XGS-PON bei BBCS

Brief description of XGS-PON as part of BBCS

swisscom

C1 - Public

XGS PON – The next generation access technology

Introducing XGS-PON as a further connection technology at BBCS

Even if bandwidths of up to 1 Gbps still cover the needs of Internet users for a longer period of time than enough, Swisscom is already working on the next technology step. With XGS-PON, Swisscom meets the future requirements for more bandwidth and also for the rollout outside the big cities. On the one hand, the XGS-PON technology can be integrated in today's FTTH area with its point-to-point architecture, but on the other hand, the technology can also be optimally retrofitted in regions with FTTS or FTTB. This clears the way for bandwidths of up to 10 Gbps outside the big cities.

On 1 December 2019, XGS-PON became available as a new connection technology at BBCS for your services. In addition, additional speed profiles expanded the range up to 10 Gbps.

From 1 November 2020, all BBCS providers will be automatically unlocked for the XGS-PON technology.

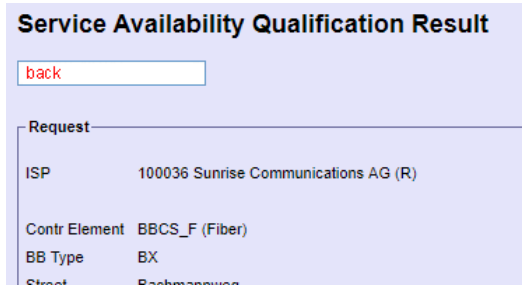
Qualification

XGS-PON access qualification

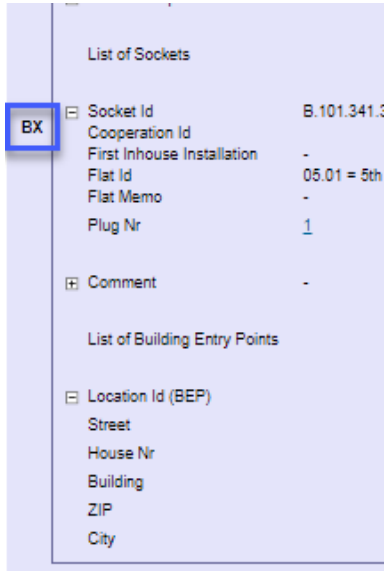
WSG Service Fulfillment
WSG SAQ with Fiber

Response BBType "Fiber"

