



USER GUIDE



Barricade™ N
Draft 11n Wireless 4-port Gigabit Broadband Router

SMCWGBR14-N

LIMITED WARRANTY

Limited Warranty Statement: SMC Networks, Inc. ("SMC") warrants its products to be free from defects in workmanship and materials, under normal use and service, for the applicable warranty term. All SMC products carry a standard 90-day limited warranty from the date of purchase from SMC or its Authorized Reseller. SMC may, at its own discretion, repair or replace any product not operating as warranted with a similar or functionally equivalent product, during the applicable warranty term. SMC will endeavor to repair or replace any product returned under warranty within 30 days of receipt of the product. The standard limited warranty can be upgraded to a Limited Lifetime* warranty by registering new products within 30 days of purchase from SMC or its Authorized Reseller. Registration can be accomplished via the enclosed product registration card or online via the SMC website. Failure to register will not affect the standard limited warranty. The Limited Lifetime warranty covers a product during the Life of that Product, which is defined as the period of time during which the product is an "Active" SMC product. A product is considered to be "Active" while it is listed on the current SMC price list. As new technologies emerge, older technologies become obsolete and SMC will, at its discretion, replace an older product in its product line with one that incorporates these newer technologies. At that point, the obsolete product is discontinued and is no longer an "Active" SMC product. A list of discontinued products with their respective dates of discontinuance can be found at: http://www.smc.com/index.cfm?action=customer_service_warranty. All products that are replaced become the property of SMC. Replacement products may be either new or reconditioned. Any replaced or repaired product carries either a 30-day limited warranty or the remainder of the initial warranty, whichever is longer. SMC is not responsible for any custom software or firmware, configuration information, or memory data of Customer contained in, stored on, or integrated with any products returned to SMC pursuant to any warranty. Products returned to SMC should have any customer-installed accessory or add-on components, such as expansion modules, removed prior to returning the product for replacement. SMC is not responsible for these items if they are returned with the product. Customers must contact SMC for a Return Material Authorization number prior to returning any product to SMC. Proof of purchase may be required. Any product returned to SMC without a valid Return Material Authorization (RMA) number clearly marked on the outside of the package will be returned to customer at customer's expense. For warranty claims within North America, please call our toll-free customer support number at (800) 762-4968. Customers are responsible for all shipping charges from their facility to SMC. SMC is responsible for return shipping charges from SMC to customer.

WARRANTIES EXCLUSIVE: IF AN SMC PRODUCT DOES NOT OPERATE AS WARRANTED ABOVE, CUSTOMER'S SOLE REMEDY SHALL BE REPAIR OR REPLACEMENT OF THE PRODUCT IN QUESTION, AT SMC'S OPTION. THE FOREGOING WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, EITHER IN FACT OR BY OPERATION OF LAW, STATUTORY OR OTHERWISE, INCLUDING WARRANTIES OR CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. SMC NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT ANY OTHER LIABILITY IN CONNECTION WITH THE SALE, INSTALLATION, MAINTENANCE OR USE OF ITS PRODUCTS. SMC SHALL NOT BE LIABLE UNDER THIS WARRANTY IF ITS TESTING AND EXAMINATION DISCLOSE THE ALLEGED DEFECT IN THE PRODUCT DOES NOT EXIST OR WAS CAUSED BY CUSTOMER'S OR ANY THIRD PERSON'S MISUSE, NEGLIGENCE, IMPROPER INSTALLATION OR TESTING, UNAUTHORIZED ATTEMPTS TO REPAIR, OR ANY OTHER CAUSE BEYOND THE RANGE OF THE INTENDED USE, OR BY ACCIDENT, FIRE, LIGHTNING, OR OTHER HAZARD. LIMITATION OF LIABILITY: IN NO EVENT, WHETHER BASED IN CONTRACT OR TORT (INCLUDING NEGLIGENCE), SHALL SMC BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL, INDIRECT, SPECIAL, OR PUNITIVE DAMAGES OF ANY KIND, OR FOR LOSS OF REVENUE,

LOSS OF BUSINESS, OR OTHER FINANCIAL LOSS ARISING OUT OF OR IN CONNECTION WITH THE SALE, INSTALLATION, MAINTENANCE, USE, PERFORMANCE, FAILURE, OR INTERRUPTION OF ITS PRODUCTS, EVEN IF SMC OR ITS AUTHORIZED RESELLER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. SOME STATES DO NOT ALLOW THE EXCLUSION OF IMPLIED WARRANTIES OR THE LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR CONSUMER PRODUCTS, SO THE ABOVE LIMITATIONS AND EXCLUSIONS MAY NOT APPLY TO YOU. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, WHICH MAY VARY FROM STATE TO STATE. NOTHING IN THIS WARRANTY SHALL BE TAKEN TO AFFECT YOUR STATUTORY RIGHTS.

* SMC will provide warranty service for one year following discontinuance from the active SMC price list. Under the limited lifetime warranty, internal and external power supplies, fans, and cables are covered by a standard one-year warranty from date of purchase.

SMC Networks, Inc.
20 Mason
Irvine, CA 92618

Compliances

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the distance between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: To assure continued compliance, (example - use only shielded interface cables when connecting to computer or peripheral devices) any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

EC Declaration of Conformity



SMC contact for these products in Europe is:

SMC Networks Europe,
Edificio Conata II,
Calle Fructuos Gelabert 6-8, 2o, 4a,
08970 - Sant Joan Despi,
Barcelona, Spain.

Marking by the above symbol indicates compliance with the Essential Requirements of the R&TTE Directive of the European Union (1999/5/EC). This equipment meets the following conformance standards:

EN 300 328
EN 301 489-1
EN 301 489-17
EN 60950-1

Council recommendation 1999/519/EC of 12 July 1999, limitations of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz)

[Czech]	Společnost SMC Networks tímto prohlašuje, že toto rádiové zařízení LAN je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES. Oficiální ES prohlášení o shodě je uvedeno v příslušné části k produktu na webu http://www.smc.com
[Danish]	SMC Networks erklærer herved, at følgende Radio LAN-enhed overholder de væsentlige krav og andre relevante bestemmelser i direktiv 1999/5/EF. Den officielle EU-overensstemmelseserklæring er tilgængelig under det relevante produktafsnit på følgende webadresse: http://www.smc.com .
[German]	Hiermit erklärt SMC Networks, dass sich dieses Wireless LAN Gerät in Übereinstimmung mit den grundlegenden Anforderungen und den anderen relevanten Vorschriften der Richtlinie 1999/5/EG befindet. Die offizielle EC-Declaration of Conformity finden Sie im Internet unter http://www.smc.com unter der entsprechenden Produktkategorie.
[Estonian]	Käesolevaga kinnitab <i>SMC Networks</i> , et see <i>Radio LAN</i> seade vastab direktiivi 1995/5/EÜ põhinõuetele ja teistele asjakohastele sätetele. Ametliku EÜ vastavusdeklaratsiooni leiate vastavast tootejaotisest aadressil http://www.smc.com .
[English]	Hereby, SMC Networks, declares that this Radio LAN device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC. The official EC-Declaration of Conformity can be found under the corresponding product section on the web http://www.smc.com .
[Spanish]	Por medio de la presente SMC Networks declara que el Radio LAN device cumple con

