the Biller for all Recurring Payment Schedules as defined in the section above.

Two optional fields, Client ID and Client Password, can be sent in each real time payment confirmation to allow the Biller to authenticate the message. These fields are provided by the Biller during the Biller implementation process and can each be up to 16 characters in length.

If a data value is empty or unknown within xml formatted messages, the associated xml tag will not be sent in the message. If a data value is empty or unknown within URL encoded messages, the associated field name will still be sent in the message along with an empty value field.

4.5.1   Single Payment Layout

Field Name	Max Length	Description	Values / Notes
ClientId	16	The ID sent in the real-time payment confirmation to allow the biller to authenticate the message	• Provided by biller during setup • Not Required
ClientPassword	16	The Password sent in the real-time payment confirmation to allow the biller to authenticate the message	• Provided by biller during setup • Not Required

Field Name	Max Length	Description	Values / Notes
ConfirmationId	15	The transaction confirmation number provided to the payer	• GGGBBBXXXXXXXXX • GGG is the Biller Group ID • BBB is the Biller ID • XXXXXXXXX is a unique number
UserID	16	The UserID of the payer that initiated the payment	Field will be left empty if "un-registered" user initiated the session transfer
BillerProductCode	32	The product code associated with the transaction made	Trailing blanks suppressed
PaymentMethod	3	The Payment method selected by the payer	ACH, ATM, CC or CSH
PaymentChannel	5	The channel on which the payment was initiated	• WEB, IVR, ADMIN or KIOSK • CSR initiated payment = ADMIN
PaymentAmount	16	The transaction payment amount	• 2 decimal places • Leading zeroes suppressed
ConvenienceFee	16	The convenience fee associated with the transaction	• 2 decimal places • Leading zeroes suppressed • only present if there is a value to be passed
PaymentEffectiveDate	10	The transaction effective date	YYYY-MM-DD
AmountDue	16	The transaction amount due	• 2 decimal places • Leading zeroes suppressed • Only present if there is a value to be passed
DueDate	10	The transaction due date	• YYYY-MM-DD • Only present if there is a value to be passed
TransactionMode	7	The type of transaction completed	• PAYMENT for a single payment or an instance of a recurring payment • EDIT for a modified transaction

Field Name	Max Length	Description	Values / Notes
			• CANCEL for a cancelled transaction • CREDIT for a refunded transaction • DECLINED for a warehoused (scheduled) card payment that is declined by the merchant processor
ReplacesConfirmationId	15	The confirmation ID of the original transaction for edited, cancelled or refunded transactions	• GGGBBBXXXXXXXXX • GGG is the Biller Group ID • BBB is the Biller ID • XXXXXXXXX is a unique number • The Confirmation Id of the transaction that this new transaction has effected • Only present if the TransactionMode field is EDIT, CANCEL, or CREDIT
The following fields are repeated for every product parameter selected this for transmission during implementation			
ParameterName	26	The product parameter name	Trailing blanks suppressed
ParameterValue	80	The product parameter value	Trailing blanks suppressed
The following fields are available for XML Version 2 only.			
PayerFirstName	30	The payer's first name	Can contain letters, numbers or spaces
PayerLastName	30	The payer's last name	Can contain letters, numbers or spaces
PaymentAddress		This parent field will contain address information for the payer. For Card payments, the address will be the billing address entered for the payment. For eCheck payments, the address will be the contact address for the payer.	The payment address field will be the parent element of the address child elements which are detailed below.
StreetAddress1	50	The payer's street address	Alphanumeric, special and control characters are allowed
StreetAddress2	50	The payer's street address 2 if populated	Alphanumeric, special and control characters are allowed
City	30	The payer's city	Alphanumeric, special and control

Field Name	Max Length	Description	Values / Notes
			characters are allowed
State	40	The payer's state	• If country is US, will be a valid state code (see state code table) • Otherwise, letters, numbers, hyphens, single spaces, apostrophes, commas, periods and parentheses are allowed
Zip	12	The payer's zip code	• If country is US, will follow standard US zip format and be only five digits • If country is not US, numbers, letters, hyphens, single spaces and periods are allowed.
Country	2	The payer's country	Will be a valid value in the Country Code table
PayerPhoneNumber	20	The payer's phone number	• If country is US, will be 10 numeric digits • If country is not US, alphanumeric, hyphens, single spaces, parentheses and periods are allowed • Will not contain spaces
PayerEmail	256	The payer's email if populated	Will contain one '@' and at least one '.'
LastFourAccounttNumber	4	The last four digits of the bank account or card used for payment	Example: 4567
DeclineCode	50	Sent if a recurring or warehoused card transaction is declined	See values in Appendix
DeclineReason	500	Sent if a recurring or warehoused card transaction is declined	See values in Appendix
RecurringRefId	15	Sent if payment activity is associated with a recurring payment schedule	• GGGBBBXXXXXXXXX • GGG is the Biller Group ID • BBB is the Biller ID • XXXXXXXXX is a unique number • The Confirmation Id of the

Field Name	Max Length	Description	Values / Notes
			transaction that this new transaction has effected
CardType	4	Sent for card transactions	Valid values are • American Express • Discover • Visa • Master Card • ATM = ATM Debit • If PaymentType = 'ATM', then CardType is also = 'ATM'
PaymentAuthorization	15	Sent after a card payment is authorized. This is for card payments only, the ACH trace number that is provided in remittance file is not available real-time.	• IF ACH = ACH Trace # • IF Credit Card or ATM Debit Card = Authorization # • Alphanumeric
AdminOrgId	6	Sent for payment activity completed on the administrative site	• Example: ABC • Alphanumeric
AdminUserId	12	Sent for payment activity completed on the administrative site	• Example: jsmith1 • Alphanumeric
BillerBusinessDate	10	Sent for customers who use a biller business date for ACH payments only	• YYYY-MM-DD • Will only be present for billers who assign biller business date to payments

4.5.2 Recurring Payment Schedule (XML) Layout

Field Name	Max Length	Description	Values
ClientId	16	The ID sent to allow the biller to authenticate the	• Provided by biller during setup

Field Name	Max Length	Description	Values
		message	• Not Required
ClientPassword	16	The Password sent to allow the biller to authenticate the message	• Provided by biller during setup • Not Required
RecurringReferenceId	15	The reference ID of the recurring payment presented to the payer	• GGGBBBRXXXXXXXX • GGG is the Biller Group ID • BBB is the Biller ID • R indicates recurring payment • XXXXXXXX is a unique number
UserID	16	The UserID of the payer who initiated the payment	Required
BillerProductCode	32	The product code associated with the transaction made	Trailing blanks suppressed
PaymentMethod	3	The Payment method selected by the payer	ACH,ATM or CC
PaymentChannel	5	The channel on which the payment was initiated	• WEB, IVR, OR ADMIN • CSR initiated payment = ADMIN
PaymentAmount	16	The transaction payment amount	2 decimal places, leading zeroes suppressed
ConvenienceFee	16	The convenience fee associated with the transaction	• 2 decimal places, leading zeroes suppressed • Only present if there is a value to be passed
FirstScheduledPaymentDate	10	The date of the first scheduled payment	• YYYY-MM-DD
AmountDue	16	The transaction amount due	• 2 decimal places, leading zeroes suppressed • Only present if there is a value to be passed
OriginalDueDate	10	The original due date of the payment	• YYYY-MM-DD • Only present if there is a value to

Field Name	Max Length	Description	Values
			be passed • "Original Due Date" for Fixed Recurring • "Due Date" for Variable Recurring
TransactionMode	5	The type of transaction being passed	• START - initiation of a recurring payment • EDIT - modification to a recurring payment • STOP - a stopped recurring payment
Frequency	15	The recurring payment frequency	• WEEKLY • BI_WEEKLY • TWICE_MONTHLY • MONTHLY • BI-MONTHLY • QUARTERLY • DUE DATE
PaymentDay	N/A	The day of the month that the payments will be made for recurring payments made twice a month	• Only present if the Frequency is TWICE_MONTHLY • Tags for the 1st and 2nd payments are represented below
1st Payment Tag	2	<PaymentDay name=DayOfMonthFirstPayment>nn</PaymentDay> where "nn" equals the day of the month, leading zeroes suppressed	
2nd Payment Tag	2	<PaymentDay name=DayOfMonthSecondPayment>nn</PaymentDay> where "nn" equals the day of the month, leading zeroes suppressed	
Duration	N/A	The duration of the recurring payment. This field has three different formats, identifiable by the XML tag present	Identifiable by the XML tag present Only one of the tags listed below will be present: • UNLIMITED - Payer has selected "Continue until Cancelled" • REMAINING PAYMENTS - Payer has selected a definite number of

Field Name	Max Length	Description	Values
			payments to be made • EXPIRATION DATE - Payer has selected an expiration date of when the recurring payment will expire
Unlimited Tag	9	\<Duration> \<Unlimited/> \</Duration>	
Remaining Payments Tag	3	\<Duration> \<RemainingPayments>nnn\</RemainingPayments> \</Duration> - 'nnn' is the number of remaining payments	
Expiration Date Tag	10	\<Duration> \<ExpirationDate>YYYY-MM-DD\</ExpirationDate> \</Duration>	
The following fields are repeated for every product parameter selected this for transmission during setup			
ParameterName	26	Product parameter name	Trailing blanks suppressed
ParameterValue	80	Product parameter value	Trailing blanks suppressed
Payment Amount Type			• 'Fixed' • 'Variable'
Number Days Before	3	The number of days before the payment due date the payment should be made	Variable payments only
The following fields are available for XML Version 2 only.			
PayerFirstName	30	The payer's first name	Alphanumeric, special and control characters are allowed
PayerLastName	30	The payer's last name	Alphanumeric, special and control characters are allowed
PaymentAddress		This parent field will contain address information for the payer. For Card payments, the address will be the billing address entered for the payment. For eCheck payments, the address will be the contact address for the payer.	The payment address field will be the parent element of the address child elements which are detailed below.

Field Name	Max Length	Description	Values
StreetAddress1	50	The payer's street address	Alphanumeric, special and control characters are allowed
StreetAddress2	50	The payer's street address 2 if populated	Alphanumeric, special and control characters are allowed
City	30	The payer's city	Alphanumeric, special and control characters are allowed
State	40	The payer's state	• If country is US, will be a valid state code (see state code table) • Otherwise, letters, numbers, hyphens, single spaces, apostrophes, commas, periods and parentheses are allowed
Zip	12	The payer's zip code	• If country is US, will follow standard US zip format and be only five digits • If country is not US, numbers, letters, hyphens, single spaces and periods are allowed.
Country	2	The payer's country	Will be a valid value in the Country Code table
PayerPhoneNumber	20	The payer's phone number	• If country is US, will be 10 numeric digits • If country is not US, alphanumeric, hyphens, single spaces, parentheses and periods are allowed • Will not contain spaces
PayerEmail	256	The payer's email if populated	Will contain one '@' and at least one '.'
Biller Business Date	10	Sent for customers who use a biller business date for ACH payments only	• YYYY-MM-DD • Will only be present for billers who assign biller business date to payments
Previous Recurring Reference ID	15	The recurring payment schedule that has been edited	• GGGBBBXXXXXXXXX • GGG is the Biller Group ID

Field Name	Max Length	Description	Values
			• BBB is the Biller ID • XXXXXXXXX is a unique number • The Confirmation Id of the transaction that this new transaction has effected
CardType	4	Sent for card transactions	Valid values are • American Express • Discover • Visa • Master Card • ATM Debit • If PaymentType = 'ATM', then CardType is also = 'ATM'
LastFourAcctNmbr	4	The last four digits of the bank account or card used for payment	Example: 4444
PaymentAuthorization	15	Sent after a card payment is authorized. This is for card payments only, the ACH trace number that is provided in remittance file is not available real-time.	• IF ACH = ACH Trace # • IF Credit Card or ATM Debit Card = Authorization # • Alphanumeric
AdminOrgId	6	Sent for payment activity completed on the administrative site	• Example: ABC • Alphanumeric
AdminUserId	12	Sent for payment activity completed on the administrative site	• Example: jsmith1 • Alphanumeric

Chapter 5:   Real-Time Non-Payment Notification

The Real-Time Non-Payment Notification (RTNN) feature allows Billers to receive notification in real-time each time a payer is unsuccessful in making a payment after entering E-Payment Service via the "Pay" button. This feature allows the Biller to update their systems in real-time.

5.0   Schedule

E-Payment Service sends the Real-Time Non-Payment Notification message to the Biller for the following payment events:

- When a user exits/logs out of E-Payment Service at any point after entering E-Payment Service to make a payment and logs out without completing a successful transaction.
- When a session time-out occurs due to no activity for a set period of time (15 minutes). The session time-out policy is determined by U.S. Bank. A session time out may occur for any one of the following reasons:

  - Payer is inactive in E-Payment Service
  - Payer closes the web browser without first exiting E-Payment Service
  - Payer's computer experiences difficulties resulting in the payer having to shut down and reboot
- When a single credit card payment attempt is unsuccessful. An unsuccessful credit card payment may be caused by any one of the following events:

  - Decline message from the merchant processor
  - Decline from E-Payment Service based on the following credit card rules initiated by the Biller:
  - Address Verification Service
  - Card Verification Data

5.1   Format

The Real Time Non-Payment Notification messages are be sent in XML format.

- The XML message is sent in standard XML format. Fields are tagged with field names, similar to HTML tags (i.e. the field called PaymentTypeAttempt would appear as "<PaymentTypeAttempt>ACH</PaymentTypeAttempt>"). The DTD for the XML message is posted on the E-Payment Service server and is referenced in the actual XML file for validation
- Sample XML message:

<?xml version="1.0" encoding="UTF-8"?>

<!DOCTYPE RealTimeNonPaymentNotification SYSTEM "https://epayment.epymtservice.com/dtds/RTNN-ver2_0.dtd">

<RealTimeNonPaymentNotification>

<UserID>1234567</UserID>

<BillerProductCode>Payment</BillerProductCode>

<PaymentTypeAttempted>CC</PaymentTypeAttempted>

<PaymentChannel>WEB</PaymentChannel>

<UnsuccessfulEventDateTimeStamp>20120605:151539</UnsuccessfulEventDateTimeStamp>

<UnsuccessfulEvent>Session timeout</UnsuccessfulEvent>

<MessageType>RTNN</MessageType>

<PayerFirstName>John</PayerFirstName>

<PayerLastName>Smith</PayerLastName>

<PaymentAddress>

<StreetAddress1>123 Main St.</StreetAddress1>

<StreetAddress2>Street Address2</StreetAddress2>

<City>Chicago</City>

<State>IL</State>

<Zip>60103</Zip>

<Country>US</Country>

</PaymentAddress>

<PayerPhoneNumber>6308554686</PayerPhoneNumber>

<PayerEmail>john.smith@usbank.com</PayerEmail>

<Parameter>

<ParameterName>PassedReq</ParameterName>

<ParameterValue>abc123</ParameterValue>

<Parameter>

<ParameterName>ConstantValue</ParameterName>

<ParameterValue>Constant123</ParameterValue>

</RealTimeNonPaymentNotification>

5.2   Processing

The Real-Time Non-Payment Notification message is sent over the Internet via either http or https as defined during set-up. In order to receive the message, the Biller must:
- Open their firewall to the following IP addresses:

- 170.135.241.45
- 170.135.176.108
- Open the appropriate port:
  - Port 80 for http
  - Port 443 for https
- Allow a "POST" to their server
- Provide the complete path during implementation, including IP address and sub-directories for the server accepting the message:
  - For http, either an IP address or host / URL name is required in the path name (i.e. http://123.45.678.90/echeck/payments)
  - For https, the URL name associated with the certificate is required in the path name (i.e. https://www.biller.url/echeck/payments).

5.3   Responses

The E-Payment Service expects the Biller to send a response in a single line, in standard http protocol response format. Below are valid responses from the Biller and how they are processed by E-Payment Service:
- "EPAY_OK": the Biller has received and processed the message successfully
- "Failed_Auth": the Biller has received the message but could not authenticate the Client ID or Client Password. E-Payment Service will not attempt to send this message again and an email is sent to the Biller.
- No response: If no response or an invalid response is received from the Biller, E-Payment Service will initiate up to three additional attempts at 20-minute intervals. If the message fails on the fourth attempt, E-Payment Service will not attempt to send this message again and an email is sent to the Biller.

5.4   Message Layout

Two optional fields, Client ID and Client Password, can be sent in each Real-Time Non-Payment Notification Message (RTNN) to allow the Biller to authenticate the sender of the message. These fields are provided by Biller during set-up and can be up to 16 characters in length.

If a data value is empty or unknown within the xml formatted messages, the associated xml tag will not be sent in the message.

Field Name	Max Length	Description	Values / Notes
ClientId	16	The ID sent in the real-time non-payment notification to allow the biller to authenticate the message	- Provided by the biller during implementation - Not Required
ClientPassword	16	The Password sent in the real-time nonpayment notification to allow the biller to authenticate the message	- Provided by the biller during implementation - Not Required
UserID	16	The UserID of the payer who initiated the session transfer into	Field will be left empty if "un-registered" user initiated the session transfer

Field Name	Max Length	Description	Values / Notes
		E-Payment Service	
BillerProductCode	32	The product code contained in the session transfer to E-Payment Service	Trailing blanks suppressed
PaymentType Attempt	3	The Payment method selected by the payer, if applicable	ACH, ATM, or CC
PaymentChannel	5	Value will always be WEB	WEB
PaymentAmount	16	The transaction payment amount, if applicable	• 2 decimal places • Leading zeroes suppressed
UnsuccessfulEventDateTimeStamp	16	The Date and Time the Unsuccessful Event occurred	• For declined CC payments, the payment initiation date and time • For system exit, the date and time of the system exit • For session time out, the date and time of the time out • YYYYMMDD:HHMMSS
Unsuccessful Event	30	The cause of the Real-Time Non-Payment Notification Message being generated	• User exit • Session timeout • Unsuccessful credit or ATM card payment
Message Type	4	Identifies the message type	Valid value: RTNN
The following fields are repeated for every product parameter selected for this transmission during implementation			
ParameterName	26	The product parameter name	Trailing blanks suppressed
ParameterValue	80	The product parameter value	Trailing blanks suppressed
The following fields are available for XML Version 2 only.			
PayerFirstName	30	The payer's first name	Alphanumeric, special and control characters are allowed
PayerLastName	30	The payer's last name	Alphanumeric, special and control characters are allowed
PaymentAddress		This parent field will contain address information for the payer. For Card payments, the address will be the billing address entered for the payment. For eCheck payments, the address will be the contact address for the payer.	The payment address field will be the parent element of the address child elements which are detailed below.

Field Name	Max Length	Description	Values / Notes
StreetAddress1	50	The payer's street address	Alphanumeric, special and control characters are allowed
StreetAddress2	50	The payer's street address 2 if populated	Alphanumeric, special and control characters are allowed
City	30	The payer's city	Alphanumeric, special and control characters are allowed
State	40	The payer's state	• If country is US, will be a valid state code (see state code table) • Otherwise, letters, numbers, hyphens, single spaces, apostrophes, commas, periods and parentheses are allowed
Zip	12	The payer's zip code	• If country is US, will follow standard US zip format and be only five digits • If country is not US, numbers, letters, hyphens, single spaces and periods are allowed.
Country	2	The payer's country	Will be a valid value in the Country Code table
PayerPhoneNumber	20	The payer's phone number	• If country is US, will be 10 numeric digits • If country is not US, alphanumeric, hyphens, single spaces, parentheses and periods are allowed • Will not contain spaces
PayerEmail	256	The payer's email if populated	Will contain one '@' and at least one '.'
CardType	4	Sent for card transactions	Valid values are: • American Express • Discover • Visa • Master Card • ATM Debit If PaymentType = 'ATM', then CardType is also = 'ATM'

Field Name	Max Length	Description	Values / Notes
LastFourAccountNumber	4	The last four digits of the bank account or card used for payment	Example: 4567
DeclineCode	50	Sent if a card transaction is declined	See values in Appendix
DeclineReason	500	Sent if a card transaction is declined	See values in Appendix

Chapter 6:   Return Session Transfer

Billers may also elect to have payer and payment data returned to their website in the form of a Return Session Transfer after the payer has affected a transaction in E-Payment Service. The payer must select the <biller defined button name> on the E-Payment Service Payment Confirmation page in order to initiate this Session Transfer of data. This data will only reflect the last payment action taken by the payer and the data will be returned after a payer initiates one of the following actions:

- Makes a Payment (Single or Recurring Payment Type)
- Edits a Payment (Single or Recurring Payment Type)

In order for billers to receive this Return Session Transfer from E-Payment Service, the inbound Session Transfer must be encrypted (see **Chapter 2: Session Transfer Encryption**) using the encryption components provided by E-Payment Service, and a Return URL Address (HTTPS protocol only) must be passed in the inbound Session Transfer so that E-Payment Service knows exactly where to direct the payer after a transaction has been affected. If a return URL address is not provided in the inbound Web Session Transfer, then billers will not receive the Return Session Transfer. In addition, billers may also pass a unique Return Value to be returned in the Session Transfer along with payer and payment information to more easily identity the origin of the Return Session Transfer.

6.0   Distribution

The Return Session Transfer is sent to the URL address that is taken from the incoming session transfer. If there is no Return Session Transfer URL address, then the Biller is not set up to receive the return session or the Biller did not send a valid URL.

6.1   File Creation/Processing

When the payer selects the button on the Payment Confirmation page, the system will send the return session data as the payer is redirected to the passed URL. The return session data will reflect only the last payment action by the payer.

6.2   Return Session Transfer Code Sample

Use the instructions below to process a return session transfer from E-Payment Service. The return session transfer from E-Payment Service will contain an encrypted, Base-64 encoded string that will need to be processed by the receiving application.

1. Using a Base-64 Decoder, decode the encoded AES Key from the Administrative site.
2. Get the return session transfer data (Example 3 in Appendix).
3. Using a Base-64 Decoder, decode the string retrieved from Step 2.
4. Using the decoded key from step 1, decrypt the string you generated in Step 3

The raw string will contain E-Pay session parameters separated via "ampersand":

TransactionConfirmationID=ABCABC000000001&userID=user123&BillerProductCode=productABC&
PaymentMethod=CC

> **Note**: E-Payment service performs all encryption/decryption using an encryption mode of CBC (Cipher Block Chaining) and a padding scheme of PKCS5Padding. Consult your vendor documentation for how to perform AES encryption and decryption in your environment.