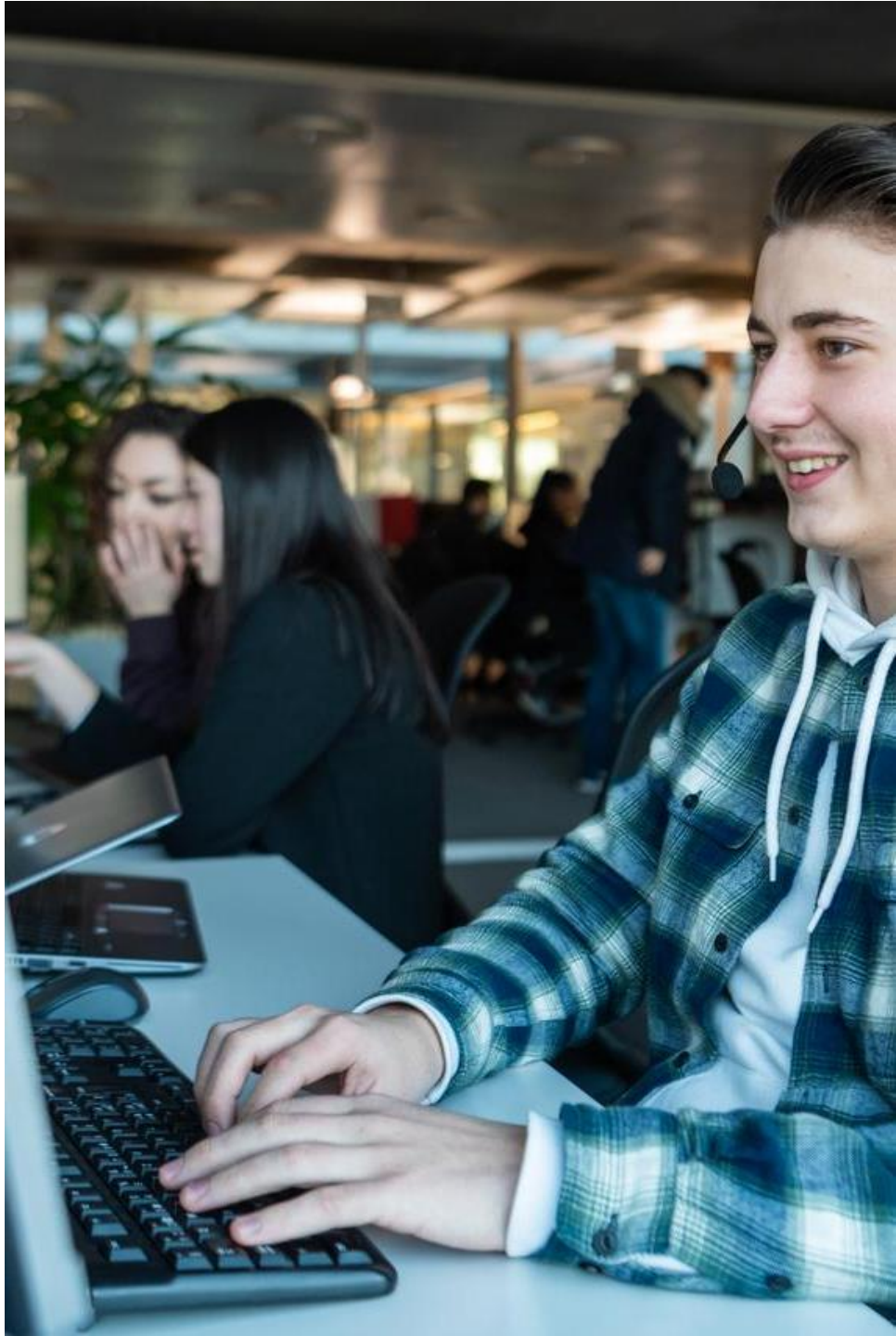
Until now, WSG only knew the BX technology at Fiber.



For a service Availablilty Qualification (SAQ), the response always included the value "BX" in BBType if fiber was possible at the requested address.



With the introduction of XGS-PON, this changed.



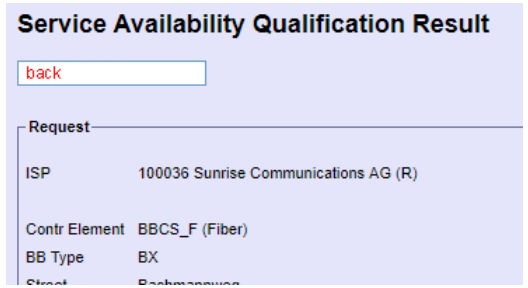
WSG Service Fulfillment
WSG SAQ with Fiber

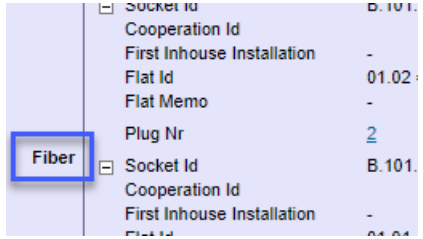
As mentioned in the Product Info of October 2019, buildings can now also be accessed with XGS-PON technology. There are buildings that still have only BX, those that only have XGS-PON and those in which both technologies are available.

