

### Contents

	Foreword
	Introduction
1	Scope
2	Normative references
3	Terms and definitions
4	BioAPI C# Namespace Structure
4.1	Overall structure
4.2	Namespace BioAPI
4.2.1	Namespace description
4.2.2	Structure
4.3	Namespace BioAPI.Data
4.3.1	Namespace description
4.3.2	Structure
5	Data types and constants
5.1	Class ACBioParameters
5.1.1	Description
5.1.2	Properties summary
5.2	Class BFPListElement
5.2.1	Description
5.2.2	Properties summary
5.3	Class BFPSchema [Serializable()]
5.3.1	Description
5.3.2	Properties summary
5.3.3	Method summary
5.3.3.1	virtual void Dispose ()
5.4	Class BIR
5.4.1	Description
5.4.2	Properties summary
5.4.3	Method summary
5.4.3.1	virtual BIR (byte[] record)
5.4.3.2	virtual BIR (RegistryID bDBFormat, bool bDBEncryption, bool bIRIntegrity, BiometricType bDBBiometricType, BiometricSubtype bDBBiometricSubtype, RegistryID bDBCaptureDevice, RegistryID bDBFeatureExtractionAlg, RegistryID bDBComparisonAlg, RegistryID bDBCompresionAlg, RegistryID bDBPADTechnique, byte[] bDBChallengeResponse, Date bDBCreationDate, byte[] bDBIndex, ProcessedLevel bDBProcessedLevel, RegistryID bDBProduct, Purpose bDBPurpose, byte bDBQuality, RegistryID bDBQualityAlg, List<Date> bDBValidityPeriod, Date bIRCreationDate, byte[] bIRCreator, byte[] bIRIndex, byte[] bIRPayload, byte[] bIRPointer, List<Date> bIRValidityPeriod, RegistryID sBFormat, byte[] bDBData, byte[] sBData)
5.4.3.3	virtual public byte[] ToArray()
5.4.3.4	virtual void Dispose ()
5.5	Class BSPSchema [Serializable()]
5.5.1	Description
5.5.2	Properties Summary
5.5.3	Method summary
5.5.3.1	virtual void Dispose ()
5.6	Class Candidate
5.6.1	Description

5.6.2	Properties summary
5.7	Class DataTypes
5.7.1	Description
5.7.2	Enumerations
5.7.2.1	BiometricSubtype
5.7.2.2	BiometricType
5.7.2.3	BIRDatabaseAccess
5.7.2.4	BSPSchemaOperations
5.7.2.5	BSPSchemaOptions
5.7.2.6	EventKind
5.7.2.7	Facility
5.7.2.8	GUIEnrolType
5.7.2.9	GUIMoment
5.7.2.10	GUIOperation
5.7.2.11	GUIResponse
5.7.2.12	GUISuboperation
5.7.2.13	ProcessedLevel
5.7.2.14	Purpose
5.7.2.15	ResultOptions
5.7.2.16	SecurityOptionsType
5.7.2.17	UnitCategoryType
5.7.2.18	UnitIndicatorStatus
5.7.2.19	UnitPowerMode
5.8	Class Date
5.8.1	Description
5.8.2	Properties summary
5.8.3	Methods summary
5.8.3.1	virtual bool IsLowerOrEqual (int day, int month, int year)
5.8.3.2	virtual bool IsLowerOrEqual (int day, int month, int year, int hour, int minute, int second)
5.8.3.3	virtual bool IsLowerOrEqual (Date date)
5.8.3.4	virtual bool IsHigherOrEqual (int day, int month, int year)
5.8.3.5	virtual bool IsHigherOrEqual (int day, int month, int year, int hour, int minute, int second)
5.8.3.6	virtual bool IsHigherOrEqual (Date date)
5.9	Class FrameworkSchema
5.9.1	Description
5.9.2	Properties summary
5.9.3	Method summary
5.9.3.1	virtual void Dispose ()
5.10	Class GUIBitmap
5.10.1	Description
5.10.2	Properties
5.10.3	Method summary
5.10.3.1	virtual void Dispose ()
5.11	Class Identifypopulation
5.11.1	Description
5.11.2	Properties summary
5.11.3	Method summary
5.11.3.1	virtual void AddMember (PopulationMember member)
5.11.3.2	virtual void Dispose ()
5.11.3.3	virtual bool IsBound ()
5.11.3.4	virtual void Unbind ()
5.12	Class PopulationMember
5.12.1	Description
5.12.2	Properties summary
5.13	Class RegistryID
5.13.1	Description
5.13.2	Properties summary
5.14	Class SecurityProfileType
5.14.1	Description
5.14.2	Properties summary
5.14.3	Method summary
5.14.3.1	virtual void Dispose ()