6.3   Return Session (Encrypted) Data

Below are the data layouts of the Return Session Transfer for each Payment Type:

6.3.1   Single Payment Types

Single Payment Type	Comments	Required
TransactionConfirmationID	Transaction Confirmation ID of the affected transaction	Yes
UserID	- E-Payment Service UserID of the Payer - Data field will be empty if Payer is not registered with the E-Payment Service	Yes
BillerProductCode	Identifies the product code the Payer is making a payment for	Yes
PaymentMethod	Valid Values: - ACH - CC - ATM	Yes
PaymentAmount	xxx.xx	Yes
ConvenienceFee	- xxx.xx - Data field will be empty if biller does not charge convenience fees on transactions	Yes
PaymentEffectiveDate	YYYYMMDD	Yes
AmountDue	- xxx.xx - Data field will be empty if biller does not provide E-Payment Service with an Amount Due for the Payer	Yes
DueDate	- YYYYMMDD - Data field will be empty if biller does not provide E-Payment Service with a Due Date for the Payer	Yes
TransactionMode	Valid Values: - MakePayment - EditPayment	Yes
ReplacesConfirmationId	Value present for EDIT only; otherwise data field will be empty	Yes
InitiationDateTime	YYYYMMDD:HHMMSS	Yes
CreditCardNumber	Only last four digits are provided in clear text	Yes

Single Payment Type	Comments	Required
	• Data field will be empty if Payment Method is ACH	
CreditCardType	• If PaymentType is "CC" • If Credit Card is American Express – "AMEX" • If Credit Card is Discover – "DISC" • If Credit Card is Visa – "VISA" • If Credit Card is Mastercard – "MC" • If Card is an ATM debit card - "ATM Debit:" • Data field will be empty if Payment Method is ACH	Yes
CreditCardExpDate	• YYYYMM • Data field will be empty if Payment Method is ACH	Yes if Payment Method = 'CC'
AccountNumber	• Only last four digits are provided in clear text • Data field will be empty if Payment Method is CC	Yes
ProductDescription	• Identifies the product the Payer is making a payment for	Yes
BillerBusinessDate	• YYYYMMDD • Data field will be empty if Biller Business Date is not enabled for biller	Yes
IsPayorRegistered	• Is Payer registered with the E-Payment Service? • "Y" for yes, "N" for no	Yes
ReturnValue	Unique Value from the inbound session transfer	No
Email	Email address of Payer	No
[Parameter Name]*	• Parameter name passed in from the biller on the inbound session transfer • May be more than one	No
[Parameter Value]*	• Parameter value • Must match correct name	No
* The '&' and '=' characters may be part of this data string		

6.3.2 Recurring Payment Types

Recurring Payment Type	Comments	Required
RecurringReferenceId	The Reference ID assigned by E-Payment Service to the Recurring Payment entry	Yes
UserID	The E-Payment Service User ID of the user affecting the transaction	Yes
BillerProductCode	Identifies the product code the Payer is making a payment for	Yes
PaymentMethod	Valid Values: • ACH • CC • ATM	Yes
PaymentAmount	xxx.xx	Yes
ConvenienceFee	• xxx.xx • Data field will be empty if biller does not charge convenience fees on transactions	Yes
FirstScheduledPaymentDate	YYYYMMDD	Yes
AmountDue	• xxx.xx • Data field will be empty if biller does not provide E-Payment Service with an Amount Due for the Payer	Yes
OriginalDueDate	• YYYYMMDD • Data field will be empty if biller does not provide E-Payment Service with a Due Date for the Payer	Yes
TransactionMode	Valid Values: • StartRecurring • EditRecurring	Yes

Recurring Payment Type	Comments	Required

Frequency	• Payer selected frequency of the Recurring Payment
	
	• Valid Values:
	
	   – WEEKLY
	
	   – BI_WEEKLY
	
	   – TWICE_MONTHLY
	
	   – MONTHLY
	
	   – BI-MONTHLY
	
	   – QUARTERLY
	
	   – DUE_DATE
	
	   – CUSTOM
		Yes

DayOfMonthFirstPayment	• Data field will be populated if frequency of the Recurring Payment = TWICE_MONTHLY • Otherwise data field will be empty	Yes
DayOfMonthSecondPayment	• Data field will be populated if frequency of the Recurring Payment = TWICE_MONTHLY • Otherwise data field will be empty	Yes
NumberDaysBefore	• Data field will be populated if frequency of the Recurring Payment = DUE_DATE; field identifies the number of days before the due date that the payer has elected to pay. • Otherwise data field will be empty	Yes
Duration	Valid Values: • EndOnDate • NumberPayments • ContinueUntilCanceled	Yes
RemainingPayments	Data field will be populated if Duration of recurring Payment = NumberPayments; Otherwise data field will be empty	Yes
ExpirationDate	• Data field will be populated if Duration of recurring Payment = EndOnDate • YYYYMMDD • Otherwise data field will be empty	Yes

Recurring Payment Type	Comments	Required
PaymentAmountType	- Valid Values: - Fixed - Variable	Yes
PaymentUpdateDateTime	- The date and time that the Recurring Payment was started, stopped or edited - YYYYMMDD;HHMMSS	Yes
CreditCardNumber	- Replace numbers with '*', only last four numbers in clear text; - Empty if Payment Method is ACH	Yes
CreditCardType	- IF PaymentType is "CC" - If Credit Card is American Express – "AMEX" - If Credit Card is Discover – "DISC" - If Credit Card is Visa – "VISA" - If Credit Card is Mastercard – "MC" - If Card is an ATM Debit Card – "ATM Debit" - Empty if Payment Method is ACH	Yes
CreditCardExpDate	- Empty if Payment Method is ACH - Yes if payment method is = "CC" - Ignore if Payment Method = "ATM" - YYYYMM	Yes if Payment Method = 'CC'
AccountNumber	- Replace numbers with '*', only last 4 numbers in clear text - Empty if Payment Method is CC	Yes
ProductDescription	Identifies the product the Payer is making a payment for	Yes
BillerBusinessDate	- YYYYMMDD - Empty if Biller Business Date	Yes
ReturnValue	From the incoming session	No
Email	Email address of Payer	No
[Parameter Name]*	Parameter name passed in from the biller on the inbound session	No

Recurring Payment Type	Comments	Required
	transfer • May be more than one	
[Parameter Value]*	Parameter value. Must match correct name	No
* The '&' and '=' characters may be part of this data string		

6.4   Test and Sample Data

The test data below can be used to test the session transfer encryption process. Use this data to test that your application can correctly perform base-64 encoding/decoding, HTTP encoding and AES encryption. When using these examples use this AES key:

Test Encryption Key: TouCz6+LGk71Bpb2knTXUeShDl6+4R/96U1VwrQZLIo=

Test Initialization Vector: R2RpmUCDf9tH828l
Example 1: Base 64 encoding and HTTP encoding

Use the values below to test that your application can encode and decode data as required. This is the first step in implementing encrypted session transfer.

> Raw String: EPayment Service

> The same string as byte values: [69, 80, 97, 121, 109, 101, 110, 116, 32, 83, 101, 114, 118, 105, 99, 101]

> Take either the string or the byte array above and encode it with a Base-64 encoder. You should receive the following result: RVBheW1lbnQgU2VydmljZQ==

Example 2: Session Transfer

Use the values below to test that your application can encrypt data using a sample AES key.

1. Start with the following raw string:

> productCode=Investments|amountDue=12.01|dueDate=2012-02-17

2. Use the test encryption key above to encrypt that raw string and then encode the string above with Base-64 Encoder. After both steps, you should see the value

> TnKhpR0jT781SqYrQjvsgnBC2ff9JCab0xsd9i89gJ/LwMUY0a4zwB5Ban6oOXgY2t53w+KKd MPDowfTMiEWiQ==

Example 3: Return Session Transfer

The same steps are followed on the return session transfer, but in the reverse order. Your application will receive a string that needs to be decoded, then decrypted.

1. Start with the following HTTP Encoded, Base-64 encoded string.

> DmrTxQhm2dwrKlWJaZF98YZfdX9TVOov1aifqt%2FmWv7f%2BPMvSWrPo6VdFKusMQyG x3mpG9NLGqQZPTKh8PA51DauKbYatR9UdGRuhAcnwOp7GjSSSlwK3GriI3teRY%2FR%2 Bqw9QPQzth41LKHMQijaug%3D%3D

2. HTTP decode the string from Step 1 to receive:

DmrTxQhm2dwrKlWJaZF98YZfdX9TVOov1aifqt/mWv7f+PMvSWrPo6VdFKusMQyGx3mpG
9NLGqQZPTKh8PA51DauKbYatR9UdGRuhAcnwOp7GjSSSlwK3GriI3teRY/R+qw9QPQzth4
1LKHMQijaug==

3. Decode the string from Step 2 using your Base-64 decoder and then use the test encryption key above to decrypt the string and you should end up with the raw string:

   TransactionConfirmationID=ABCABC000000001&userID=user123&BillerProductCode=productABC&PaymentMethod=CC

6.5   Java Code Examples

The following code examples can be a reference for developing in a Java environment. If you are not working in a Java environment, use these examples as psuedocode in your development environment.

6.5.1 Sample AES Encryption and Decryption class

```java
import java.security.spec.AlgorithmParameterSpec;

import javax.crypto.Cipher;

import javax.crypto.spec.IvParameterSpec;

import javax.crypto.spec.SecretKeySpec;

import org.apache.commons.codec.binary.Base64;

public class AESTestEncryptorDecryptor {

        private String encryptWithAES() {

                String encodedString = null;

                String sessionTransfer = "productCode=test|amountDue=12.01|dueDate=2012-02-17";

                try {

                        byte[] arrayOfByte1 = Base64.decodeBase64("sampleEncryptionKey");

                        SecretKeySpec keySpec = new SecretKeySpec(arrayOfByte1, "AES");

                        Cipher cipher = Cipher.getInstance("AES/CBC/PKCS5Padding");

                        AlgorithmParameterSpec algSpec = new IvParameterSpec(

                                        "initvector".getBytes());

                        cipher.init(Cipher.ENCRYPT_MODE, keySpec, algSpec);

                        byte[] encryptedData = cipher.doFinal(sessionTransfer.getBytes());

                        encodedString = Base64.encodeBase64String(encryptedData);

                } catch (Exception e) {

                        e.printStackTrace();

                }

                return encodedString;
```

```
        }
        private String decryptWithAES() {
                String str = null;
                try {
                        byte[] arrayOfByte1 = Base64.decodeBase64("sampleEncryptionKey");
                        SecretKeySpec keySpec = new SecretKeySpec(arrayOfByte1, "AES");
                        Cipher cipher = Cipher.getInstance("AES/CBC/PKCS5Padding");
                        AlgorithmParameterSpec algSpec = new IvParameterSpec(
                                        "initvector".getBytes());
                        cipher.init(Cipher.DECRYPT_MODE, keySpec, algSpec);
                        byte[] text = Base64.decodeBase64("encryptedText");
                        str = new String(cipher.doFinal(text));
                } catch (Exception e) {
                        e.printStackTrace();
                }
                return str;
        }
}
```

6.6   .Net Example

The following code examples can be a reference for developing in a .Net environment. If you are not working in a .Net environment, use these examples as psuedocode in your development environment.

```
<%@ Language="C#" trace="true"%>

<%@ Import Namespace="System.Security.Cryptography" %>

<%@ Import Namespace="System.IO" %>


<script runat="server">
        void Page_Load(Object Sender, EventArgs E) {
    string a = "productCode=Investments|amountDue=12.01|dueDate=2012-02-17";
    string z = Encrypt(a);
    Trace.Warn("original=" + a);
    Trace.Warn("encrypted and encoded=" + z);
```

```
//1. encrypt using AES

//2. base 64 encode

//3. urlencode

//Algorithm: AES

//Cipher Encryption Mode: Cipher Block Chaining (CBC)

//Padding Scheme: PKCS5Padding

//Key Length: 256

//string TestEncryptionKey = "TouCz6+LGk71Bpb2knTXUeShDl6+4R/96U1VwrQZLIo=";

//string TestInitializationVector = "R2RpmUCDf9tH828l";

    }
private const string AesKey = @"TouCz6+LGk71Bpb2knTXUeShDl6+4R/96U1VwrQZLIo=";

private const string AesIV = @"R2RpmUCDf9tH828l";


public string Encrypt(string text)

{

    Trace.Warn("key=" + AesKey);

    Trace.Warn("IV=" + AesIV);


    AesCryptoServiceProvider aes = new AesCryptoServiceProvider();

    aes.BlockSize = 128;

    aes.KeySize = 256;

    aes.IV = Encoding.UTF8.GetBytes(AesIV);

    aes.Key = Convert.FromBase64String(AesKey);

    aes.Mode = CipherMode.CBC;

    aes.Padding = PaddingMode.PKCS7;


    // Convert string to byte array

    byte[] src = Encoding.UTF8.GetBytes(text);


    // encryption
```

```csharp
        using (ICryptoTransform encrypt = aes.CreateEncryptor())

    {

        byte[] dest = encrypt.TransformFinalBlock(src, 0, src.Length);


        // Convert byte array to Base64 strings

        return Convert.ToBase64String(dest);

    }

  }
</script>
```

Chapter 7:   Admin Single Sign-On

7.0   Overview

Billers have the option of allowing their administrative users to log into E-Payment Service automatically using the single sign-on feature. This feature allows billers to pass user authentication information to E-Payment Service to automatically log into the administrative site.

7.1   Process

- Billers will send their user login credentials which will include the admin user ID, date/time stamp, encrypted key, admin token, initialization vector and signature to E-Payment Service.
- E-Payment Service will verify the message with the biller public key, decrypt the request and verify the timestamp.
- If all are valid, the user will have an active session in E-Payment Service.

The diagram below illustrates the single sign-on process.
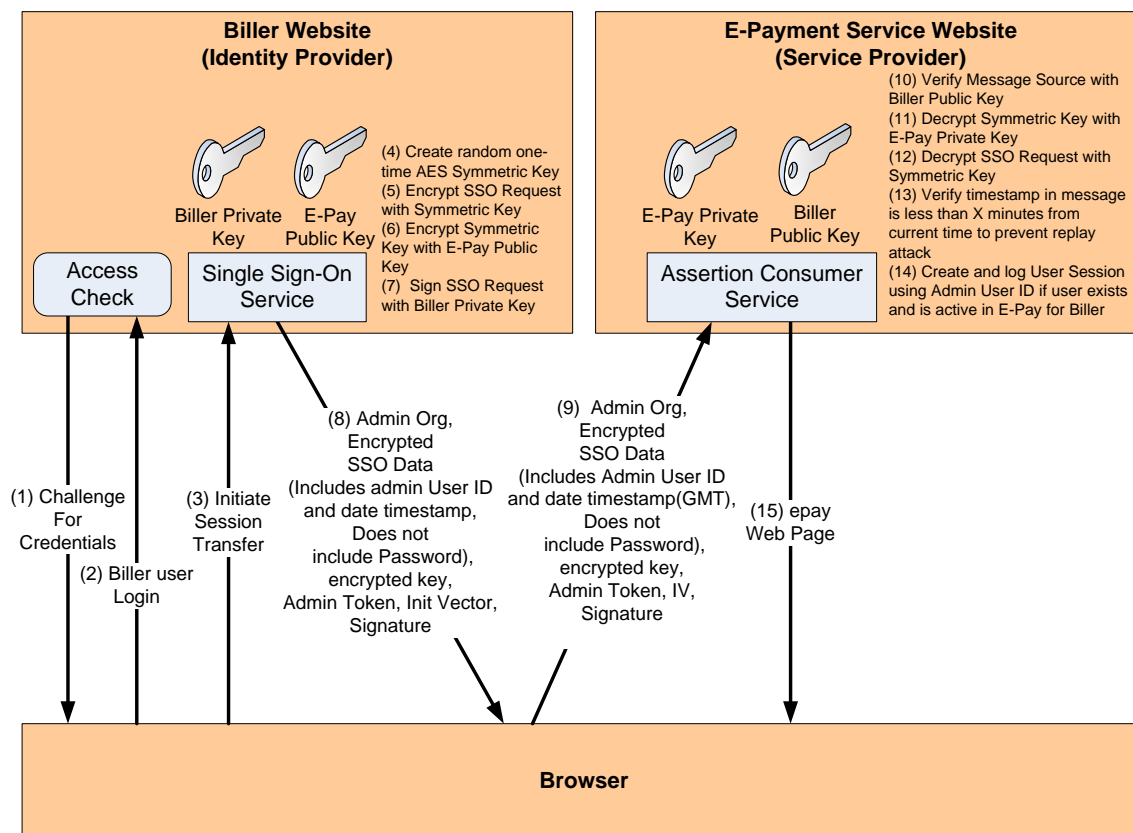
The single sign-on steps for the biller include the following:

1. Organize Session Transfer Data into Name – Value pair structure, separated with pipe (|) delimited.
   - Add the current system time (GMT) to the session transfer data.
   - Example:
     UserName=*johndoe*|DateTimeStamp=*01072011011000*|NavAction=*RegPayment*|BillerId=*BIG*|UserId=*johndoe1*|ProductCode=product1|PaymentMethod=ACH|PaymentType=Single|AmountDue=1000|DueDate=20110108

2. Generate encryption key with keysize of 256 (symmetric key).
   - The encryption key you generate should be using the AES algorithm. An AES encryption key will be randomly generated using CBC mode (programming jargon) for every SSO request initiated.

3. Encrypt the data using symmetric key and AES 256 algorithm.
   - Encrypt the SSO session transfer data with the key generated in step #2.
   - The encryption method used should be AES (CBC mode with ISO10126 Padding).

4. Load the E-Payment Service Admin public key from local key store.
   - U.S. Bank will supply biller with the certificate.
   - Install the certificate in biller's keystore.

5. Encrypt symmetric key using RSA algorithm with E-Pay Admin's public key.
   - Biller will encrypt the data using the AES key from step #2, then biller will encrypt this AES key using the public key/cert provided in step #4 (this ensures the AES key is secured and useless to a hacker as it will be encrypted)
   - The encryption method that should be used is RSA (ECB mode with PKCS1Padding).

6. Load client private key from local keystore.
   - The certificate the biller provides U.S. Bank is the public key portion; the biller will use their private key to "sign" the data and once U.S. Bank receives the transfer, U.S. Bank will verify the signature using the accompanying public key (cert) that has been loaded.
   - U.S. Bank uses X.509 certificates to ensure proper authentication. You will need to create and provide U.S. Bank an X.509 public certificate. The X.509 certificate should be created with a keysize of 2048 bits using DER encoding in .cer format and issued as a SHA-256 certificate. X.509 public certificates can be created using a variety of commercially available software tools, such as VeriSign, Microsoft IIS or Java Keytool. Parent certificates in the certificate chain must also be included. E-Payment Service places no limitations on the expiration date or signer of the certificate, but we recommend an expiration of at least three years from now.
   - The signature should be valid, otherwise the data is considered "tampered with" and U.S. Bank will reply with an error.
   - The encryption method used should be RSA-SHA256.

7. Digitally sign the encrypted data using the private key loaded in Step #6 and the SHA-256 hash with RSA.

8. Add the encrypted data, key, initialization vector & signature as name-value pair using Base64 encoding.
   - "Base64" encode the data.
   - The examples in Steps #1 and #2 show how to organize the data for the POST to the E-Payment Service. The initialization vector is part of the process of generating an AES key in CBC mode (Step #3).

9. Add the name-value pair as hidden fields in the form.
10. HTTPS post to E-Pay Admin with hidden fields.

The following is a sample of an actual form post. Please note the field names included in the post; all comments are in red and italics.

<form action="https:// /admin.epymtservice.com/admin/index.jhtml" method="post">

<input name="**AdminOrg**" value="ABC">

<input name="**AdminToken**" value="ABCXYZ">

This token will be provided to the biller by U.S. Bank. E-Payment Service will use the token to identify and retrieve biller's certificate from the E-Payment Service keystore.

<input name="**EncData**" value="WbSeH2en/WfVczuA59cOceDN8FPeAS92hPDoNSIscXnBx3+E5Gb8NqVccA">

The above value is encrypted with AES (base 64 encoded).

<input name="**EncKey**" value="i1Fjb3s0VtTMDsYQIAkYljDTQq24cMAhgf2cjw3qw0/OaVKNGYspVjBsejzfHX">

The AES key encrypted by the E-Payment Service system SSO public key (base64 encoded).

<input name="**InitVect**" value="DaWhC+DhLRISRibUx/NRgh==">

This is clear text, but is base64 encoded.

<input name="**Signature**" value="KYzRNPa0ZWYB0bhyEglVGxWubFlgQ8PdlN3eO3VF9stXWA+LuoAL/PjG2CQDJI=">

This is the signature of the EncData (base64 encoded)

<input type="submit" value="Make Payment">

</form>

7.2   Security

Billers will need to generate a private/public X.509 key. E-Payment Service will send the biller an admin token. Sessions that are sent to E-Payment Service will need unencrypted biller organization and a time stamp sent in GMT format. User name and any session transfer information must be sent encrypted using AES 256 and RSA V1.5.

7.3   Naming Convention

The default file name for the admin token is SSO_uniquename_adminorg.

7.4   Layout

Key	Data Type	Length	Req'd	Description	Notes
AdminOrg	Char	Variable	Yes	Defines the Admin Org	Must be sent as clear text and not encrypted
Admin Token	Char	Variable	Yes	Identifies the SSO token	Must be sent as clear text and not

Key	Data Type	Length	Req'd	Description	Notes
					encrypted
InitVect	Char	Variable	Yes	Identifies the initialization vector for the decryption	Must be sent as clear text and not encrypted Base64 encoded
EncData	Char	Variable	Yes	Identifies encrypted session transfer data.	Must contain at least in encrypted format: Base64 encoded Username Date/Time stamp Additional key data can be sent in encrypted format to include NavAction fields
EncKey	Char	Variable	Yes	Identifies the encrypted symmetric key	Base64 encoded
Signature	Char	Variable	Yes	Identifies the biller's signature	

Chapter 8:   Admin Session Transfer

Billers have the option to create a session transfer to the E-Payment admin site in order to pass login credentials and elements for searching or making a payment. This feature helps reduce the number of clicks for users who use the administrative site. As part of this session transfer, the Biller can send data that indicates the action that the user would like to perform, such as initiating a payment and searching for a payer or payment. Billers can include session transfer data in a single sign-on session. The format for this is shown in the single sign-on chapter.

8.0   Format

Session variables must be sent using the HTTP Post method. Encryption is not required unless admin single-sign on is enabled. The following pages provide samples of the session transfer for the various actions supported.

