

ALTERNATIVE REFERENCE RATE (ARR) DATA DICTIONARY

Data Element ¹	Field Definition	What data is needed? ²	Required for submission through DTCC ³	Why this field is important to be input ⁴
CUSIP	A CUSIP is a security identifier issued by CUSIP Global Services and is composed of nine characters and can include letters and numbers.	Nine-digit alphanumeric security ID	Yes	The CUSIP is a critical field that identifies to the investor community which specific security is being communicated upon.
Replacement Choice Made	Field that describes to the market whether the issue has chosen a LIBOR replacement. If set to Yes, a replacement has been made. If set to No, it can be determined that a choice has not yet been made and that another record will be submitted once a replacement index has been decided upon.	Choose Yes or No	Yes	Indicating whether a fallback rate index has been selected to replace LIBOR for a security will help proactively answer questions as to the status of the replacement choice.
Updated Submission	Is previously input data being updated with this submission?	Choose Yes or No	No	This field will indicate whether any of the data previously submitted has changed and allow the investor community to determine if any changes are required to their data sets.
Submitter Company	The firm or organization, whose personnel are inputting a replacement rate change into the LIBOR Replacement Index Communication Tool.	Enter a company name	Yes	By inputting a firm or organization name, the investor community can use this as contact information if further information is required.

¹ This is the data element that will appear on DTCC's LIBOR Replacement Index Communication Tool.

² The fielded data referred to in the "What Data is Needed" column is what will be available for selection and / or input on DTCC's LIBOR Replacement Index Communication Tool.

³ This column shows if a field is optional for the submission through DTCC. If the value corresponding to the field remains X, the submitter can either enter X into the field or leave it blank. If the value corresponding to the field changes from X to Y, the submitter should enter Y into the field. For example, the Margin Spread field is an optional field for the submission through DTCC. If the Margin Spread remains X, the submitter can either enter X into the Margin Spread field or leave it blank. If the Margin Spread changes from X to Y, the submitter should enter Y into the Margin Spread field. If you are unsure of the value, please refer to the determining person or security documentation.

⁴ This section describes why a particular field is important to be included on a security's descriptive replacement rate details and why it is included on the DTCC LIBOR Replacement Index Communication Tool.

ALTERNATIVE REFERENCE RATE (ARR) DATA DICTIONARY continued

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Submitter Entity Type	The type of service that the firm is performing on behalf of or as the issuer of this security.	Choose: Paying Agent Transfer Agent Issuer Calculation Agent Trustee Determining Person Other	Yes	This field will serve as additional information for the investor community to use while updating their reference data systems.
Submitter Contact Email	The email address of the contact at the firm or organization inputting a replacement rate change into the LIBOR Replacement Index Communication Tool. This should be a group email address for the relevant group within the firm or organization.	Enter a group email address	Yes	It may be necessary to contact submitters to clarify data points when additional information is necessary.
<i>If different from Submitter information:</i>		Choose Yes or No		
Information Source/ Provider Company Name	The firm or organization that was responsible for the selection of replacement index.	Enter a company name	Yes	By inputting a firm or organization name, the investor community can use as the information source as contact information if further information is required.
Information Source / Provider Entity Type	The type of service that the firm who selected the replacement index performs on behalf of the security.	Choose: Paying Agent Transfer Agent Calculation Agent Determining Person Issuer Trustee Other	No	This field will serve as additional information for the investor community to use while updating their reference data systems.

ALTERNATIVE REFERENCE RATE (ARR) DATA DICTIONARY continued

Data Element ¹	Field Definition	What data is needed? ²	Required for submission through DTCC ³	Why this field is important to be input ⁴
Information Source / Provider Contact email	The email address of the contact at the firm or organization responsible for selecting the replacement index. This should be a group email address for the relevant group within the firm or organization.	Enter a group email address	No	It may be necessary to contact source data providers to clarify data points where the uploaded data is not clear.
Fallback Rate Index	The fallback / replacement index.	<p>Choose one of the following indices:</p> <p>SOFR Overnight Rate SOFR Averages</p> <p>As an extension of the Secured Overnight Financing Rate (SOFR), the SOFR Averages are compounded averages of the SOFR over rolling 30-, 90- and 180-calendar day periods.</p> <ul style="list-style-type: none"> • SOFR 30-day avg • SOFR 90-day avg • SOFR 180-day avg 	Yes	Specifying the correct fallback/replacement index is critical for holders of securities to begin accruing correctly.
Fallback Rate Index	The fallback / replacement index.	<p>SOFR Index</p> <p>The SOFR Index measures the cumulative impact of compounding the SOFR on a unit of investment over time, with the initial value set to 1.00000000 on April 2, 2018, the first value date of the SOFR.</p>	Yes	Specifying the correct fallback/replacement index is critical for holders of securities to begin accruing correctly.

