

# Magensa Tokenization Service

## Programmer's Reference Manual

Protecting Sensitive Data

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## 1 Table 0.1 – Revisions

Rev Number	Date	Notes
10	09/18/2019	Initial Documentation Release

## 2 Purpose of the document

The purpose of this document is to describe the Tokenization operations available in MagTek Services, and also provides information on all required or optional input & output parameters. It also provides sample SOAP request & response as reference for client developers. This document describes the APIs a developer would use to integrate a superior level of data protection directly within applications or utilities. A brief understanding of a Token and its benefit is elaborated below.

A token is a substitute value that is created and used as a replacement for its original value; Tokenization is the process and associated technologies used to create /redeem tokens. Tokenization is highly effective in protecting sensitive data or Personally Identifiable Information (PII).

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## 4 Introduction

Magensa is a cloud-based service. We are experts in encryption key management, hardware security modules, authentication, cryptographic systems, and tokenization. Our solutions employ symmetric key encryption using AES/3DES by DUKPT (Derived Unique Key per Transaction) – meaning a unique key is used for every data element sent and encrypted.

The Magensa Tokenization Service is Payment Card Industry (PCI) compliant. After protecting credit card data and serving the payment industry faithfully, Magensa has developed trusted, high-performance services that enable developers to build tokenization into applications to protect sensitive data from its intake or batch protect legacy data stores. Magensa provides true vaultless tokenization. This means when sensitive data is sent to Magensa to be tokenized, the client receives back a dynamically encrypted, self-contained token. Magensa stores nothing.

The token is constructed with a cryptogram of the sensitive data, key metadata added based on the token template, and a cryptographic hash of the entire payload for integrity. The entire cryptographic blob is returned. The organization maintains control of its sensitive data in a non-identifiable form and economically worthless state. Magensa tokens are of no use to criminals if your environment is compromised.

## 5 Service Prerequisites

There are several administrative items that must be completed first in order to test or use the Magensa Tokenization Service. These prerequisites establish a formal account and credentials with Magensa as well as provide for a more secure environment for transacting.

It should be noted that transactions must be communicated over a secure TCP connection utilizing at least TLS 1.2.

### 5.1 Magensa Credentials

Please contact your MagTek sales representative or [integration@magensa.net](mailto:integration@magensa.net) to coordinate getting your initial Magensa credentials that need to be passed in every API call.

### 5.2 Client Certificate

A client certificate will be provided to you upon onboarding and is used for securing communications to our servers. This client certificate is only required for token redemption requests at this time. For more information on how to use the client certificate, please see the document from your on-boarding package that describes the PFX certificate in detail for multiple platforms.

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## 5.3 Static IP Whitelisting

In order to access the Magensa Tokenization Service for redemption of tokens, the customer must use a public static IP address that has been whitelisted with Magensa. Otherwise, the customer's data will be blocked from ever reaching Magensa servers.

Please note that the customer's IP address must be static (it must never change), as Magensa services check for specific IP addresses and rejects any incoming data that does not originate from one of the authorized IP addresses. If the customer's public IP address is dynamic (it can change at any time), the customer will need to either (a) acquire a static public IP address for their development; or (b) utilize a proxy server that has been assigned a public static IP address.

## 6 Tokenization Operations

### 6.1 CreateTokens

#### 6.1.1 CreateTokensRequest Properties

Property	Value	Description
AdditionalRequestData	Array of key / value pairs	Input property that can be used to provide additional request data, if supported by the service operation
Authentication.CustomerCode *	String	Customer code assigned by Magensa.
Authentication.Password *	String	Password assigned by Magensa.
Authentication.Username *	String	Username assigned by Magensa.
CustomerTransactionID	String	Client-assigned transaction ID
MiscData	String	Miscellaneous data that will be included in the token <u>as-is</u> . Client can provide meta-data or a note associated with token-data here. This data will <u>not</u> be encrypted/secured
NumberOfTokens	Integer	Count of Tokens to be generated
TokenData	String	Token Data to be Tokenized
TokenName	String	Name of the Token
ValidUntilUTC	DateTime	UTC timestamp until when token is valid/redeemable

Note: \* = Required

## 6.1.2 CreateTokensResponse Properties

Property	Value	Description
<b>AdditionalResponseData</b>	Array of key / value pairs	Output property that can be used to provide additional response data, if returned by the service.
<b>CustomerTransactionID</b>	String	Client-assigned transaction ID echoed from request
<b>MagTranID</b>	String	Transaction ID (GUID).
<b>Tokens</b>	Array of Strings	Array of tokens
<b>TransactionUTCTimestamp</b>	String	Transaction timestamp.