8.0.1 Login

<HTML>

<body>

<form action="https://admin.epymtservice.com/admin/index.jhtml" method="post">

<input type="hidden" name="AdminOrg" value="AAA">

<input type="hidden" name="UserName" value="TestUser">

<input type="submit" value="Login">

</body>

</HTML>

8.0.2 General Search

The first five lines are required. All of the next input types are optional, however at least one of the bold lines is required for a search.

<HTML>
<body>

<form action="https://admin.epymtservice.com/admin/index.jhtml" method="post">
<input type="hidden" name="AdminOrg" value="ABC">
<input type="hidden" name="UserName" value="admin123">
<input type="hidden" name="NavAction" value="GeneralSearch">
<input type="hidden" name="BillerGroupId" value="ABC">

<input type="hidden" name="UserId" value="123456">
<input type="hidden" name="LastName" value="User">
<input type="hidden" name="FirstName" value="Test">
<input type="hidden" name="CompanyName" value="ABC Corp">

<input type="hidden" name="PhoneNumber" value="1231231234>
<input type="hidden" name="ZipPostalCode" value="12345">
<input type="hidden" name="EmailAddress" value="test.user@abc.com">
<input type="hidden" name="ConfirmationNumber" value="ABCABC1234567890">
<input type="hidden" name="PaymentAuthorization" value="XXXXX">
<input type="hidden" name="PaymentAmount" value="XXXXX">
<input type="hidden" name="PaymentDate" value="2012-11-15">
<input type="hidden" name="ProductCode" value="">
<input type="submit" value="Admin Session - General Search">
</form>

</body>
</HTML>

8.0.3 Parameter Search

<HTML>
<body>

<form action="https://admin.epymtservice.com/admin/index.jhtml" method="post">
<input type="hidden" name="AdminOrg" value="ABC">
<input type="hidden" name="UserName" value="admin123">
<input type="hidden" name="NavAction" value="ParameterSearch">

<input type="hidden" name="BillerGroupId" value="ABC">
<input type="hidden" name="BillerId" value="ABC">
<input type="hidden" name="ProductCode" value="test payment">
<input type="hidden" name="ParameterName" value="Invoice #">
<input type="hidden" name="ParameterValue" value="123456789">
<input type="submit" value="Admin Session - Parameter Search">
</form>

</body>
</HTML>

8.0.4 Make Payment (Unregistered User)

<HTML>

<body>

<form action="https://admin.epymtservice.com/admin/index.jhtml" method="post">

<input type="hidden" name="AdminOrg" value="USB">

<input type="hidden" name="UserName" value="TestUser">

<input type="hidden" name="BillerGroupId" value="ABC">

<input type="hidden" name="ProductCode" value="TestPayments">

<input type="hidden" name="AmountDue" value="777.00">

<input type="hidden" name="DueDate" value="2008-12-16">

```
<input type="hidden" name="NavAction" value="UnRegPayment">
```

```
<input type="hidden" name="PaymentMethod" value="CC">
```

```
<input type="hidden" name="BillerId" value="123">
```

```
<input type="submit" value="Admin Session - Unregistered Payment">
```

```
</form>
```

```
</body>
```

```
</HTML>
```

8.0.5 Make Payment (Registered User)

```
<HTML>
```

```
<body>
```

```
<form action="https://admin.epymtservice.com/admin/index.jhtml" method="post">
```

```
<input type="hidden" name="AdminOrg" value="USB">
```

```
<input type="hidden" name="UserName" value="XXXXX">
```

```
<input type="hidden" name="NavAction" value="RegPayment">
```

```
<input type="hidden" name="BillerGroupId" value="ABC">
```

```
<input type="hidden" name="BillerId" value="ABC">
```

```
<input type="hidden" name="UserId" value="XXXXX">
```

```
<input type="hidden" name="ProductCode" value="testproduct">
```

```
<input type="hidden" name="AmountDue" value="XXXXX">
```

```
<input type="hidden" name="DueDate" value="XXXX-XX-XX">
```

```
<input type="hidden" name="PaymentType" value="XXXXX">
```

```
<input type="hidden" name="PaymentMethod" value="XXXXX">
```

```
<input type="submit" value="Admin Session - Registered Payment">
```

```
</form>
```

```
</body>
```

```
</HTML>
```

8.1   Layouts

Field Name and Format	Max Length	6.1.1 Login	6.1.2 General Search	6.1.3 Parameter Search	6.1.5 Make Unregistered Payment	7.1.6 Make Registered Payment
AdminOrg Identifies the 3-6 character Organization value entered by users during login. Cannot contain blanks.	6	X	X	X	X	X
UserName The Username entered by a user during login. Must be a valid user of the AdminOrg supplied. Cannot contain blanks.	12	X	X	X	X	X
NavAction Identifies the action the user wishes to perform. Valid Values: • GeneralSearch • ParameterSearch • UnRegPayment • RegPayment	20		X	X	X	X
BillerGroupId	3		X	X	X	X
BillerId	3			X	X	X
ProductCode	32		X	X	X	X
PaymentType Identifies single or recurring payment. Valid values: • Single • Recur	10					X
PaymentMethod Identifies whether the payment will be made by credit card or eCheck (ACH). Valid values: • CC • ACH	10				X	X

Field Name and Format	Max Length	6.1.1 Login	6.1.2 General Search	6.1.3 Parameter Search	6.1.5 Make Unregistered Payment	7.1.6 Make Registered Payment
Amount Due Must be numeric.	13				X	X
Due Date YYYY-MM-DD	10				X	X
[Product Parameter Name] Identifies the name of the product parameter being searched for or passed.	24			X	X	X
[Product Parameter Value] Identifies the value of the product parameter being searched for or passed.	80			X	X	X
UserId	16		X			X
LastName	30		X			
FirstName	30		X			
CompanyName	30		X			
PhoneNumber	20		X			
ZipPostalCode	12		X			
EmailAddress	256		X			
ConfirmationNumber Payment Confirmation Number or Recurring Reference ID	15		X			
PaymentAmount	13		X			
PaymentAmountMin Sent with PaymentAmountMax for range search	13		X			
PaymentAmountMax Sent with PaymentAmountMin for range search	13		X			

Field Name and Format	Max Length	6.1.1 Login	6.1.2 General Search	6.1.3 Parameter Search	6.1.5 Make Unregistered Payment	7.1.6 Make Registered Payment
PaymentDate **YYYY-MM-DD** Can be payment effective date or initiation date	10		X			
PaymentDateStart **YYYY-MM-DD** Sent with PaymentDateEnd for range search	10		X			
PaymentDateEnd **YYYY-MM-DD** Sent with PaymentDateStart for range search	10		X			

Chapter 9:   Pre-Registration File

The pre-registration feature was designed to reduce the need for payers to have to register at E-Payment Service if they are already one of the Biller's existing customers. E-Payment Service offers several ways to register payers including using the preregistration file, remote web services and the real-time authorization registration feature (RTAR).

Pre-registration of payers is:
- Optional if the Biller deploys the Internet and Live Agent channels
- Required if the Biller deploys the IVR channel

If a Biller chooses to use the pre-registration file, they will need to create a daily change file and transmit it to U.S. Bank. Pre-registration files must be transmitted every calendar day. Each time a pre-registration file is processed by the U.S. Bank team, a response file will be generated and transmitted to the Biller. If the pre-registration file is processed successfully, the response file will indicate that all records were processed. If any records were not processed successfully, they will be included in the response file along with a reason code indicating why the record wasn't processed successfully. Billers can also use Remote Web Services to add, update or delete payers in E-Payment Service. See the E-Payment Service Remote Web Services User Guide for more information.

Billers use the pre-registration file to send user registration information to E-Payment Service for payers initiating payments through the Web, IVR, or admin interfaces. Billers can send product-level information for their users as well. The pre-registration file can contain one or many record types. The following table provides descriptions of the types of records and information that may be included in the pre-registration file:

Record Name	Types	Record Description
User Profile Information	Add	Adds a new Payer Profile to the System
	Update	Updates an existing payer's profile
	Delete	Removes an existing payer's profile
	Extend	Extends a current user's profile to a different account number (Version 4.0 Only)
Authorized Product Information	Update	Authorizes a payer to initiate payments for a specific product
	Delete	Prevents a payer from initiating payments for a specific product
Payment Information	Add	Adds payment information (due date and / or amt due) to a payer's profile for a specific product
	Update	Updates payment information (due date and / or amt due) to a payer's profile for a specific product
Bank Account Information	Add	Adds a payer's bank account information to their profile
	Update	Updates a payer's bank account information in their profile
Credit Card Account Information (Requires PGP Encryption)	Add	Adds a payer's credit/ATM Debit card account information to their profile

Record Name	Types	Record Description
	Update	Updates a payer's credit/ATM Debit card account information in their profile
Product Parameters	Add	Adds a product parameter value to a payer's profile for a specific product
	Update	Updates a product parameter value in a payer's profile for a specific product
	Delete	Deletes a product parameter value in a payer's profile for a specific product
Recurring Payment Information	Add	Creates a new recurring payment
	Update	Updates an existing recurring payment
	Stop	Cancels an existing recurring payment
Bill Presentment Enrollment	Add	Add user for bill presentment feature
	Update	Update user for bill presentment feature

9.0   Schedule

E-Payment Service will process pre-registration files every day, including federal holidays. The files must be transmitted by 8 p.m. CT. If there are no changes to be processed, a file containing a header record and a trailer record with valid counts and no detail records must be made available for pickup.

9.1   Format

The pre-registration file must be in ASCII comma-delimited (CSV) variable-length format (no field filling).

9.2   Processing

Following are the processing standards for records included in the pre-registration file:
- All record types:

  – When a validation error is encountered, the system attempts to validate the rest of the record and writes all validation errors to the pre-registration response file. It does not abort validation of the record at the first error encountered.
  – Multiple spaces is not a valid value for any field on any record type.
  – A single space in a required field on any record type is not a valid value.
  – Any value supplied, even a single space, must be contained within double quotes.
  – Empty fields do not require double quotes.
  – Double quotes within a field's value are not supported.
  – Commas are allowed between quotes.
  – The file must not contain multiple instances of the same record type for the same UserID with conflicting data. E-Payment Service cannot guarantee the order in which the records are processed.
- Update record types:

- A single space in an optional field is a valid value and indicates to load the database with a null for that field.
- No value provided (i.e., two commas with nothing in between) in an optional field is a valid value and indicates that the field in the database should not be updated.

- An Update record will be treated as an Update record if the record is found in the database and as an Add record if the record is not found in the database.

- Add record types:

  - An Add record will error if the record already exists in the database.

- Delete record types:

  - A Delete User Profile record only requires RecordType and UserID to locate and delete the payer.

- Extend User Record (Version 4.0 only):

  - The Extend User Record allows the Biller to update the account number of a current record without having to submit a Delete and Add record. The Biller can change the account number and retain all of the user information and payment history for a payer.

- Records must appear in the following order:

  - Header record must be first

  - Trailer record must be last

- The remaining records are processed by E-Payment Service in the order listed. They can be sent in any order however, it is recommended that they are sent in this order.

  - AddUserProfile
  - UpdateUserProfile
  - DeleteUserProfile
  - Extend User Profile (Version 4.0 only)
  - UpdateAuthorizedProduct
  - DeleteAuthorizedProduct
  - AddPaymentInfo
  - UpdatePaymentInfo
  - AddBankAccount
  - UpdateBankAccount
  - AddCreditCard
  - UpdateCreditCard
  - AddProductParameter
  - UpdateProductParameter
  - DeleteProductParameter
  - AddRecurringPayment
  - UpdateRecurringPayment
  - StopRecurringPayment
  - UpdateBillerProductAccountInfo
  - DeleteBillerProductAccountInfo
  - AddBillPresentmentEnrollment
  - UpdateBillPresentmentEnrollment

Note: Sending multiple update records for the same item within the same file is not recommended (i.e., sending two "UpdateUserProfile" records for "JohnDoe"). The order of the records in the pre-registration file does not necessarily correspond to the order in which they will be processed.

9.3 Naming Convention

The default file name is <Biller Group Abbreviation>_<Biller Abbreviation>_Pre_Reg.csv.

9.4 Password and PIN Requirements

Notes on Password Fields:

- Passwords (8-16 characters with at least one number and one letter) are used to log into website.
- Pay by phone PIN (4-16 numbers) is used to log into IVR.
- Passwords must be complex enough to resist guessing or prediction.
- Passwords must include a combination of letters and numbers or special characters.
- Passwords must not be dictionary words or variations of User ID, Social Security Number, family names, pet names, or any other information readily associated with the user.
- Passwords must not be sequential or predictable variations on date or previous passwords.

9.5 File Layout

9.5.1 Header Record

Field Name	Max Length	Req'd	Comments/Format
RecordType	6	Yes	"Header"
VersionNumber	4	Yes	"4.0"
FileID	30	Yes	"E Payment Pre Reg"
DateFileSent	8	Yes	"YYYYMMDD"
BillerGroupID	3	Yes	Biller Group ID
BillerID	3	Yes	Biller ID
ProcessingMode	1	Yes	"W" – Biller will accept payments via Web only. "I" – Biller will accept payments via IVR only or Both Web & IVR.

9.5.2 Add User Profile Record (Detail Record)

Field Name	Max Length	Req'd	Comments/Format
RecordType	14	Yes	"AddUserProfile"

Field Name	Max Length	Req'd	Comments/Format
UserID	16	Yes	• If ProcessingMode = 'I', validate as numeric only and a minimum length of 4. • If ProcessingMode = 'W', validate as alphanumeric, no special or control characters, and a minimum length of 6. User SSN, account number, credit card data, or other non-public information may not be used for or within user IDs used for applications for authentication.
Password	16	Yes, if ProcessingMode = "W" or if ProcessingMode = "I" and both IVR and Web are enabled	• If ProcessingMode= "W" OR "I" and Web is enabled, must be alphanumeric with at least one number and one letter and at least 8 characters long. Special and control characters are allowed but not required. • If ProcessingMode = "I" and biller is IVR only, the PIN must be entered in the PIN field. • If ProcessingMode = "W" or "I" and Web is enabled, can be alpha or numeric and at least 4 characters long if force change password is enabled.
FirstName	30	Yes	• Must have at least one letter. • Cannot equal a space. • Alphanumeric, special and control characters are allowed.
LastName	30	Yes	• Must have at least one letter. • Cannot equal a space. • Alphanumeric, special and control characters are allowed.
CompanyName	30	No	• If value is entered: • Must have at least one letter. • Cannot equal a space. • Alphanumeric, special and control characters are allowed.

Field Name	Max Length	Req'd	Comments/Format
StreetAddress1	50	Yes	• Must have at least one letter. • Cannot equal a space. • Alphanumeric, special and control characters are allowed.
StreetAddress2	50	No	Alphanumeric, special and control characters are allowed.
City	30	Yes	• Must have at least one letter. • Cannot equal a space. • Alphanumeric, special and control characters are allowed.
State	40	Yes	• If country is US, must be a valid state code (see state code table) • Otherwise, letters, numbers, hyphens, single spaces, apostrophes, commas, periods and parentheses are allowed.
ZipPostalCode	12	Yes	• If country is US, must follow standard US zip format and be only five digits. • If country is not US, numbers, letters, hyphens, single spaces and periods are allowed. • Cannot be single space or all spaces.
ZipCode4	4	No	• If country is US and contains a value, value must be numeric only and must be four digits. • If country is not US, then value will be ignored.
Country	2	Yes	Must be a valid value in the Country Code table
PhoneNumber	20	Yes	• If country is US, must be 10 numeric digits. • If country is not US, alphanumeric, hyphens, single spaces, parentheses and periods are allowed. • Cannot be single space or all spaces.

Field Name	Max Length	Req'd	Comments/Format
EmailAddress	256	Yes, if AddRecurringPayment/ UpdateRecurringPayment records used	Must contain one '@' and one '.'. The '.' Must be after the '@'
SharedSecret Question	25	Yes	Must contain one of the following values: • "MOTHER", • "FATHER", • "CITY", • "PET", • "STREET", • "SCHOOL", • "TEACHER", • "TEAM", • "ZIPCODE", • "AUTH"
SharedSecret Response	20	Yes	• Must contain at least one character. • Alphanumeric, special and control characters are allowed.
PIN	16	Yes, if ProcessingMode = "I",	• Must be numeric only and at least 4 digits long.

9.5.3 Update User Profile Record

Field Name	Max Length	Req'd	Comments/Format
RecordType	17	Yes	"UpdateUserProfile"
UserID	16	Yes	• If ProcessingMode = 'I', validate as numeric only and a minimum length of 4. • If ProcessingMode = 'W', validate as alphanumeric, no special or control characters, and a minimum length of 6. User SSN, account number, credit card data, or other non-public information may not be used for or within user IDs used for applications for authentication.

Field Name	Max Length	Req'd	Comments/Format
Password	16	No (Yes, if new)	If ProcessingMode = 'W' OR ProcessingMode = 'I' and biller is enabled for Web, must be alphanumeric, have at least one letter and one number, and be at least 8 characters long. Special and control characters are allowed but not required. Note: IVR PIN should be sent in PIN field.
FirstName	30	No (Yes, if new)	If value is provided, must contain at least one letter, cannot equal a space. Alphanumeric, special and control characters are allowed.
LastName	30	No (Yes, if new)	If value is provided, must contain at least one letter, cannot equal a space. Alphanumeric, special and control characters are allowed.
CompanyName	30	No	If value is provided, must contain at least one letter, cannot equal a space. Alphanumeric, special and control characters are allowed.
StreetAddress1	50	No (Yes, if new)	If value is provided, must contain at least one letter, cannot equal a space. Alphanumeric, special and control characters are allowed.
StreetAddress2	50	No	
City	30	No	Must contain at least one letter.
State	40	No (Yes, if new)	• If country is US, must be a valid state code (see state code table in Appendix). • Otherwise, letters, numbers, hyphens, single spaces, apostrophes, commas, periods, and parentheses are allowed.
ZipPostalCode	12	No (Yes, if new)	• If country is US, must follow standard US zip format and be only five digits. • If country is not US, numbers, letters, hyphens, single spaces and periods are allowed. • Cannot be single space or all spaces.
ZipCode4	4	No (Yes, if new)	• If country is US and contains a value, value must be numeric and must be four digits. • If country is not US, then value will be ignored.
Country	2	No (Yes, if new)	Two character country code value (See Exhibit E)

Field Name	Max Length	Req'd	Comments/Format
PhoneNumber	20	No (Yes, if new)	• If country is US, must be 10 numeric digits. • If country is not US, alphanumeric, hyphens, single spaces, parentheses and periods are allowed. • Cannot be single space or all spaces.
EmailAddress	256	No (Yes, if new)	Must contain one '@' and one '.'
SharedSecret Question	25	No (Yes, if new)	Must contain one of the following values: • "MOTHER", • "FATHER", • "CITY", • "PET", • "STREET", • "SCHOOL", • "TEACHER", • "TEAM", • "ZIPCODE", • "AUTH"
SharedSecret Response	20	No (Yes, if new)	Must contain at least one character
PIN	16	No	Numeric only and at least 4 digits long.

9.5.4 Delete User Profile Record (Detail Record)

Field Name	Max Length	Req'd	Comments/Format
RecordType	17	Yes	"DeleteUserProfile"
UserID	16	Yes	UserID must already exist.
Password	16	No	
FirstName	30	No	
LastName	30	No	
CompanyName	30	No	

Field Name	Max Length	Req'd	Comments/Format
StreetAddress1	50	No	
StreetAddress2	50	No	
City	30	No	
State	2	No	
ZipPostalCode	12	No	
ZipCode4	4	No	
Country	2	No	
PhoneNumber	10	No	
EmailAddress	256	No	
SharedSecretQuestion	25	No	
SharedSecretResponse	20	No	
PIN	16	No	

9.5.5 Update Authorized Product Record (Detail Record)

Field Name	Max Length	Req'd	Comments/Format
RecordType	23	Yes	"UpdateAuthorizedProduct"
UserID	16	Yes	UserID must already exist
BillerProductCode	32	Yes	BillerProductCode must already exist for Biller

9.5.6 Delete Authorized Product Record (Detail Record)

Field Name	Max Length	Req'd	Comments/Format
RecordType	23	Yes	"DeleteAuthorizedProduct"
UserID	16	Yes	UserID must already exist
BillerProductCode	32	Yes	BillerProductCode must already exist for Biller

9.5.7 Add Payment Info Record (Detail Record)

Field Name	Max Length	Req'd	Comments/Format
RecordType	14	Yes	"AddPaymentInfo"
UserID	16	Yes	UserID must already exist
BillerProductCode	32	Yes	BillerProductCode must already exist for Biller

Field Name	Max Length	Req'd	Comments/Format
DueDate	8	No	• YYYYMMDD • Must be a valid date • Required if amount due is not supplied
AmountDue	10	No	• Numeric Only • Implied decimal point (assumes two decimal digits) • Required if amount due is not supplied

9.5.8   Update Payment Info Record (Detail Record)

Field Name	Max Length	Req'd	Comments/Format
RecordType	17	Yes	"UpdatePaymentInfo"
UserID	16	Yes	UserID must already exist
BillerProductCode	32	Yes	BillerProductCode must already exist for Biller
DueDate	8	No	• YYYYMMDD • Must be a valid date • Required if amount due is not supplied
AmountDue	10	No	• Numeric Only • Implied decimal point (assumes two decimal digits) • Required if amount due is not supplied

9.5.9 Add Bank Account Record (Detail Record)

Field Name	Max Length	Req'd	Comments/Format
RecordType	14	Yes	"AddBankAccount"
UserID	16	Yes	UserID must already exist
Nickname	20	No	Name displayed to payer in dropdown menu for easy retrieval
BankRTN	9	Yes	• Numeric only • Must pass Mod 10 check • Must be a valid RTN in the Federal Reserve Routing Directory
AccountNumber	17	Yes	Cannot contain special or control characters. If spaces are entered in the bank account number, EPS removes spaces before data loaded in database.
AccountType	1	Yes	• "C" = checking • "S" = savings
AccountCategory	1	Yes	• "C" = consumer • "B" = business

9.5.10 Update Bank Account Record (Detail Record)

Field Name	Max Length	Req'd	Comments/Format
RecordType	17	Yes	"UpdateBankAccount"
UserID	16	Yes	UserID must already exist
Nickname	20	No	Name displayed to payer in dropdown menu for easy retrieval
BankRTN	9	Yes	• Numeric only • Must pass Mod 10 check • Must be a valid RTN in Federal Reserve Routing Directory
AccountNumber	17	Yes	Cannot contain special or control characters
AccountType	1	Yes	• "C" = checking • "S" = savings

Field Name	Max Length	Req'd	Comments/Format
AccountCategory	1	No	• "C" = consumer • "B" = business

9.5.11 Add Credit Card Record (Detail Record)

Field Name	Max Length	Req'd	Comments
RecordType	13	Yes	"AddCreditCard"
UserID	16	Yes	UserID must already exist
Nickname	20	No	Name displayed to payer in dropdown menu for easy retrieval
CardType	4	Yes	• "AMEX" = American Express • "DISC" = Discover • "MC" = Master Card • "VISA" = Visa • "ATM" = ATM Debit Card
CardNumber	19	Yes	• Numeric only • Must pass Mod 10 check • Must be a valid credit/ATM Debit card number for the card type
ExpDate	4	Yes, for Credit Card	• "YYMM" • Must be a valid date that is not in the past
StreetAddress1	50	Yes	• Must have at least one letter • Cannot equal a space • Alphanumeric, special and control characters are allowed
StreetAddress2	50	No	Alphanumeric, special and control characters are allowed.
City	30	Yes	• Must have at least one letter • Cannot equal a space • Alphanumeric, special and control characters are allowed

Field Name	Max Length	Req'd	Comments
State	40	Yes	• If country is US, must be a valid state code (see state code table) • Otherwise, letters, numbers, hyphens, single spaces, apostrophes, commas, periods and parentheses are allowed
ZipPostalCode	12	Yes	• If country is US, must follow standard US zip format and be only 5 digits • If country is not US, numbers, letters, hyphens, single spaces and periods are allowed • Cannot be single space or all spaces
ZipCode4	4	No	• If country is US and contains a value, the value must be numeric only and must be 4 digits • If country is not US, then the value will be ignored
Country	2	Yes	Must be a valid country code (see country table)

9.5.12 Update Credit Card Record (Detail Record)

Field Name	Max Length	Req'd	Comments/Format
RecordType	16	Yes	"UpdateCreditCard"
UserID	16	Yes	UserID must already exist.
Nickname	20	No (Yes, if new)	Name displayed to payer in dropdown menu for easy retrieval.
CardType	4	No (Yes, if new)	• "AMEX" = American Express • "DISC" = Discover • "MC" = Master Card • "VISA" = Visa • "ATM" = ATM Debit Card • Cannot equal one space

Field Name	Max Length	Req'd	Comments/Format
CardNumber	19	Yes (Yes, if new)	• Numeric only. • Must pass Mod 10 check. • Must be a valid credit/ATM Debit card number for the card type.
ExpDate	4	No (Yes, if new)	• "YYMM" • Must be a valid date that is not in the past.
StreetAddress1	50	No (Yes, if new)	• Must have at least one letter. • Cannot equal a space. • Alphanumeric, special and control characters are allowed.
StreetAddress2	50	No	Alphanumeric, special and control characters are allowed.
City	30	No (Yes, if new)	• Must have at least one letter. • Cannot equal a space. • Alphanumeric, special and control characters are allowed.
State	40	No (Yes, if new)	• If country is US, must be a valid state code (see state code table). • Otherwise, letters, numbers, hyphens, single spaces, apostrophes, commas, periods and parentheses are allowed.
ZipPostalCode	12	No (Yes, if new)	• If country is US, must follow standard US zip format and be only five digits. • If country is not US, numbers, letters, hyphens, single spaces and periods are allowed. • Cannot be single space or all spaces.