ALTERNATIVE REFERENCE RATE (ARR) DATA DICTIONARY continued

Data Element ¹	Field Definition	What data is needed? ²	Required for submission through DTCC ³	Why this field is important to be input ⁴
Fallback Rate Index	The fallback / replacement index.	Fed Funds <ul style="list-style-type: none"> • Effective Federal Funds Rate • Overnight Bank Funding Rate • Tri-Party General Collateral Rate • Broad General Collateral Rate 	Yes	Specifying the correct fallback/replacement index is critical for holders of securities to begin accruing correctly.
Fallback Rate Index	The fallback / replacement index.	Refinitiv Fallbacks <ul style="list-style-type: none"> • Refinitiv O/N • Refinitiv 1W • Refinitiv 1M • Refinitiv 2M • Refinitiv 3M • Refinitiv 6M • Refinitiv 12M 	Yes	Specifying the correct fallback/replacement index is critical for holders of securities to begin accruing correctly.
Fallback Rate Index	The fallback / replacement index.	BSBY <ul style="list-style-type: none"> • BSBY O/N • BSBY 1M • BSBY 3M • BSBY 6M • BSBY 12M 	Yes	Specifying the correct fallback/replacement index is critical for holders of securities to begin accruing correctly.

ALTERNATIVE REFERENCE RATE (ARR) DATA DICTIONARY continued

Data Element ¹	Field Definition	What data is needed? ²	Required for submission through DTCC ³	Why this field is important to be input ⁴
Fallback Rate Index	The fallback / replacement index.	AMERIBOR <ul style="list-style-type: none"> • AMERIBOR O/N • AMERIBOR 1W • AMERIBOR 1M • AMERIBOR 3M • AMERIBOR 6M • AMERIBOR 1Y • AMERIBOR 2Y • AMERIBOR 30 day average • AMERIBOR 90 day average • AMERIBOR 30T derived • AMERIBOR 90T derived 	Yes	Specifying the correct fallback/replacement index is critical for holders of securities to begin accruing correctly

ALTERNATIVE REFERENCE RATE (ARR) DATA DICTIONARY continued

Data Element ¹	Field Definition	What data is needed? ²	Required for submission through DTCC ³	Why this field is important to be input ⁴
Fallback Rate Index	The fallback / replacement index.	<p>PRIME SOFR ICE Swap Rate</p> <ul style="list-style-type: none"> • SOFR ISR 1Y • SOFR ISR 2Y • SOFR ISR 3Y • SOFR ISR 4Y • SOFR ISR 5Y • SOFR ISR 6Y • SOFR ISR 7Y • SOFR ISR 8Y • SOFR ISR 9Y • SOFR ISR 10Y • SOFR ISR 15Y • SOFR ISR 20Y • SOFR ISR 30Y <p>Synthetic USD LIBOR USD SOFR Spread-Adjusted ICE Swap Rate</p> <ul style="list-style-type: none"> • SOFR Spread-Adjusted ISR 1Y • SOFR Spread-Adjusted ISR 2Y • SOFR Spread-Adjusted ISR 3Y • SOFR Spread-Adjusted ISR 4Y • SOFR Spread-Adjusted ISR 5Y • SOFR Spread-Adjusted ISR 6Y • SOFR Spread-Adjusted ISR 7Y • SOFR Spread-Adjusted ISR 8Y • SOFR Spread-Adjusted ISR 9Y • SOFR Spread-Adjusted ISR 10Y • SOFR Spread-Adjusted ISR 15Y • SOFR Spread-Adjusted ISR 20Y • SOFR Spread-Adjusted ISR 30Y <p>Other-See-PDF⁵</p>	Yes	Specifying the correct fallback/replacement index is critical for holders of securities to begin accruing correctly.

⁵ This index type should be used only in situations where no other index is applicable to your security, and you are able to attach a PDF that describes the LIBOR replacement changes. For example, if you have a security that uses multiple benchmarks to calculate its interest rate, using the Other-See-PDF index and attaching documentation may be a good use case.

ALTERNATIVE REFERENCE RATE (ARR) DATA DICTIONARY continued

Data Element ¹	Field Definition	What data is needed? ²	Required for submission through DTCC ³	Why this field is important to be input ⁴
Spread Adjustment Amount (bps)	To adjust against LIBOR, the ARRC/ISDA recommends a 5-year historical median for fallbacks to SOFR-based rates, however users can set spread level at any custom amount. This can be referred to as spread, margin, or applicable margin	Choose one of the following ⁶ : O/N = .64 1M = 11.448 3M = 26.161 6M = 42.826 12M = 71.513 Other – please specify	Yes	Although these recommended spreads are standardized and are being broadly adopted by the industry, it is possible that your specific fallback circumstance could differ.
Margin Spread (bps)	Additional spread assigned by the issuer. This can be referred to as spread, margin, or applicable margin.	Input a basis point spread in whole basis points (e.g., a spread of .26161 in percentage points would be 26.161 in basis points)	No	Margin Spread is considered basic security information and should be included so that security holders can correctly accrue interest.
Spread Methodology	This defines how the spread will be incorporated into the interest calculation.	Choose: Spread Inclusive Spread Exclusive Flat	No	Spread methodology is considered basic security information and should be included so that security holders can correctly accrue interest.
Day Count Convention	System representing the day count convention used for calculating yields and/or accrued interest.	Choose: Act/360 Act/365L Act/Act Act/365F 30/360 30E/360	No	Day Count Convention is considered basic security information and should be included so that security holders can correctly accrue interest.
Interest Accrual Methodology	The interest accrual calculation methodology.	Choose one of the following: <ul style="list-style-type: none"> • Compound in-Arrears • Simple Daily in-Arrears • Average in-Arrears • Compound in-Advance • Term • Other 	No	Accrual methodology is considered basic security information and should be included so that security holders can correctly accrue interest.