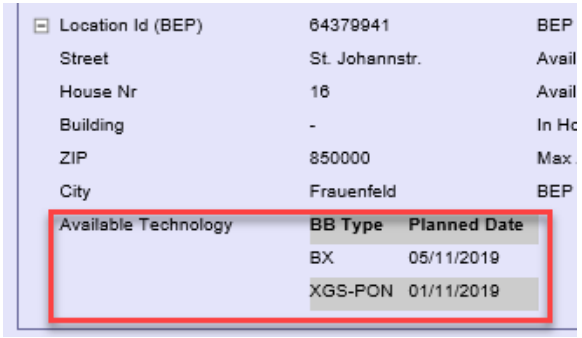
Therefore, since November 2019, the value "Fiber" is returned in BBType if Fiber Lines are possible (BX and/or XGS-PON)

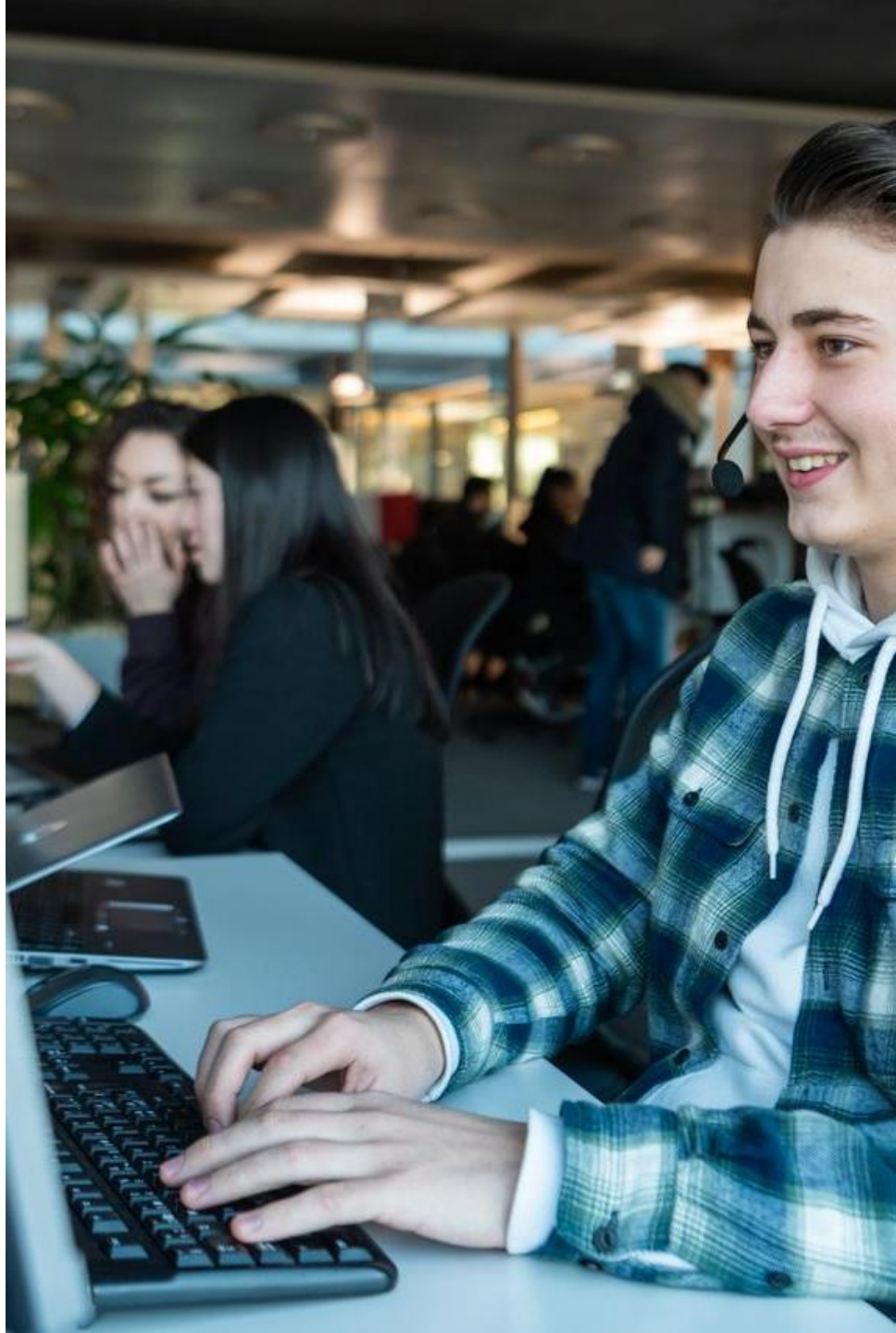
The fiber technologies that are possible in a building can be seen under "Available Technolgy" and a plan date if a technology is planned.