Field Name	Max Length	Req'd	Comments/Format
ZipCode4	4	No	• If country is US and contains a value, value must be numeric only and must be four digits. • If country is not US, then value will be ignored.
Country	2	Yes (Yes, if new)	Must be a valid country code (see country table)

9.5.13 Add Product Parameter Record (Detail Record)

Field Name	Max Length	Req'd	Comments/Format
RecordType	19	Yes	"AddProductParameter"
UserID	16	Yes	UserID must already exist
BillerProductCode	32	Yes	BillerProductCode must already exist for Biller
ParameterName	26	Yes	ParameterName must already exist for Biller
ParameterValue	50	Yes	Must conform to edit rules as defined in the Implementation Questionnaire at Biller setup User SSN, account number, credit card data, or other non-public information may not be sent in parameter value

9.5.14 Update Product Parameter Record (Detail Record)

Field Name	Max Length	Req'd	Comments/Format
RecordType	22	Yes	"UpdateProductParameter"
UserID	16	Yes	UserID must already exist
BillerProductCode	32	Yes	BillerProductCode must already exist for Biller
ParameterName	26	Yes	ParameterName must already exist for Biller
ParameterValue	50	Yes	Must conform to edit rules as defined in the Implementation Questionnaire at Biller setup User SSN, account number, credit card data, or other non-public information may not be sent in parameter value

9.5.15 Delete Product Parameter Record (Detail Record)

Field Name	Max Length	Req'd	Comments/Format
RecordType	22	Yes	"DeleteProductParameter"
UserID	16	Yes	UserID must already exist
BillerProductCode	32	Yes	BillerProductCode must already exist for Biller

Field Name	Max Length	Req'd	Comments/Format
ParameterName	26	Yes	ParameterName must already exist for Biller
ParameterValue	50	No	Not required — field ignored if present

9.5.16 Add Recurring Payment Record (Detail Record)

Field Name	Max Length	Req'd	Comments/Format
RecordType	19	Yes	"AddRecurringPayment"
UserID	16	Yes	UserID must already exist
BillerProductCode	32	Yes	BillerProductCode must already exist for Biller
Frequency	2	Yes	'DD' — Due Date
Duration	3	Yes	• Must be a valid duration for the BillerProductCode. • 'EOD' – Expire on Date • 'NOP' –Number of Payments • 'CUC' – Continue Until Cancelled
PaymentAmountType	2	Yes	'AD' — Amount Due
PaymentAmount	10	No	This field must be empty.
FirstPaymentDate	8	No	This field must be empty.
ExpirationDate	8	No	Format must be "YYYYMMDD" and it must be a valid date in the future. Required if Duration is = 'EOD'.
NumberRecurringPayments	3	No	Numeric Only. Required if Duration = 'NOP'.
DayofMonthFirstPayment	2	No	This field must be empty.
DayofMonthSecondPayment	2	No	This field must be empty.
NumDaysBefore	3	No	Must be smaller than maximum allowed days before due date. Required if Frequency = 'DD'.
Payment Method	3	Yes	• 'ACH' • 'CC'

Field Name	Max Length	Req'd	Comments/Format
CardType	4	No	"AMEX" = American Express "DISC" = Discover "MC" = Master Card "VISA" = Visa "ATM" = ATM Debit Payment - Cannot equal one space
CardNumber	19	No	- Numeric only - Must pass Mod 10 check - Must be a valid credit/ATM Debit card number for the card type
ExpDate	4	No	"YYMM" - Must be a valid date that is not in the past
BankRTN	9	No	- Numeric only - Must pass Mod 10 check - Must be a valid RTN in the Thomson database
BankAccountNumber	17	No	Cannot contain special or control characters. If spaces are entered in the bank account number, E-Payment Service removes the spaces before the data is loaded in the database.
BankAccountType	1	No	"C" = checking "S" = savings
BankAccountCategory	1	No	"C" = consumer "B" = business

9.5.17 Update Recurring Payment Record (Detail Record)

Field Name	Max Length	Req'd	Comments/Format
RecordType	22	Yes	"UpdateRecurringPayment"
UserID	16	Yes	UserID must already exist

Field Name	Max Length	Req'd	Comments/Format
BillerProductCode	32	Yes	BillerProductCode must already exist for Biller
RecurringReferenceID	15	Yes	Recurring Reference ID for the payment to be updated
Frequency	2	Yes	'DD' — Due Date
Duration	3	Yes	- Must be a valid duration for the BillerProductCode. 'EOD' – Expire on Date 'NOP' –Number of Payments 'CUC' – Continue Until Cancelled
PaymentAmountType	2	Yes	'AD' – Amount Due
PaymentAmount	10	No	This field must be empty.
FirstPaymentDate	8	No	This field must be empty.
ExpirationDate	8	No	Format must be "YYYYMMDD" and it must be a valid date in the future. Required if duration is = 'EOD'.
NumberRecurringPayments	3	No	Numeric only. Required if duration = 'NOP'.
DayofMonthFirstPayment	2	No	This field must be empty.
DayofMonthSecondPayment	2	No	This field must be empty.
NumDaysBefore	3	No	Must be smaller than maximum allowed days before due date. Required if Frequency = 'DD'.
Payment Method	1	No	'ACH' 'CC' 'ATM'
CardType	4	No	"AMEX" = American Express "DISC" = Discover "MC" = Master Card "VISA" = Visa "ATM" = ATM Debit Card - Cannot equal one space

Field Name	Max Length	Req'd	Comments/Format
CardNumber	19	No	• Numeric only • Must pass Mod 10 check • Must be a valid credit/ATM Debit card number for the card type
ExpDate	4	No	• "YYMM" • Must be a valid date that is not in the past
BankRTN	9	No	• Numeric only • Must pass Mod 10 check • Must be a valid RTN in the Federal Reserve Routing database
BankAccountNumber	17	No	Cannot contain special or control characters. If spaces are entered in the bank account number, E-Payment Service removes the spaces before the data is loaded in the database.
BankAccountType	1	No	• "C" = checking • "S" = savings
BankAccountCategory	1	No	• "C" = consumer • "B" = business

9.5.18 Stop Recurring Payment Record (Detail Record)

Field Name	Max Length	Req'd	Comments/Format
RecordType	20	Yes	"StopRecurringPayment"
UserID	16	Yes	UserID must already exist
BillerProductCode	32	Yes	BillerProductCode must already exist for Biller
RecurringReferenceID	15	Yes	Recurring Reference ID for the payment to be stopped

9.5.19 Extend User Record (Version 4.0 Only)

Field Name	Max Length	Reqd.	Field Validations
RecordType	17	Yes	Must equal 'ExtendUserProfile'
ExistingUserID	16	Yes	• Validate as alphanumeric, no special or

Field Name	Max Length	Reqd.	Field Validations
			control characters • Cannot have space/spaces
NewUserID	16	Yes	• If ProcessingMode = 'I', validate as numeric only • If ProcessingMode = 'W', validate as alphanumeric, no special or control characters • Cannot have space/spaces
Password	16	Yes, if Processing Mode = "W" or if Processing Mode = "I" and both IVR and Web are enabled	• If ProcessingMode= "W" OR "I" and Web is enabled, must be alphanumeric with at least one number and one letter and at least 8 characters long. Special and control characters are allowed but not required. • If ProcessingMode = "I" and biller is IVR only, the PIN must be entered in the PIN field. • Cannot equal a space.
FirstName	30	No	• Must have at least one letter. • Cannot equal a space • Alphanumeric, special and control characters are allowed
LastName	30	No	• Must have at least one letter • Cannot equal a space • Alphanumeric, special and control characters are allowed.
CompanyName	30	No	If value is entered: • Must have at least one letter • Cannot equal a space • Alphanumeric, special and control characters are allowed.
StreetAddress1	50	No	If value provided:

Field Name	Max Length	Reqd.	Field Validations
			• Must have at least one letter
			• Cannot equal a space
			• Alphanumeric, special and control characters are allowed
			• If City, State, ZipCode5/ ZipPostalCode, and Country are provided then this field is required
StreetAddress2	50	No	• Alphanumeric, special and control characters are allowed
			• StreetAddress2 can only a contain a value if StreetAddress1, City, State, ZipCode5/ ZipPostalCode, and Country all contain values in the file
City	30	No	If value provided:
			• Must have at least one letter
			• Cannot equal a space
			• Alphanumeric, special and control characters are allowed.
			• If StreetAddress1, State, ZipCode5/ ZipPostalCode, and Country are provided then this field is required.
State	40	No	• If Country is US, must be valid state code and max length =2.
			• If international allow only numbers, letters hyphens, single spaces, apostrophes, commas, periods and parentheses.
ZipPostCode	12	No	• If Country is US, must follow standard US zip format and be 5 digits only.
			• If Country is not US, then only allow numbers, letters, hyphens, single spaces and periods. Cannot be single space/all spaces.
			• If StreetAddress1, City, State and Country are provided then this field is required

Field Name	Max Length	Reqd.	Field Validations
ZipCode4	4	No	• If Country is US and contains a value, value must be numeric only and must be four digits. • ZipCode4 can only a contain a value if StreetAddress1, City, State, ZipCode5/ ZipPostalCode, and Country all contain values in the file • If Country is not US, then ignore value
Country	2	Yes	• N/A
PhoneNumber	20	No	• Cannot equal a space • If Country is US, must have 10 digits If Country is not US, Alphanumeric and special characters (numbers, hyphens, single spaces, parentheses and periods) are allowed. Cannot be single space/all spaces.
EmailAddress	256	No	• Allowable characters include: "!" "#" "$" "%" "&" "'" "*" "+" "-" "/" "=" "?" "^" "_" "`" "{" "|" "}" "~" • All other characters are not allowed
SharedSecretQuestion	25	No	• Must contain a value if Shared Secret Response is populated • Cannot equal a space
SharedSecretResponse	20	No	• Must contain a value if Shared Secret Question is populated • Cannot equal a space • Alphanumeric, special and control characters are allowed
MoveScheduledPayments	1	Yes	• Must equal "Y" • "N" is not currently allowed but may be used in the future
Disable ExistingUser	1	Yes	• Must equal "Y" • "N" is not currently allowed but may be used in the future

Field Name	Max Length	Reqd.	Field Validations
PIN	16	No	If ProcessingMode = "I", numeric only and at least 4 digits long.

9.5.20 Update Biller Product Account Info (Detail Record)

Field Name	Data Type	Max Length	Req'd	Comment/Format
RecordType	Alpha	20	Yes	Must equal 'UpdateBillerPrductAccountInfo'
BillerProductCode	A/N	32	Yes	BillerProductCode must already exist for this biller
BillerProductAccountNumber	A/N	TBD	Yes	Can only contain numbers, letters, dashes, underscores spaces, ( ) #
ExtraIdentityinformation	A/N	TBD	No	Can only contain numbers, letters, dashes, underscores spaces, ( ) #
AmountDue	Num	8	No	Amount is invalid or negative
DueDate	Num	8	No	Date must be in proper format, be an actual date, and not exist in the past

9.5.21 Delete Biller Product Account Info (Detail Record)

Field Name	Data Type	Max Length	Req'd	Comment/Format
RecordType	Alpha	20	Yes	Must equal 'DeleteBillerPrductAccountInfo'
BillerProductCode	A/N	32	Yes	BillerProductCode must already exist for this biller
BillerProductAccountNumber	A/N	TBD	Yes	Can only contain numbers, letters, dashes, underscores spaces, ( ) #

9.5.22 Trailer Record

Field Name	Max Length	Req'd	Comments/Format
RecordType	7	Yes	"Trailer"
AddUserProfileRecordCount	7	Yes	Count of Add New User records, zero (0) if no records
UpdateUserProfileRecordCount	7	Yes	Count of Update Existing User records, zero (0) if no records
DeleteUserProfileRecordCount	7	Yes	Count of Delete Existing User records, zero (0) if no records
UpdateAuthorizedProductRecordCount	7	Yes	Count of Update Authorized Product records, zero (0) if no records
DeleteAuthorizedProduct	7	Yes	Count of Delete Authorized Product records, zero (0) if no records.

Field Name	Max Length	Req'd	Comments/Format
AddPaymentInfoRecordCount	7	Yes	Count of Add payment info records, zero (0) if no records
UpdatePaymentInfoRecordCount	7	Yes	Count of Update Payment Info records, zero (0) if no records
AddBankAccountRecordCount	7	Yes	Count of Add Bank Account Details records, zero (0) if no records
UpdateBankAccountRecordCount	7	Yes	Count of Update Bank Account Details records, zero (0) if no records
AddCreditCardRecordCount	7	Yes	Count of Add Credit Card Account Details records, zero (0) if no records
UpdateCreditCardRecordCount	7	Yes	Count of Update Credit Card Account Details records, zero (0) if no records
AddProductParameterRecordCount	7	Yes	Count of Add Product Parameter Details records, zero (0) if no records
UpdateProductParameterRecordCount	7	Yes	Count of Update Product Parameter Details records, zero (0) if no records
DeleteProductParameterRecordCount	7	Yes	Count of Delete Product Parameter Details records, zero (0) if no records
AddRecurringPayment	7	Yes	Count of Add Recurring Payment records, zero (0) if no records
UpdateRecurringPayment	7	Yes	Count of Update Recurring Payment records, zero (0) if no records
DeleteRecurringPayment	7	Yes	Count of Delete Recurring Payment records, zero (0) if no records
ExtendUserProfile	7	Yes	Count of Extend User Profile Records, zero (0) if no records Must equal the total counted number of 'ExtendUserProfile' record types in the file
UpdateBillerProductAccountInfo	Num	7	Yes
DeleteBillerProductAccountInfo	Num	7	Yes
AddBillPresentmentEnrollment	7	Yes	Count of add bill presentment reocrds. Must equal the total counted number of 'AddBillPresentmentEnrollment' record types in the file.
UpdateBillPresentmentEnrollment	7	Yes	Count of Update Bill Presentment Enrollment records. Must equal the total counted number of 'UpdateBillPresentmentEnrollment' record types in the file.

Field Name	Max Length	Req'd	Comments/Format
Future Use5 – This position is reserved for future use	7	Yes	Must be equal to "0"
Future Use6 – This position is reserved for future use	7	Yes	Must be equal to "0"
Future Use7 – This position is reserved for future use	7	Yes	Must be equal to "0"
Future Use8 – This position is reserved for future use	7	Yes	Must be equal to "0"
Future Use9 – This position is reserved for future use	7	Yes	Must be equal to "0"
Future Use10 – This position is reserved for future use	7	Yes	Must be equal to "0"

Chapter 10:   Pre-Registration Response File

Once a Pre-Registration File is processed, a Pre-Registration Response File is generated by E-Payment Service and sent to the Biller. The response file indicates either a total success or specifies records that have been rejected and their associated reject reason codes as described below.

10.0 Schedule

This file is generated and sent each time a Pre-Registration file is processed by E-Payment Service.

10.1 Format

The file is sent in ASCII comma-delimited (CSV) variable-length format.

10.2 Naming Convention

The default file name is <Biller Group Abbreviation>_<Biller Abbreviation>_Pre_Reg_Resp.csv

10.3 Processing

If an error is encountered while processing a record, the application will continue to perform validations on the record to determine if there are any additional errors. Therefore, you may receive multiple errors for a single record.

10.4 File Layout

10.4.1 Header Record

Field Name	Max Length	Req'd	Comments/Format
RecordType	6	Yes	"Header"
VersionNumber	4	No	"4.0"
FileID	32	Yes	"E Payment Pre Reg Response"
DateFileSent	8	Yes	YYYYMMDD
BillerGroupID	3	Yes	Biller Group ID
BillerID	3	Yes	Biller ID

10.4.2 Detail Record

Field Name	Max Length	Req'd	Comments/Format
RecordType	23	Yes	If successful file load (zero errors), the value is "TotalSuccess"
			If a record is rejected, the value corresponds to the rejected record:
			• "AddUserProfile"
			• "UpdateUserProfile"
			• "DeleteUserProfile"
			• "UpdateAuthorizedProduct"
			• "DeleteAuthorizedProduct"
			• "AddPaymentInfo"
			• "UpdatePaymentInfo"
			• "AddBankAccount"
			• "UpdateBankAccount"
			• "AddCreditCard"
			• "UpdateCreditCard"
			• "AddProductParameter"
			• "UpdateProductParameter"
			• "DeleteProductParameter"
			• 'AddRecurringPayment'
			• 'UpdateRecurringPayment'
			• 'StopRecurringPayment'
			• 'UpdateBillerProductAccountInfo'
			• 'DeleteBillerProductAccountInfo'
			• 'ExtendUserProfile'
			• 'AddBillPresentmentEnrollment'
			• 'UpdateBillPresentmentEnrollment'

Field Name	Max Length	Req'd	Comments/Format
UserID	16	No	• If entire file loaded successfully, field will not be populated • If a record is rejected, field will contain the User ID from the rejected record
ReasonCode	4	Yes	• If entire file loaded successfully, field will contain the corresponding Success Code ('S000') • If a record is rejected, field will be populated with the appropriate reject Reason Code
ReasonDescription	50	No	• If entire file loaded successfully, field will contain the corresponding Success Description ('Successful Load'). • If a record is rejected, field will be populated with the appropriate reject Reason Description
IncomingRecord	Unlimited	Yes	• The entire incoming record after the following masking edits have been performed. • Mask password and shared secret response fields with all *****'s. • Mask bank account and credit card numbers with 13 ****'s and display last 4 digits. • The double quotes around each individual field in the original incoming record will be removed. • The entire incoming record will be enclosed by double quotes, making the entire incoming record a single field in the Response File Detail Record. • This field will be blank for Reason Code R060 – Invalid Record Type. This is necessary because E-Payment Service will not be able to perform the appropriate masking

10.4.3 Summary Record

Field Name	Max Length	Req'd	Comments/Format
RecordType	50	Yes	Summary record types: • 'AddUserProfileSummary' • 'UpdateUserProfileSummary' • 'DeleteUserProfileSummary' • 'UpdateAuthorizedProductSummary' • 'DeleteAuthorizedProductSummary' • 'AddPaymentInfoSummary' • 'UpdatePaymentInfoSummary' • 'AddBankAccountSummary' • 'UpdateBankAccountSummary' • 'AddCreditCardSummary' • 'UpdateCreditCardSummary' • 'AddProductParameterSummary' • 'UpdateProductParameterSummary' • 'DeleteProductParameterSummary' • 'AddRecurringPaymentSummary' • 'UpdateRecurringPaymentSummary' • 'StopRecurringPaymentSummary' • 'UpdateBillerProductAccountInfo' • 'DeleteBillerProductAccountInfo' • 'ExtendUserProfile' • 'AddBillPresentmentEnrollment' • 'UpdateBillPresentmentEnrollment'
RecordCountSuccess	7	Yes	Total number of successful records, based on record type
RecordCountReject	7	Yes	Total number of rejected records, based on record type

10.4.4. Trailer Record

Field Name	Max Length	Req'd	Comments/Format
Trailer Indicator	7	Yes	"Trailer"
DetailRecordCount	7	Yes	Count of Detail records written to the Response File
SummaryRecordCount	7	Yes	Count of Summary records written to the Response File

NOTE: If all rows from the Pre-Registration File are loaded successfully, there will be one detail row containing the success code. In this situation, the trailer record success count will be 1, and all reject counts will be 0.