5.15	Class UnitList
5.15.1	Description
5.15.2	Properties summary
5.15.3	Methods summary
5.15.3.1	void Add (UnitListElement unitListElement)
5.15.3.2	int GetUnitID (UnitCategoryType unitCategoryType)
5.15.3.3	virtual void Dispose ()
5.16	Class UnitListElement
5.16.1	Description
5.16.2	Properties summary
5.17	Class UnitSchema
5.17.1	Description
5.17.2	Properties summary
5.17.3	Method summary
5.17.3.1	virtual void Dispose ()
5.18	Class UUID [Serializable()]
5.18.1	Description.
5.18.2	Properties
6	Object oriented interfaces for supporting BioAPI_Units
6.1	General
6.2	Interface IArchive
6.2.1	Description
6.2.2	Method summary
6.2.2.1	void CloseDatabase (int unitID)
6.2.2.2	void DeleteBIR (int unitID, UUID key)
6.2.2.3	BIR GetSingleBIR (int unitID, UUID key)
6.2.2.4	List<UUID> ListUUIDs (int unitID)
6.2.2.5	Identifypopulation NewIdentifyPopulation (int unitID)
6.2.2.6	IdentifyPopulation NewIdentifyPopulation (int unitID, List<UUID> UUIDList)
6.2.2.7	IdentifyPopulation NewIdentifyPopulation (int unitID, byte[] query)
6.2.2.8	void OpenDatabase (int unitID, byte[] databaseID, BIRDatabaseAccess access)
6.2.2.9	UUID StoreBIR (int unitID, BIR biometricReference)
6.2.2.10	void StoreBIR (int unitID, BIR biometricReference, UUID key)
6.2.2.11	UUID StoreBIR (int unitID, BIR biometricReference, byte[] auxiliaryData)
6.2.2.12	void StoreBIR (int unitID, BIR biometricReference, byte[] auxiliaryData, UUID key)
6.3	Interface IComparison
6.3.1	Description
6.3.2	Method summary
6.3.2.1	BIR GetAdaptedBIR (int unitID)
6.3.2.2	int GetFMRAchieved (int unitID)
6.3.2.3	List<ICandidate> Identify (int unitID, int maxFMRrequested, BIR processedBIR, bool binning, int maxResults, int timeout)
6.3.2.4	List<ICandidate> Identify (int unitID, int maxFMRrequested, BIR processedBIR, List<BIR> auxiliaryBIRs, bool binning, int maxResults, int timeout)
6.3.2.5	void PresetIdentifyPopulation (int unitID, Identifypopulation population)
6.3.2.6	bool Verify (int unitID, int maxFMRrequested, BIR processedBIR, BIR referenceTemplate, List<ResultOptions> options)
6.3.2.7	bool Verify (int unitID, int maxFMRrequested, BIR processedBIR, BIR referenceTemplate, List<BIR> auxiliaryBIRs, List<ResultOptions> options)
6.4	Interface IProcessing
6.4.1	Description
6.4.2	Method summary
6.4.2.1	BIR CreateTemplate (int unitID, BIR capturedBIR, BIR referenceTemplate, RegistryID outputFormat, byte[] additionalData)
6.4.2.2	BIR CreateTemplate (int unitID, List<BIR> capturedBIRs, BIR referenceTemplate, RegistryID outputFormat, byte[] additionalData, int unitID)
6.4.2.3	BIR Process (int unitID, BIR capturedBIR, RegistryID outputFormat)
6.4.2.4	BIR Process (int unitID, BIR capturedBIR, List<BIR> auxiliaryBIRs, RegistryID outputFormat)
6.4.2.5	byte AnalyseQuality (int unitID, BIR capturedBIR)
6.5	Interface ISensor
6.5.1	Description
6.5.2	Method summary