However, the concretely available technologies on a specific OTO/utilization unit are only provided with the service qualification.









Ordering

XGS-PON order process

WSG Service Fulfillment
WSG XGS PON Use Cases

The following Use Case Matrix shows which use case what "OrderType" and/or "BusinessType" for XGS PON is to be used:

From \ To	To BBCS-F BX	To BBCS-F XGS-PON	To ALO (P2P)
BBCS-F BX	Order Type : ISP Change Business Type : ---	Order Type : Create Business Type : TechChange --------- OR ---------- Order Type : Create Business Type : ISP Change (beinhaltet Tech Change)	ALO Order Type : Create ALO Business Type : ProductChange (ein ISP Change ist im Order möglich) --------- OR ---------- ALO Order Type : Create ALO Business Type : New
BBCS-F XGS-PON	Order Type : Create Business Type : TechChange --------- OR ---------- Order Type : Create Business Type : ISP Change (beinhaltet Tech Change)	Order Type : ISP Change Business Type : ---	ALO Order Type : Create ALO Business Type : ProductChange (ein ISP Change ist im Order möglich) --------- OR ---------- ALO Order Type : Create ALO Business Type : New
ALO (P2P)	Order Type : Create Business Type : ProductChange --------- OR ---------- Order Type : Create Business Type : ISP Change (beinhaltet Product Change)	Order Type : Create Business Type : ProductChange --------- OR ---------- Order Type : Create Business Type : ISP Change (beinhaltet Product Change)	ALO Order Type : ISP Change ALO Business Type : ISP Change
FBC BX	Order Type : Create Business Type : New	Order Type : Create Business Type : New	ALO Order Type : Create ALO Business Type : New --------- OR ---------- ALO Order Type : Create ALO Business Type : Product Change
FBC XGS-PON	Order Type : Create Business Type : New	Order Type : Create Business Type : New	ALO Order Type : Create ALO Business Type : New --------- OR ---------- ALO Order Type : Create ALO Business Type : Product Change
No Service	Order Type : Create Business Type : New	Order Type : Create Business Type : New	ALO Order Type : Create ALO Business Type : New

WSG Service Fulfillment
WSG XGS PON Order

When ordering, the connection is prepared for activation after entering the OTO and plug, profile and service mix and the desired termination type. The ISP will receive the NSN and Activation Code. MAC address is optional:

Detail Order

Main | *Virtual Order* | *Internal* | *Order Tracking* | CPE Info | Predecessor Info

Order Info

Order Type	**BBCS_CREATE**
Order State	**HOLDING**
Business Type	New
Creation Type	New
Response	Ready for Activation
Sf Exept Prio	Basic
Activation Code	513676
MAC Address	80:41:26:90:8B:7E

DN Info

DN / VN / NSN (Requested)	0106527726
DN (STNR) / VN / NSN	0106527726
STNR DDI	-
Dn Type	Netservices number

Date Info

Customer Wish Date	23. Sep. 2020
Estimated Due Date/Time Start	23. Sep. 2020 10:00
Estimated Due Date/Time End	23. Sep. 2020 12:00
Termination Date	-

