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Marlin – Output Control Specification

Version 1.0.5
APPROVED

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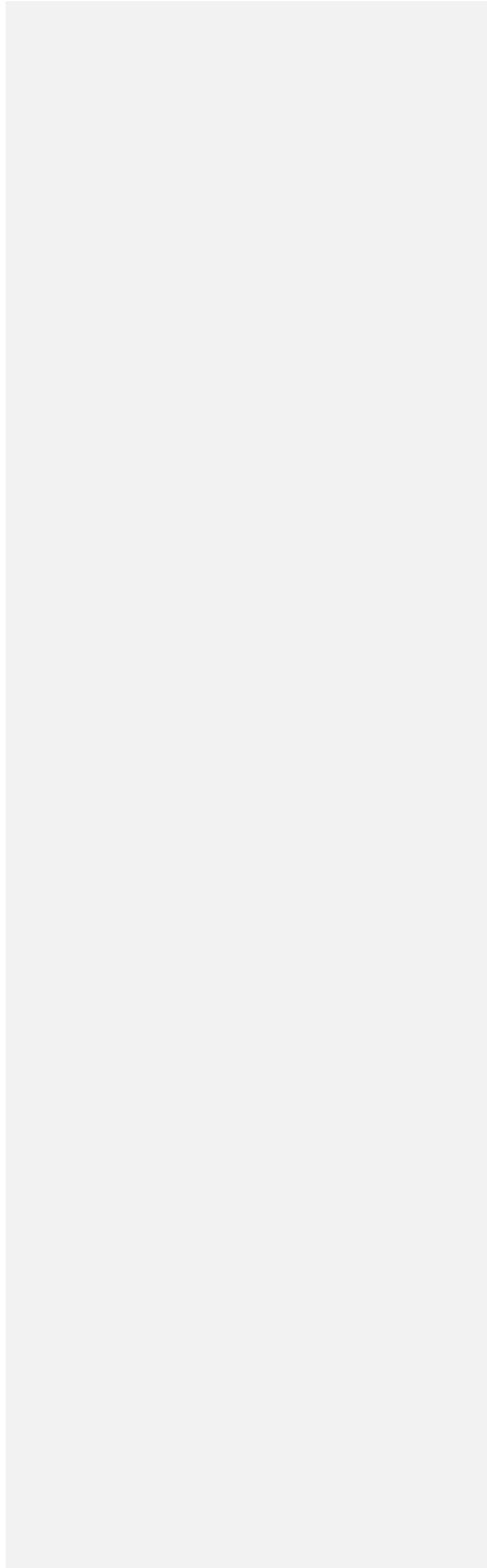
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1 Introduction

This document describes a mechanism by which a license can indicate deviations from the default set of output control requirements specified in the Marlin Compliance Rules for Clients [CLTGCR] and Marlin Robustness Rules for Clients [CLTGRR].

1.1 Terminology and Conventions

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this specification are to be interpreted as described in IETF RFC 2119.

1.2 References

1.2.1 Normative References

[8pus]	Octopus DRM Technology Platform Specifications, Version 1.0
[RFC2119]	S. Bradner, Key words for use in RFCs to Indicate Requirement Levels, IETF RFC 2119, March 1997. http://www.ietf.org/rfc/rfc2119.txt.
[CLTGCR]	"Compliance Rules for Clients: General Section for Audio and Audiovisual Content", Marlin Client Agreement Exhibit A
[CLTGRR]	"Robustness Rules for Clients", Marlin Client Agreement Exhibit B
[DTCP]	Digital Transmission Content Protection Specification Revision 1.4, Appendix B. http://www.dtcp.com/data/info%2020050228%20dtcp%20vol%201%20%201p4.pdf
[MS3]	Marlin – Simple Secure Streaming Specification, Version 1

101 ## 2 Output Control Obligations

102 The following obligation MAY be included in the list of obligations in an
103 ExtendedStatusBlock defined in section 4.1.1 of [8pus] §3.
104

Name	Type	Description		
OutputControl	ValueList	The host application MUST override the default output control requirements for the specified output control technology. The parameters for each unique output technology are specified separately. A separate OutputControl Obligation SHALL be used for each unique output control technology.		
		Type	**Description**	
		String	Unique output control technology ID. This ID is a reserved name or a URN.	
		ValueList	List of values of type Parameter. The syntax and meaning of the parameters are specified for each unique output control technology in section 4.	

105 **Table 2-1, Output Control Obligation**

3 Output Control Permissions

Permissions are similar to Obligations, but are used to convey certain parameters that can alter the obligations (explicit or implicit) that a host application may be subject to.