### Sample CreateTokens Request:

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:tok="http://www.magensa.net/Token/"
xmlns:tok1="http://schemas.datacontract.org/2004/07/TokenWS.Core"
xmlns:sys="http://schemas.datacontract.org/2004/07/System.Collections.Generic">
  <soapenv:Header/>
  <soapenv:Body>
    <tok:CreateTokens>
      <!--Optional:-->
      <tok:CreateTokensRequest>
        <!--Optional:-->
        <tok1:AdditionalRequestData>
          <!--Zero or more repetitions:-->
          <sys:KeyValuePairOfstringstring>
            <sys:key>?</sys:key>
            <sys:value>?</sys:value>
          </sys:KeyValuePairOfstringstring>
        </tok1:AdditionalRequestData>
        <tok1:Authentication>
          <tok1:CustomerCode>MI57274740</tok1:CustomerCode>
          <tok1:Password>demo4MPGtoken!</tok1:Password>
          <tok1:Username>demo</tok1:Username>
        </tok1:Authentication>
        <!--Optional:-->
        <tok1:CustomerTransactionID></tok1:CustomerTransactionID>
        <!--Optional:-->
        <tok1:MiscData></tok1:MiscData>
        <tok1:NumberOfTokens>1</tok1:NumberOfTokens>
        <!--Optional:-->
        <tok1:TokenData>I'm a token</tok1:TokenData>
        <!--Optional:-->
        <tok1:TokenName>TokenName</tok1:TokenName>
        <tok1:ValidUntilUTC>2020-12-12</tok1:ValidUntilUTC>
      </tok:CreateTokensRequest>
    </tok:CreateTokens>
  </soapenv:Body>
```

---

```
</soapenv:Envelope>
```

### Sample CreateTokens Response:

```
<s:Envelope xmlns:s="http://schemas.xmlsoap.org/soap/envelope/">
  <s:Body>
    <CreateTokensResponse xmlns="http://www.magensa.net/Token/">
      <CreateTokensResult
xmlns:a="http://schemas.datacontract.org/2004/07/TokenWS.Core"
xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <a:AdditionalResponseData i:nil="true"
xmlns:b="http://schemas.datacontract.org/2004/07/System.Collections.Generic"/>
          <a:CustomerTransactionID/>
          <a:MagTranID>bd1f2291-c11a-43e2-aaf0-acf87fd57f44</a:MagTranID>
          <a:Tokens
xmlns:b="http://schemas.microsoft.com/2003/10/Serialization/Arrays">
            <b:string>FA82010CDFE0012463313430646666332D376262392D343461642D616332332D636636353466
613339643062DFE00205312E302E30DFE0041B323032302D31322D31325430303A30303A30302E30303030
303030DFE0050450726F64DFE0061C323031392D30382D30325430393A35313A31352E363539323232335A
DFE0070A4D493537323734373430DFE0080731303030303132DFE0092462643166323239312D633131612D
343365322D616166302D616366383766643537663434DFE01110262D454697F6B2E204C7510EB1621F5EDF
E0120A9011400000000003ED27DFE02109546F6B656E4E616D65DFE00320EE9C4771BBAB65AEA9F94B5A28
030377DAEE8508E8932BF3EDCC2D328389716A</b:string>
          </a:Tokens>
          <a:TransactionUTCTimestamp>2019-08-02
09:51:15Z</a:TransactionUTCTimestamp>
        </CreateTokensResult>
      </CreateTokensResponse>
    </s:Body>
  </s:Envelope>
```



---

## 6.2 RedeemToken

### 6.2.1 RedeemTokenRequest Properties

Property	Value	Description
<b>AdditionalRequestData</b>	Array of key / value pairs	Input property that can be used to provide additional request data, if supported by the service
<b>Authentication.CustomerCode *</b>	String	Customer code assigned by Magensa
<b>Authentication.Password *</b>	String	Password assigned by Magensa
<b>Authentication.Username *</b>	String	Username assigned by Magensa
<b>CustomerTransactionID</b>	String	Client-assigned transaction ID
<b>Token*</b>	String	Token from a prior CreateTokens call

Note: \* = Required

## 6.2.2 RedeemTokenResponse Properties

Property	Type	Description
<b>AdditionalResponseData</b>	Array of key / value pairs	Output property that can be used to provide additional response data, if returned by the service operation
<b>CreatedAt</b>	Date	Token creation timestamp from token
<b>CreatedForMagTranID</b>	String	Transaction ID (GUID) of prior CreateTokens call from token
<b>CustomerTransactionID</b>	String	Client-assigned transaction ID
<b>MagTranID</b>	String	Transaction ID (GUID)
<b>MiscData</b>	String	Miscellaneous data from token
<b>RedeemedAt</b>	DateTime	Token redemption timestamp
<b>TokenData</b>	String	Sensitive data value from secure token
<b>TokenID</b>	String	ID (GUID) from token.
<b>TokenName</b>	String	Name of the token from token
<b>TransactionUTCTimestamp</b>	String	Transaction timestamp
<b>ValidUntilUTC</b>	DateTime	timestamp for token expiration
<b>Version</b>	String	Token version from token

### Sample RedeemToken Request:

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:tok="http://www.magensa.net/Token/"
xmlns:tok1="http://schemas.datacontract.org/2004/07/TokenWS.Core"
xmlns:sys="http://schemas.datacontract.org/2004/07/System.Collections.Generic">
  <soapenv:Header/>
  <soapenv:Body>
    <tok:RedeemToken>
      <!--Optional:-->
      <tok:RedeemTokenRequest>
        <!--Optional:-->
        <tok1:AdditionalRequestData>
          <!--Zero or more repetitions:-->
          <sys:KeyValuePairOfstringstring>
            <sys:key></sys:key>
            <sys:value></sys:value>
          </sys:KeyValuePairOfstringstring>

          </tok1:AdditionalRequestData>
          <tok1:Authentication>
```

```

        <tok1:CustomerCode>MI57274740</tok1:CustomerCode>
        <tok1:Password>demo4MPGtoken!</tok1:Password>
        <tok1:Username>demo</tok1:Username>
    </tok1:Authentication>
    <!--Optional:-->
    <tok1:CustomerTransactionID></tok1:CustomerTransactionID>
<tok1:Token>FA82010CDFE0012438626130346262332D373336612D346531632D393761392D3330396464
31643662633263DFE00205312E302E30DFE0041B323032302D31322D31325430303A30303A30302E303030
30303030DFE0050450726F64DFE0061C323031392D30372D31325431343A34343A31372E33363834393339
5ADFE0070A4D493537323734373430DFE0080731303030303132DFE0092437613033386161362D63323864
2D343237392D383238622D323830396638393938353934DFE01110A5FCBEC71C9247B7A9592339856D9E5A
DFE0120A90114000000000037BB5DFE02109546F6B656E4E616D65DFE00320341BD30049D458065421335D
74AA0AAD5F5BAB34E4020D0F2782BD76FE84BB9E</tok1:Token>
    </tok:RedeemTokenRequest>
</tok:RedeemToken>
</soapenv:Body>
</soapenv:Envelope>

