IEEE P802.11
Wireless LANs

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| LB 266 Resolution for EHT bandwidth indication |
| Date: December 13, 2022 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Morteza Mehrnoush | Meta |  |  | mmehrnoush@meta.com |
| Chunyu Hu | Meta |  |  |  |
| Kumail Haider | Meta |  |  |  |
| Binita Gupta | Meta |  |  |  |

 Abstract

This submission proposes resolutions for following 1 CIDs received for TGbe LB266:

10574

**Revisions:**

* Rev 0: Initial version of the document.
* Rev 1: Replaced EHT Operation element with the new “Bandwidth Indication element”; this new element is added to 11-22/1369r5 and is re-used in this doc for TDLS channel switch and also the measurement request/report.

***TGbe editor: The baseline for this document is 11be D2.3***

Interpretation of a Motion to Adopt

A motion to approve this submission means that the editing instructions and any changed or added material are actioned in the TGbe Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGbe Draft (i.e., they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

***TGbe Editor: Editing instructions preceded by “TGbe Editor” are instructions to the TGbe editor to modify existing material in the TGbe draft. As a result of adopting the changes, the TGbe editor will execute the instructions rather than copy them to the TGbe Draft.***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Clause** | **Pg/Ln** | **Comment** | **Proposed Change** | **Resolution** |
| 10574 | Abhishek Patil | 9.6.12.4 | 259.56 | The row corresponding to Wide Bandwidth Channel Switch element in Table 520 needs to be updated to indicate 320 MHz and to be consistent with 11.20.6.5.1 | As in comment | **Revised**Agree in principle. The comment refers to the Table9-502. The Bandwidth Indication element is added to indicate the 320 MHz or the punctured subchannels bandwidth for TDLS channel switch and measurement request/report.**Tgbe editor: please make the changes indicated in this doc 11-22/2167r1 tagged with 10574.** |

**Discussion:**

The new “Bandwidth Indication element” is added to doc 1369r5 (subclause 9.4.2.x1 Bandwidth Indication element) and it is used in this doc for bandwidth indication.

For brevity the text for this new element is not repeated here.

**>>>>>>>>>>>>>> PART-1: TDLS Channel Switching to off-channel <<<<<<<<<<<<<<<<**

**9.6.12.7 TDLS Channel Switch Request Action field format**

***TGbe editor: Please change the contents of this Table as shown below:***

**Table 9-502**—**Information for TDLS Channel Switch Request Action field.[#10574]**

|  |  |  |
| --- | --- | --- |
| Order | Information | Notes |
| 11 | Bandwidth Indication element | Bandwidth Indication element (optional). For an EHT STA, the Bandwidth Indication element is present when switching to a wider than 160MHz direct link channel or a direct channel including at least one punctured 20MHz subchannel is indicated. See 9.4.2.x1 (Bandwidth Indication element). |

**11.20.6 TDLS channel switching**

**11.20.6.5 Setting up a wide bandwidth off-channel direct link**

**11.20.6.5.1 General**

***TGbe editor: Please change the 3rd paragraph in this subclause as shown below:***

Switching to a wideband off-channel direct link is achieved by including any of the following information in the TDLS Channel Switch Request frame:

— An Operating Class element indicating 40 MHz Channel spacing and a Secondary Channel Offset element indicating SCA or SCB

— A Wide Bandwidth Channel Switch element indicating 80 MHz [#10574]or 160 MHz channel width for EHT STAs

— [#10574]An Bandwidth Indication element indicating wider than 160 MHz channel width or switching to a punctured channel for EHT STAs

— A Wide Bandwidth Channel Switch element indicating 80 MHz, 160 MHz, or 80+80 MHz channel width for VHT STAs

— A Wide Bandwidth Channel Switch element indicating 4 MHz, 8 MHz, or 16 MHz channel width for S1G STAs