	los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE. The official EC-Declaration of Conformity can be found under the corresponding product section on the web http://www.smc.com
[Greek]	Με την παρούσα, η SMC Networks, δηλώνει ότι η συσκευή ασύρματου τοπικού δικτύου συμμορφώνεται με τις ουσιώδεις απαιτήσεις και τις λοιπές σχετικές διατάξεις της Οδηγίας 1999/5/ΕΚ. Η επίσημη δήλωση συμμόρφωσης ΕΚ παρέχεται στην αντίστοιχη ενότητα προϊόντων, στην ιστοσελίδα http://www.smc.com .
[French]	Par la présente SMC Networks déclare que l'appareil Radio LAN device est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE. La déclaration de conformité officielle peut être trouvée sur notre site internet http://www.smc.com dans la rubrique Produits.
[Italian]	Con la presente SMC Networks dichiara che questo Radio LAN device è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE. La Dichiarazione di conformità CE ufficiale è disponibile nella sezione dedicata al rispettivo prodotto sul sito Web http://www.smc.com .
[Latvian]	Ar šo SMC Networks deklarē, ka Radio LAN device atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītiem noteikumiem. Oficiālā EK atbilstības deklarācija ir atrodama attiecīgā produkta sadaļā tīmeklī http://www.smc.com .
[Lithuanian]	Šiuo „SMC Networks“ deklaruoja, kad šis radijo LAN įrenginys atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas. Oficialią jo EB atitikties deklaraciją galima rasti atitinkamų gaminių skyriuje šiame tinklalapyje: http://www.smc.com .
[Dutch]	Hierbij verklaart SMC Networks dat het toestel Radio LAN device in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG. Het officiële EC- gelijkvormigheidattest kan men vinden op de internetsite http://www.smc.com onder de betrokken productcategorie.
[Maltese]	B'dan, SMC Networks, tiddikjara li dan it-tagħmir LAN tar-Radju huwa konformi mar-rekwiżiti essenzjali u dispożizzjonijiet rilevanti oħra ta' Direttiva 1999/5/KE. Id-Dikjarazzjoni ta' Konformità uffiċjali tal-KE tinsab fit-taqsimu korrispondenti fis-sit ta' l-Internet http://www.smc.com .
[Hungarian]	Az SMC Networks kijelenti, hogy a Radio LAN eszköz megfelel a vonatkozó alapvető követelményeknek és az 1999/5/EC irányelv egyéb előírásainak. A hivatalos EC megfeleléségi nyilatkozat megtalálható a vonatkozó termék ismertetőjénél, a következő címen: http://www.smc.com
[Polish]	Firma SMC Networks niniejszym oświadcza, że urządzenie Radio LAN jest zgodne z zasadniczymi wymaganiami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC. Oficjalna Deklaracja zgodności UE znajduje się w odpowiedniej sekcji produktu w witrynie http://www.smc.com .
[Portuguese]	A SMC Networks declara que este dispositivo de LAN de Rádio está em conformidade com os requisitos essenciais e com outras provisões relevantes da Directiva

	1999/5/CE. A Declaração de Conformidade CE oficial encontra-se na secção correspondente do produto na Web, http://www.smc.com .
[Slovenian]	Družba SMC Network izjavlja, da je naprava Radio LAN skladna z bistvenimi zahtevami in drugimi ustreznimi predpisi direktive 1999/5/ES. Za uradno izjavo o skladnosti ES glejte razdelek za ustrezní izdelek na spletni strani http://www.smc.com .
[Slovak]	Spoločnosť SMC Networks týmto vyhlasuje, že toto zariadenie Radio LAN spĺňa základné požiadavky a ďalšie príslušné ustanovenia smernice 1999/5/ES. Oficiálne prehlásenie ES o zhode je uvedené v sekcii príslušného produktu v lokalite http://www.smc.com .
[Finnish]	SMC Networks vakuuttaa täten, että Radio LAN device -tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen. EY:n virallinen vaatimustenmukaisuusvakuutus on tuotteen kohdalla Web-sivustossa http://www.smc.com .
[Swedish]	Härmed intygar SMC Networks att denna Radio LAN-apparat uppfyller de väsentliga egenskapskrav och övriga relevanta bestämmelser i direktiv 1999/5/EG. Den officiella EG-försäkran om överensstämmelse finns under motsvarande produktavsnitt på http://www.smc.com .
[Icelandic]	Hér með lýsir SMC Networks því yfir að þessi Radio LAN búnaður er í samræmi við grunnkröfur og aðrar viðeigandi kröfur, sem gerðar eru í tilskipun 1999/5/EB. Opinberu EB-samræmisýfirlýsinguna er að finna í viðeigandi hluta um þennan búnað á vefsetrinu http://www.smc.com .
[Norwegian]	SMC Networks erklærer herved at Radio LAN-enheten er i samsvar med de grunnleggende kravene og øvrige relevante krav i direktiv 1999/5/EF. Denne offisielle EU-konformitetserklæringen finnes under korresponderende produktseksjon på Internett: http://www.smc.com .

Countries of Operation & Conditions of Use in EC/ EFTA member states

[English]	This device is a 2.4 GHz wireless LAN transceiver, intended for indoor home and office use in all notified EC and EFTA member states. In accordance with article 6.4 of the R&TTE Directive 1999/5/EC the following EC/ EFTA member states have been notified: Austria, Belgium, Denmark, Finland, France, Germany, Italy, Luxembourg, Netherlands, Norway, Spain, Sweden, Switzerland, United Kingdom, Portugal, Greece, Ireland, Iceland. Requirements for outdoor operation, like license requirements and allowed channels of operation apply in some countries. Please contact your local regulation authority or SMC Networks for details on current restrictions for outdoor use.
[French]	<i>Ce produit est un appareil radio LAN transceiver de 2.4 GHz destiné aux PME et à l'utilisation domestique dans tous les pays certifiés conformes aux conditions de l'EU et de l'EFTA. En accord avec l'article 6.4 de la R&TTE directive 1999/5/EC, the membres de la EU et de l'EFTA sont les suivants : Autriche, Belgique, Danemark, finalnde, France, Allemagne, Italie, Luxembourg, Pays-Bas, Norvège, Espagne, Suède, Suisse,</i>

	<i>Royaume-Uni, Portugal, Grèce, Irlande, Islande. Des conditions sont appliquées à certains pays pour l'utilisation en extérieur, tels que des licences spécifiques et des canaux d'opération. Veuillez contacter votre autorité locale ou SMC Networks pour plus de détails quant aux restrictions actuelles concernant l'utilisation en extérieur.</i>
[Dutch]	Dit toestel is een 2.4 Ghz draadloze Lan transceiver, bestemd voor gebruik binnen huis en kantoor in alle geïnfomeerde lidstaten van de EC en de EFTA. In overeenstemming met artikel 6.4 van de R&T TE Directive 1999/5/EC zijn de volgende EC/EFTA lidstaten verwittigd: België, Denemarken, Duitsland, Finland, Frankrijk, Griekenland, Ierland, IJsland, Italië, Luxemburg, Nederland, Noorwegen, Oostenrijk, Portugal, Spanje, Verenigd Koninkrijk, Zweden, Zwitserland. Benodigdheden voor gebruik buiten, zoals gebruiksvergunningen en toegelaten werkkanalen zijn van toepassing in sommige landen. Gelieve uw lokale instantie of SMC Networks te contacteren voor details op huidige beperkingen voor gebruik in buitenlucht.
[Spanish]	Este aparato es un transmisor inalámbrico de 2.4 GHz, previsto para el uso interior en domicilios y Pymes en todos los Estados de la CE y la EFTA notificados. De acuerdo con el artículo 6.4 de la Directiva R&TTE 1999/5/EC los siguientes estados de la CE y de la EFTA han sido notificados: Austria, Bélgica, Dinamarca, Finlandia, Francia, Alemania, Italia, Luxemburgo, Países Bajos, Noruega, España, Suecia, Suiza, Reino Unido, Portugal, Grecia, Irlanda, Islandia. Los requisitos para su uso exterior, como requerimiento de licencia y canales de operación permitidos se aplican en algunos países. Por favor contacte la autoridad reguladora local o SMC Networks para más detalles en relación con las restricciones actuales para uso exterior.
[German]	<i>Dieses Wireless LAN Gerät arbeitet im 2.4 GHz Frequenzband und ist für den Einsatz im Innenbereich in den benachrichtigten EC/ EFTA Mitgliedstaaten geeignet. In Übereinstimmung mit Artikel 6.4 der R&TTE Direktive 1999/5/EC wurden folgende Mitgliedstaaten benachrichtigt: Österreich, Belgien, Dänemark, Finland, Frankreich, Deutschland, Italien, Luxemburg, Niederlande, Norwegen, Spanien, Schweden, Schweiz, Großbritannien, Portugal, Griechenland, Irland, Island. Für den Einsatz im Aussenbereich sind in einigen Ländern Lizenzen erforderlich oder die Anzahl der Kanäle ist eingeschränkt. Bitte kontaktieren Sie Ihre Regulierungsbehörde oder SMC Networks für die aktuellen Einschränkungen beim Einsatz im Aussenbereich.</i>

