Comms365 Limited

SD-One Site Installation Guide



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1. SD-One

SD-One is a solution for businesses who require a higher performance, resilient Internet connection with Quality of Service as standard.

Industry leading Failover is provided with Package 1 ensuring that should the primary link fail, the secondary backup link will kick into action within milliseconds, whilst retaining the original IP addressing.

Bonding connections together utilising our class-leading bonding technology, up to three fixed lines and/or 4G connections can be aggregated together using this service.

Quality of Service (QoS) is available as standard, enabling you to select and prioritise specific traffic types over the network, which is particularly useful for critical applications like VoIP and Unified Communications.

2. Equipment & Installation

The SD-One service is underpinned by the SD-One Appliance as seen below:



SD-One 100 Device

The appliance can be placed in a customer rack (Rack Ears available on request).

In order for the SD-One service to operate, it needs connectivity. Connectivity can be any technology, from ADSL through to 5G.

The connectivity is typically delivered via routing devices, for example a VDSL/FTTC Router or a 4G/5G Router.

Each router needs to be connected (via Ethernet cable) to the SD-One in one of the ports (LAN 1, 2 or 3). Up to 3 routers can be added to the standard SD-One 100 service.

Behind the scenes, each router needs to have a different LAN IP address (If provided by Comms365 this will have been configured at point of order).

Example Router:

5G Cellular Router



Cellular routers (in fact all the routers can be placed in the customer rack if required), however, in order to work effectively it is always recommended that cellular routers have **external antenna** installed.

Antenna

Antenna come in many shapes and forms, but are one of the most overlooked components of a system. A poorly located (or forgotten) antenna can lead to the service failing from the start. Most 4G and 5G routers come with what is called a stubby antenna/s. These are small plastic antenna that screw into the ports on the sides of the routers. Although they are useful and have their benefits, they are not always the best and if placed in a customer rack, or in an internal comms room, will almost always fail to deliver optimal performance.

Comms365 Recommends:

External high-grade antenna. Such as the following:



Whilst it is accepted that not all installs can benefit from an external antenna, it is recommended that where possible, they are installed. This will always add cost to an installation.

4G routers are typically 2x2 MIMO which means you will need an antenna with a 2x2 MIMO connector or two separate antenna.

5G Routers are typically 4x4 MIMO which means you will need 4x4 MIMO antenna.

Antenna Cable

Antenna are extremely sensitive to interference and noise. The longer the cable, the more noise is introduced and the less effective the antenna will be. It **is highly recommended** that cable extensions do not exceed 20m. 5m or 10m is acceptable (low loss cable)

The routers will need antenna connected to **each** port. Do not leave ports unconnected as this will reduce the effectiveness of the router and affect your service.

External Combined 5G Router / Antenna

For locations where speed and performance are critical, and where the location of the antenna is more than 5/10m away from the SD-One, we recommend using a high-performance combination router/antenna such as the Zyxel NR7101 or the C365-5G-E. Both devices have two SIM slots for added resilience and can be installed up to 90m away from the SD-One.

This is particularly useful for installations in warehouses or distribution centres where signal strength and quality can be heavily affected by the structure of the building.





Important points to note. If a router/antenna is directional, it must be directed towards the cell site for the serving carrier. Failure to do this will result in a weaker signal being received. If using Multinetwork SIMs, it is recommended that the antenna is directed towards the strongest carrier in the first instance and that failure to alternative carriers is tested. As long as there is another carrier in the same vicinity, the failover between carriers should be unaffected.

If the alternative carrier sites are in the opposite direction, it should be noted that the failover between carriers may be adversely affected. Comms365 engineers can help establish this during installation.

Antenna such as these, should not be installed on the side of a building unless there is clear line of site to the cell tower required. If alternative cells are on the other side of the building, they will not be reached.

They should be installed *above the roof line* to ensure line of site.

Zyxel NR7101 are Directional

C365-5G-E are Omni-directional and as such have a much wider sector range.

Optimisation (see further details below)

This must be done on every installation.

In order for the service to be correctly provisioned, we run an optimisation service once the solution has been installed. This should be done before the install team leave the site.

Comms365 engineers will check the signal strength and run optimisation tests to ensure the best possible throughput us achieved according to the latency, packet loss and operator availability.

Once complete, the site will be set to the optimised level.

Please note that 4G and 5G services need regular optimisation to ensure peak performance due to the ever changing cellular landscape and the contended nature of mobile services.