**>>>>>>>>>>>>>> end of PART-1 <<<<<<<<<<<<<<<<**

**>>>>>>>>>>>>>> PART-2: Measurement Request/Report Between AP and STA <<<<<<<<<<<<<<<<**

**9.4.2.20.5 Channel Load request**

***TGbe editor: Please change the content of this table as shown below:***

**Table 9-135 -- Optional subelement IDs for Channel Load request**[#10574]

|  |  |  |
| --- | --- | --- |
| **Subelement ID** | **Name** | **Extensible** |
| 0 | Reserved |  |
| 1 | Channel Load Reporting | Yes |
| 2–162 | Reserved |  |
| 163 | Wide Bandwidth Channel Switch | Yes |
| 164 | Bandwidth Indication | Yes |
| 165–220 | Reserved |  |
| 221 | Vendor Specific | Vendor defined |
| 222–255 | Reserved |  |

***TGbe editor: Please insert this paragraph after the 9th paragraph in this subclause as shown below***

[#10574]For the EHT STA, the Bandwidth Indication subelement is included to indicate the EHT BSS operating channel width wider than 160 MHz or an EHT BSS operating channel width including at least one punctured 20MHz subchannel for which the measurement request applies. The Bandwidth Indication subelement has the same format as the Bandwidth Indication element (see 9.4.2.x1 (Bandwidth Indication element)). When the Bandwidth Indication subelement is present, an EHT STA for determining the EHT BSS operating channel bandwidth for which the measurement request applies shall use Bandwidth Indication subelement indication and shall ignore the Wide Bandwidth Channel Switch subelement indication.

When the Bandwidth Indication subelement is present along with the Wide Bandwidth Channel Switch subelement,

* the announced BSS bandwidth in the Wide Bandwidth Channel Switch subelement is the maximum bandwidth including the primary channel without covering any punctured 20 MHz subchannel indicated in the Disabled Subchannel Bitmap subfield in the Bandwidth Indication subelement as defined in 35.16.2 (Preamble puncturing operation), and
* the announced BSS bandwidth in the Wide Bandwidth Channel Switch subelement is less than the bandwidth in the Bandwidth Indication subelement and the corresponding BSS bandwidth shall not be an 80+80 MHz channel.

**9.4.2.20.6 Noise Histogram request**

***TGbe editor: Please change the content of this table as shown below:***

**Table 9-137 -- Optional subelement IDs for Noise Histogram request**[#10574]

|  |  |  |
| --- | --- | --- |
| **Subelement ID** | **Name** | **Extensible** |
| 0 | Reserved |  |
| 1 | Noise Histogram Reporting | Yes |
| 2–162 | Reserved |  |
| 163 | Wide Bandwidth Channel Switch | Yes |
| 164 | Bandwidth Indication | Yes |
| 165–220 | Reserved |  |
| 221 | Vendor Specific | Vendor defined |
| 222–255 | Reserved |  |

***TGbe editor: Please insert this paragraph after the 9th paragraph in this subclause as shown below***

[#10574]For the EHT STA, the Bandwidth Indication subelement is included to indicate the EHT BSS operating channel width wider than 160 MHz or an EHT BSS operating channel width including at least one punctured 20MHz subchannel for which the measurement request applies. The Bandwidth Indication subelement has the same format as the Bandwidth Indication element (see 9.4.2.x1 (Bandwidth Indication element)). When the Bandwidth Indication subelement is present, an EHT STA for determining the EHT BSS operating channel bandwidth for which the measurement request applies shall use Bandwidth Indication subelement indication and shall ignore the Wide Bandwidth Channel Switch subelement indication.

When the Bandwidth Indication subelement is present along with the Wide Bandwidth Channel Switch subelement,

* the announced BSS bandwidth in the Wide Bandwidth Channel Switch subelement is the maximum bandwidth including the primary channel without covering any punctured 20 MHz subchannel indicated in the Disabled Subchannel Bitmap subfield in the Bandwidth Indication subelement as defined in 35.16.2 (Preamble puncturing operation), and
* the announced BSS bandwidth in the Wide Bandwidth Channel Switch subelement is less than the bandwidth in the Bandwidth Indication subelement and the corresponding BSS bandwidth shall not be an 80+80 MHz channel.