[Czech]	Toto zařízení je přijímač a vysílač pro bezdrátové sítě LAN v pásmu 2,4 GHz, určený pro použití v interiéru domácností a kanceláří ve všech členských zemích ES a ESVO, kterým byl oznámen záměr uvést zařízení na trh. V souladu s čl. 6 odst. 4 směrnice 1999/5/ES o rádiových zařízeních a telekomunikačních koncových zařízeních byly uvědoměny tyto členské země ES nebo ESVO: Belgie, Dánsko, Finsko, Francie, Irsko, Island, Itálie, Lucembursko, Německo, Nizozemsko, Norsko, Portugalsko, Rakousko, Řecko, Spojené království, Španělsko, Švédsko, Švýcarsko. Na použití ve venkovním prostředí se v některých zemích vztahují určité požadavky, např. požadavky na licenci nebo provoz v povolených kanálech. O omezení venkovního použití se informujte u místních regulátorů nebo u společnosti SMC Networks.
[Danish]	Enheden er en 2,4 GHz trådløs LAN-transceiver, beregnet til indendørs hjemme- og

	<p>kontorbrug i alle notificerede EU- og EFTA-medlemslande. I henhold til afsnit 6.4 i R&TTE-direktivet 1999/5/EF er følgende EU-/EFTA-medlemslande notificeret: Østrig, Belgien, Danmark, Finland, Frankrig, Tyskland, Grækenland, Island, Irland, Italien, Luxembourg, Holland, Norge, Portugal, Spanien, Sverige, Schweiz og Storbritannien. I visse lande gælder der krav vedrørende udendørs betjening af enheden, f.eks. licenskrav og tilladte betjeningskanaler. Kontakt de lokale lovgivende myndigheder eller SMC Networks for at få oplysninger om aktuelle begrænsninger vedrørende udendørs betjening.</p>
[Estonian]	<p>See seade on 2.4 GHz juhtmeta LAN vastuvõtu-saatejaam, mis on mõeldud kodus ja kontoris kasutamiseks kõikides teavitatud EÜ ja Euroopa Vabakaubanduse Assotsiatsiooni (EFTA) liikmesriikides. Vastavalt R&TTE direktiivi 1999/5/EÜ paragrahvile 6.4 on teavitatud järgmisi EÜ/EFTA liikmesriike: Austriat, Belgiat, Taanit, Soomet, Prantsusmaad, Saksamaad, Itaaliat, Luksemburgi, Hollandit, Norrat, Hispaaniat, Rootsit, Šveitsi, Ühendkuningriiki, Portugali, Kreekat, Iirimaa, Islandi. Mõningates riikides kehtivad väljas kasutamiseks nõuded, näiteks litsentsinõuded ja lubatud töökanalid. Palun teavitage vastavat kohalikku ametkonda või ettevõtet <i>SMC Networks</i>'i, kui soovite täpsemaid andmeid väljas kasutamisel kehtivate piirangute kohta.</p>
[Greek]	<p>Αυτή η συσκευή είναι ένας ασύρματος πομποδέκτης τοπικού δικτύου 2,4 GHz, που προορίζεται για οικιακή και επαγγελματική χρήση σε εσωτερικό χώρο, σε όλα τα κράτη-μέλη της ΕΚ και της ΕΖΕΣ. Σύμφωνα με το άρθρο 6.4 της Οδηγίας για ραδιοεξοπλισμό και τηλεπικοινωνιακό τερματικό εξοπλισμό (R&TTE), 1999/5/ΕΚ, έχουν ανακοινωθεί τα ακόλουθα κράτη-μέλη ΕΕ/ΕΖΕΣ: Αυστρία, Βέλγιο, Δανία, Φιλανδία, Γαλλία, Γερμανία, Ιταλία, Λουξεμβούργο, Ολλανδία, Νορβηγία, Ισπανία, Σουηδία, Ελβετία, Ηνωμένο Βασίλειο, Πορτογαλία, Ελλάδα, Ιρλανδία, Ισλανδία. Σε ορισμένες χώρες επιβάλλονται απαιτήσεις για χρήση σε εξωτερικό χώρο, όπως απαιτήσεις παραχώρησης άδειας και επιτρεπόμενα κανάλια λειτουργίας. Απευθυνθείτε στην τοπική αρμόδια αρχή ή στην SMC Networks για λεπτομέρειες σχετικά με τους τρέχοντες περιορισμούς για χρήση σε εξωτερικό χώρο.</p>
[Italian]	<p>Il presente device è un ricetrasmittitore LAN wireless da 2,4 GHz, previsto per l'uso in interni a casa e in ufficio in tutti gli Stati membri della CE e dell'EFTA notificati. Conformemente all'articolo 6.4 della Direttiva 1999/5/CE R&TTE, sono stati notificati i seguenti Stati membri della CE/dell'EFTA: Austria, Belgio, Danimarca, Finlandia, Francia, Germania, Grecia, Irlanda, Islanda, Italia, Lussemburgo, Norvegia, Paesi Bassi, Portogallo, Regno Unito, Spagna, Svezia, Svizzera. In alcuni Paesi si applicano i requisiti per il funzionamento in esterni, quali requisiti di licenza e canali consentiti. Contattare l'Autorità normativa locale del proprio Paese o SMC Networks per informazioni dettagliate sulle limitazioni correnti per l'utilizzo in esterni.</p>
[Latvian]	<p>Šī ierīce ir 2,4 GHz bezvadu LAN raidztvērējs, kas paredzēts izmantošanai iekštelpās mājās un birojos visās paziņotajās EK un EBTA (European Free Trade Association - Eiropas brīvās tirdzniecības asociācija) dalībvalstīs. Atbilstoši radioiekārtu un telekomunikāciju gala iekārtu direktīvas 1999/5/EK 6.4. pantam paziņotās EK/EBTA valstis ir : Austrija, Beļģija, Dānija, Somija, Francija, Vācija, Itālija, Luksemburga, Nīderlande, Norvēģija, Spānija, Zviedrija, Šveice, Apvienotā Karaliste, Portugāle, Grieķija, Īrija, Islande. Dažās valstīs ir spēkā ierobežojumi lietošanai ārvidē, piemēram, licences prasības un darbībai atļautie kanāli. Lūdzu, sazinieties ar vietējo regulējošo</p>