10.5 Response Codes

Code	Reason Description	Condition
S000	Successful Load	File loaded successfully
R010	Invalid UserID	User ID is missing or contains invalid data
R012	Invalid Password	Password is missing or contains invalid data
R013	Invalid First or Last Name	First Name or Last Name are missing, or contain invalid data.
R014	Invalid Street Address 1	Street Address 1 is missing or contains invalid data
R015	Invalid City	City is missing or contains invalid data
R016	Invalid Zip 5	Zip 5 is missing or contains invalid data
R017	Invalid Zip 4	Zip 4 contains invalid data
R018	Invalid Phone	Phone is missing or contains invalid data
R019	Invalid Email Address	Email Address contains invalid data
R020	Invalid Shared Secret	One of the two Shared Secret fields is missing or contains invalid data
R021	Invalid State Code	State Code does not exist on the state_code table
R022	Delete User has Pending Payments	The user to be deleted from the database has pending payments. Cannot delete
R023	Invalid Company Name	Company Name contains invalid data
R024	Invalid Street Address 2	Street Address 2 contains invalid data
R025	Delete User has Active Recurring Payment	The user to be deleted from the database has active recurring payments. Cannot delete.
R030	Invalid Biller Product Code	Biller Product Code not found in Biller product table
R031	Invalid Due Date	Due Date is invalid
R032	Invalid Amount Due	Amount Due is invalid or is negative

Code	Reason Description	Condition
R033	Missing both Due Date and Amount Due	Record is missing both the Due Date and the Account Due fields
R034	Malformed Record	Record format is invalid Format is not consistent with the requirements
R035	UserID Not Found	User ID not found in Biller_user.Biller_user_id
R036	Incomplete Billing Address	At least one, but not all of the following fields contained values: StreetAddress1, City, State, ZipCode5
R037	BankRTN Requires Numerics	BankRTN requires numerics only
R038	BankRTN Must Pass Mod 10 Check.	BankRTN must pass mod-10 check
R039	BankRTN Not Found in Thomson Reference.	BankRTN must exist in Federal Reserve E-Payments Routing Directory
R042	Invalid Account Number	Account number cannot contain special or control characters
R043	Invalid Account Type	Must be a valid account type in the ACCOUNT_TYPE table
R044	Invalid Account Category	Must be a valid account category
R045	Invalid Card Type	Must be a valid card type
R046	CardNumber Requires Numerics	CardNumber requires numerics only.
R047	CardNumber Must Pass Mod 10 Check.	CardNumber must pass mod 10 check.
R048	CardNumber Contains Invalid Prefix	CardNumber's first x digits must be valid
R049	Invalid ExpDate	ExpDate must be in the format of "YYMM"
R051	Expired ExpDate	ExpDate must not be in the past
R064	Parameter Name not found	Parameter Name is not a valid parameter
R065	Parameter Name is Not a Pass Type Parameter	Parameter Name is not a pass type product parameter
R066	ParameterValue is Invalid Length	ParameterValue length must be between or equal to the data length minimum and data length maximum defined during Biller setup
R067	ProductCode, ParameterName, and UserId Combination Not Found	ProductCode, ParameterName, and UserId combination is not found in the PAYMENT_PARAMETERS table and cannot be deleted
R068	Password Cannot Be Less Than four Digits	Password must be at least four digits long for 'I' type ProcessingMode records
R069	Password Cannot Be Less Than six Characters	Password must be at least six characters long for 'W' type ProcessingMode records
R070	Account Is Invalid For Payments and Cannot Be Updated	The bank account has been determined by the bank to be invalid and is not available for updates

Code	Reason Description	Condition
R071	Bank Account Already Exists	The bank account already exists and, consequently, cannot be added
R072	Credit Card Already Exists	The credit card already exists and, consequently, cannot be added
R073	Product Parameter Already Exists	The product parameter already exists and, consequently, cannot be added
R074	Missing Parameter Value	ParameterValue is missing
R075	Missing Parameter Name	ParameterName is missing
R076	User Already Exists	AddUserProfile record already exists in database
R077	Authorized Product Already Exists for User	Authorized Product already exists for this User
R080	Authorized Product Not Found for User	Authorized Product cannot be found for this User and, consequently, cannot be deleted
R081	User Already Has Payment Info for Product	User already has payment info for this product, and, consequently, cannot be added
R082	Parameter Value Cannot Be Cleared	Parameter Value cannot be cleared.
R083	Field Value is Too Long	Field Value is Too Long.
R084	All Values Must Be Contained Within Double Quotes	All values supplied, even a single space, must be contained within double quotes
R085	Database error encountered	A database error occurred while trying to update or insert the record data into the database.
R086	Missing RecordType	RecordType is a required field, but did not contain a value
R087	Missing State	State is a required field, but did not contain a value
R088	Missing BillerProductCode	BillerProductCode is a required field, but did not contain a value
R090	Missing BankRTN	BankRTN is a required field, but did not contain a value
R091	Missing AccountNumber	AccountNumber is a required field, but did not contain a value
R092	Missing AccountType	AccountType is a required field, but did not contain a value
R093	Missing AccountCategory	AccountCategory is a required field, but did not contain a value
R094	Missing CardType	CardType is a required field, but did not contain a value
R095	Missing CardNumber	CardNumber is a required field, but did not contain a value
R096	Missing ExpDate	ExpDate is a required field, but did not contain a value
R097	StreetAddress2 Cannot Contain a Value	On an add, StreetAddress2 can only contain a value if StreetAddress1, City, State, and ZipCode5 all contain values in the file

On an update, StreetAddress2 can only a contain a value if StreetAddress1, City, State, and ZipCode5 all contain values in |

Code	Reason Description	Condition
		the file or StreetAddress1, City, State, and ZipCode5 all contain values in the database
R098	ZipCode4 Cannot Contain a Value	On an add, ZipCode4 can only contain a value if StreetAddress1, City, State, and ZipCode5 all contain values in the file
		On an update, ZipCode4 can only a contain a value if StreetAddress1, City, State, and ZipCode5 all contain values in the file or StreetAddress1, City, State, and ZipCode5 all contain values in the database
R099	Multiple Spaces are Not Allowed	Multiple spaces are not allowed in this field
R100	Missing Duration	Payment Duration indicator is a required field and was missing or invalid
R101	Invalid Payment Amount Type	Payment Amount Type is a required field and was missing or invalid
R102	Missing Payment Method	Payment Method indicator is a required field and was missing or invalid
R103	Missing Frequency	Frequency is a required field and was missing or invalid
R104	Invalid Payment Date	The First Payment Date is missing or invalid or cannot be provided with given Frequency
R105	Invalid Day of Month First Payment	The Day of Month First Payment is missing, invalid, is not less than the Day Of Month Second Payment, does not equal the "days" portion of the First/Next Payment Date, or cannot be provided with given Frequency
R106	Invalid Day of Month Second Payment	The Day of Month Second Payment is missing, invalid, is not greater than the Day of Month First Payment, or cannot be provided with given Frequency
R107	Invalid Recurring Payment Expiration Date	Recurring Payment Expiration Date is missing, invalid or cannot be provided with given Duration
R108	Invalid Number of Recurring Payments	The Number of Recurring Payments is missing or invalid or cannot be provided with given Duration
		Number of Recurring Payments must be greater than 1
R109	Invalid Payment Amount	The Payment Amount is missing, invalid or was provided for Variable Payments
R112	Due Date must be in the Future.	The Due Date minus the Number of Days Before Due Date cannot be in the past or equal to the Current Date.
R113	Invalid NumDaysBefore	The Number of Days Before Due Date cannot be greater than the maximum days before the due date and cannot be provided for Fixed Amount payments
		The Number of Days Before Value must be an integer numeric, 0 or greater
R115	RecurringReferenceID not Found.	The Recurring Payment could not be found in the Recurring Payment Table
R116	Product Parameter not Found	A "Pass" type Product Parameter is required for the Recurring

Code	Reason Description	Condition
		Payment
R117	Version number missing, not correct or not active	The file version number is missing, not correct or not active and, consequently, the file cannot be read
R118	Recurring Payment Record already exists.	Recurring Payment Record already exists and cannot be added
R119	Email Required for Recurring Payments	A valid email address is required when adding Recurring Payments
R120	Recurring Payment Credit Card to Expire	The Recurring Payment Credit Card will expire before the first payment date
R121	Field Count Mismatch	Field Count Mismatch
R122	Nickname Field in error	Nickname Field in error
R123	Account number missing or invalid	Account number is missing, has an invalid length or contains special or control characters
R124	Street Address 2 length error	Street Address 2 length error
R125	Last Name In Error	Last Name In Error
R126	Shared Secret answer in error	Shared Secret answer in error
R127	Both Amount Due and Due Date must be present	Both Amount Due and Due Date must be present for Variable Amount Recurring Payment Biller
R128	Product does not allow this type of Recurring Payments	The Biller setup for a product does not allow this type of recurring payments
R129	Registered Payer not found	Payer could not be found as a Registered Payer
R130	More than one Recurring Payment	More than one Variable Recurring Payments was found.
R131	Cannot change between Installment and VARP	A Recurring Payment cannot be changed from an Installment Payment to a Variable Recurring Payment
R132	Recurring Payment not active	A Recurring Payment is found, but not active
R133	Payment Processing Date after Expiration Date	The Payment Processing Date must occur on or before the Payment Expiration Date
R134	An international state / province / region may only contain numbers, letters, and select special characters	If country is not US, the only values accepted are numbers, letters, hyphens, single spaces, apostrophes, commas, periods and parentheses
R135	State value must be a valid state when the country is US	If the country is US, the value must be either a state code or state name
R138	An international postal code may contain numbers, letters and select special characters	If country is not US, the Postal Code can only contain the following values: numbers, letters, hyphens, single spaces and periods
R139	Invalid Country	Country could not be found in the country code table
R140	Country did not contain a value	Country is a required field, but did not contain a value

Code	Reason Description	Condition
R141	Phone number may contain numbers, letters and select special characters	If country is not US, the phone number can only contain the following special characters: numbers, hyphens, single spaces, parentheses and periods
R142	ATM Debit card number not between 16 – 19 digits	ATM Debit card number must be between 16 – 19 digits in length
R143	ATM Debit card number invalid	ATM Debit card number must pass BIN file validation
R145	Extend user profile = N	Must equal 'Y' for moving payments. 'N' is not currently all owed but may be used in the future.
R146	Extend user profile = N	"Must equal 'Y' for disabling existing user. 'N' is not currently allowed but may be used in the future."
R147	International Country Code	Country Code must be US because setup does not allow International Addresses.
R148	Biller Product Account empty	Biller Product Account number is empty
R149	Invalid DeleteUserProfile	"DeleteUserProfile found in the same file as update/add user info."
R150	Invalid payer	Invalid payer
R151	Not a pre-registered payer	Payer is not pre-registered
R152	Invalid product	Product does not support Bill Presentment
R153	Bill Repository ID length error	Bill Repository ID length maximum is 30 characters.
R154	Invalid Bill Repository ID	Invalid Bill Repository ID
R155	Bill Presentment Enrollment Status length error	Bill Presentment Enrollment Status length error
R156	Invalid Bill Presentment Enrollment Status	Invalid Bill Presentment Enrollment Status
R157	Payer does not exist	The payer does not exist
R158	Payer is already enrolled in Bill Presentment	Payer is already enrolled in Bill Presentment
R159	Payer is not enrolled in Bill Presentment (for use with updates only)	Payer is not enrolled in Bill Presentment (for use with updates only)
R160	Bill Repository ID 2 length error	Bill Repository ID length maximum is 30 characters.
R161	Bill Repository ID 3 length error	Bill Repository ID length maximum is 30 characters.
R162	Bill Repository ID 4 length error	Bill Repository ID length maximum is 30 characters.
R163	Bill Repository ID 5 length error	Bill Repository ID length maximum is 30 characters.
R164	Invalid Bill Repository ID 2	Invalid Bill Repository ID 2
R165	Invalid Bill Repository ID 3	Invalid Bill Repository ID 3

Code	Reason Description	Condition
R166	Invalid Bill Repository ID 4	Invalid Bill Repository ID 4
R167	Invalid Bill Repository ID 5	Invalid Bill Repository ID 5
R168	Pay by phone PIN must be present	No PIN in record when the files rocessing mode is "I"
R169	Password cannot be less then 8 characters	Password is less then 8 characters
R170	Invalid pay by phone PIN	PIN does not contain 4 - 16 numeric digits
R171	Pay by phone PIN cannot be less then 4 digits	PIN is less then 4 characters
R172	Password cannot be the same as UserID	Password is the same as the UserID
R173	Pay by phone PIN cannot be the same as UserID	PIN is the same as the UserID
R174	Password cannot be less then 4 characters	Password is less than 4 characters

10.6 Pre-Registration File Warning Reason Codes

Reason Code	Reason Description	Condition
W010	Due Date must be in the Future	The Due Date minus the Max Number of Days Before Due Date cannot be in the past or equal to the Current Date. The record has been accepted, but the Recurring Payment setup was not updated with payment information.
W011	Due Date must be in the Future	The Due Date minus the Number of Days Before Due Date cannot be in the past or equal to the Current Date. The record has been accepted, but the Recurring Payment was set up without a Due Date and an Amount Due.
W012	More than one Recurring Payments	More than one Variable Recurring Payments was found. The record has been accepted, but no Recurring Payments were updated with payment information.
W013	Processing Date after Payment Expiration Date	The Processing Date for this payment is after Recurring Payment Expiration Date. The record has been accepted, but no Recurring Payments were updated with payment information.

10.7 Acceptable Shared Secret Question Values

Shared Secret Value	Shared Secret Question
MOTHER	What is your mother's maiden name?
FATHER	What is your father's middle name?
CITY	In what city were you born?
PET	What is your favorite pet's name?
STREET	What is the name of the street you grew up on?

Shared Secret Value	Shared Secret Question
SCHOOL	What was the name of your first school?
TEACHER	Who was your favorite teacher?
TEAM	What is your favorite sports team?
ZIPCODE	What is your zip code?
AUTH	What is your authorization number?

Chapter 11:   Real-Time Authorization & Registration (RTAR)

11.0 Overview

E-Payment Service allows billers to authorize and/or register payers to the service in real-time when the payer submits a login attempt to E-Payment Service via the Customer Payment Site or the Integrated Voice Response (IVR) system. When the payer attempts to log in, E-Payment Service sends an encrypted message to the biller, and the biller replies with an encrypted response message.

11.1 Process

The RTAR process for an online payment works as follows:

1. Payers are transferred from the biller's website via session transfer to E-Payment Service where they will enter their login credentials as defined by the biller (EX: utility account number & billing zip code).
    Note: Payers can also access E-Payment Service through the IVR where if RTAR is enabled the payer will be authenticated using the same process.
2. E-Payment Service will send an authorization request message to the biller at a destination address specified during the implementation process. This request message will be distributed via HTTPS to the distribution address in E-Payment Service.
3. The biller will generate a response message to E-Payment Service with instructions either to allow or not allow the payer to complete the login process. The payment site Welcome/Login page customization may allow the biller to define any additional instructions to the payer. The response message may also include new user registration information or updates to an existing payer's profile and/or payment details.
4. In the event a payer is restricted from completing the login process, the biller may define a custom "error" message to be displayed to the payer at the E-Pay Welcome/Login page that provides additional instructions about how to continue. Payers are given three login attempts before this message displays. The response message "NOT_AUTHENTICATED_NO_LOGIN" can be used to prevent the payer from having additional login attempts and display this message immediately.

11.2 Processing

RTAR is set up at the biller level. If RTAR is enabled for a biller, all payments channels will be set up to use RTAR including payments made on the Customer Payment site or via the IVR.

The RTAR message is sent over the Internet via https. In order to receive the message:
> The Biller must open their firewall to the following IP addresses:

> − 170.135.241.45

> − 170.135.176.108

> The Biller must open the appropriate port:

> − Port 443 for https

- The Biller must provide the complete path during implementation, including IP address and sub-directories for the server accepting the message (this is included in the Implementation Questionnaire)
    - **For https**, the URL name associated with the certificate is required in the path name (i.e. https://www.biller.url/echeck/payments)

11.3 Certificate & Token

U.S. Bank uses X.509 certificates to ensure proper authentication. Billers who use RTAR will need to create and provide U.S. Bank with an X.509 public certificate. Detailed information on the certificate can be found in section 3.4.

A secure token will be generated in E-Payment Service and provided to the biller. This token will be sent by E-Payment Service with the authorization requests to the biller. It is recommended that the biller uses the token to verify that the sender of the request is E-Payment Service.

11.4 Sample Request Message

The below example shows a sample RTAR request sent by E-Payment Service.

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>

<RtarRequest xmlns="http://www.usbank.com/epayments/epaymessage/schemas/rtarmessage">

        <requestID>RTAR1231672984990</requestID>

        <epayToken>8WTKgbcqB3QyrI2R9cWMy+153DKtend/8PkPyPt6Qw6W88OKCIsdmQ==</epayToken>

        <userID>testuser1234</userID>

        <password>testpassword1</password>

        <existingUser>N</existingUser>

</RtarRequest>

11.5 Sample Response Message

The below example shows a sample RTAR response message. This would be sent from the biller to E-Payment Service after an authentication request was received to validate the payer. This example includes registration information for the payer.

<?xml version="1.0" encoding="UTF-8" ?>
<rm:RtarResponse xmlns:rm="http://www.usbank.com/epayments/epaymessage/schemas/rtarmessage">
  <rm:requestID>RTAR1231672984990</rm:requestID>
  <rm:match>AUTHENTICATED</rm:match>
  <rm:user>
    <userID>testuser1234</userID>
    <password>testpassword1</password>

     <payByPhonePIN>1234567<payByPhonePIN>
    <contactInformation>
     <firstName>Boggs</firstName>

```
        <lastName>Wade</lastName>
        <companyName>US Bank</companyName>
        <phoneNumber>3121231234</phoneNumber>
        <emailAddress>epayemail@usbank.com</emailAddress>
        <address>
            <streetAddress1>1111 Main St</streetAddress1>
            <streetAddress2>suit 22</streetAddress2>
            <city>Chicago</city>
            <state>IL</state>
            <zipPostalCode>60606</zipPostalCode>
            <country>US</country>
        </address>
    </contactInformation>
    <sharedSecretType>TEAM</sharedSecretType>
    <sharedSecretAnswer>BULLS</sharedSecretAnswer>
  </rm:user>
  <rm:updatePaymInfo>
    <rm:paymentInfo>
        <productCode>14141</productCode>
        <dueDate>2011-09-24</dueDate>
        <amountDue>99.99</amountDue>
    </rm:paymentInfo>
    <rm:paymentInfo>
        <productCode>41414</productCode>
        <dueDate>2011-10-10</dueDate>
        <amountDue>1234.45</amountDue>
    </rm:paymentInfo>
  </rm:updatePaymInfo>
</rm:RtarResponse>
```

The below RTAR Response example shows an authentication with no payer information:

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- after an Add User, upload this xml -->
<rm:RtarResponse xmlns:rm="http://www.usbank.com/epayments/epaymessage/schemas/rtarmessage" >
<rm:requestID>12743926119788044</rm:requestID>
<rm:match>AUTHENTICATED</rm:match>
</rm:RtarResponse>
```

11.6 Field Definitions

11.6.1 RTAR Request Message

The field definitions for RTAR messages are included in the below table. The RTAR XSD contains detailed definitions of each message type and can be downloaded from the E-Payment Service Administrative Site. The element name can be used to reference the message type in the XSD spec.

Field Name	Type	Length	Default	Req'd	Validations	Comments
Element Name: RTARRequest						
RequestID	Text	19	None	Yes		

Field Name	Type	Length	Default	Req'd	Validations	Comments
Element Name: RTARRequest						
UserID	Text	16	None	Yes	1, 8, 9	
UserPassword	Alphanumeric or Numeric	16	None	Yes	1, 10, 11,12	This field can contain either the password or the PayByPhonePIN. If IVR only, should contain the PIN. NOTE: The <password><password> container will not change if sending PIN
User Exists	Text	1	None	Yes	1	Flag indicating if the user exists in the E-Payment Service database
EPay Token	Alphanumeric	32	None	Yes	N/A	

11.6.2 RTAR Response Message

Field Name	Type	Length	Default	Req'd	Validations	Comments
Element Name: RTARResponse. Element is required						
RequestID	Text	15	None	Yes		
Match Element	Text	26	None	Yes	1, 5	Valid Values are: • AUTHENTICATED • NOT_AUTHENTICATED • NOT_AUTHENTICATED_NO_LOGIN • GENERAL_FAILURE • MALFORMED_REQUEST
User Profile Information- For this section to be added or updated all required fields must exist and be valid, and all optional fields must be valid.						
Element Name: Add User or UpdateUser. Element is optional for RTAR response.						
UserID	Text	16	None	Yes	1, 8, 9	
UserPassword	Text	16	None	Yes, if Web is enabled	1, 10, 11,12	
PayByPhonePIN	Numeric	16	None	No if Web + IVR Yes, if IVR only	1, 10, 11,12	

Field Name	Type	Length	Default	Req'd	Validations	Comments
First Name	Text	30	None	Yes	1, 2, 3, 20	Allowed characters are the following: - Letters - Dashes - Spaces - Periods - Commas - Parentheses - Apostrophe
Last Name	Text	30	None	Yes	1, 2, 3, 20	Allowed characters are the following: - Letters - Dashes - Spaces - Periods - Commas - Parentheses - Apostrophe
Company Name	Text	30	None	No	4, 20	Allowed characters are the following: - All alphanumeric - Dashes - Spaces - Periods - Commas - Parentheses # and % - Apostrophe - Ampersand

Field Name	Type	Length	Default	Req'd	Validations	Comments
Street Address 1	Text	50	None	Yes	1, 3, 4,20	Allowed characters are the following: • All alphanumeric • Dashes • Spaces • Periods • Commas • Parentheses • # and %
Street Address 2	Text	50	None	No	20	Allowed characters are the following: • All alphanumeric • Dashes • Spaces • Periods • Commas • Parentheses • # and %
City	Text	30	None	Yes	1, 3, 4, 20	Allowed characters are the following: • All alpha • Dashes • Spaces • Periods • Commas • Parentheses

Field Name	Type	Length	Default	Req'd	Validations	Comments
State	Text	40	None	Yes	1, 17, 18	This field will use the state codes used in the E-Payment Service if Country is "US". If Country is not "US", the allowed characters are the following: • All alphanumeric • Spaces • Periods • Hyphens • Commas • Apostrophes
Zip Postal Code	Text	12	None	Yes	1, 14	
Country	Text	2	None	Yes	1, 15, 19	Refer to Country code in Appendix
Phone Number	Text	20	None	No	2, 20, 22, 23	If Country is not "US", the allowed characters are the following: • All alphanumeric • Numbers • Single Spaces • Hyphens • Parentheses • Periods • Commas
Email Address	Text	64	None	Depends on Biller Setup	1, 7	

Field Name	Type	Length	Default	Req'd	Validations	Comments
Shared Secret Question	Text	25	None	Yes	1, 28	Must contain one of the following values: • "MOTHER", • "FATHER", • "CITY", • "PET", • "STREET", • "SCHOOL", • "TEACHER", • "TEAM", • "ZIPCODE", • "AUTH"
Shared Secret Answer	Text	20	None	Yes	1, 29	Must contain at least one character
Product Information Section- For this section to be added or updated, all required fields must exist and be valid, and all optional fields must be valid.						
Element Name: Update Product Parameter Info. Element is optional for RTAR response.						
Biller Product Code	Text	32	None	Yes	24	File can contain multiple product codes.
Parameter Value	Text	50	None	Yes	27	File can contain multiple product parameters. User SSN, account number, credit card data, or other non-public information may not be sent in parameter value
Payment Information Section- For this section to be added or updated, all required fields must exist and be valid, and all optional fields must be valid.						
Element Name: Update Payment Info. Element is optional for RTAR response.						
Biller Product Code	Text	32	None	Yes	24	File can contain multiple product codes.
Amount Due	Text	8	None	Yes	22, 25	
Due Date	Text	10	None	Yes	26	

11.7 Error Handling Codes

#	Condition

#	Condition
1	Required Field
2	Cannot be all spaces
3	Must contain at least one letter
4	Cannot contain all numbers
5	Match Element must have a valid value
7	Email Address contains the minimum format of x@x.x where 'x' is at least one alpha-numeric value, including "-", ""_" or ".". Only one "@". No limits on "." as long as there is one after the "@".
8	Username must be unique within the biller group
9	User Username must be between 4 and 16 characters
10	If biller is web-only enabled, password must be between 6 and 12 characters, with at least one letter and one number
11	Password confirmation must match the first password
12	If biller is IVR-only, or Web and IVR-enabled, new password must be 4-16 characters in length, and must be numeric
14	If Country is US, the zip must follow standard US Format: five digit or nine digit zip. A nine digit zip may be nine digits, or five and four digits separated by a space or hyphen.
15	Country must be validated against the Country Value table
17	If Country is "US", state must be validated against the State Code or State Name field in the State Code table
18	If Country is not "US," field must use allowed characters
19	Country Code must be US because setup does not allow International Addresses
20	Field must use allowed characters
21	Street Address 2 can only contain data if StreetAddress1, City, State, and ZipCode5 all contain values in the message
22	Must be numeric
23	If Country is "US," must have 10 digits.
24	Biller Product Code must be a valid Biller Product Code
25	Amount Due must be a valid value
26	Date must be valid and format must be 'YYYYMMDD'
27	Parameter value must have valid length based on Biller Setup for parameter
28	Shared Secret Question must be a valid shared secret question
29	Invalid Secret Shared Answer

Chapter 12:   Recurring Payment Information File

12.0 Overview

The Recurring Payment Information file (RPIF) is generated for each Biller that has elected to receive the Recurring Payment Information file.

The file will contain:
- All Variable Amount Recurring Payments (VARP) where amount due and/or due date are missing
- All Recurring Payments Schedules that were created on the previous day:

  - Includes Installment and VARP
  - Includes schedules created by payers (via admin or public site) and Billers (via pre-registration file)
- All Recurring Payments that were edited on the previous day:

  - Includes Installment and VARP
  - Includes schedules created by payers (via admin or public site) and Billers (via pre-registration file)
  - Includes recurring payment reference ID for payment that was edited
  -
- All Recurring Payments that were stopped on the previous day:

  - Includes Installment and VARP
  - Includes schedules created by payers (via admin or public site) and Billers (via pre-registration file)
- The Recurring Payments Records will be grouped in the followed order:

  - All STARTS first (i.e. ADDs)
  - All EDITS
  - All STOPS

There are two versions of the RPIF. Details for Version 2 (V2) are provided below. Version 1 layouts are available upon request.

12.1 Schedule

Recurring Payment Information files will be generated every day at 9 a.m. CT. If there are no records in the file, E-Payment Service will generate a file containing a header record and a trailer record with valid counts and no detail records. The file is also available from the Administrative Site.

12.2 Format

The file will be offered in ASCII comma-delimited format.

12.3 Naming Convention

The default file name is:

<Biller Group Abbreviation>_<Biller Abbreviation>_
RECURRING_PAYMENT_INFO_V2_YYYY_MM_DD.csv

12.4 V2 Layout

12.4.1 Header Record

Field Name	Length	Required	Comments/Format
RecordIndicator	6	Yes	"Header"
Version Number	4	Yes	• XX.X = Biller's Recurring Payment Information File Version number • If Biller's Recurring Payment Information File version number chosen in Biller Setup is 2.0, the value in this file should be "2.0"
BillerGroupID	3	Yes	Biller Group ID
BillerID	3	Yes	Biller ID
FileIndicator	37	Yes	"Recurring Payment Information"
ProcessDate	8	Yes	YYYYMMDD System Date

12.4.2 Missing VARP Detail Record

Field Name	Length	Required	Comments Values
RecordIndicator	40	Yes	"Missing Recurring Payment Information"
RecurringReferenceID	15	Yes	The Recurring Reference ID from the recurring payments table
PreviousRecurringReferenceID	15	No	The Previous Reference ID from the recurring payments table for this recurring reference id
UserID	16	Yes	The Biller User ID from the recurring payments table for this recurring reference id
BillerProductCode	32	Yes	The Product Code from the recurring payments table for this recurring reference id

Field Name	Length	Required	Comments Values
AmountDueNeeded	3	Yes	• Indicates if an amount due is needed for this recurring payment • If the payment amount is null, populate with "Yes" • Otherwise populate with "No"
DueDateNeeded	3	Yes	• Indicates if a due date is needed for this recurring payment • If next payment date is null, populate with "Yes" • Otherwise, populate with "No"

12.4.3 Recurring Payment Setup Record

Please note * indicates the field is for Version 2 only.

Field Name	Length	Required	Comments/Format
RecordIndicator	40	Yes	"New Recurring Payment Information"
RecurringReferenceID	15	Yes	The Recurring Reference ID from the recurring payments table
PreviousRecurringReferenceID	15	No	The Replaces Recurring Reference ID from the recurring payments table Required if the recurring payment was edited *V2 only
UserId		Yes	Add User from Add Tag from the recurring payment table
BillerProductCode	32	Yes	Biller Product Code from recurring payment table
PaymentMethod	3	Yes	Valid values: • ACH • CC • ATM

Field Name	Length	Required	Comments/Format
PaymentChannel	3	Yes	Valid values: • IVR • WEB • ADMIN Note: ADMIN is derived when payment_channel = CSR
PaymentAmount	16	Yes	Payment Amount
ConvenienceFee	16	Yes	Convenience Fee
FirstScheduledPaymentDate	7	Yes	Next Payment Date if available
AmountDue	16	Yes	Amount Due if available
OriginalDueDate		Yes	Original Due Date
TransactionMode	5	Yes	Valid Values: • START • EDIT • STOP
Frequency	13	Yes	Valid Values: • WEEKLY • BI_WEEKLY • TWICE_MONTHLY • MONTHLY • BI_MONTHLY • QUARTERLY • DUE_DATE • CUSTOM
DayOfMonthFirstPayment	22	Yes	• Required if frequency is twice per month • Day of Month 1st Payment
DayOfMonthSecondPayment	22	Yes	• Required if frequency is twice per month • Day of Month 2nd Payment

Field Name	Length	Required	Comments/Format
Remaining Payments	22	Yes	Required if: • No Expiration Date is available OR • Duration is EndOnDate or NumberPayments • Remaining Payments
ExpirationDate	7	Yes	Required if: • There are no more Remaining Payments (i.e., Remaining Payments = 0) OR • Duration is EndOnDate or NumberPayments • Expiration Date.
Duration	22	Yes	Valid Values: • EndOnDate • NumberPayments • ContinueUntilCancelled
Payment Amount Type	8	Yes	Valid Values: • Fixed • Variable
Number of Days Before	22	Yes	• Required for Variable Payments • Number of Days Before Due
Status	4	Yes	Valid Values: • 'ACTV' for Active Recurring Payments • STOP' for Stopped Recurring Payments • REPL' for Edited Recurring Payments *V2 only
Last Updated User	16	Yes	The user or admin name will appear who last updated the recurring payment. If the recurring payment was updated through a Pre-Reg File, the value of 'PreRegFile' will appear. *V2 only
Placeholder 1	20	No	This field is a placeholder for future enhancements. *V2 only

Field Name	Length	Required	Comments/Format
Placeholder 2	20	No	This field is a placeholder for future enhancements. *V2 only
Placeholder 3	20	No	This field is a placeholder for future enhancements. *V2 only
Placeholder 4	20	No	This field is a placeholder for future enhancements. *V2 only
Placeholder 5	20	No	This field is a placeholder for future enhancements. *V2 only
Placeholder 6	80	No	This field is a placeholder for future enhancements. *V2 only
Placeholder 7	80	No	This field is a placeholder for future enhancements. *V2 only
Placeholder 8	80	No	This field is a placeholder for future enhancements. *V2 only
Placeholder 9	80	No	This field is a placeholder for future enhancements. *V2 only
Placeholder 10	80	No	This field is a placeholder for future enhancements. *V2 only
Parameter Name n	26	No	• Required if available • Recurring Payment Parameter Name
Parameter Value n	80	No	• Required if available • Recurring Payment Parameter Value

12.4.4 Recurring Summary Record

Field Name	Length	Required	Comments/Values
RecordIndicator	16	Yes	"RecurringSummary"
InstallmentStartCount	6	Yes	Calculated: Number of Installment Payments with a Transaction Mode of START in the file
VARPStartCount	6	Yes	Calculated: Number of VARP Payments with a Transaction Mode of START in the file
InstallmentEditCount	6	Yes	Calculated: Number of Installment Payments with a Transaction Mode of EDIT in the file
VARPEditCount	6	Yes	Calculated: Number of VARP Payments with a Transaction Mode of EDIT in the file

Field Name	Length	Required	Comments/Values
InstallmentStopCount	6	Yes	Calculated: Number of Installment Payments with a Transaction Mode of STOP in the file
VARPStopCount	6	Yes	Calculated: Number of VARP Payments with a Transaction Mode of STOP in the file

12.4.5 Trailer Record

Field Name	Length	Required	Comments/Values
RecordIndicator	7	Yes	"Trailer"
MissingVARPDetailRecordCount	6	Yes	Calculated: Number of Missing VARP Detail Records in the file
RecurringPaymentSetupRecordCount	6	Yes	Calculated: Number of Recurring Payment Setup Records in the file
RecurringSummaryRecordCount	2	Yes	Calculated: Number of Recurring Summary Records in the file
TotalRecords	6	Yes	Calculated: Number of records in the file include Header and Trailer

Chapter 13:   Real Time Eligibility Lookup

The real time eligibility lookup feature is an IVR only feature that provides the Biller with the ability to manage payer eligibility in real time. This feature is very useful for time sensitive applications where a payer's eligibility to make payments could change from minute to minute.

Once a payer logs in to the IVR, E-Payment Service sends an XML message to a server defined by the Biller to request an eligibility check. If an approval response is received, the payer is allowed to continue the payment process and the eligibility lookup is transparent to the payer. If a decline response is received, the payer is notified that they are not eligible to make a payment at this time.

13.0 Schedule

A real time eligibility lookup request message is sent to the Biller each time a payer selects to make a payment on the IVR for a product that requires real time eligibility lookup. E-Payment Service sends the real time eligibility lookups in real time every day, including weekends and holidays.

13.1 Format

The real time eligibility lookup is sent in XML over http(s). The XML message is sent in standard XML format and fields are tagged with field names, similar to HTML tags (i.e. the field called RequestID would appear as "<RequestID>1234567890</requestID>"). The Data Type Definition (DTD) for the XML message is posted on E-Payment Service server and is referenced in the actual XML file for validation

13.2 Processing

The real time eligibility lookup message is sent over the Internet via either http or https.

To receive the message, the Biller must:

1. Open their firewall to the IP Address(es) provided during implementation.
2. Open the appropriate port.
3. Allow a "POST" to their server.
4. Provide the complete path during implementation, including the IP address and sub-directories for the server accepting the message (this is included in the Implementation Questionnaire):
    - **For http**, either an IP address or host / URL name is required in the path name (i.e. http://123.45.678.90/echeck/payments)
    - **For https**, the URL name associated with the certificate is required in the path name (i.e. https://www.biller.url/echeck/payments)

The real time eligibility lookup messages are sent in real time and a response message is expected within 10 seconds. When a product requires an eligibility lookup, the payer hears "Please hold while I verify your eligibility." Following are the response codes and the associated messages to the payer;
    - **Response Code = Y.** The payer is allowed to continue in the payment process and hears "I have confirmed that you are eligible to make a payment."
    - **Response Code = N.** The payer hears "You are not eligible to make telephone payments for <Product Name>. Please call customer service at <Phone #>."

- **Response Code = 0, 1, or 2.** The payer hears "Due to technical difficulties, we are unable to process your transaction at this time, please call back at a later time. We're sorry for any inconvenience this may cause you. Goodbye."

13.3 Distribution

The real time eligibility lookup is sent over the Internet via an http or https post to the Biller's URL as defined during setup.

13.4 Message Layout

13.4.1 Request Message Layout

Field Name	Max Length	Req'd	Description / Values
ClientId	24	No	• The ID sent to allow the Biller to authenticate the message • Provided by Biller during setup • Requires https if provided