Qualified Endpoint

DN Office	79LIM
BB Device Location	LIM
Site	-
Site Category	-
Available Technology Type	-
DSLAM Name	-
Dslam Type	-
Technology Type	-
Vectorized	-

ISP / Order Nr Info

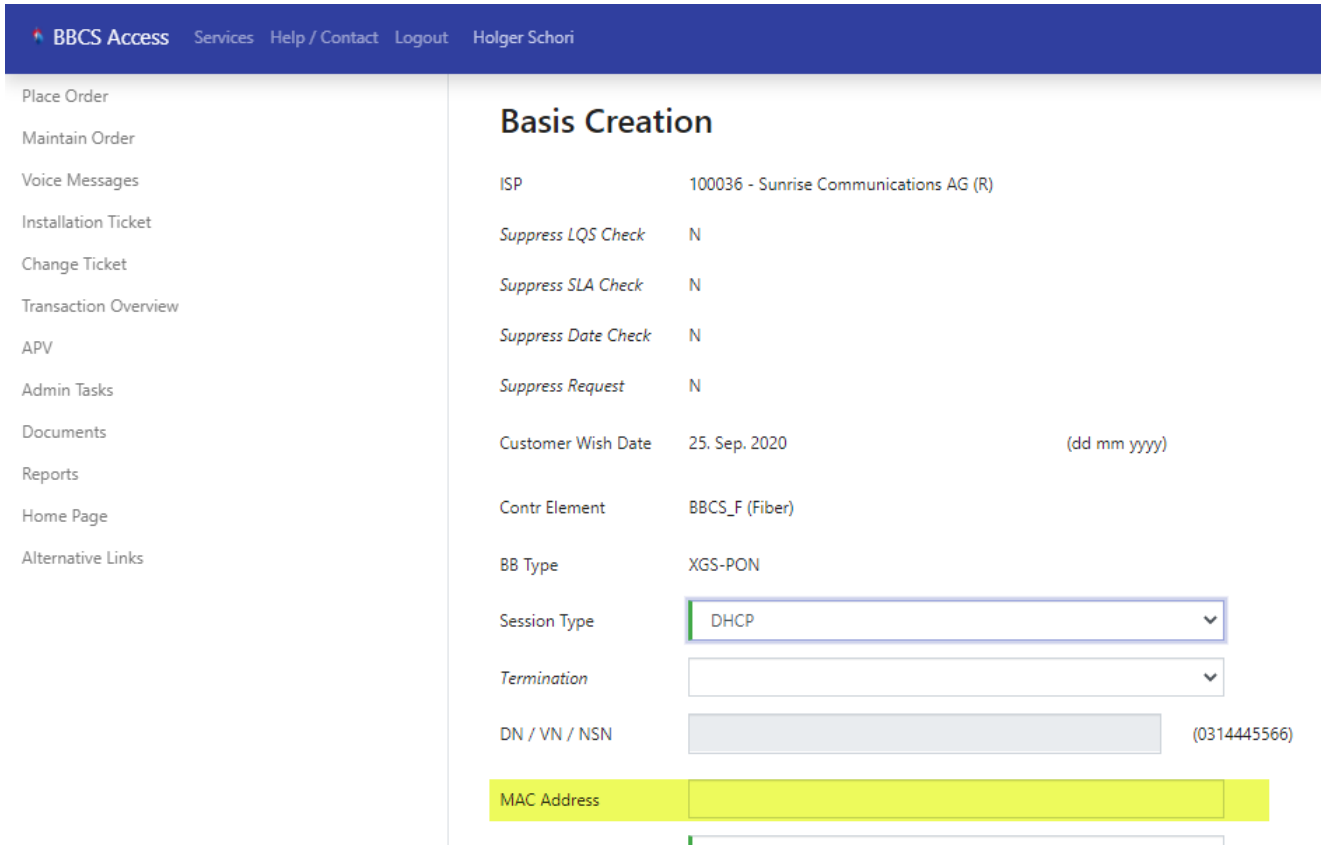
If the order is in the order state "Holding" with "Ready for Activation" the end customer can start the activation:

History

#	User Name	Order State	DN (STNR) / VN / NSN	Response	Transaction Date / Time	BB Type	Speed Profile Nr	Responsible User	Kind Of Problem	Responsible User Comment	Comment	Customer Wish Date	Estimated Due Date / Time Start	Estimated Due Date / Time End
Detail	Batch	HOLDING	0106527726	Ready for Activation	23. Sep. 2020 09:53:34.801	XGS-PON	-	-	-	-	-	23. Sep. 2020	23. Sep. 2020 10:00:00	23. Sep. 2020 12:00:00
Detail	Batch	ENTERED	0106527726	Ready for Activation	23. Sep. 2020 09:53:18.142	XGS-PON	-	-	-	-	-	23. Sep. 2020	23. Sep. 2020 10:00:00	23. Sep. 2020 12:00:00
Detail	Manfred Schaufelberger	ENTERED	0106527726	-	23. Sep. 2020 09:51:20.469	XGS-PON	-	-	-	-	-	23. Sep. 2020	23. Sep. 2020 10:00:00	23. Sep. 2020 12:00:00
Detail	Manfred Schaufelberger	ENTERED	0106527726	-	23. Sep. 2020 09:50:19.741	XGS-PON	-	-	-	-	-	23. Sep. 2020	23. Sep. 2020 10:00:00	23. Sep. 2020 12:00:00

WSG Service Fulfillment
WSG XGS PON adding the MAC address

In the WSG GUI, only the new alternative links support ordering with MAC address:



Activation

XGS-PON Activation

Activation with splash page

The activation with splash page is based on the technology known from the preorder. The end customer connects to the internet box (ONT) with his PC or mobile and is accompanied by the activation on the splash page.

Self guided activation

The end customer is accompanied by the splash page through its activation and sees the current progress/status.

Device settings

Depending on the selected device and its settings and limitations, the display of the splash page might be more or less complex.