	instanci vai <i>SMC Network</i> , lai saņemtu informāciju par pašreizējiem ierobežojumiem lietošanai ārvidē.
[Lithuanian]	Šis įrenginys yra 2,4 GHz belaidis LAN siųstuvų-įmtuvų, skirtas naudoti patalpose namie ar biure visose notifikuose EB ir ELPA šalyse narėse. Pagal RTTE Direktyvos 1999/5/EB 6.4 straipsnį, notifikuotos yra šios EB/ELPA šalys narės: Austrija, Belgija, Danija, Suomija, Prancūzija, Vokietija, Italija, Liuksemburgas, Nyderlandai, Norvegija, Ispanija, Švedija, Šveicarija, Jungtinė Karalystė, Portugalija, Graikija, Airija, Islandija. Kai kuriose šalyse galioja tam tikri reikalavimai norint naudoti įrenginį lauke, pvz., licencijos ir suteikti ryšio kanalai. Jei norite sužinoti, kokie apribojimai galioja norint naudoti įrenginį lauke, kreipkitės į nacionalinę reguliavimo instituciją arba „SMC Networks“.
[Maltese]	Dan it-tagħmir huwa LAN transceiver mingħajr fili ta' 2.4 GHz maħsub biex jintuża fuq ġewwa fi djar u uffiċċini fil-pajjiżi notifikati tal-KE u l-Istati Membri ta' l-EFTA. B'mod konformi ma' Artikolu 6.4 tad-Direttiva R&TTE 1999/5/KE l-Istati Membri tal-KE/EFTA li ġejjin ġew notifikati: L-Awstrija, Il-Belġju, Id-Danimarka, Il-Finlandja, Franza, Il-Ġermanja, L-Italja, Il-Lussemburgu, L-Olanda, In-Norveġja, Spanja, L-Iżvežja, L-Iżvizzera, Ir-Renju Unit, Il-Portugal, Il-Greċja, L-Irlanda, L-Islanda. Rekwiziti għal tħaddim fuq barra, bħal tħiġijiet ta' liċenzja u kanali permessi għal tħaddim japplikaw f'ċertu pajjiżi. Jekk jogħġbok ikkuntattja lill-awtorità regolatorja lokali jew SMC Networks għal dettalji dwar restrizzjonijiet attwali dwar l-użu fuq barra.
[Hungarian]	Ez az eszköz egy 2,4 GHz-es vezeték nélküli LAN adó-vevő, amely beltéri és irodai használatra készült, és az összes értesített EC- és EFTA-tagországban használható. Az 1999/5/EC jelű R&TTE előírás 6.4-es cikkének megfelelően a következő EC/ EFTA tagországok kaptak értesítést: Ausztria, Belgium, Dánia, Finnország, Franciaország, Németország, Olaszország, Luxemburg, Hollandia, Norvégia, Spanyolország, Svédország, Svájc, Egyesült Királyság, Portugália, Görögország, Írország és Izland. Egyes országokban külön előírások vonatkoznak a kültéri használatra, például a licencre és az engedélyezett csatornákra. A kültéri használatra vonatkozó aktuális előírásokkal kapcsolatos részletekért forduljon a helyi szabályozó hatósághoz vagy az SMC Networkshöz.
[Polish]	Niniejsze urządzenie to urządzenie do odbierania i przesyłania sygnału (transceiver) w bezprzewodowej sieci LAN o częstotliwości 2,4 GHz, przeznaczone do użytku wewnątrz pomieszczeń, w domach i biurach we wszystkich krajach członkowskich UE i EFTA. Zgodnie z artykułem 6.4 dyrektywy 1999/5/EC dotyczącej norm dla urządzeń radiowych i końcowych urządzeń teletransmisyjnych powiadomione zostały następujące kraje członkowskie: Austria, Belgia, Dania, Finlandia, Francja, Niemcy, Włochy, Luksemburg, Holandia, Hiszpania, Szwecja, Szwajcaria, Wielka Brytania, Portugalia, Grecja, Irlandia, Islandia. W niektórych krajach obowiązują wymagania dotyczące działania na zewnątrz budynków, na przykład wymagania licencyjne i dozwolone kanały pracy. Szczegółowe informacje na temat obowiązujących ograniczeń użytkowania zewnętrznego można uzyskać, kontaktując się z lokalnym urzędem regulacji lub firmą SMC Networks.
[Portuguese]	Este dispositivo é um transreceptor de LAN sem fios de 2,4 GHz, destinado a uma utilização interior em casa e no escritório, em todos os Estados membros notificados

	<p>da CE e da EFTA. De acordo com o artigo 6.4 da Directiva sobre R&TTE 1999/5/CE, foram notificados os seguintes Estados membros da CE/EFTA: Áustria, Bélgica, Dinamarca, Finlândia, França, Alemanha, Itália, Luxemburgo, Holanda, Noruega, Espanha, Suécia, Suíça, Reino Unido, Portugal, Grécia, Irlanda, Islândia. Os requisitos para uma utilização no exterior, tais como de licença e de canais de funcionamento permitidos aplicam-se a alguns países. Para obter informações sobre as restrições de utilização no exterior, contacte a autoridade local competente ou a SMC Networks.</p>
[Slovenian]	<p>Ta naprava je oddajno-sprejemna enota za brezžično lokalno omrežje, namenjena uporabi na domu ali v pisarni v vseh priglasih državah članicah ES in EFTA. Skladno s členom 6.4 Direktive 1999/5/ES o radijski opremi in telekomunikacijski terminalski opremi so bile obveščene naslednje države članice ES/EFTA: Avstrija, Belgija, Danska, Finska, Francija, Nemčija, Italija, Luksemburg, Nizozemska, Norveška, Španija, Švedska, Švica, Velika Britanija, Portugalska, Grčija, Irska, Islandija. V nekaterih državah veljajo zahteve za delovanje na prostem, kot so zahteve za dovoljenje in dovoljeni kanali za delovanje. Če potrebujete natančne informacije o trenutnih omejitvah uporabe na prostem, se obrnite na lokalni regulativni organ ali družbo SMC Networks.</p>
[Slovak]	<p>Toto zariadenie je prijímač a vysielač pre bezdrôtové siete v pásme 2,4 GHz a je určené na použitie v interiéroch domácností a kancelárií vo všetkých členských štátoch ES a EZVO, ktorým bol oznámený zámer uviesť zariadenie na trh. V súlade s čl. 6 odst. 4 smernice 1999/5/ES o rádiovom zariadení a koncových telekomunikačných zariadeniach boli upovedomené nasledujúce členské štáty ES/EZVO: Belgicko, Dánsko, Francúzsko, Fínsko, Grécko, Holandsko, Island, Írsko, Luxembursko, Nemecko, Nórsko, Portugalsko, Rakúsko, Španielsko, Švajčiarsko, Švédsko, Taliansko, Veľká Británia. V niektorých štátoch sa na prevádzku v exteriéroch vzťahujú určité požiadavky, napríklad požiadavky na licenciáciu alebo požiadavky na prevádzkové kanály. Podrobné informácie o aktuálnych obmedzeniach pri prevádzke v exteriéroch vám poskytnú miestne regulačné orgány alebo spoločnosť SMC Networks.</p>
[Finnish]	<p>Laite on 2,4 GHz:n langaton LAN-vastaanotin, joka on tarkoitettu koti- ja toimistokäyttöön kaikissa EY:n ja EFTAn jäsenmaissa, joihin siitä on ilmoitettu. Radio- ja telepäätelaitedirektiivin 1999/5/EY mukaisesti seuraaville EY-/EFTA-maille on ilmoitettu: Itävalta, Belgia, Tanska, Suomi, Ranska, Saksa, Italia, Luxemburg, Alankomaat, Norja, Espanja, Ruotsi, Sveitsi, Iso-Britannia, Portugal, Kreikka, Irlanti ja Islanti. Joissakin maissa ulkokäyttöä koskevat erilliset vaatimukset, kuten erikseen anottava lupa ja sallittujen kanavien rajoittaminen. Ota yhteyttä paikalliseen käyttöä valvovaan viranomaiseen tai SMC Networksiin, jos haluat lisätietoja laitteen ulkokäytön rajoituksista.</p>
[Swedish]	<p>Apparaten är en 2,4 GHz trådlös LAN-mottagare för inomhusbruk i hem och på kontor i alla underrättade EG- och EFTA-medlemsstater. Enligt artikel 6.4 i R&TTE-direktivet 1999/5/EG är följande EG-/EFTA-stater underrättade: Österrike, Belgien, Danmark, Finland, Frankrike, Tyskland, Italien, Luxemburg, Nederländerna, Norge, Spanien, Sverige, Schweiz, Storbritannien, Portugal, Grekland, Irland och Island. I vissa länder tillkommer krav för utomhusbruk, t.ex. licenskrav och tillåtna användarkanaler. Kontakta lokala tillsynsmyndigheter eller SMC Networks för information om aktuella bestämmelser för utomhusbruk.</p>