**9.4.2.20.7 Beacon request**

***TGbe editor: Please change the content of this table as shown below:***

**Table 9-140 -- Optional subelement IDs for Beacon request**[#10574]

|  |  |  |
| --- | --- | --- |
| **Subelement ID** | **Name** | **Extensible** |
| 0 | SSID | No |
| 1 | Beacon Reporting | Yes |
| 2 | Reporting Detail | Yes |
| 3–9 | Reserved |  |
| 10 | Request | No |
| 11 | Extended Request  | No |
| 12–50 | Reserved |  |
| 51 | AP Channel Report | No |
| 52–162 | Reserved |  |
| 163 | Wide Bandwidth Channel Switch | Yes |
| 164 | Last Beacon Report Indication Request | No |
| 165 | Bandwidth Indication | Yes |
| 166–220 | Reserved |  |
| 221 | Vendor Specific | Vendor defined |
| 222–255 | Reserved |  |

***TGbe editor: Please insert this paragraph after the 18th paragraph in this subclause as shown below***

[#10574]For the EHT STA, the Bandwidth Indication subelement is included to indicate the EHT BSS operating channel width wider than 160 MHz or an EHT BSS operating channel width including at least one punctured 20MHz subchannel for which the measurement request applies. The Bandwidth Indication subelement has the same format as the Bandwidth Indication element (see 9.4.2.x1 (Bandwidth Indication element)). When the Bandwidth Indication subelement is present, an EHT STA for determining the EHT BSS operating channel bandwidth for which the measurement request applies shall use Bandwidth Indication subelement indication and shall ignore the Wide Bandwidth Channel Switch subelement indication.

When the Bandwidth Indication subelement is present along with the Wide Bandwidth Channel Switch subelement,

* the announced BSS bandwidth in the Wide Bandwidth Channel Switch subelement is the maximum bandwidth including the primary channel without covering any punctured 20 MHz subchannel indicated in the Disabled Subchannel Bitmap subfield in the Bandwidth Indication subelement as defined in 35.16.2 (Preamble puncturing operation), and

 the announced BSS bandwidth in the Wide Bandwidth Channel Switch subelement is less than the bandwidth in the Bandwidth Indication subelement and the corresponding BSS bandwidth shall not be an 80+80 MHz channel.

**9.4.2.20.8 Frame request**

***TGbe editor: Please change the content of this table as shown below:***

 **Table 9-143— Optional subelement IDs for Frame request**[#10574]

|  |  |  |
| --- | --- | --- |
| **Subelement ID** | **Name** | **Extensible** |
| 0–162 | Reserved |  |
| 163 | Wide Bandwidth Channel Switch | Yes |
| 164 | Bandwidth Indication | Yes |
| 165–220 | Reserved |  |
| 221 | Vendor Specific | Vendor defined |
| 222–255 | Reserved |  |

***TGbe editor: Please insert this paragraph after the 10th paragraph in this subclause as shown below***

[#10574]For the EHT STA, the Bandwidth Indication subelement is included to indicate the EHT BSS operating channel width wider than 160 MHz or an EHT BSS operating channel width including at least one punctured 20MHz subchannel for which the measurement request applies. The Bandwidth Indication subelement has the same format as the Bandwidth Indication element (see 9.4.2.x1 (Bandwidth Indication element)). When the Bandwidth Indication subelement is present, an EHT STA for determining the EHT BSS operating channel bandwidth for which the measurement request applies shall use Bandwidth Indication subelement indication and shall ignore the Wide Bandwidth Channel Switch subelement indication.

When the Bandwidth Indication subelement is present along with the Wide Bandwidth Channel Switch subelement,

* the announced BSS bandwidth in the Wide Bandwidth Channel Switch subelement is the maximum bandwidth including the primary channel without covering any punctured 20 MHz subchannel indicated in the Disabled Subchannel Bitmap subfield in the Bandwidth Indication subelement as defined in 35.16.2 (Preamble puncturing operation), and
* the announced BSS bandwidth in the Wide Bandwidth Channel Switch subelement is less than the bandwidth in the Bandwidth Indication subelement and the corresponding BSS bandwidth shall not be an 80+80 MHz channel.