ClientPassword	16	No	• The password sent to allow the Biller to authenticate the message • Provided by Biller during setup • Requires https if provided
RequestId	15	Yes	• A number assigned to the request by E-Payment Service in order to track the request / response messages • Must be returned by the Biller in the Response Message
UserId	16	Yes	The User ID of the payer attempting to make payments
UserPassword	16	No	• The password of the payer attempting to make payments • Requires https if provided
ProductCode	25	Yes	The Product Code for which the payer is attempting to make payments

13.4.2 Response Message Layout

Field Name	Max Length	Req'd	Values
RequestId	15	Yes	The RequestID sent in the Request Message
Match	1	Yes	Y = Payer is eligible for payment N = Payer is not eligible for payment 0 = General Failure 1 = Login authentication error on remote server 2 = Malformed XML request message

Chapter 14:   CSS Customization for Mobile Enhanced Site

14.0 Overview

The E-Payment Service Mobile site is an optimized version of the E-Payment Service website. For organizations that have enabled mobile, E-Payment Service will use the User Agent sent with each request to determine which version of the site to display. The mobile version uses jQuery Mobile framework. This framework allows your organization to change the look and feel of the E-Payment Service Mobile Site to match your brand, making a seamless transition for your payers. jQuery Mobile offers ThemeRoller for Mobile, which will allow your organization to easily modify mobile elements and download the theme created. When configured, the E-Payment Service website will use the theme to render the mobile site to your payers. The E-Payment Service also allows your organization to use CSS editor of your chose to create the CSS theme. The CSS elements which can be customized are detailed below.

14.1 jQuery Mobile ThemeRoller

Jquery ThemeRoller can be used to easily customize and download a CSS file from their website: http://themeroller.jquerymobile.com/. This site allows you to drag and drop colors into mobile elements and download the created theme.

When customizing the GUI of your E-Payment Service Mobile site, the stylesheet you provide must include a jQuery mobile ThemeRoller theme. Without it, elements will revert to jQuery Mobile's default gray color scheme.

Once downloaded, unzip your theme's zip file, browse to the themes folder in that location and provide the .CSS file to U.S. Bank.

> **Note**: Do not send the version that shows .min.css; only send the .css version.

You can optionally open the un-minified CSS file and add any additional CSS to the file before saving it and sending it to U.S. Bank.

The following example shows the .css version (not .min.css) of a file called "sample" that you would provide from the themes section on your unzipped file from jQuery ThemeRoller.
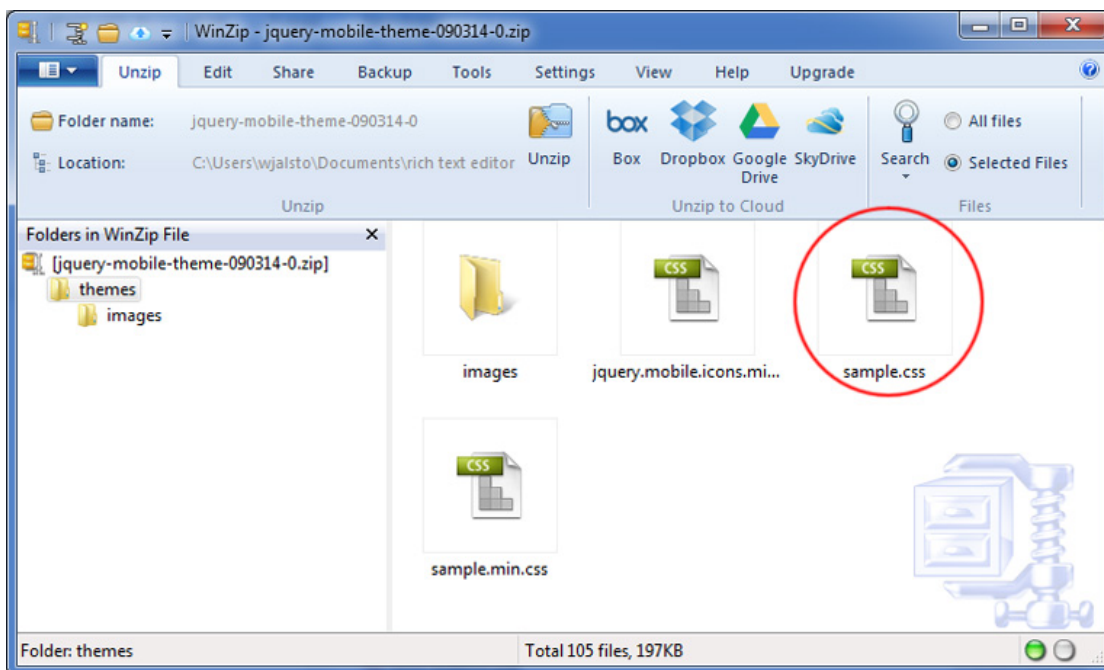
14.2 Biller Created CSS Theme

Your organization may create your own CSS theme and provide it to U.S. Bank. Details of the elements that can be customized are provided. The right column of the table shows the E-Payment Service Mobile site displayed with the defaults. The left column shows the customization scheme. Use the following legend for an explanation of the customization scheme when reading the template style spec.

Key	Description
	The element's default appearance is created/controlled by jQuery.
	The element's default appearance is created or altered by U.S. Bank and will remain unless overridden by the biller.
	This element has been customized by U.S. Bank. The customized appearance will not be loaded if the element is customized by the biller.

14.2.1 Template

Items in the template that can be customized include the header, menu button, header text, content area, page title, footer, footer menu, and footer menu items.

Header

≡ **Header**

Page Title

U.S.bank. | 🔒 | View Full Site | Exit

Header
[data-role="header"]

#hdr
background: #0c1f73
box-shadow: 0 2px 5px 2px
rgba(0,0,0,0.8)
color: #fff
font-size: 150%
overflow: hidden
padding: .35em 0 .25em 0
text-align: center;
text-shadow: 0 -1px 0 #000

Menu button
a#hdrMenuButton
background: linear-gradient
(#173bda 0,#0c1f73 100%)
border-bottom: 1px solid
#0064c5
border-radius: 7px
border-top: 1px solid
#0022a5d
color: #fff
margin: -4px 0 0 5px

Header Text
#appTitle
font-size: 105%
margin-left: 2em
position: relative
width: 88%

Content Area
[data-role="content"]

.ui-content
background: #fff
margin: .3em 0
padding: 0

Page Title
#pageTitle
padding: .5em

#pageTitle
background: #dfdfdf
border-bottom: 1px solid #ccc
margin: 0 0 .5em 0

☰ Header

Page Title

US bank | 🔒 | View Full Site | Exit

Footer

🔻 #ftr
background: #fff
border-top: 1px solid #9f9f9f
font-size: 70%
text-align: center

Footer Menu

🔻 #ftrMenu
display: inline-block
margin: 10px auto
overflow: auto

Footer Menu Items

🔻 .ftr-menu-item
border-left: 1px solid
#d0d0d0
display: inline-block
float: left
margin-right: 1em
padding-left: 1em
text-shadow: none

14.2.2 Read only text

Items in the read only text that can be customized include the form row, field label and field value.

14.2.3 Collapsible elements

The collapsible elements that can be customized include the collapsible content and the collapsible list.

14.2.4 Form Buttons

The form buttons that are the radio boxes, checkboxes and drop downs.

14.2.5 Dialog box

The dialog box, dialog box title and dialog box message are customizable.

Dialog box

.dialog
background-: #fafafa
border-radius: .5em
box-shadow:
1px 2px 3px 2px
rgba(30,30,30,0.7);
min-height: 8em
padding-bottom: 1em
position: absolute
top: 6em
width: 18em
z-index: 30000

Dialog title

.dialogTitle
background: #0c1f73
color: #fff
font-weight: bold
margin-bottom: .75em
padding: .5em
text-shadow: 0 -1px 0 #000

.dialogTitle
background: linear-gradient
(to bottom, #0064c5 0, #002a5d
100%)

Dialog box message

.dialogMessage
margin: .5em

14.2.6 Warning Message

The warning indicator and warning text can be customized.

14.2.7 Buttons

The primary and secondary buttons can be customized.

14.2.8 Fonts

The font items that are customizable include: header, standard text, primary color, secondary color, tertiary color, dimmed color and links.

14.2.9 Menu

On the menu the main menu panel, main menu items and user information (showing the payer's recent login) can be customized.
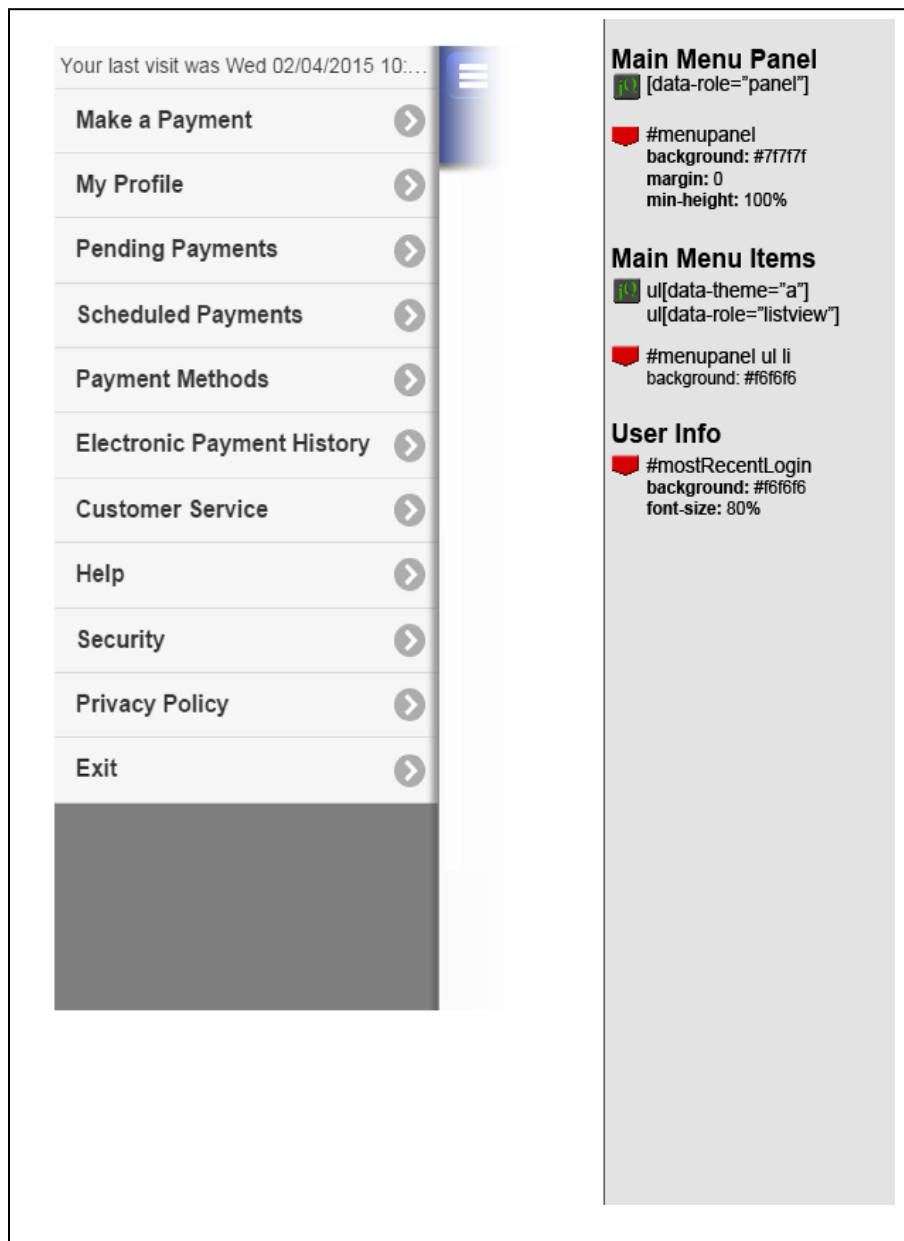
Chapter 15:   Glossary

ACH	Automated Clearing House. The ACH network is an electronic funds transfer system that provides inter-bank clearing of electronic payments for participating depository financial institutions.
ATM Debit	The ATM debit networks allow payments to be debited directly from a payer's bank account with the payer's Personal Identification Number.
Biller	The U.S. Bank client who is deploying E-Payment Service to accept payments from their customers.
Biller Business Date	An e-check feature that allows customers to select a payment date based on business date rather than payment effective date.
Biller Group	The highest level in E-Payment Service hierarchy. A Biller Group is typically a State or Corporation that includes several billers and products.
Confirmation Number	A unique number assigned to all one-time payments when they are initiated, edited or canceled. Also assigned to each instance of a recurring payment when it is sent for processing.
E-check	An ACH Debit transaction initiated by a payer or on behalf of a payer.
Kiosk	A self-serve payment machine that can accept cash as well as other payment methods.
Main Menu	The menu (make payment, manage accounts, recurring payments, update profile) presented to a registered payer when they log in to the web or IVR
Merchant Processor	The organization that manages the authorization and settlement of credit card payments.
NOC	Notification of Change. Indicates that the receiving depository institution has notified the originating depository institution that some of the banking information (account number, routing transit number) has changed.
Payment Initiation	The process by which a payer or an administrator on behalf of a payer schedules a payment for processing.
Payment Processing	The process by which E-Payment Service sends the payment to the merchant processor or originating depository financial institution for settlement.
Payer	The Biller's customer who is making a payment using E-Payment Service.
Pending Payment	A one-time payment initiated by a payer that has not been processed. Pending payments can be edited or canceled prior to processing.
Pinless Debit Card	A debit card with a Visa or MasterCard logo. Also known as offline or signature-based debit card.
Reference Number	A unique number assigned to each recurring payment schedule defined by a payer.
Role(s)	A level of permission assigned to each admin user by the Biller's Security Officer. The Biller's Security Officer defines each unique role.
Routing Transit Number	The code used by the Automated Clearing House to route the payer's payment instructions to the correct financial institution.

Session Transfer	The transfer of the payer's Internet session, and related payer and payment information, from the Biller application to E-Payment Service.
Security Officer	A member of the Biller's organization designated during implementation to manage the Biller's administrative users and roles.
Side Menu	The menu (make payment, manage accounts, recurring payments, update profile) displayed to registered users when they are logged into E-Payment Service. Same as the main menu but displayed on the left hand side of the screen

Appendix A: SEC Codes

An SEC code is assigned to every e-check payment in accordance with NACHA guidelines. The table below outlines the different SEC Codes assigned to payments based on the payment channel and type of account used by the payer.

Payment Channel	Account Type	Other Notes	SEC Code
Internet, API	Consumer		WEB
Internet, API	Business		CCD
IVR	Consumer		PPD
IVR	Business		CCD
Admin Site	Consumer	Admin User selects "Payer has signed an authorization document that I have on file" on the Payment Verification Screen	PPD
Admin Site	Consumer	Admin User selects 'Payer has a previous relationship with my organization because of past payments, or the Payer has initiated this call. Payer has also verbally authorized the above payment details and the Terms & Conditions below' and consumer account'	TEL
Admin Site	Business		CCD

Appendix B: Federal Holidays

Some E-Payment Service functions and files are not processed on Federal Holidays. Each of these functions is identified in the appropriate sections above. The Federal Holidays include:

- New Year's Day
- Martin Luther King, Jr. Day
- President's Day
- Memorial Day
- Independence Day
- Labor Day
- Columbus Day
- Veterans Day
- Thanksgiving
- Christmas

Appendix C: State Codes

STATE CODE	STATE		STATE CODE	STATE
AL	Alabama		NY	New York
AK	Alaska		NC	North Carolina
AZ	Arizona		ND	North Dakota
AR	Arkansas		OH	Ohio
CA	California		OK	Oklahoma
CO	Colorado		OR	Oregon
CT	Connecticut		PA	Pennsylvania
DE	Delaware		RI	Rhode Island
FL	Florida		SC	South Carolina
GA	Georgia		SD	South Dakota
HI	Hawaii		TN	Tennessee
ID	Idaho		TX	Texas
IL	Illinois		UT	Utah
IN	Indiana		VT	Vermont
IA	Iowa		VA	Virginia
KS	Kansas		WA	Washington
KY	Kentucky		WV	West Virginia
LA	Louisiana		WI	Wisconsin
ME	Maine		WY	Wyoming
MD	Maryland		AS	American Samoa
MA	Massachusetts		DC	District of Columbia
MI	Michigan		FM	Federated States of Micronesia
MN	Minnesota		GU	Guam
MS	Mississippi		MH	Marshall Islands
MO	Missouri		MP	Northern Mariana Islands
MT	Montana		PW	Palau
NE	Nebraska		PR	Puerto Rico

STATE CODE	STATE		STATE CODE	STATE
NV	Nevada		VI	Virginia Islands
NH	New Hampshire		AA	Armed Forces Americas
NJ	New Jersey		AE	Armed Forces Europe
NM	New Mexico		AP	Armed Forces Pacific

Appendix D: ACH Return Codes

RETURN CODE	DESCRIPTION	RESULT
R01	Insufficient Funds	User disabled after specified number of returns within defined time period (based on biller settings)
R02	Account Closed	Account invalidated
R03	No Account/Unable to Locate	Account invalidated
R04	Invalid Account Number	Account invalidated
R05	Reserved	No action taken by E-Payment Service
R06	Returned per ODFI request	No action taken by E-Payment Service
R07	Authorization Revoked by Customer	Account invalidated
R08	Payment Stopped	No action taken by E-Payment Service
R09	Uncollected Funds	User disabled after specified number of returns within defined time period (based on biller settings)
R10	Customer Advises Not Authorized	Account invalidated
R11	Check Truncation Entry Returned	No action taken by E-Payment Service
R12	Branch sold to another DFI	No action taken by E-Payment Service
R13	Receiving DFI not qualified to participate	No action taken by E-Payment Service
R14	Payee deceased/unable to Serve in that capacity	Account invalidated
R15	Beneficiary or Account holder is deceased	Account invalidated
R16	Account frozen	Account invalidated
R17	File record edit criteria	No action taken by E-Payment Service
R18	Improper effective entry date	No action taken by E-Payment Service
R19	Amount field error	No action taken by E-Payment Service
R20	Non-transaction account	No action taken by E-Payment Service
R21	Invalid company identification	No action taken by E-Payment Service
R22	Invalid individual ID number	No action taken by E-Payment Service
R23	Credit refused by receiver	No action taken by E-Payment Service
R24	Duplicate entry	No action taken by E-Payment Service
R25	Addenda error	No action taken by E-Payment Service

RETURN CODE	DESCRIPTION	RESULT
R26	Mandatory field error	No action taken by E-Payment Service
R27	Trace number error	No action taken by E-Payment Service
R28	Routing check digit error	No action taken by E-Payment Service
R29	Corporate customer advises not authorized	Account invalidated
R30	RDFI non participant in check truncation	No action taken by E-Payment Service
R31	Permissible return entry	No action taken by E-Payment Service
R32	RDFI non-settlement	No action taken by E-Payment Service
R33	Return of XCK entry	No action taken by E-Payment Service
R34	Limited participation DFI	No action taken by E-Payment Service
R35	Return of Improper Debit Entry	No action taken by E-Payment Service
R36	Return of Improper Credit entry	No action taken by E-Payment Service
C01	Incorrect Account Number	No action taken by E-Payment Service
C02	Incorrect RTN	No action taken by E-Payment Service
C03	Incorrect RTN and Account Number	No action taken by E-Payment Service
C05	Incorrect Account Type	No action taken by E-Payment Service
C06	Incorrect Account Number and Account Type	No action taken by E-Payment Service
C07	Incorrect RTN, Account Number and Account Type	No action taken by E-Payment Service
C04	Incorrect Individual Name/Receiving Company Name	No action taken by E-Payment Service

Appendix E: Credit Card Decline Messages

Decline Reason	Payment Page Error Message	Payment History Page/RTPC/RTNN Message
DECLINED	The card issuer has declined the transaction. Have the cardholder contact the card issuer for more details.	Transaction declined by card issuer
INVALID CARD	The card issuer has indicated that the card is invalid. Have the cardholder contact the card issuer for more details.	Invalid card
EXPIRED CARD	The card issuer has indicated that the card has expired. A new card may have been issued with a different expiration date. Please update the expiration date before resubmitting the transaction.	Expired card
DECLINED CVV2	The card issuer has declined the transaction because the Security Code is incorrect. Please verify the Security Code and attempt the transaction again.	Incorrect Security Code
PICK UP CARD	The card issuer has indicated that the card may have been reported lost or stolen. Have the cardholder contact the card issuer for more details.	Card reported lost or stolen
INVALID TERM ID	A system issue prevented the transaction from being processed. Please have a supervisor or manager contact U.S. Bank customer service.	A system issue prevented the transaction from being processed
CALL AUTH CENTER	The card issuer has indicated that the card is invalid. Have the cardholder contact the card issuer for more details.	Invalid card
INVLD TERM ID 1	A system issue prevented the transaction from being processed. Please have a supervisor or manager contact U.S. Bank customer service.	A system issue prevented the transaction from being processed
EXCEEDS AMT LMT	The card issuer has indicated that the payment amount may be too high or the cardholder has exceeded a daily withdrawal limit.	Payment amount either too high, too low or exceeded daily withdrawal limit
SERV NOT ALLOWED	A system issue prevented the transaction from being processed. Please have a supervisor or manager contact U.S. Bank customer service.	A system issue prevented the transaction from being processed
AMOUNT ERROR	The card issuer has indicated that the payment amount is either too high or too low or the cardholder has exceeded a daily withdrawal limit.	Payment amount either too high, too low or exceeded daily withdrawal limit
CALL REF:****	The card issuer has indicated that the card is invalid. Have the cardholder contact the card issuer for more details.	Invalid card
PLEASE RETRY***	A temporary system issue prevented the transaction from being processed. Please attempt the transaction again. If you receive this message on three consecutive attempts, please have a supervisor or manager contact U.S. Bank customer service.	A system issue prevented the transaction from being processed
SEQ ERR PLS CALL	A temporary system issue prevented the transaction from being processed. Please attempt the transaction again. If you receive this message on three consecutive attempts, please have a supervisor	A system issue prevented the transaction from being processed

Decline Reason	Payment Page Error Message	Payment History Page/RTPC/RTNN Message
	or manager contact U.S. Bank customer service.	
INCORRECT PIN	The card issuer has declined the transaction because the Security Code is incorrect. Please verify the Security Code and attempt the transaction again.	Incorrect Security Code