3 Moving SD-Ones

A real benefit of the SD-One solution is the ability to move between locations quickly and easily, however there should be a number of checks performed before and after this happens:

1) Please ensure that you list all the components that are included with the SD-One
    a. Including PSU, SD-One, POE, Cables, Antenna, Routers, SIMs, Boxes, Stubby Antenna etc
2) Take photos of the set up
3) Take note of the cabling arrangement
4) Dismount the antenna carefully
5) Pack up the equipment carefully so it doesn't get damaged in transit
6) At the new site, check all components
7) Do a site survey to determine the best location for the antenna / routers
8) Re-cable as per the original deployment (follow guide if necessary)
9) Install the antenna (call support for assistance)
10) Ensure power reaching antenna
11) Ensure antenna and SIM are connected to a carrier
12) Contact support to optimise the connectivity and reset the threshold limits that may have been on the previous set up
13) Take photos of the antenna positioning and also the SD-One set up and cabling (to be used if remote support is required)

4 Support

Please find below the Standard Support Processes. At the end of this section there is a specific SD-One process.

Customer Services Portal Log in – You will be provided with Log in details so you can access the Customer Services system. (Please let us have the email addresses if those who you wish to have access to the Helpdesk system. Please bear in mind that they will be able to place an order on your behalf on this system, but will be asked to confirm they have authorisation to do so.) Here you will be able to direct your request more efficiently than just sending an email. If you request support through the web page, you will be able to choose the priority level and also the support queue your ticket needs to go to.

It is recommended that Support, Suspension and Cease requests are placed through the Customer Services Portal, rather than through your AM as they may not be in to action your request. All Support tickets are tracked and can be audited.

Please note, if you haven't been issued a ticket within 20 minutes, please contact support on 01234 865880 Option 2

Form Completion – Support

1. Click on **+ New Ticket** – You will be taken to the input screen
2. Select **the Support Type** you require from the drop down list
3. Enter the details requested. Please remember to provide as much information as possible including the site details, the name of the service and the post code where the service is located. Doing this will reduce the time taken to find a resolution. If you have Bonded equipment (SD-One, Continuum) or 4G / 5G Routers, it is really helpful if **photos** of the installation are provided (location of unit in the building & antenna, any obstacles such as tall buildings). This can help greatly in the fault finding stages.
4. Enter the **Name** of the individual making the request.
5. Click **Submit**

SD-One Support

The SD-One service is a highly effective, multi-purpose solution and has been designed to offer a number of packages through one appliance. . To this end there are some support processes that should be followed in order to gain the most effective results.

Optimisation:

When an SD-One unit is first deployed at a site, it needs to be optimised against the lines that are being added to it (ADSL/FTTC/4G/5G/Ethernet). Optimisation will ensure that the right trade-off between speed and latency is achieved. Getting the optimisation right is important as latency can seriously affect the end user experience and is most prevalent in 4G, 5G, ADSL and FTTC services.

4G in particular, suffers from fluctuating latency and depending on the SIMs being used, can also be heavily profiled by the mobile operator. Speed may look good from a quick speed test point of view, but once it is put under heavy usage, many SIMs are profiled to protect the network. Our optimisation process helps provide consistency.

During the optimisation the team will check a number of aspects:

a) They will check the individual line speed of the connection.
b) They will check the latency on the line
c) They will attempt to reduce the latency by pinning the speed back to a level where the latency isn't service affecting
d) They will test any bonding
e) They will provide an overall optimisation status.

Booking an Optimisation:

1. Please use the Customer Service Portal to request an optimisation. There is an Optimisation Request Ticket form on the portal. It is recommended that this is booked in prior to attending site so it can be scheduled. Or,
2. Appliance is already deployed at site – call 01234 865880 Option 2 and request optimisation. The team will perform the required actions as soon as they can.
3. Optimisations can be requested after deployment to keep the service in peak working performance (especially since 4G can fluctuate due to environmental conditions.)
4. Optimisations are conducted during working hours only, unless specifically requested after hours (for which there may be an additional charge).

Please remember if an optimised SD-One is moved to another site, or alternative connectivity is installed, a further optimisation will be required to ensure the optimal line performance.

If alternative connectivity is added, please also call support so they can optimise and change the speed profile for the new circuit.

5 Faults & Warranty:

Faults should be raised via the Customer Service Portal so they can be directed to the most appropriate team.

Where a device is found to be faulty and is under warranty, we will replace it as per the warranty. If the product is outside warranty, a replacement can be purchased and as part of this we will, if required, configure it free of charge.

6 Escalation & Complaints Procedure:

Escalation

1) If you have an issue that is not being resolved to your satisfaction, please contact your Account Manager in the first instance.
2) If you feel that you need to escalate, please inform your account manager and send an email to escalations@comms365.com
3) If you are still not satisfied with the response, please send an email to the following senior management contacts:

shaun.nicholls@comms365.com – CTO

mike.vanbunnens@comms365.com – CEO

7 Complaints

For us, receiving a complaint means that we have really failed in our mission to deliver outstanding service and response. Please rest assured that if we do receive a complaint, it will be dealt with and responded to and in line with our quality procedures – we're an ISO9001:2015 accredited business. It will also be logged and reviewed by the senior management team.

All complaints should be directed to complaints@comms365.com

Finally, thank you once again for choosing Comms365, we hope that you will see us as a trusted provider and that you will consider our range of services to meet any requirements you may have.