ALTERNATIVE REFERENCE RATE (ARR) DATA DICTIONARY continued

Data Element ¹	Field Definition	What data is needed? ²	Required for submission through DTCC ³	Why this field is important to be input ⁴
Lookback Days Type	Defines whether the lookback days are counted in calendar days or business days only.	Choose: Business Calendar	No	Lookback Days Type is considered basic security information and should be included so that security holders can correctly accrue interest.
Lookback Days	The number of business or calendar days prior to the fixing reset day on which to determine the rate.	Input the number of lookback days	No	Lookback Days is considered basic security information and should be included so that security holders can correctly accrue interest.
Observation Shift	The Observation Shift is sometimes used to align the interest rate with the appropriate day count weighting when a lookback is used.	Input the observation shift	No	# of Observation Shift Days is considered basic security information and should be included so that security holders can correctly accrue interest.
Lockout Days	Indicates the number of days prior to the end of the current coupon rate observation period where the current rate will cease being subject to reset.	Input the number of lockout days	No	# of Lockout Days is considered basic security information and should be included so that security holders can correctly accrue interest.
Payment Delay Days	Delay between the end of the accrual period and the payment.	Input the number of lockout days	No	# of Payment Delay Days is considered basic security information and should be included so that security holders can correctly accrue interest.
Rounding Instructions	Rounding can be applied to annualized rate of interest pre calculation, or round final output.	Choose: Round Input rate Round Final Rate Round Final and Input Rate No Rounding	No	Correct Rounding is considered basic security information and should be included so that security holders can correctly accrue interest.
Rounding Decimals Places	The number of decimal places to round numbers to, rounding instruction can be found in term sheets and other securities prospectus including where to apply rounding in the calculation process.	Choose a value between 0 and 8	No	Correct Rounding/Precision is considered basic security information and should be included so that security holders can correctly accrue interest.

⁶ Please remove the tenor when uploading a Spread Adjustment Amount when using the LIBOR Replacement Index Communication Tool. For example, input 11.448 instead of 1M = 11.448 on the upload spreadsheet.

ALTERNATIVE REFERENCE RATE (ARR) DATA DICTIONARY continued

Data Element ¹	Field Definition	What data is needed? ²	Required for submission through DTCC ³	Why this field is important to be input ⁴
Business Day Convention	The business day convention determines how to proceed when a date which is relevant for the payment or calculation of interest falls on a non-business day.	Choose one of the following: Business Day Adjusted Following Business Day Unadjusted Modified Business Day Adjusted Modified Business Day Unadjusted Preceding Business Day Adjusted Preceding Business Day Unadjusted	No	Business Day Convention is considered basic security information and should be included so that security holders can correctly accrue interest.
The First Non-LIBOR Reset Date	Start of ARR coupon period. This is used to determine day count fractions for act/act (ICMA) and act/365L conventions. All other calculations, including rate reference dates for term rates are based on the start date input.	Use a calendar on the UI to input a date	No	This is a critical date for successful conversion from LIBOR to the fallback index. This is considered basic security information and should be included so that security holders can correctly accrue interest. Please refer to examples A and B below to help you input a date in this field.
<p>A. If your security is a fixed-to-float security, the first Non-LIBOR reset date should represent the effective date/accrual start date for the start of the first ARR coupon period. If you hold a fixed-to-float bond that will convert from fixed to Term SOFR on May 8, 2024, input May 8, 2024 as the first Non-LIBOR reset date.</p> <p>B. If your security is a floating rate security that will convert to a fallback rate follow this example to help determine the first Non-LIBOR reset date: For example, a Quarterly reset security with a 2-day lookback reset on LIBOR on June 28, 2023 using the fixing rate from June 26, 2023. The first Non-LIBOR reset date will be September 28, 2023.</p>				
Floating Rate Calendar	The business calendar used for determining/ applying fixing rates.	Choose the default ⁷ : US Gov't Bond Market And/or add free-form text representing another Calendar Type	No	Floating Rate Calendar is considered basic security information and should be included so that security holders can correctly accrue interest.

⁷ This value will appear blank on the LIBOR Replacement Index Communication Tool Review Submissions function unless a Reset Date has been specified and/or the Floating Rate Calendar has been modified.
If you input The First Non-Libor Reset Date calendar with date value and do not change the Floating Rate Calendar from the US Government Bond Market to another value, it will default to the US Government Bond Market calendar type.