Appendix F: Debit Card Decline Messages

Decline Reason	Payment Page Error Message	Payment History Page/RTPC/RTNN Message
INVALID CARD	The card issuer has indicated that the card is invalid or that the card cannot be processed via the ATM network. Please return to the page where the card information was entered in order to attempt this payment as a credit card.	Invalid card
REQ EXCEEDS BAL	The card issuer has indicated that the cardholder has insufficient funds to complete the transaction or the cardholder has exceeded a daily withdrawal limit.	Payment amount either too high, too low or exceeded daily withdrawal limit
PICK UP CARD	The card issuer has indicated that the card may have been reported lost or stolen. Have the cardholder contact the card issuer for more details.	Card reported lost or stolen
SERV NOT ALLOWED	The card issuer has indicated that the transaction is not permitted by the cardholder's financial institution. Please return to the page where the card information was entered in order to attempt this payment as a credit card.	A system issue prevented the transaction from being processed
EXPIRED CARD	The card issuer is unable to process the transaction via the ATM network. Please return to the page where the card information was entered in order to attempt this payment as a credit card.	Expired card
PLEASE RETRY***	A temporary system issue prevented the transaction from being processed. Please attempt the transaction again. If you receive this message on three consecutive attempts, please return to the page where the card information was entered in order to attempt this payment as a credit card. If you continue to receive this message, please have a manager or supervisor contact U.S. Bank customer service.	A system issue prevented the transaction from being processed
NETWORK ERROR***	A temporary system issue prevented the transaction from being processed. Please attempt the transaction again. If you receive this message on three consecutive attempts, please return to the page where the card information was entered in order to attempt this payment as a credit card. If you continue to receive this message, please have a manager or supervisor contact U.S. Bank customer service.	A system issue prevented the transaction from being processed
INVALID TERM ID	A system issue prevented the transaction from being processed. Please have a supervisor or manager contact U.S. Bank customer service.	A system issue prevented the transaction from being processed
INCORRECT PIN	The card issuer is unable to process the transaction via the ATM network. Please return to the page where the card information was entered in order to attempt this payment as a credit card.	Incorrect Security Code
SEQ ERR PLS CALL	A temporary system issue prevented the transaction from being processed. Please attempt the transaction again. If you receive this message on three consecutive attempts, please have a supervisor or manager contact U.S. Bank customer service.	A system issue prevented the transaction from being processed
AMOUNT ERROR	The card issuer has indicated that the payment amount is either too high or too low or the cardholder has exceeded a daily withdrawal limit.	Payment amount either too high, too low or exceeded daily withdrawal limit

Appendix G: Country Codes

Country Name	Country Value	Country Code
ANDORRA	ANDORRA	AD
UNITED ARAB EMIRATES	UAE	AE
UNITED ARAB EMIRATES	UNITED ARAB EMIRATES	AE
AFGHANISTAN	AFGHANISTAN	AF
ANTIGUA-BARBUDA	ANTIGUA	AG
ANTIGUA-BARBUDA	ANTIGUA-BARBUDA	AG
ANTIGUA-BARBUDA	BARBUDA	AG
ANTIGUA-BARBUDA	ANTIGUA AND BARBUDA	AG
ANGUILLA	ANGUILLA	AI
ALBANIA	ALBANIA	AL
ARMENIA	ARMENIA	AM
ANGOLA	ANGOLA	AO
ANGOLA	CABINDA	AO
ANTARTICA	ANTARTICA	AQ
ARGENTINA	ARGENTINA	AR
AMERICAN SAMOA	AMERICAN SAMOA	AS
AMERICAN SAMOA	SWAIN	AS
AMERICAN SAMOA	SWAINS ISLAND	AS
AUSTRIA	AUSTRIA	AT
AUSTRALIA	AUSTRALIA	AU
AUSTRALIA	CHRISTMAS ISLAND	AU
AUSTRALIA	COCOS (KEELING) ISLANDS	AU
AUSTRALIA	COCOS ISLANDS	AU
AUSTRALIA	KEELING ISLANDS	AU
AUSTRALIA	NORFOLK ISLAND	AU
AUSTRALIA	TASMANIA	AU
ARUBA	ARUBA	AW

Country Name	Country Value	Country Code
ALAND ISLAND	ÅLAND ISLANDS	AX
AZERBAIJAN	AZERBAIJAN	AZ
BOSNIA-HERZEGOVINA	BOSNIA	BA
BOSNIA-HERZEGOVINA	BOSNIA AND HERZEGOVINA	BA
BOSNIA-HERZEGOVINA	BOSNIA-HERZEGOVINA	BA
BARBADOS	BARBADOS	BB
BANGLADESH	BANGLADESH	BD
BELGIUM	BELGIUM	BE
BURKINA FASO	BURKINA	BF
BURKINA FASO	BURKINA FASO	BF
BURKINA FASO	FASO	BF
BURKINA FASO	UPPER VOLTA	BF
BULGARIA	BULGARIA	BG
BAHRAIN	BAHRAIN	BH
BURUNDI	BURUNDI	BI
BENIN	BENIN	BJ
BENIN	DAHOMEY	BJ
ST. BARTHELEMY	ST. BARTHELEMY	BL
ST. BARTHELEMY	ST. BARTS	BL
BERMUDA	BERMUDA	BM
BRUNEI	BRUNEI	BN
BOLIVIA	BOLIVIA	BO
BRAZIL	BRAZIL	BR
BAHAMAS	BAHAMAS	BS
BAHAMAS	BAHAMAS, THE	BS
BHUTAN	BHUTAN	BT
BOTSWANA	BOTSWANA	BW
BELARUS	BELARUS	BY
BELARUS	BYELARUS	BY
BELIZE	BELIZE	BZ

Country Name	Country Value	Country Code
BELIZE	BRITISH HONDURAS	BZ
CANADA	CANADA	CA
CANADA	MIQUELON	CA
CANADA	SAINT PIERRE AND MIQUELON	CA
CANADA	ST. PIERRE & MIQUELON	CA
CANADA	ST. PIERRE AND MIQUELON	CA
CANADA	ST. PIERRE ET MIQUELON	CA
COCOS (KEELING) ISLAND	COCOS (KEELING) ISLAND	CC
DEMOCRATIC REPUBLIC OF THE CONGO	CONGO, DEMOCRATIC REPUBLIC OF THE	CD
DEMOCRATIC REPUBLIC OF THE CONGO	CONGO-KINSHASA	CD
DEMOCRATIC REPUBLIC OF THE CONGO	DEMOCRATIC REPUBLIC OF THE CONGO	CD
DEMOCRATIC REPUBLIC OF THE CONGO	ZAIRE	CD
CENTRAL AFRICAN REPUBLIC	CAR	CF
CENTRAL AFRICAN REPUBLIC	CENTRAL AFRICAN REPUBLIC	CF
REPUBLIC OF THE CONGO	CONGO	CG
REPUBLIC OF THE CONGO	CONGO, REPUBLIC OF THE	CG
REPUBLIC OF THE CONGO	REPUBLIC OF THE CONGO	CG
SWITZERLAND	SWITZERLAND	CH
IVORY COAST	COTE D IVOIRE	CI
IVORY COAST	COTE DIVOIRE	CI
IVORY COAST	COTE D'IVOIRE	CI
IVORY COAST	D IVOIRE	CI
IVORY COAST	IVORY COAST	CI
COOK ISLANDS	COOK ISLANDS	CK
CHILE	CHILE	CL
CAMEROON	CAMEROON	CM
CHINA, PEOPLES REPUBLIC OF	CHINA	CN
CHINA, PEOPLES REPUBLIC OF	CHINA, PEOPLES REPUBLIC OF	CN

Country Name	Country Value	Country Code
CHINA, PEOPLES REPUBLIC OF	INNER MONGOLIA	CN
CHINA, PEOPLES REPUBLIC OF	MAINLAND CHINA	CN
CHINA, PEOPLES REPUBLIC OF	MANCHURIA	CN
CHINA, PEOPLES REPUBLIC OF	PEOPLES REPUBLIC OF CHINA	CN
CHINA, PEOPLES REPUBLIC OF	SINKIANG	CN
CHINA, PEOPLES REPUBLIC OF	TIBET	CN
COLOMBIA	COLOMBIA	CO
COSTA RICA	COSTA RICA	CR
CUBA	CUBA	CU
CAPE VERDE ISLANDS	CAPE VERDE	CV
CAPE VERDE ISLANDS	CAPE VERDE ISLANDS	CV
CAPE VERDE ISLANDS	CVI	CV
CURACAO	CURACAO	CW
CHRISTMAS ISLAND	CHRISTMAS ISLAND	CX
CYPRUS	CYPRUS	CY
CZECH REPUBLIC	CZECH REPUBLIC	CZ
CZECH REPUBLIC	CZECHOSLOVAKIA	CZ
GERMANY	EAST GERMANY	DE
GERMANY	FEDERAL REPUBLIC OF GERMANY	DE
GERMANY	FRG	DE
GERMANY	GDR	DE
GERMANY	GERMAN DEMOCRATIC REPUBLIC	DE
GERMANY	GERMANY, EAST	DE
GERMANY	GERMANY, WEST	DE
GERMANY	GERMANY	DE
GERMANY	WEST GERMANY	DE
DJIBOUTI	DJIBOUTI	DJ
DJIBOUTI	FRENCH SOMALILAND	DJ
DJIBOUTI	FRENCH TERRITORY OF THE AFARS AND ISSAS	DJ

Country Name	Country Value	Country Code
DENMARK	DENMARK	DK
DOMINICA	DOMINICA	DM
DOMINICAN REPUBLIC	DOMINICAN REPUBLIC	DO
ALGERIA	ALGERIA	DZ
ECUADOR	ECUADOR	EC
ESTONIA	ESTONIA	EE
EGYPT	ARAB REPUBLIC OF EGYPT	EG
EGYPT	EGYPT	EG
EGYPT	UAR	EG
EGYPT	UNITED ARAB REPUBLIC	EG
WESTERN SAHARA	WESTERN SAHARA	EH
ERITREA	ERITREA	ER
SPAIN	ALHUCEMAS	ES
SPAIN	BALEARIC ISLANDS	ES
SPAIN	CEUTA	ES
SPAIN	CHAFARINAS ISLANDS	ES
SPAIN	ISLAS CHAFARINAS	ES
SPAIN	MELILLA	ES
SPAIN	SPAIN	ES
SPAIN	SPANISH NORTH AFRICA	ES
ETHIOPIA	ETHIOPIA	ET
FINLAND	FINLAND	FI
FIJI	FIJI	FJ
FIJI	FUTUNA	FJ
FIJI	WALLIS & FUTUNA ISLANDS	FJ
FIJI	WALLIS AND FUTUNA	FJ
FIJI	WALLIS ISLANDS	FJ
FALKLAND ISLANDS	FALKLAND ISLANDS	FK
FALKLAND ISLANDS	FALKLAND ISLANDS (ISLAS MALVINAS)	FK

Country Name	Country Value	Country Code
FALKLAND ISLANDS	MALVINAS ISLES	FK
FALKLAND ISLANDS	ISLAS MALVINAS	FK
MICRONESIA	MICRONESIA	FM
FAROE ISLANDS	FAROE ISLANDS	FO
FRANCE	CORSICA	FR
FRANCE	FRANCE	FR
GABON	GABON	GA
UNITED KINGDOM, THE	CHANNEL ISLANDS	GB
UNITED KINGDOM, THE	ENGLAND	GB
UNITED KINGDOM, THE	GREAT BRITAIN	GB
UNITED KINGDOM, THE	ISLE OF MAN	GB
UNITED KINGDOM, THE	MAN, ISLE OF	GB
UNITED KINGDOM, THE	NORTHERN IRELAND	GB
UNITED KINGDOM, THE	SCOTLAND	GB
UNITED KINGDOM, THE	THE UNITED KINGDOM	GB
UNITED KINGDOM, THE	UK	GB
UNITED KINGDOM, THE	UNITED KINGDOM	GB
UNITED KINGDOM, THE	UNITED KINGDOM, THE	GB
UNITED KINGDOM, THE	WALES	GB
GRENADA	GRENADA	GD
GEORGIA	GEORGIA	GE
FRENCH GUIANA	FRENCH GUIANA	GF
GUERNSEY	GUERNSEY	GG
GHANA	GHANA	GH
GIBRALTAR	GIBRALTAR	GI
GREENLAND	GREENLAND	GL
GAMBIA	GAMBIA	GM
GAMBIA	GAMBIA, THE	GM
GUINEA	GUINEA	GN
GUADELOUPE	FRENCH ST. MARTINS ISLAND	GP

Country Name	Country Value	Country Code
GUADELOUPE	GUADELOUPE	GP
EQUATORIAL GUINEA	EQUATORIAL GUINEA	GQ
EQUATORIAL GUINEA	GUINEA ECUATORIAL	GQ
GREECE	CRETE	GR
GREECE	DODECANESE ISLANDS	GR
GREECE	GREECE	GR
SOUTH GEORGIA AND THE SOUTH SANDWICH ISLANDS	SOUTH GEORGIA AND THE SOUTH SANDWICH ISLANDS	GS
GUATEMALA	GUATEMALA	GT
GUAM	GUAM	GU
GUAM	PACIFIC ISLANDS	GU
GUAM	PALAU	GU
GUAM	TRUST TERRITORY	GU
GUAM	TRUST TERRITORY OF THE PACIFIC ISLANDS	GU
GUAM	FEDERATED STATES OF MICRONESIA	GU
GUAM	FSM	GU
GUAM	MICRONESIA	GU
GUAM	MICRONESIA, FEDERATED STATES OF	GU
GUAM	UNITED STATES MISC. PACIFIC ISLANDS	GU
GUINEA-BISSAU	GUINEA-BISSAU	GW
GUINEA-BISSAU	PORTUGUESE GUINEA	GW
GUYANA	BRITISH GUIANA	GY
GUYANA	GUYANA	GY
HONG KONG	HONG KONG	HK
HEARD ISLAND AND MCDONALD ISLAND	HEARD ISLAND AND MCDONALD ISLAND	HM
HONDURAS	HONDURAS	HN
HONDURAS	SWAN ISLAND	HN
HONDURAS	SWAN ISLANDS	HN

Country Name	Country Value	Country Code
CROATIA	CROATIA	HR
HAITI	HAITI	HT
HUNGARY	HUNGARY	HU
INDONESIA	INDONESIA	ID
INDONESIA	IRIAN BARAT	ID
INDONESIA	JAVA	ID
INDONESIA	PORTUGUESE TIMOR	ID
INDONESIA	TIMOR	ID
IRELAND, REPUBLIC OF	IRELAND	IE
IRELAND, REPUBLIC OF	IRELAND, REPUBLIC OF	IE
IRELAND, REPUBLIC OF	REPUBLIC OF IRELAND	IE
ISRAEL	ISRAEL	IL
ISRAEL	ISRAEL-JORDAN DEMILITARIZED ZONE	IL
ISRAEL	ISRAEL-SYRIA DEMILITARIZED ZONE	IL
ISLE OF MAN	ISLE OF MAN	IM
INDIA	ANDAMAN ISLANDS	IN
INDIA	GOA	IN
INDIA	INDIA	IN
INDIA	JUNAGADH	IN
INDIA	NICOBAR ISLANDS	IN
INDIA	SIKKIM	IN
IRAN	IRAN	IR
BRITISH INDIAN OCEAN TERRITORY	BRITISH INDIAN OCEAN TERRITORY	IO
ICELAND	ICELAND	IS
ITALY	ITALY	IT
ITALY	SAN MARINO	IT
ITALY	VATICAN CITY	IT
ITALY	VATICAN CITY (HOLY SEE)	IT
IRAQ	IRAQ	IQ

Country Name	Country Value	Country Code
JERSEY	JERSEY	JE
JAMAICA	JAMAICA	JM
JAMAICA	MORANT CAYS	JM
JAMAICA	PEDRO CAYS	JM
JORDAN	JORDAN	JO
JORDAN	PALESTINE	JO
JAPAN	BONIN ISLANDS	JP
JAPAN	HABOMAI ISLANDS	JP
JAPAN	JAPAN	JP
JAPAN	NORTHERN RYUKYU ISLANDS	JP
JAPAN	OKINAWA	JP
JAPAN	RYUKYU ISLANDS	JP
JAPAN	SHIKOTAN	JP
JAPAN	SOUTHERN RYUKYU ISLANDS	JP
JAPAN	SOUTHERN SAKHALIN	JP
JAPAN	VOLCANO ISLANDS	JP
KENYA	KENYA	KE
KYRGYZSTAN	KYRGYZSTAN	KG
CAMBODIA	CAMBODIA	KH
CAMBODIA	KAMPUCHEA	KH
KIRIBATI, REPUBLIC OF	BANABA	KI
KIRIBATI, REPUBLIC OF	CANTON AND ENDERBURY ISLANDS	KI
KIRIBATI, REPUBLIC OF	CENTRAL AND SOUTHERN LINE ISLANDS	KI
KIRIBATI, REPUBLIC OF	FANNING ISLANDS	KI
KIRIBATI, REPUBLIC OF	GILBERT ISLANDS	KI
KIRIBATI, REPUBLIC OF	KIRIBATI	KI
KIRIBATI, REPUBLIC OF	KIRIBATI, REPUBLIC OF	KI
KIRIBATI, REPUBLIC OF	OCEAN ISLAND	KI
KIRIBATI, REPUBLIC OF	REPUBLIC OF KIRIBATI	KI

Country Name	Country Value	Country Code
KIRIBATI, REPUBLIC OF	WASHINGTON ISLANDS	KI
COMOROS	COMOROS	KM
ST. KITTS	SAINT KITTS AND NEVIS	KN
ST. KITTS	ST. KITTS	KN
ST. KITTS	ST. KITTS AND NEVIS	KN
NORTH KOREA	KOREA, DEMOCRATIC PEOPLE'S REPUBLIC OF	KP
NORTH KOREA	KOREA, NORTH	KP
NORTH KOREA	NORTH KOREA	KP
SOUTH KOREA	KOREA, REPUBLIC OF	KR
SOUTH KOREA	KOREA, SOUTH	KR
SOUTH KOREA	SOUTH KOREA	KR
KUWAIT	AL-KUWAYT	KW
KUWAIT	KUWAIT	KW
CAYMAN ISLANDS	CAYMAN ISLANDS	KY
KAZAKHSTAN	KAZAKHSTAN	KZ
LAOS	LAOS	LA
LEBANON	LEBANON	LB
ST. LUCIA	ST. LUCIA	LC
LIECHTENSTEIN	LIECHTENSTEIN	LI
SRI LANKA	CEYLON	LK
SRI LANKA	SRI LANKA	LK
LIBERIA	LIBERIA	LR
LESOTHO	LESOTHO	LS
LITHUANIA	LITHUANIA	LT
LUXEMBOURG	LUXEMBOURG	LU
LATVIA	LATVIA	LV
LIBYA	LIBYA	LY
MOROCCO	MOROCCO	MA
MOROCCO	SPANISH SAHARA	MA

Country Name	Country Value	Country Code
MOROCCO	TANGIER	MA
MONACO	MONACO	MC
MOLDOVA	MOLDOVA	MD
MONTENEGRO	MONTENEGRO	ME
ST. MAARTEN	SABA	MF
ST. MAARTEN	ST. MAARTEN	MF
ST. MAARTEN	ST. MARTINS ISLAND	MF
MADAGASCAR	MADAGASCAR	MG
MARSHALL ISLANDS	MARSHALL ISLANDS	MH
MACEDONIA, REPUBLIC OF	MACEDONIA	MK
MACEDONIA, REPUBLIC OF	MACEDONIA, FORMER YUGOSLAV REPUBLIC OF	MK
MACEDONIA, REPUBLIC OF	MACEDONIA, REPUBLIC OF	MK
MACEDONIA, REPUBLIC OF	MACEDONIA, THE REPUBLIC OF	MK
MACEDONIA, REPUBLIC OF	REPUBLIC OF MACEDONIA	MK
MALI	MALI	ML
MYANMAR	BURMA	MM
MYANMAR	BURMA (MYANMAR)	MM
MYANMAR	MYANMAR	MM
MONGOLIA	MONGOLIA	MN
MONGOLIA	OUTER MONGOLIA	MN
MACAU	MACAU	MO
NORTHERN MARIAN ISLANDS	NORTHERN MARIAN ISLANDS	MP
MARTINIQUE	MARTINIQUE	MQ
MAURITANIA	MAURITANIA	MR
MONTSERRAT	MONTSERRAT	MS
MALTA	GOZO	MT
MALTA	MALTA	MT
MAURITIUS	MAURITIUS	MU
MALDIVES	MALDIVES	MV

Country Name	Country Value	Country Code
MALAWI	MALAWI	MW
MEXICO	MEXICO	MX
MALAYSIA	BORNEO	MY
MALAYSIA	MALAYA	MY
MALAYSIA	MALAYSIA	MY
MALAYSIA	NORTH BORNEA	MY
MALAYSIA	SABAH	MY
MALAYSIA	SARAWAK	MY
MALAYSIA	FEDERATION OF MALAYA	MY
MOZAMBIQUE	MOZAMBIQUE	MZ
NAMIBIA	NAMIBIA	NA
NAMIBIA	SOUTH-WEST AFRICA	NA
NEW CALEDONIA	HUON ISLANDS	NC
NEW CALEDONIA	LOYALTY ISLANDS	NC
NEW CALEDONIA	NEW CALEDONIA	NC
NIGER	NIGER	NE
NORFOLK ISLAND	NORFOLK ISLAND	NF
NIGERIA	NIGERIA	NG
NICARAGUA	NICARAGUA	NI
NETHERLANDS	HOLLAND	NL
NETHERLANDS	NETHERLANDS	NL
NORWAY	NORWAY	NO
NORWAY	SVALBARD	NO
NORWAY	SVALBARD AND JAN MAYEN	NO
NEPAL	NEPAL	NP
NAURU, REPUBLIC OF	NAURU	NR
NAURU, REPUBLIC OF	NAURU, REPUBLIC OF	NR
NAURU, REPUBLIC OF	REPUBLIC OF NAURU	NR
NIUE ISLAND	NIUE	NU
NIUE ISLAND	NIUE ISLAND	NU

Country Name	Country Value	Country Code
NEW ZEALAND	CAMPBELL ISLAND	NZ
NEW ZEALAND	KERMANDEC ISLANDS	NZ
NEW ZEALAND	NEW ZEALAND	NZ
NEW ZEALAND	UNION ISLANDS	NZ
OMAN	MUSCAT	OM
OMAN	OMAN	OM
PANAMA	CANAL ZONE	PA
PANAMA	PANAMA	PA
PANAMA	PANAMA CANAL ZONE	PA
PERU	PERU	PE
FRENCH POLYNESIA/TAHITI	AUSTRAL ISLANDS	PF
FRENCH POLYNESIA/TAHITI	FRENCH POLYNESIA	PF
FRENCH POLYNESIA/TAHITI	GAMBIER ISLANDS	PF
FRENCH POLYNESIA/TAHITI	LOW ISLANDS	PF
FRENCH POLYNESIA/TAHITI	LOWIS	PF
FRENCH POLYNESIA/TAHITI	MARQUESAS ISLANDS	PF
FRENCH POLYNESIA/TAHITI	PAUMOTU ISLANDS	PF
FRENCH POLYNESIA/TAHITI	RAPA ISLANDS	PF
FRENCH POLYNESIA/TAHITI	SOCIETY ISLANDS	PF
FRENCH POLYNESIA/TAHITI	TAHITI	PF
FRENCH POLYNESIA/TAHITI	TUAMOTU ISLANDS	PF
FRENCH POLYNESIA/TAHITI	TUBUAI ISLANDS	PF
PAPUA NEW GUINEA	PAPUA NEW GUINEA	PG
PAPUA NEW GUINEA	NEW GUINEA	PG
PHILIPPINES	PHILIPPINES	PH
PAKISTAN	PAKISTAN	PK
POLAND	DANZIG	PL
POLAND	POLAND	PL
ST. PIERRE AND MIQUELON	ST. PIERRE AND MIQUELON	PM
PITCAIRN ISLAND	PITCAIRN ISLAND	PN

Country Name	Country Value	Country Code
PUERTO RICO	PUERTO RICO	PR
PALASTINIAN TERRITORY	PALASTINIAN TERRITORY	PS
PORTUGAL	AZORES	PT
PORTUGAL	MADEIRA	PT
PORTUGAL	PORTUGAL	PT
PALAU	PALAU	PW
PARAGUAY	PARAGUAY	PY
QATAR	QATAR	QA
REUNION, ISLAND OF	ISLAND OF REUNION	RE
REUNION, ISLAND OF	REUNION	RE
REUNION, ISLAND OF	REUNION ISLAND	RE
REUNION, ISLAND OF	REUNION, ISLAND OF	RE
REUNION, ISLAND OF	MAYOTTE	RE
REUNION, ISLAND OF	TERRITORIAL COLLECTIVITY OF MAYOTTE	RE
ROMANIA	ROMANIA	RO
SERBIA	SERBIA	RS
RUSSIAN FEDERATION	RUSSIA	RU
RUSSIAN FEDERATION	RUSSIAN FEDERATION	RU
RWANDA	RWANDA	RW
SAUDI ARABIA	ARABIAN PENINSULA	SA
SAUDI ARABIA	IRAQ-SAUDI ARABIA NEUTRAL ZONE	SA
SAUDI ARABIA	SAUDI ARABIA	SA
SOLOMON ISLANDS	BRITISH SOLOMON ISLANDS	SB
SOLOMON ISLANDS	SOLOMON ISLANDS	SB
SEYCHELLES	SEYCHELLES	SC
SUDAN	SUDAN	SD
SWEDEN	SWEDEN	SE
SINGAPORE	SINGAPORE	SG
ST. HELENA	ST. HELENA, ASCENSION AND TRISTAN DA CUNHA	SH

Country Name	Country Value	Country Code
SLOVENIA	SLOVENIA	SI
SVALBARD	SVALBARD	SJ
SLOVAKIA	SLOVAKIA	SK
SIERRA LEONE	SIERRA LEONE	SL
SAN MARINO	SAN MARINO	SM
SENEGAL	SENEGAL	SN
SOMALIA	SOMALIA	SO
SURINAME	NETHERLANDS GUIANA	SR
SURINAME	SURINAME	SR
SOUTH SUDAN	SOUTH SUDAN	SS
SAO TOME	PRINCIPE	ST
SAO TOME	SAO TOME	ST
SAO TOME	SAO TOME & PRINCIPE	ST
SAO TOME	SAO TOME AND PRINCIPE	ST
EL SALVADOR	EL SALVADOR	SV
ST. MAARTEN	ST. MAARTEN (DUCTH PART)	SX
SYRIA	SYRIA	SY
SYRIA	SYRIAN ARAB REPUBLIC	SY
SWAZILAND	SWAZILAND	SZ
TURKS & CAICOS ISLANDS	CAICOS ISLANDS	TC
TURKS & CAICOS ISLANDS	TURKS & CAICOS ISLANDS	TC
TURKS & CAICOS ISLANDS	TURKS AND CAICOS ISLANDS	TC
CHAD	CHAD	TD
FRENCH SOUTHERN TERRITORIES	FRENCH SOUTHERN TERRITORIES	TF
TOGO	TOGO	TG
THAILAND	THAILAND	TH
TAJIKISTAN	TAJIKISTAN	TJ
TOKELAU	TOKELAU	TK
TURKMENISTAN	TURKMENISTAN	TM

Country Name	Country Value	Country Code
TUNISIA	TUNISIA	TN
TONGA	FRIENDLY ISLANDS	TO
TONGA	TONGA	TO
EAST TIMOR	EAST TIMOR	TL
TURKEY	TURKEY	TR
TRINIDAD AND TOBAGO	TOBAGO	TT
TRINIDAD AND TOBAGO	TRINIDAD	TT
TRINIDAD AND TOBAGO	TRINIDAD AND TOBAGO	TT
TUVALU	ELLICE ISLAND	TV
TUVALU	TUVALU	TV
TAIWAN	FORMOSA	TW
TAIWAN	REPUBLIC OF CHINA	TW
TAIWAN	TAIWAN	TW
TANZANIA	TANGANYIKA	TZ
TANZANIA	TANZANIA	TZ
TANZANIA	ZANZIBAR	TZ
UKRAINE	UKRAINE	UA
UGANDA	UGANDA	UG
UNITED STATES	UNITED STATES	US
UNITED STATES	US	US
UNITED STATES	USA	US
UNITED STATES	UNITED STATES OF AMERICA	US
UNITED STATES	U.S.	US
UNITED STATES	U.S.A.	US
UNITED STATES	US OF A	US
UNITED STATES	America	US
URUGUAY	URUGUAY	UY
UZBEKISTAN	UZBEKISTAN	UZ
HOLY SEE (VATICAN CITY STATE)	HOLY SEE (VATICAN CITY STATE)	VA

Country Name	Country Value	Country Code
ST. VINCENT-GRENADINES	GRENADINES	VC
ST. VINCENT-GRENADINES	SAINT VINCENT AND THE GRENADINES	VC
ST. VINCENT-GRENADINES	ST. VINCENT	VC
ST. VINCENT-GRENADINES	ST. VINCENT AND THE GRENADINES	VC
ST. VINCENT-GRENADINES	ST. VINCENT-GRENADINES	VC
VENEZUELA	VENEZUELA	VE
VIRGIN ISLANDS (BRITISH)	BRITISH VIRGIN ISLANDS	VG
VIRGIN ISLANDS (BRITISH)	TORTOLA	VG
VIRGIN ISLANDS (BRITISH)	VIRGIN ISLANDS (BRITISH)	VG
VIRGIN ISLANDS	U.S. VIRGIN ISLANDS	VI
VIRGIN ISLANDS	US VIRGIN ISLANDS	VI
VIRGIN ISLANDS	VIRGIN ISLANDS	VI
VIETNAM	DEMOCRATIC REPUBLIC OF VIET-NAM	VN
VIETNAM	INDO-CHINA	VN
VIETNAM	NORTH VIETNAM	VN
VIETNAM	REPUBLIC OF VIET-NAM	VN
VIETNAM	SOUTH VIETNAM	VN
VIETNAM	VIETNAM	VN
VANUATU	BANKS ISLANDS	VU
VANUATU	NEW HEBRIDES	VU
VANUATU	TORRES ISLANDS	VU
VANUATU	VANUATU	VU
WALLIS AND FUTUNA	WALLIS AND FUTUNA	WF
SAMOA	SAMOA	WS
SAMOA	SAMOA (WESTERN SAMOA)	WS
SAMOA	WESTERN SAMOA	WS
YEMEN	ADEN	YE
YEMEN	NORTHERN YEMEN	YE
YEMEN	SOUTHERN YEMEN	YE

Country Name	Country Value	Country Code
YEMEN	YEMEN	YE
YEMEN	YEMEN-ADEN	YE
YEMEN	YEMEN (SANAA)	YE
YEMEN	YEMEN (ADEN)	YE
MAYOTTE	MAYOTTE	YT
SOUTH AFRICA	SAINT HELENA	ZA
SOUTH AFRICA	SOUTH AFRICA	ZA
SOUTH AFRICA	ST. HELENA	ZA
SOUTH AFRICA	UNION OF SOUTH AFRICA	ZA
ZAMBIA	NORTHERN RHODESIA	ZM
ZAMBIA	ZAMBIA	ZM
ZIMBABWE	SOUTHERN RHODESIA	ZW
ZIMBABWE	ZIMBABWE	ZW