```

### Sample RedeemToken Response:

```

<s:Envelope xmlns:s="http://schemas.xmlsoap.org/soap/envelope/">
  <s:Body>
    <RedeemTokenResponse xmlns="http://www.magensa.net/Token/">
      <RedeemTokenResult
xmlns:a="http://schemas.datacontract.org/2004/07/TokenWS.Core"
xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <a:AdditionalResponseData i:nil="true"
xmlns:b="http://schemas.datacontract.org/2004/07/System.Collections.Generic"/>
        <a:CreatedAt>2019-07-12T14:44:17.3684939Z</a:CreatedAt>
        <a:CreatedForMagTranID>7a038aa6-c28d-4279-828b-
2809f8998594</a:CreatedForMagTranID>
        <a:CustomerTransactionID/>
        <a:MagTranID>89ef3767-a866-4f5f-9c00-88da5ea82800</a:MagTranID>
        <a:MiscData i:nil="true"/>
        <a:RedeemedAt>2019-08-02T09:56:38.0700595Z</a:RedeemedAt>
        <a:TokenData>I'm a token</a:TokenData>
        <a:TokenID>8ba04bb3-736a-4e1c-97a9-309dd1d6bc2c</a:TokenID>
        <a:TokenName>TokenName</a:TokenName>
        <a:TransactionUTCTimestamp>2019-08-02
09:56:38Z</a:TransactionUTCTimestamp>
        <a:ValidUntilUTC>2020-12-12T00:00:00</a:ValidUntilUTC>
        <a:Version>1.0.0</a:Version>
      </RedeemTokenResult>
    </RedeemTokenResponse>
  </s:Body>
</s:Envelope>

```

---

## 7 Fault Codes and Reasons

Fault Code	Fault Reason
603	CustomerCode is required
604	Username is required
605	Password is required
615	CustomerTransactionID is not valid
650	TokenName is not valid
651	ValidUntilUTC is not valid
652	TokenData is not valid
653	MiscData is not valid
654	NumberOfTokens exceeds max limit
701	Access Denied
744	Encryption of token data failed
745	Token parsing failed
746	Token slot is not valid
747	Token verification failed
748	Token has expired
749	Decryption of token data failed
750	Token already redeemed
5000	Unknown Error

## 8 References

8.1 More documentation and code samples can be found at [www.github.com/magensa](http://www.github.com/magensa)

8.2 Integration Support can be request at [integration@magensa.net](mailto:integration@magensa.net)

8.3 Magensa website is [www.magensa.net](http://www.magensa.net)

8.4 MagTek website is [www.magtek.com](http://www.magtek.com)

8.5 Customer Support can be requested at [support@magensa.net](mailto:support@magensa.net)