The Permissions are encoded in the following way in an ExtendedStatusBlock structure:

Parameter Name:
Permissions

Parameter Type:
ValueList

Description:
List of permission parameters. Each value in the list is of type Parameter or Extended Parameter. The following permission parameters are defined:

Name	Type	Description		
OutputControlOverride	ValueList	The host application MAY override some of the default output control requirements for the specified output control technology. The parameters for each unique output control technology are specified separately. A separate OutputControl Permission SHALL be used for each unique output control technology.		
			Type	Description
			String	Unique output control technology ID. This ID is a reserved name or a URN.
			ValueList	List of values of type Parameter. The syntax and meaning of the parameters are specified for each unique output control technology in section 4.

Table 3-1, Output Control Permission

4 Standard Output Control Technologies

4.1 BasicCCI

BasicCCI refers to the common output control parameters common to all approved outputs. When present, these settings SHALL apply to all outputs affected by one of the parameters indicated.

Note: when a parameter is not specified, the default value may be defined in the Marlin Compliance Rules.

When the output control technology ID is BasicCCI, the value list for OutputControl or OutputControlOverride MUST include one or more of the following parameters as the direct children of that value list.

Name	Type	Description
EPN	Integer	32-bit integer. The least significant bit represents the EPN value as specified in Table 4-2.
CCI	Integer	32-bit integer. The 2 least significant bits represent the CCI value as specified in Table 4-3.
ImageConstraintToken	Integer	32-bit integer. The least significant bit represents the Image_Constraint_Token value as specified in Table 4-4.
DigitalOnlyToken	Integer	32-bit integer. The least significant bit represents the Digital_Only_Token value as specified in Table 4-5.
APS	Integer	32-bit integer. The least 2 significant bits represents the APS value as specified in Table 4-6.

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Table 4-1, Basic CCI parameters

Value	Description
0	EPN-asserted
1	EPN-unasserted

Table 4-2, EPN field values

Value	Description
00	Copy Control Not Asserted
01	No More Copy
10	Copy One Generation
11	Never Copy

Table 4-3, CCI field values

Value	Description
0	High Definition Analog Output in the form of Constrained Image
1	High Definition Analog Output in High Definition Analog Form

Table 4-4, ImageConstraintToken field values

Value	Description
0	Output of decrypted content is allowed for Analog/Digital Outputs
1	Output of decrypted content is allowed only for Digital Outputs

150 **Table 4-5, DigitalOnlyToken field values**

151

Value	Description
00	APS off
01	APS on: type 1 (AGC)
10	APS on: type 2 (AGC + 2L colorstripe)
11	APS on: type 3 (AGC + 4L colorstripe)

152 **Table 4-6, APS field values**

153 *4.2 DTCP*

154 DTCP refers to the output control parameters applicable to output over DTCP as
155 defined in [DTCP].
156 When both DTCP and BasicCCI parameters are present, the DTCP parameters
157 SHALL have priority over those of BasicCCI.
158
159 When the output control technology ID is DTCP, the value list for OutputControl or
160 OutputControlOverride MUST include one or more of the following parameters as the
161 direct children of that value list.
162

Name	Type	Description
RetentionMoveMode	Integer	32-bit integer. The least significant bit represents the Retention_Move_mode value as specified in [DTCP]. Note: when a parameter is not specified, the default value may be defined in the Marlin Compliance Rules.
RetentionState	Integer	32-bit integer. The 3 least significant bit represents the Retention_State value as specified in [DTCP]. Note: when a parameter is not specified, the default value may be defined in the Marlin Compliance Rules.
EPN	Integer	32-bit integer. The least significant bit represents the EPN value as specified in [DTCP]
DTCP_CCI	Integer	32-bit integer. The 2 least significant bits represent the CCI value as specified in [DTCP]
ImageConstraintToken	Integer	32-bit integer. The least significant bit represents the Image_Constraint_Token value as specified in [DTCP]
APS	Integer	32-bit integer. The least 2 significant bits represents the APS value as specified in [DTCP]

163 **Table 4-7, DTCP parameters**

164 *4.3 SecureContentPath*

165 SecureContentPath refers to the output control parameters to the path to which the
166 specified decrypted Marlin Content is passed. SecureContentPath MAY be specified
167 for each portion within a Marlin Content. If an unknown or unsupported value is
168 encountered in the parameter marked as critical, the host application MUST refuse to
169 continue the action.
170
171 When the output control technology ID is SecureContentPath, the value list for
172 OutputControl or OutputControlOverride MUST include one or more of the following
173 parameters as the direct children of that value list.
174

Name	Type	Description
DefaultSecurityClass	Integer	32-bit integer. The value represents the ID of a Security Class in big endian byte order as specified in Appendix A. The specified Security Class is applied to all the Marlin Contents referred to by the license.
SecurityClass	ValueList	The Security Class(es) to be applied to the specified portion(s) within the Marlin Content which is encrypted by the specified Marlin Content Key. The specified Security Class(es) SHALL have priority over the default Security Class for the specified portion(s).