[Icelandic]	Þessi búnaður er 2,4 GHz þráðlaust LAN sendiviðtæki til notkunar innanhúss á heimili og skrifstofu í öllum tilkynntum aðildarríkjum EB og EFTA. Í samræmi við grein 6.4 í R&TTE tilskipuninni 1999/5/EB hefur eftirfarandi aðildarríkjum EB/EFTA verið tilkynnt þar um: Austurríki, Belgía, Danmörk, Finnland, Frakkland, Þýskaland, Ítalía, Lúxemborg, Holland, Noregur, Spánn, Svíþjóð, Sviss, Bretland, Portúgal, Grikkland, Írland, Ísland. Kröfur fyrir notkun utanhúss, svo sem kröfur um leyfi og heimilaðar rásir eiga við í sumum löndum. Hafið samband við reglugerðaryfirvöld á hverjum stað eða SMC Networks til að fá upplýsingar um gildandi takmarkanir á notkun utanhúss.
[Norwegian]	Denne enheten er en trådløs 2.4 GHz LAN-mottaker som er beregnet for innendørs privat- og kontorbruk i alle underrettede EF- og EFTA-medlemsstater. I overensstemmelse med artikkel 6.4 i R&TTE-direktivet 1999/5/EF, har følgende EF-/EFTA-medlemsstater blitt underrettet: Østerrike, Belgia, Danmark, Finland, Frankrike, Tyskland, Italia, Luxembourg, Nederland, Norge, Spania, Sverige, Sveits, Storbritannia, Portugal, Hellas, Irland og Island. Krav for utendørsbruk, som lisenskrav og tillatte brukskanaler, gjelder i noen land. Ta kontakt med din lokale regulerende myndighet eller SMC Networks for detaljert informasjon om gjeldende begrensninger for utendørs bruk.

Requirements for indoor vs. outdoor operation, license requirements and allowed channels of operation apply in some countries as described below:

- . In Italy the end-user must apply for a license from the national spectrum authority to operate this device outdoors.
- . In Belgium outdoor operation is only permitted using the 2.46 - 2.4835 GHz band: Channel 13.
- . In France outdoor operation is only permitted using the 2.4 - 2.454 GHz band: Channels 1 - 7.

Italian:

In alcuni Paesi si applicano i requisiti per il funzionamento in interni-esterni, i requisiti di licenza e i canali consentiti, come descritto si seguito:

- In Italia l'utente finale deve richiedere una licenza all'Autorità competente nazionale per il funzionamento in esterni del device.

Dutch:

Vereisten voor werking indoor versus outdoor, licentie vereisten en toegestane kanalen voor gebruik zijn van toepassing in bepaalde landen zoals hieronder beschreven.

- In België is outdoor gebruik enkel toegestaan gebruik makend van de 2.46 - 2.4835 GHz band: Kanaal 13.

French:

Conditions requises pour des installations intérieures ou extérieures, licences requises et canaux autorisés dans certains pays comme décrits ci-dessous:

- En Belgique, l'installation extérieure est seulement autorisée sur la bande 2.46 - 2.4835 GHz:: Canal 13
- En France, l'installation extérieure est seulement autorisée sur la bande 2.4 - 2.454 GHz : Canal 1-7

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Getting Started with the SMCWGBR14-N

Congratulations on purchasing the SMCWGBR14-N. This manual provides information for setting up and configuring the SMCWGBR14-N. This manual is intended for both home users and professionals.

The following conventions are used in this manual:

THE NOTE SYMBOL INDICATES ADDITIONAL INFORMATION ON THE TOPIC AT HAND.



THE TIP SYMBOL INDICATES HELPFULL INFORMATION AND TIPS TO IMPROVE YOUR NETWORK EXPERIENCE.



THE CAUTION SYMBOL ALERTS YOU TO SITUATIONS THAT MAY DEGRADE YOUR NETWORKING EXPERIENCE OR COMPROMISE



LIKE NOTES AND TIPS, THE IMPORTANT SYMBOL INDICATES INFORMATION THAT CAN IMPROVE NETWORKING. THIS INFORMATION SHOULD NOT BE OVERLOOKED.

Package Contents

- Barricade™ N Broadband Router (SMCWGBR14-N)
- Yellow RJ-45 Ethernet Cable
- Power Adapter (12V, 1A)
- Documentation CD
- Quick Installation Guide
- Warranty Information Card



Using a power supply with a different voltage than the one included with your product will cause damage and void the warranty for this product.

Minimum System Requirements

- Broadband (Cable/xDSL) Internet service and Modem with Ethernet connection.
- 2.4GHz 802.11n draft wireless adapter or 2.4GHz 802.11b/g wireless adapter installed on each PC. Alternatively an Ethernet adapter can be used.
- Internet Explorer 5.5 or above, Netscape 4.7 or above, Mozilla Firefox 1.0 or above

Wireless LAN Networking

This section provides background information on wireless LAN networking technology. Consult the **Glossary** for definitions of the terminology used in this section.



THE INFORMATION IN THIS SECTION IS FOR YOUR REFERENCE. CHANGING NETWORK SETTINGS AND PARTICULARLY SECURITY SETTINGS SHOULD ONLY BE DONE BY AN AUTHORIZED ADMINISTRATOR.

Transmission Rate (Transfer Rate)

The SMCWGBR14-N provides various transmission (data) rate options for you to select. In most networking scenarios, the factory default Best (automatic) setting proves the most efficient. This setting allows your SMCWGBR14-N to operate at the maximum transmission (data) rate. When the communication quality drops below a certain level, the SMCWGBR14-N automatically switches to a lower transmission (data) rate. Transmission at lower data speeds is usually more reliable. However, when the communication quality improves again, the SMCWGBR14-N gradually increases the transmission (data) rate again until it reaches the highest available transmission rate.

Types of Wireless Networks

Wireless LAN networking works in either of the two modes: ad-hoc and infrastructure. In infrastructure mode, wireless devices communicate to a wired LAN via access points. Each access point and its wireless devices are known as a Basic Service Set (BSS). An Extended Service Set (ESS) is two or more BSSs in the same subnet. In ad hoc mode (also known as peer-to-peer mode), wireless devices communicate with each other directly and do not use an access point. This is an Independent BSS (IBSS).