- 6.5.2.1 void Calibrate (int unitID , int timeout)
  - 6.5.2.2 BIR Capture (int unitID , List<Purpose> purpose, BiometricSubtype subtype, RegistryID outputFormat, int timeout, List<ResultOptions> options)
  - 6.5.2.3 UnitIndicatorStatus GetIndicatorStatus (int unitID)
  - 6.5.2.4 void SetIndicatorStatus (int unitID , UnitIndicatorStatus indicatorStatus)
- 7        **BFP level**
- 7.1        Interface IBFP
  - 7.1.1      Description
  - 7.1.2      Imported interfaces
  - 7.1.3      Properties summary
  - 7.1.4      Events summary
  - 7.1.5      Method summary
  - 7.1.5.1    void BFPLoad (BFPEventCallback bfpNotifyCallback)
  - 7.1.5.2    void BFPUnload ()
  - 7.1.5.3    byte[] ControlUnit (int unitID, int controlCode, byte[] inputData)
  - 7.1.5.4    byte[] GetAuxiliaryData (int unitID)
  - 7.1.5.5    List<UnitSchema> QueryUnits ()
  - 7.1.5.6    List<UnitSchema> QueryUnits (List<UnitCategoryType> unitCategories)
  - 7.1.5.7    void SetPowerMode (int unitID, UnitPowerMode powerMode)
- 8        **BSP level**
- 8.1        Interface IBSP
  - 8.1.1      Description
  - 8.1.2      Imported interfaces
  - 8.1.3      Properties summary
  - 8.1.4      Events summary
  - 8.1.5      Method summary
  - 8.1.5.1    void BSPLoad (BSPEventCallback bspNotifyCallback)
  - 8.1.5.2    void BSPUnload ()
  - 8.1.5.3    byte CheckQuality (BIR inputBIR, RegistryID qualityAlgorithmID)
  - 8.1.5.4    byte[] ControlUnit (int unitID, int controlCode, byte[] inputData)
  - 8.1.5.5    UUID Enrol (UnitList unitList, BIR capturedBIR, BIR referenceTemplate, List<Purpose> purpose, BiometricSubtype subtype, RegistryID outputFormat, byte[] additionalData, List<ResultOptions> options)
  - 8.1.5.6    UUID Enrol (UnitList unitList, List<BIR> capturedBIRs, BIR referenceTemplate, List<Purpose> purpose, BiometricSubtype subtype, RegistryID outputFormat, byte[] additionalData, List<ResultOptions> options)
  - 8.1.5.7    UUID Enrol (UnitList unitList, int numberOfPresentations, int numberOfAttempts, BIR referenceTemplate, List<Purpose> purpose, BiometricSubtype subtype, RegistryID outputFormat, byte[] additionalData, int timeout, List<ResultOptions> options)
  - 8.1.5.8    UUID Enrol (UnitList unitList, BIR capturedBIR, UUID referenceID, List<Purpose> purpose, BiometricSubtype subtype, RegistryID outputFormat, byte[] additionalData, List<ResultOptions> options)
  - 8.1.5.9    UUID Enrol (UnitList unitList, List<BIR> capturedBIRs, UUID referenceID, List<Purpose> purpose, BiometricSubtype subtype, RegistryID outputFormat, byte[] additionalData, List<ResultOptions> options)
  - 8.1.5.10    UUID Enrol (UnitList unitList, int numberOfPresentations, int numberOfAttempts, UUID referenceID, List<Purpose> purpose, BiometricSubtype subtype, RegistryID outputFormat, byte[] additionalData, int timeout, List<ResultOptions> options)
  - 8.1.5.11    byte[] GetAuxiliaryData (int unitID)
  - 8.1.5.12    List<ICandidate> IdentifyAggregated (UnitList unitList, int maxFMRrequested, BiometricSubtype subtype, bool binning, int maxResults, int timeout, List<ResultOptions> options)
  - 8.1.5.13    List<ICandidate> IdentifyAggregated (UnitList unitList, BIR inputBIR, int maxFMRrequested, BiometricSubtype subtype, bool binning, int maxResults, int timeout, List<ResultOptions> options)
  - 8.1.5.14    List<BFPListElement> QueryBFPs ()
  - 8.1.5.15    List<BFPListElement> QueryBFPs (List<UnitCategoryType> unitCategories)
  - 8.1.5.16    List<UnitSchema> QueryUnits ()
  - 8.1.5.17    List<UnitSchema> QueryUnits (List<UnitCategoryType> unitCategories)
  - 8.1.5.18    bool VerifyAggregated (UnitList unitList, int maxFMRrequested, BIR referenceTemplate, BiometricSubtype subtype, int timeout, List<ResultOptions> options)

- 8.1.5.19 **bool VerifyAggregated (UnitList unitList, int maxFMRrequested, BIR inputBIR, BIR referenceTemplate, BiometricSubtype subtype, int timeout, List<ResultOptions> options)**
- 8.1.5.20 **bool VerifyAggregated (UnitList unitList, int maxFMRrequested, UUID referenceKey, BiometricSubtype subtype, int timeout, List<ResultOptions> options)**
- 8.1.5.21 **bool VerifyAggregated (UnitList unitList, int maxFMRrequested, BIR inputBIR, UUID referenceKey, BiometricSubtype subtype, int timeout, List<ResultOptions> options)**
- 8.1.5.22 **void SetPowerMode (int unitID, UnitPowerMode powerMode)**
- 8.1.5.23 **void SubscribeToGUIEvents (GUISelectEventCallback guiSelectEventCallback, GUIStateEventCallback guiStateEventCallback, GUIProgressEventCallback guiProgressEventCallback)**
- 8.1.5.24 **void UnsubscribeFromGUIEvents ()**