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Type	Description
String	The ID of Marlin Content Key encrypting the content(s) to which the specified Security Class is applied.
Integer	32-bit integer. Target Portions as specified in Table 4-9.

ByteArray	The Security Class membership predicate in the syntax below (The notations for Octopus object [8pus] are used). The nesting level SHALL NOT exceed 16.
	
	class Predicate : {
	   byte predicateType;
	   byte[] predicate;
	}
	
	The value of predicateType and syntax of the predicate is specified in the Table 4-10.
	
	Examples:
	- class 9
	Nesting level : 0
	Byte sequence : 0x00 0x00000009
	- ((class 7 and 8) or class 9)
	Nesting level : 2
	Byte sequence : 0x02 0x01 0x00 0x00000007 0x00 0x00000008 0x00 0x00000009

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175 **Table 4-8, SecureContentPath parameters**

176

Value	Description
0	All portions
1	Audio portion
2	Video portion

177 **Table 4-9, Target Portions field values**

178

predicateType	Syntax	Description

0	class SecurityClass : {
	    int classId;
	}
		The Security Class specified by the classId is required. The classId is encoded as unsigned integer in big endian byte order form.

1	class AND : {
	    Predicate predicate;
	    Predicate predicate;
	}
		All the Security Classes specified by the predicates are required

2	class OR : {
	    Predicate predicate
	    Predicate predicate
	}
		Either of the Security Classes specified by the predicates is required.

182 **Table 4-10, SecurityClass membership predicate**

183

5 Extensions to MS3

185 The following SAS extensions [MS3] MAY be used to indicate deviations from the
186 output control requirements and parameters for the usage of the MS3.
187

5.1 Extensions for SecureContentPath

189 The SecureContentPath parameters defined in Section 4.3 is represented as the
190 SAS extensions defined below.
191

Field name	Description
size	See [MS3].
type	0x73706463 ('spdc')
criticalFlag	See [MS3].

payload	The structure and the semantics of the payload is defined as follows:
	
	``
	payload: {
	    defaultSecurityClass: bit (32)
	}
	``
	
	• defaultSecurityClass: The bit field represents the same semantics with the integer value of 'DefaultSecurityClass' parameter specified in Table 4-8.

192 **Table 5-1, SAS extension for DefaultSecurityClass parameter**

193

Field name	Description
size	See [MS3].
type	0x73707363 ('spsc')
criticalFlag	See [MS3].

payload	The structure and the semantics of the payload is defined as follows:
	
	``
	payload: {
	    securityClassCount: unsigned int (32)
	    securityClasses: SecurityClass [securityClassCount]
	}
	SecurityClass: {
	    index: unsigned int (32)
	    portions: unsigned int (32)
	    securityClassPredicate: SecurityClassPredicate
	}
	SecurityClassPredicate: {
	    size: unsigned int (16)
	    predicate: bit(8) [size]
	}
	``
	
	• securityClassCount: A number of Security Classes in the securityClasses array.
	
	• securityClasses: array of one or more SecurityClass. Each SecurityClass contains an index and the corresponding Security Class as sc.
	
	    o index: An index of the keys array in a SAS. The contentId in the referenced Key specifies the ID of Marlin Content to

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		which the specified Security Class is applied.
		o portions: A type of portions specified in Table 4-9.
		o predicate: A SecurityClasses membership predicate specified in Table 4-8.

195 **Table 5-2, SAS extension for SecurityClass parameter**

Appendix A   Security Classes

A Security Class implies the set of security requirements to be met when a host application consumes the content.

ID	Description
0	The Decrypted Marlin Content is allowed to be passed to unconstrained Analog/Digital Outputs.
1	Reserved for future use
2	Decrypted uncompressed video content is constrained to a resolution not exceeding 2,073,600 pixels
3	Decrypted uncompressed video content is passed to a digital output with HDCP version 2.2 or higher engaged
4	License evaluation, Content Key and Content Handling shall be compliant with the Marlin Enhanced Content Protection C&R Rules, v1.0