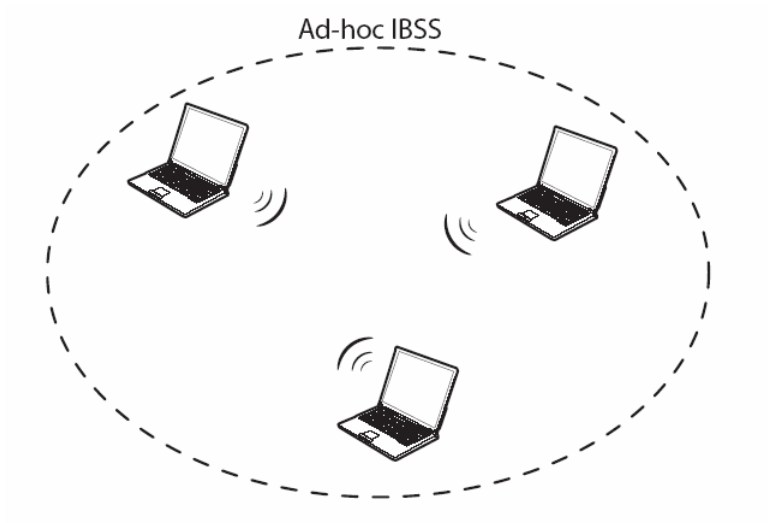
To connect to a wired network within a coverage area using access points, set the operation mode to Infrastructure (BSS). To set up an independent wireless workgroup without an access point, use Ad-hoc (IBSS) mode.

AD-HOC (IBSS) NETWORK

Ad-hoc mode does not require an access point or a wired network. Two or more wireless stations communicate directly to each other. An ad-hoc network may sometimes be referred to as an Independent Basic Service Set (IBSS).

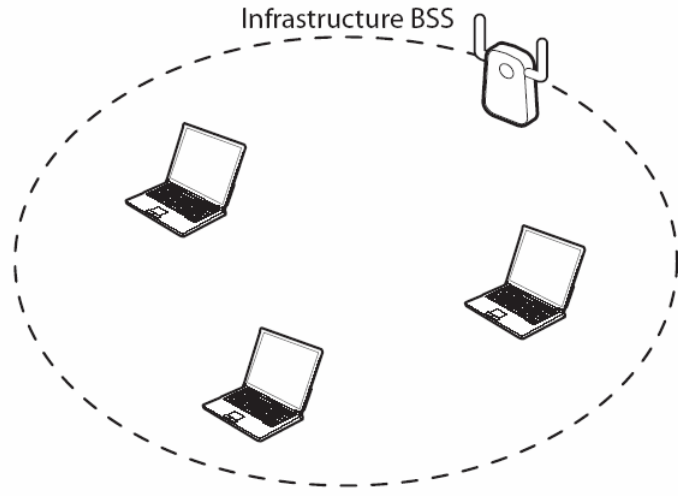
To set up an ad-hoc network, configure all the stations in ad-hoc mode. Use the same SSID and

channel for each station.



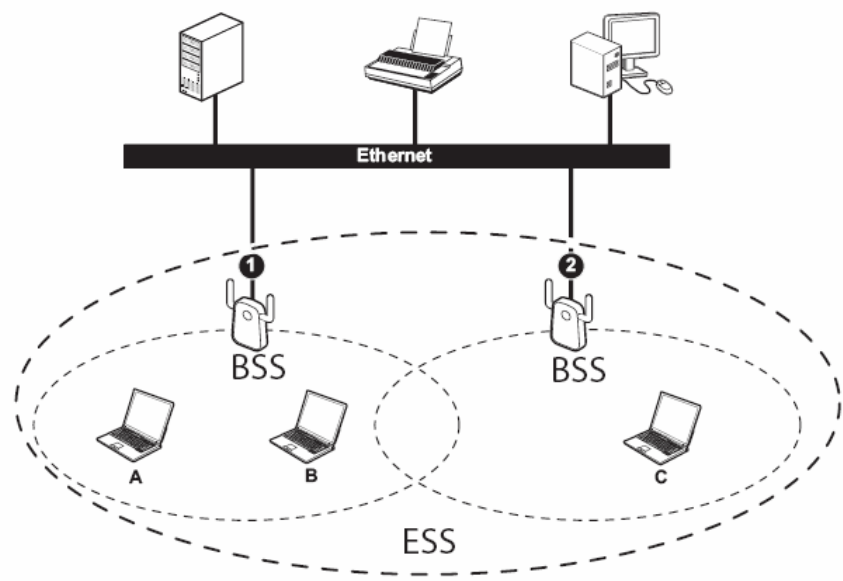
Ad-hoc (also known as peer-to-peer) network diagram

When a number of wireless stations are connected using a single access point, you have a Basic Service Set (BSS).



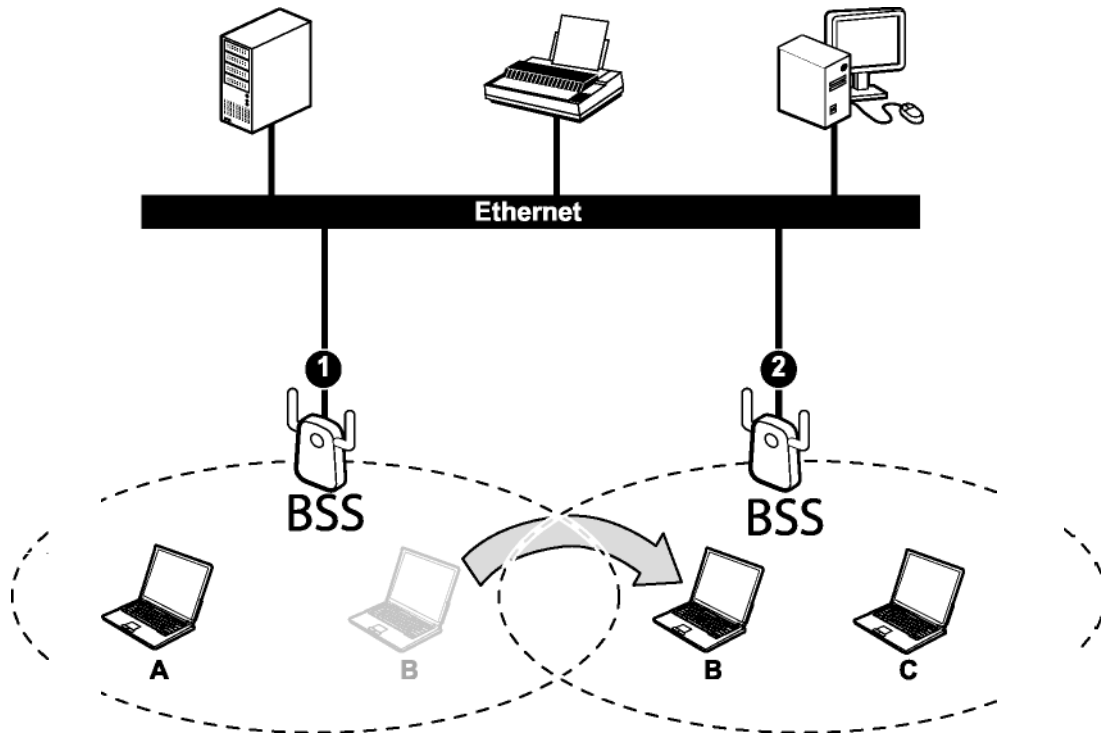
Infrastructure (IBSS) network diagram

In the ESS diagram below, communication is done through the access points, which relay data packets to other wireless stations or devices connected to the wired network. Wireless stations can then access resources, such as a printer, on the wired network.



Infrastructure (ESS) network diagram

In an ESS environment, users are able to move from one access point to another without losing the connection. In the diagram below, when the user moves from BSS (1) to BSS (2) the WLAN client devices automatically switches to the channel used in BSS (2).



Roaming in an ESS network diagram

Introduction

The Barricade™ N Draft 11n Gigabit Broadband Router (SMCWGBR14-N) is the perfect all-in-one networking solution for connecting and sharing your high speed cable/xDSL internet connection. Designed for the home and office, this platform independent multi-functional router combines a 4-port 10/100/1000 LAN switch, high speed Wireless-N (draft 802.11n) access point, NAT firewall with Stateful Packet Inspection (SPI), Intelligent stream handling technology, a Multi-function print server and a User friendly web-based management interface in one convenient device.