## 9 Framework level

- 9.1 **Interface IComponentRegistry**
  - 9.1.1 **Description**
  - 9.1.2 **Method summary**
    - 9.1.2.1 **void InstallBFP (BFPSchema bfpSchema, bool update)**
    - 9.1.2.2 **void InstallBSP (BSPSchema bspSchema, bool update)**
    - 9.1.2.3 **void UninstallBFP (UUID bfpUUID)**
    - 9.1.2.4 **void UninstallBSP (UUID bspUUID)**
- 9.2 **Interface IFramework**
  - 9.2.1 **Description**
  - 9.2.2 **Inherited interfaces**
  - 9.2.3 **Properties summary**
  - 9.2.4 **Method summary**
    - 9.2.4.1 **void BSPLoad (UUID bspID, BFPEventCallback notifyCallback, BFPEnumerationCallback bfpEnumerationCallback, String context)**
    - 9.2.4.2 **void BSPUnload (UUID bspID, String context)**
    - 9.2.4.3 **void EnableEventNotifications (UUID bspID, List<EventKind> events)**
    - 9.2.4.4 **List<BFPSchema> EnumBFPs ()**
    - 9.2.4.5 **List<BSPSchema> EnumBSPs ()**
    - 9.2.4.6 **void Init (String version)**
    - 9.2.4.7 **List<BFPListElement> QueryBFPs (UUID bspUUID)**
    - 9.2.4.8 **List<UnitSchema> QueryUnits (UUID bspUUID)**
    - 9.2.4.9 **void Terminate ()**

## 10 Application interaction

- 10.1 **class BioAPIException : Exception**
  - 10.1.1 **Description**
  - 10.1.2 **Constructor summary**
    - 10.1.2.1 **public BioAPIException (Facility source, int code)**
    - 10.1.2.2 **public BioAPIException (Facility source, int code, string message)**
    - 10.1.2.3 **public BioAPIException (Facility source, int code, string message, Exception cause)**
    - 10.1.2.4 **public BioAPIException (Facility source, int code, Exception cause)**
  - 10.1.3 **Properties summary**
    - 10.1.3.1 **public int ErrorCode**
    - 10.1.3.2 **public Facility Source**
  - 10.1.4 **Method summary**
    - 10.1.4.1 **public int GetErrorCode()**
    - 10.1.4.2 **public Facility GetSource()**
- 10.2 **Callback functions**
  - 10.2.1 **Description**
  - 10.2.2 **Callback functions specification**
    - 10.2.2.1 **delegate void BSPEventCallback (object sender, UUID bspUUID, int unitID, UnitSchema unitSchema, EventKind eventKind)**
    - 10.2.2.2 **delegate bool GUISelectEventCallback (object sender, UUID bspUUID, int unitID, GUIEnrolType enrolType, GUIOperation operation, GUIMoment moment, int resultCode, int maxNumEnrollSamples, List<BiometricSubtype> selectableInstances, List<BiometricSubtype> selectedInstances, List<BiometricSubtype> capturedInstances, string text, GUIResponse response)**
    - 10.2.2.3 **delegate bool GUIStateEventCallback(object sender, UUID bspUUID, int unitID, GUIOperation operation, GUISuboperation suboperation, Purpose purpose, GUIMoment**

- moment, int resultCode, int EnrolSampleIndex, List<GUIBitmap> bitmaps, string text, GUIResponse response, int enrolSampleIndexToRecapture)
- 10.2.2.4 delegate bool GUIProgressEventCallback(object sender, UUID bspUUID, int unitID, GUIOperation operation, GUISuboperation suboperation, Purpose purpose, GUIMoment moment, byte suboperationProgress, List<GUIBitmap> bitmaps, string text, GUIResponse response)
- 10.2.2.5 delegate void BFPEventCallback(object sender, UUID bfpUUID, int unitID, UnitSchema unitSchema, EventKind eventKind)
- 10.2.2.6 delegate void BFPGUIProgressEventCallback(object sender, int unitID, String context, List<GUIBitmap> bitmaps, byte response)
- 10.2.2.7 delegate List<BFPSchema> BFPEnumerationCallback()

**Annex A (informative) Calling sequence examples and sample code**

- A.1 Reference implementation
- A.2 API Architecture

Page count: 60