WSG Service Fulfillment
XGS CREATE : Splash page

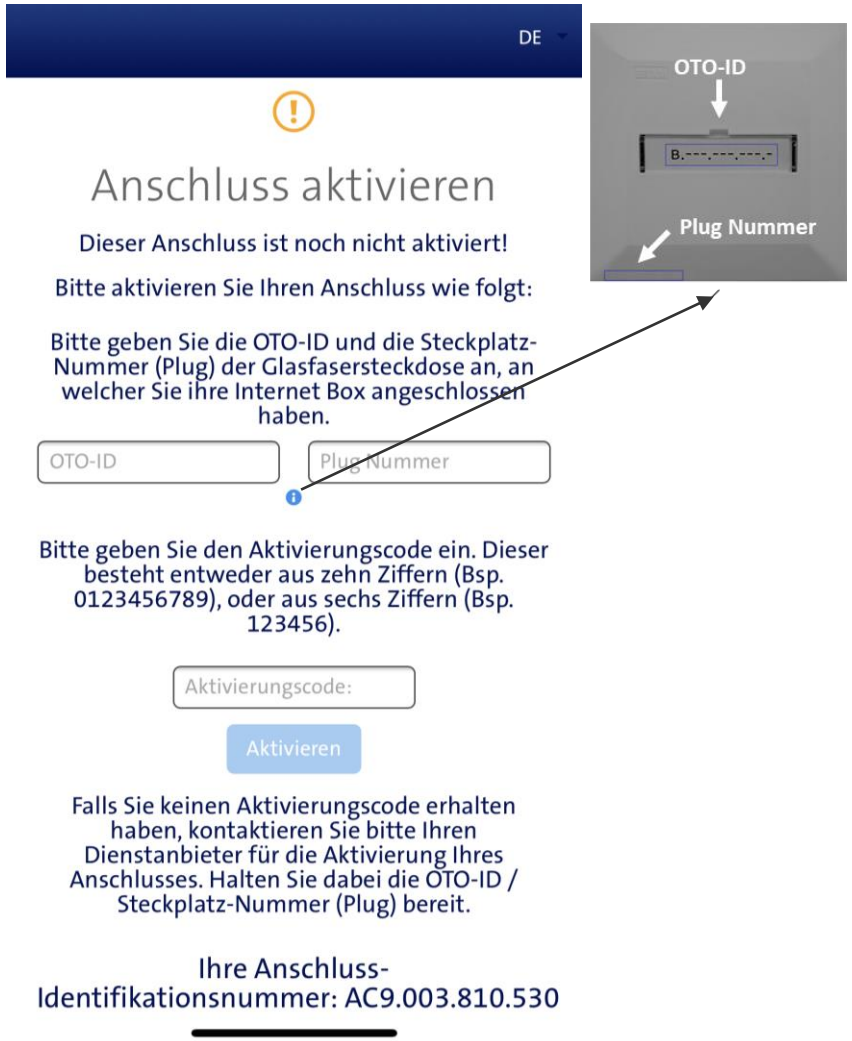
XGS-PON Pairing process

After the ONT is connected for the first time in the case of a new connection, the end customer is directed to the splash page after accessing a website [1)]

At this point, the OTO ID, the plug and the activation code (which was communicated when the order was created) must be entered, alternatively OTO-ID, Plug and NSN work as well.

After typing, the activation process starts, and the progress is continuously displayed to the customer.

[1)] Note: Only devices approved and whitelisted for XGS-PON by Swisscom can be operated on an BBCS XGS-PON access



"MAC Based" activation

The ISP assigns the MAC address of the WAN interface to the connection. If the Internet box (ONT) connects to the specified access, the MAC address in the DORA process initiates the activation of the connection.

Easy, fast activation

Activation starts automatically with the assigned "Basic Connectivity" and the end customer does not need to connect a PC or mobile device. This not only saves time, it also simplifies the process considerably for the layman.

Activation not guides by the network

The end customer is no longer actively guided through the activation. The ISP must integrate this part with the status messages in the WSG in its onboarding process.

XGS-PON activation on DHCP termination via splash page (similar to DSL with Preorder)

Order entring in WSG

In the WSG, the order is entered as usual by selecting termination type DHCP.

The order is waiting in the holding state "Ready for activation".

Connecting the modem/ONT to the customer access

A modem/ONT configured for DHCP is connected to the access and connects to Swisscom's "Walled Garden".

- VLAN ID 10 is needed for DHCP

Activation of the access via splash page

When a web site via a device (PC, tablet, mobile,..) is opened, the redirect is initiated to the splash page. Credentials needed:

- Activation Code (6 digits or NSN)
- OTO and Plug Number

Customer is guided through rest of activation on the splash page.

XGS-PON activation on DHCP termination via MAC Based Provisioning (similar to DSL with Preorder)

Order entring in WSG

In the WSG, the order is entered as usual by selecting termination type DHCP.

In addition, the MAC address of the WAN interface is stored in the corresponding field. This is currently only possible in the Angular version (Alternative Links) in the GUI

The order is waiting in the holding state "Ready for activation".

Connecting the modem/ONT to the customer access

A modem/ONT configured for DHCP is connected to the access and connects to Swisscom's "Walled Garden".

- VLAN ID 10 is needed for DHCP

MAC Based Activation

If the connected modem/ONT has a MAC address stored in an open order, this order is assigned to the access and the provisioning starts without any further action by the end customer.

Communication to the end customer

Communication of progress via the statuses in the WSG.

The ISP is in the communication lead with its end customer and informs them about the progress, e.g. by SMS or similar.