The built-in wireless access point is 802.11n draft v2.0 compliant while maintaining full backwards compatibility with the Wireless-G (802.11g) and Wireless-B (802.11b) standards. This next generation wireless networking standard utilizes advanced MIMO (Multiple-In, Multiple-Out) technology to deliver incredible speed and range. With wireless speeds up to 300Mbps and extended coverage, there is enough bandwidth to simultaneously stream video and audio, play online games, transfer large files, make VoIP calls and surf the Internet. With security being a key consideration, SMCWGBR14-N supports the latest WPA and WPA2 wireless encryption standards, which prevent unauthorized access to wireless networks and ensure data is secure. Wireless security can also be set up easily using Wi-Fi Protected Setup™ (WPS) that enables push button or PIN configuration. The 4-port 10/100/1000 LAN switch is ideal for connecting Gigabit Ethernet devices, such as Network Attached Storage (NAS), and transferring large files or streaming media content at up to gigabit speeds.

The integrated NAT firewall with SPI provides protection from hackers and Denial of Service attacks by analyzing individual data packets, to ensure that only authorized packets are allowed access to the network. Using the Access Control feature parents or network administrators can block certain websites, limit web access based on time or dates, and/or block internet access for applications like P2P utilities or games. Intelligent stream handling technology automatically manages and prioritizes the flow of time-sensitive data in your local network and going to the Internet, without the need for end user configuration. As a result time-sensitive applications like online gaming and video, run smoothly without lag and breakup problems. We've also included a USB2.0 multi-function print server which supports both printing and scanning*. The print server has been designed with ease-of-use at the forefront and can be setup in minutes using the printer installation wizard. Scanning and saving of documents is performed using a web-based interface so there is no need to install scanning software on each computer. Finally, configuration of your internet connection and advanced router functions is made simple and straightforward with the EZ™ Installation Wizard and intuitive web-based management interface.

Features

- Wi-Fi Compliant with IEEE 802.11n (draft) and IEEE 802.11b/g Standards
- 2.412 to 2.462GHz frequency band operation
- Compliant with IEEE 802.3 & 3u standards
- Support OFDM and CCK modulation
- High-Speed up to 300Mbps Data Rate using IEEE 802.11n (draft) connection
- Supports Cable/DSL Modems with Dynamic IP, Static IP, PPPoE, PPTP, L2TP or BigPond Connection Types
- Firewall features Network Address Translation (NAT), and Stateful Packet Inspection (SPI)

protects against Dos attacks

- Traffic Control with Virtual Server (max 64 configurable servers) and DMZ
- UPnP (Universal Plug & Play) and ALGs Support for Internet applications such as Email, FTP, Gaming, Remote Desktop, Net Meeting, Telnet, and more
- Provides Additional Security of Enable/Disable SSID, Internet Access Control (Services, URL and MAC Filtering)
- Supports Multiple and Concurrent IPSec, L2TP and PPTP VPN Pass-Through Sessions
- Flash Memory for Firmware Upgrade, Save/Restore Settings
- Easy Management via Web Browser (HTTP) and Remote Management
- Supports 64/128-bit WEP, WPA/WPA2, and WPA-PSK/WPA2-PSK
- Compliant with Windows 98/NT/2000/XP/2003 Server, Linux and Mac OS
- Support 4 x 10/100/1000Mbps Auto-MDIX LAN Port and 1 x 10/100/1000Mbps WAN Port (Internet)
- Built-in 3 External Antennas to support high speed performance and great coverage
- USB2.0 Multi-function print server

Hardware Overview

Back Panel



POWER

The Power input connector is a single jack socket to supply power to the SMCWGBR14-N. Please use the Power Adapter provided in the SMCWGBR14-N package.

RESET

Pressing the reset button for 10 seconds restores the router to its original factory default settings.

WAN (Auto MDI/MDIX)

The WAN port is used to connect to an Ethernet Cable or xDSL modem

LAN1-4 (Auto MDI/MDIX)

The LAN ports are used for connecting networking devices such as PC's, Printers & Switches. The LAN ports automatically sense the cable type when connecting to Ethernet enabled computers.

Front Panel



POWER LED

A solid green LED indicates the SMCWGBR14-N is receiving power – normal operation. If the LED is off there is no power to device or failure.

LAN1-4 LED

A solid orange LED indicates the corresponding LAN port connection is established. The LED blinks when data is transmitted. If the LED is off there is no link for corresponding LAN port.

WAN LED

A solid orange LED indicates the WAN port connection is established. The LED blinks when data is transmitted. If the LED is off there is no link for the WAN port.

WLAN LED

A solid orange LED indicates the wireless AP is ready. The LED blinks when wireless data is transmitted.

WPS LED

After pressing the WPS button for 4 seconds the WPS LED will blink continually. When a client joins the network successfully the LED will stop blinking and become solid until the next WPS action or the device is rebooted. If no client joins the LED will stop blinking and switch off after 4 minutes.

WPS Button

Press and hold the WPS button for 4 seconds to automatically configure wireless security. If the client device supports WPS Push Button Configuration (PBC) you will need to press the button within 60 seconds to automatically configure security on the client. **Note:** WPS LED will start to flash after pressing WPS button for 4 seconds. When a client joins the network successfully the LED will stop

blinking and become solid until the next WPS action or the device is rebooted. If no client joins the LED will stop blinking and switch off after 4 minutes.

USB

The USB2.0 port can be used for connecting USB printers. For a list of printers refer to Appendix A.

WLAN ON/OFF

The WLAN ON/OFF slide switch can be used to turn the wireless AP function ON/OFF

Installation Considerations

The SMCWGBR14-N lets you access your network, using a wireless connection, from virtually anywhere within its operating range. Keep in mind, however, that the number, thickness and location of walls, ceilings, or other objects that the wireless signals must pass through, may limit the range. Typical ranges vary depending on the types of materials and background RF (radio frequency) noise in your home or business. The key to maximizing wireless range is to follow these basic guidelines:

- 1 Keep the number of walls and ceilings between the SMCWGBR14-N and other network devices to a minimum - each wall or ceiling can reduce your wireless product's range from 3-90 feet (1-30 meters.) Position your devices so that the number of walls or ceilings is minimized.
- 2 Be aware of the direct line between network devices. A wall that is 1.5 feet thick (.5 meters), at a 45-degree angle appears to be almost 3 feet (1 meter) thick. At a 2-degree angle it looks over 42 feet (14 meters) thick! Position devices so that the signal will travel straight through a wall or ceiling (instead of at an angle) for better reception.
- 3 Building Materials can impede the wireless signal - a solid metal door or aluminum studs may have a negative effect on range. Try to position wireless devices and computers with wireless adapters so that the signal passes through drywall or open doorways and not other materials.
- 4 Keep your product away (at least 3-6 feet or 1-2 meters) from electrical devices or appliances that generate extreme RF noise.