**9.4.2.21.5 Channel Load report**

***TGbe editor: Please change the content of this table as shown below:***

Table 9-163— **Optional subelement IDs for Channel Load report**[#10574]

|  |  |  |
| --- | --- | --- |
| **Subelement ID** | **Name** | **Extensible** |
| 0–162 | Reserved |  |
| 163 | Wide Bandwidth Channel Switch | Yes |
| 164 | Bandwidth Indication | Yes |
| 165–220 | Reserved |  |
| 221 | Vendor Specific | Vendor defined |
| 222–255 | Reserved |  |

***TGbe editor: Please insert this paragraph after the 8th paragraph in this subclause as shown below***

[#10574]For the EHT STA, the Bandwidth Indication subelement is included to indicate the EHT BSS operating channel width wider than 160 MHz or an EHT BSS operating channel width including at least one punctured 20MHz subchannel for which the measurement report applies. The Bandwidth Indication subelement has the same format as the Bandwidth Indication element (see 9.4.2.x1 (Bandwidth Indication element)). When the Bandwidth Indication subelement is present, an EHT STA for determining the EHT BSS operating channel bandwidth for which the measurement report applies shall use Bandwidth Indication subelement indication and shall ignore the Wide Bandwidth Channel Switch subelement indication.

When the Bandwidth Indication subelement is present along with the Wide Bandwidth Channel Switch subelement,

* the announced BSS bandwidth in the Wide Bandwidth Channel Switch subelement is the maximum bandwidth including the primary channel without covering any punctured 20 MHz subchannel indicated in the Disabled Subchannel Bitmap subfield in the Bandwidth Indication subelement as defined in 35.16.2 (Preamble puncturing operation), and
* the announced BSS bandwidth in the Wide Bandwidth Channel Switch subelement is less than the bandwidth in the Bandwidth Indication subelement and the corresponding BSS bandwidth shall not be an 80+80 MHz channel.

**9.4.2.21.6 Noise Histogram report**

***TGbe editor: Please change the content of this table as shown below:***

**Table 9-165— Optional subelement IDs for Noise Histogram report**[#10574]

|  |  |  |
| --- | --- | --- |
| **Subelement ID** | **Name** | **Extensible** |
| 0–162 | Reserved |  |
| 163 | Wide Bandwidth Channel Switch | Yes |
| 164 | Bandwidth Indication | Yes |
| 165–220 | Reserved |  |
| 221 | Vendor Specific | Vendor defined |
| 222–255 | Reserved |  |

***TGbe editor: Please insert this paragraph after the 10th paragraph in this subclause as shown below***

[#10574]For the EHT STA, the Bandwidth Indication subelement is included to indicate the EHT BSS operating channel width wider than 160 MHz or an EHT BSS operating channel width including at least one punctured 20MHz subchannel for which the measurement report applies. The Bandwidth Indication subelement has the same format as the Bandwidth Indication element (see 9.4.2.x1 (Bandwidth Indication element)). When the Bandwidth Indication subelement is present, an EHT STA for determining the EHT BSS operating channel bandwidth for which the measurement report applies shall use Bandwidth Indication subelement indication and shall ignore the Wide Bandwidth Channel Switch subelement indication.

When the Bandwidth Indication subelement is present along with the Wide Bandwidth Channel Switch subelement,

* the announced BSS bandwidth in the Wide Bandwidth Channel Switch subelement is the maximum bandwidth including the primary channel without covering any punctured 20 MHz subchannel indicated in the Disabled Subchannel Bitmap subfield in the Bandwidth Indication subelement as defined in 35.16.2 (Preamble puncturing operation), and
* the announced BSS bandwidth in the Wide Bandwidth Channel Switch subelement is less than the bandwidth in the Bandwidth Indication subelement and the corresponding BSS bandwidth shall not be an 80+80 MHz channel.

**9.4.2.21.8 Beacon report**

***TGbe editor: Please change the content of this table as shown below:***

**Table 9-167— Optional subelement IDs for Beacon report**[#10574]

|  |  |  |
| --- | --- | --- |
| **Subelement ID** | **Name** | **Extensible** |
| 0 | Reserved |  |
| 1 | Reported Frame Body | No |
| 2 | Reported Frame Body Fragment ID | No |
| 3–162 | Reserved |  |
| 163 | Wide Bandwidth Channel Switch | Yes |
| 164 | Last Beacon Report Indication | No |
| 165 | Bandwidth Indication | Yes |
| 166-220 | Reserved |  |
| 221 | Vendor Specific | Vendor defined |
| 222–255 | Reserved |  |

***TGbe editor: Please insert this paragraph after the 20th paragraph in this subclause as shown below***

[#10574]For the EHT STA, the Bandwidth Indication subelement is included to indicate the EHT BSS operating channel width wider than 160 MHz or an EHT BSS operating channel width including at least one punctured 20MHz subchannel for which the measurement report applies. The Bandwidth Indication subelement has the same format as the Bandwidth Indication element (see 9.4.2.x1 (Bandwidth Indication element)). When the Bandwidth Indication subelement is present, an EHT STA for determining the EHT BSS operating channel bandwidth for which the measurement report applies shall use Bandwidth Indication subelement indication and shall ignore the Wide Bandwidth Channel Switch subelement indication.