XGS-PON activation on PPP termination via splash page (similar to DSL with Preorder)

Order entring in WSG

In the WSG, the order is entered as usual by selecting termination type PP.

The order is waiting in the holding state "Ready for activation".

Connecting the modem/ONT to the customer access

A modem/ONT configured for DHCP is connected to the access and connects to Swisscom's "Walled Garden".

- VLAN ID 10 is needed for DHCP

Activation of the access via splash page

When a web site via a device (PC, tablet, mobile,..) is opened, the redirect is initiated to the splash page. Credentials needed:

- Activation Code (6 digits or NSN)
- OTO and Plug Number

Reconfiguration of ONT/Modem for PPP

After activation, the modem/ONT must be rebooted with the PPP configuration

- VLAN ID 11 needed for PPP
- Account and password for PPP

XGS-PON activation on PPP termination via MAC Based Provisioning (similar to DSL with Preorder)

Order entring in WSG

In the WSG, the order is entered as usual by selecting termination type PPP.

In addition, the MAC address of the WAN interface is stored in the corresponding field. This is currently only possible in the Angular version (Alternative Links) in the GUI

The order is waiting in the holding state "Ready for activation".

Connecting the modem/ONT to the customer access

A modem/ONT configured for DHCP is connected to the access and connects to Swisscom's "Walled Garden".

- VLAN ID 10 is needed for DHCP

MAC Based Activation

If the connected modem/ONT has a MAC address stored in an open order, this order is assigned to the access and the provisioning starts without any further action by the end customer.

Communication of progress via the statuses in the WSG.

The ISP is in the communication lead with its end customer and informs them about the progress, e.g. by SMS or similar.

Reconfiguration of ONT/Modem for PPP

After activation, the modem/ONT must be rebooted with the PPP configuration

- VLAN ID 11 needed for PPP
- Account and password for PPP

ONT Change

Replacing the ONT on an existing XGS-PON access

ONT change with XGS-PON

Splash page

- End customer connects the new ONT with DHCP configuration on the OTO and connects its internet access device (PC, tablet, mobile,..) with the ONT
- When a website is first accessed (http traffic), the browser is redirected to Swisscom's splash page
- On the appearing website, the end customer must enter OTO and plug number, as well as the 10-digit activation code (NSN)
- Splash page guides the end customer by activating the new ONT
- Additional for PPP: Reconfiguration of the ONT to PPP afterwards

- New unpaired ONT, OTO and plug number, as well as the NSN (10-digit activation code) are required.

MAC based

- ISP registers new WAN MAC address on the connection in the WSG ("ONT Change" in WSG)
- End customer connects the new ONT with DHCP configuration at the OTO plug
- ONT change will be initiated automatically
- ISP informs end customer of progress and completion
- Additional for PPP: Reconfiguration of the ONT to PPP afterwards

- WAN MAC address of the new ONT must be assigned to the access. This is done using the new procedure "ONT Change" in the WSG.

ONT Certification

Process for certification and whitelisting an ONT

Process for certification and whitelisting an ONT for XGS-PON

Evaluation of the device

The ISP evaluates an ONT for XGS-PON that meets their customer needs.

BBF247i4 certification

The XGS-PON certification (BBF247i4) is created for the desired ONT at the Boradband Forum. On the page https://www.broadband-forum.org/testing-and-certification-programs/bbf-247-gpon-onu-certification you will also find a list of devices that have already been tested.

Testing in Swisscom laboratory

The ISP places requests for certification of an ONT to BBCS. Service@swisscom.com .

Details of the requirements and procedure can be found in the manuals "Betrieb" and "Technik".

Whitelisting und Re-Zertifizierung

After the successful tests, the ONT will be added on Swisscom's whitelist and will henceforth be accepted in this configuration on Swisscom's network.

Changes to the firmware or hardware with WAN impact require clarification by Swisscom. This clarifies whether a new BBF247i4 is required or whether a simple laboratory re-certification is sufficient.