When the Bandwidth Indication subelement is present along with the Wide Bandwidth Channel Switch subelement,

* the announced BSS bandwidth in the Wide Bandwidth Channel Switch subelement is the maximum bandwidth including the primary channel without covering any punctured 20 MHz subchannel indicated in the Disabled Subchannel Bitmap subfield in the Bandwidth Indication subelement as defined in 35.16.2 (Preamble puncturing operation), and
* the announced BSS bandwidth in the Wide Bandwidth Channel Switch subelement is less than the bandwidth in the Bandwidth Indication subelement and the corresponding BSS bandwidth shall not be an 80+80 MHz channel.

**9.4.2.21.8 Frame report**

***TGbe editor: Please change the content of this table as shown below:***

**Table 9-167— Optional subelement IDs for Frame report**[#10574]

|  |  |  |
| --- | --- | --- |
| **Subelement ID** | **Name** | **Extensible** |
| 0 | Reserved |  |
| 1 | Frame Count Report | No |
| 2–162 | Reserved |  |
| 163 | Wide Bandwidth Channel Switch | Yes |
| 164 | Bandwidth Indication | Yes |
| 165–220 | Reserved |  |
| 221 | Vendor Specific | Vendor defined |
| 222–255 | Reserved |  |

***TGbe editor: Please insert this paragraph after the 20th paragraph in this subclause as shown below***

[#10574]For the EHT STA, the Bandwidth Indication subelement is included to indicate the EHT BSS operating channel width wider than 160 MHz or an EHT BSS operating channel width including at least one punctured 20MHz subchannel for which the measurement report applies. The Bandwidth Indication subelement has the same format as the Bandwidth Indication element (see 9.4.2.x1 (Bandwidth Indication element)). When the Bandwidth Indication subelement is present, an EHT STA for determining the EHT BSS operating channel bandwidth for which the measurement report applies shall use Bandwidth Indication subelement indication and shall ignore the Wide Bandwidth Channel Switch subelement indication.

When the Bandwidth Indication subelement is present along with the Wide Bandwidth Channel Switch subelement,

* the announced BSS bandwidth in the Wide Bandwidth Channel Switch subelement is the maximum bandwidth including the primary channel without covering any punctured 20 MHz subchannel indicated in the Disabled Subchannel Bitmap subfield in the Bandwidth Indication subelement as defined in 35.16.2 (Preamble puncturing operation), and
* the announced BSS bandwidth in the Wide Bandwidth Channel Switch subelement is less than the bandwidth in the Bandwidth Indication subelement and the corresponding BSS bandwidth shall not be an 80+80 MHz channel.

**9.6.7.3 Measurement Pilot frame format**

***TGbe editor: Please change the content of this table as shown below:***

**Table 9-449—Optional subelement IDs for Measurement Pilot frame**[#10574]

|  |  |  |
| --- | --- | --- |
|  |  |  |
| **Subelement ID** | **Name** | **Extensible** |
| 0–70 | Reserved |  |
| 71 | Multiple BSSID | Subelements |
| 72–162 | Reserved |  |
| 163 | Wide Bandwidth Channel Switch | Yes |
| 164 | Bandwidth Indication | Yes |
| 165–220 | Reserved |  |
| 221 | Vendor Specific | Vendor defined |
| 222–255 | Reserved |  |

***TGbe editor: Please insert this paragraph after the 13th paragraph in this subclause as shown below***

[#10574]For the EHT STA, the Bandwidth Indication subelement is included to indicate the EHT BSS operating channel width wider than 160 MHz or an EHT BSS operating channel width including at least one punctured 20MHz subchannel. The Bandwidth Indication subelement has the same format as the Bandwidth Indication element (see 9.4.2.x1 (Bandwidth Indication element)). When the Bandwidth Indication subelement is present, an EHT STA for determining the EHT BSS operating channel bandwidth shall use Bandwidth Indication subelement indication and shall ignore the Wide Bandwidth Channel Switch subelement indication.

When the Bandwidth Indication subelement is present along with the Wide Bandwidth Channel Switch subelement,

* the announced BSS bandwidth in the Wide Bandwidth Channel Switch subelement is the maximum bandwidth including the primary channel without covering any punctured 20 MHz subchannel indicated in the Disabled Subchannel Bitmap subfield in the Bandwidth Indication subelement as defined in 35.16.2 (Preamble puncturing operation), and
* the announced BSS bandwidth in the Wide Bandwidth Channel Switch subelement is less than the bandwidth in the Bandwidth Indication subelement and the corresponding BSS bandwidth shall not be an 80+80 MHz channel.

**11.10.9.1 Beacon report**

**11.10.9.1.1 General**

***TGbe editor: Please change the 16th paragraphs in this subclause as shown below:***

A STA that is not extended spectrum management capable shall not include a Wide Bandwidth Channel Switch subelement [#10574]or Bandwidth Indication subelement in a Beacon request or Beacon report. A STA shall not include a Wide Bandwidth Channel Switch subelement [#10574]or Bandwidth Indication subelement in a Beacon request or Beacon report sent to a STA that is not extended spectrum management capable. If the Wide Bandwidth Channel Switch subelement is included in a Beacon request or Beacon report, then the Operating Class shall indicate a 40 MHz channel spacing.

**11.10.9.2 Frame report**

***TGbe editor: Please change the 9th paragraphs in this subclause as shown below:***

A STA that is not extended spectrum management capable shall not include a Wide Bandwidth Channel Switch subelement [#10574]or Bandwidth Indication subelement in a Frame request or Frame report. A STA shall not include a Wide Bandwidth Channel Switch subelement [#10574]or Bandwidth Indication subelement in a Frame request or Frame report sent to a STA that is not extended spectrum management capable. If the Wide Bandwidth Channel Switch subelement is included in a Frame request or Frame report, then the Operating Class shall include a 40 MHz channel spacing.

**11.10.9.3 Channel load report**

***TGbe editor: Please change the 5th paragraphs in this subclause as shown below:***

A STA that is not extended spectrum management capable shall not include a Wide Bandwidth Channel Switch subelement [#10574]or Bandwidth Indication subelement in a Channel Load request or Channel Load report. A STA shall not include a Wide Bandwidth Channel Switch subelement [#10574]or Bandwidth Indication subelement in a Channel Load request or Channel Load report sent to a STA that is not extended spectrum management capable. If the Wide Bandwidth Channel Switch subelement is included in a Channel Load request or a Channel Load report, then the Operating Class shall indicate a 40 MHz channel spacing.

**11.10.9.4 Noise Histogram report**

***TGbe editor: Please change the 8th paragraphs in this subclause as shown below:***

A STA that is not extended spectrum management capable shall not include a Wide Bandwidth Channel Switch subelement [#10574]or Bandwidth Indication subelement in a Noise Histogram request or Noise Histogram report. A STA shall not include a Wide Bandwidth Channel Switch subelement [#10574]or Bandwidth Indication subelement in a Noise Histogram request or Noise Histogram report sent to a STA that is not extended spectrum management capable. If the Wide Bandwidth Channel Switch subelement is included in a Noise Histogram request or a Noise Histogram report, then the Operating Class shall indicate a 40 MHz channel spacing.

**11.10.15.2 Measurement Pilot frame generation by an AP**

***TGbe editor: Please change the 3rd paragraphs in this subclause as shown below:***

An AP that is not extended spectrum management capable shall not include a Wide Bandwidth Channel Switch subelement [#10574]or Bandwidth Indication subelement in a Measurement Pilot frame. If the Wide Bandwidth Channel Switch subelement is included in a Measurement Pilot frame, then the Operating Class shall include a 40 MHz channel spacing.

**>>>>>>>>>>>>>> end of PART-2 <<<<<<<<<<<<<<<<**