Getting Started

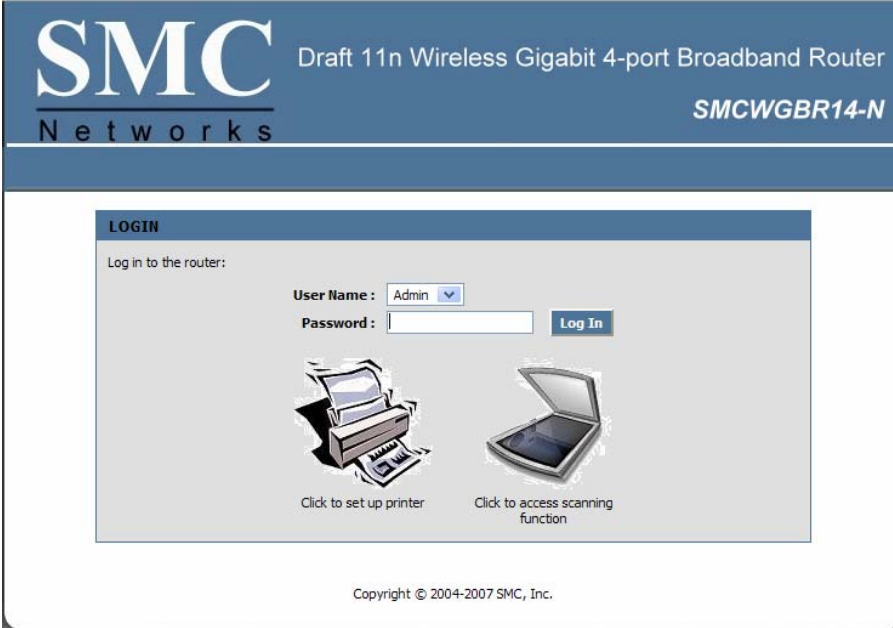
For a typical home setup, you will need a Broadband (Cable/xDSL) Internet service and Modem with Ethernet connection. Consult with your Cable or xDSL provider for proper installation of the modem. Please do the following:

1. Connect your Broadband modem (Cable/xDSL) to the blue WAN port on the Barricade™
2. Connect the network card of your PC to the yellow LAN port on the Barricade™ using the yellow RJ-45 cable provided. Now connect the power adapter.
3. Reboot PC. Start web browser and enter address <http://192.168.2.1>. When prompted enter password smcadmin then click [Log In]. Note: The User Name must be set to Admin.
4. Click [BASIC], then [Setup Wizard], then [Launch Internet Connection Setup Wizard]. Follow the on screen instructions to complete the set-up and reboot the Barricade™. You are now ready to enjoy your Internet connection.

Using the Configuration Menu

Whenever you want to configure your SMCWGBR14-N, you can access the Configuration Menu through your PC by opening the Web-browser and typing in the IP Address of the SMCWGBR14-N. The SMCWGBR14-N default IP address is: <http://192.168.2.1>

- Open the Web browser.
- Type in the **IP Address** of the Router (<http://192.168.2.1>).



The screenshot shows the web interface for the SMCWGBR14-N router. At the top, the SMC Networks logo is on the left, and the text "Draft 11n Wireless Gigabit 4-port Broadband Router SMCWGBR14-N" is on the right. Below this is a "LOGIN" section with the text "Log in to the router:". There are two input fields: "User Name:" with a dropdown menu showing "Admin" and "Password:" with an empty text box. A "Log In" button is to the right of the password field. Below the login fields are two icons: a printer and a scanner. Under the printer icon is the text "Click to set up printer", and under the scanner icon is "Click to access scanning function". At the bottom of the page, it says "Copyright © 2004-2007 SMC, Inc."



If you have changed the default IP Address assigned to the SMCWGBR14-N, make sure you enter the correct IP Address.

- Select **Admin** in the **User Name** field.
- Enter **Password:** smcadmin (default).
- Click **Log In**.



If you have changed the default password assigned to the SMCWGBR14-N, make sure you enter the correct password.

Basic

The Basic tab provides the following configuration options: INTERNET, WIRELESS and NETWORK SETTINGS.

Basic_Internet

The screenshot displays the SMC Networks web interface for the SMCWGBR14-N Draft 11n Wireless Gigabit 4-port Broadband Router. The interface is divided into several sections:

- Header:** SMC Networks logo and product name "Draft 11n Wireless Gigabit 4-port Broadband Router SMCWGBR14-N".
- Navigation:** A menu bar with tabs for "BASIC", "ADVANCED", "TOOLS", "STATUS", and "HELP". The "BASIC" tab is currently selected.
- Left Sidebar:** A vertical menu with options: "BASIC", "WIZARD", "INTERNET", "WIRELESS", and "NETWORK SETTINGS".
- Main Content Area:**
 - INTERNET CONNECTION:** A section with a blue header. Text: "There are two ways to set up your Internet connection: you can use the Web-based Internet Connection Setup Wizard, or you can manually configure the connection."
 - INTERNET CONNECTION WIZARD:** A section with a blue header. Text: "If you would like to utilize our easy to use Web-based Wizards to assist you in connecting your router to the Internet, as well as configure the Wireless settings, click on the Setup Wizard button below." Below this text is a blue button labeled "Setup Wizard". A red note follows: "Note: Before launching these wizards, please make sure you have followed all steps outlined in the Quick Installation Guide included in the package."
 - MANUAL INTERNET CONNECTION OPTIONS:** A section with a blue header. Text: "If you would like to configure the Internet settings of your router manually, then click on the Manual Configure button below." Below this text is a blue button labeled "Manual Configure".
- Footer:** Copyright © 2004-2007 SMC, Inc.

Setup Wizard

If you are new to networking and have never configured a router before, click on **Setup Wizard** and the router will guide you through a few simple steps to get your network up and running.

Manual Configure

If you consider yourself an advanced user and have configured a router before, click **Manual Configure** to input all the settings manually.

Basic_Wireless

The wireless section is used to configure the wireless settings for your router. Note that changes made in this section may also need to be duplicated on wireless clients that you want to connect to your wireless network.

To protect your privacy, use the wireless security mode to configure the wireless security features. This device supports three wireless security modes including: WEP, WPA-Personal, and WPA-Enterprise. WEP is the original wireless encryption standard. WPA-Enterprise provides a higher level of security. WPA-Personal does not require an authentication server. The WPA-Enterprise option requires a RADIUS authentication server.

The screenshot shows the configuration interface for an SMC Networks Draft 11n Wireless Gigabit 4-port Broadband Router (SMCWGBR14-N). The interface is divided into several sections:

- Navigation Menu:** BASIC (selected), ADVANCED, TOOLS, STATUS, HELP.
- Left Sidebar:** BASIC (selected), WIZARD, INTERNET, WIRELESS, NETWORK SETTINGS.
- WIRELESS Section:**
 - Wireless Network Settings:** A text box for the network name is set to "SMC". Below it are "Save Settings" and "Don't Save Settings" buttons.
 - WIRELESS CONNECTION WIZARD:** A "Setup Wizard" button is present. A note below states: "Note: Some changes made using this Setup Wizard may require you to change some settings on your wireless client adapters so they can still connect to the router."
 - WIRELESS NETWORK SETTINGS:** A form with the following fields:
 - Enable Wireless:
 - Wireless Network Name: SMC (Also called the SSID)
 - Enable Auto Channel Scan:
 - Wireless Channel: 2.462 GHz - CH 11
 - 802.11 Mode: Mixed 802.11n, 802.11g and 802.11b
 - Transmission Rate: Best (automatic) (Mbit/s)
 - Channel Width: 20 MHz
 - Visibility Status: Visible Invisible
 - WIRELESS SECURITY MODE:** A "Security Mode" dropdown menu is currently set to "None".

Enable Wireless

This option allows you to enable/disable the wireless AP function. The wireless can also be turned ON/OFF by the slide switch on the back panel. When the wireless is enabled, the following parameters are in effect.

Wireless Network Name

When you are browsing for available wireless networks, this is the name that will appear in the list (unless Visibility Status is set to Invisible, see below). This name is also referred to as the SSID. For security purposes, it is highly recommended to change from the pre-configured network name.

Enable Auto Channel Scan

If you select this option, the router automatically finds the channel with least interference and uses that channel for wireless networking. If you disable this option, the router uses the channel that you specify with the following **Wireless Channel** option.

Wireless Channel

A wireless network uses specific channels in the wireless spectrum to handle communication between clients. Some channels in your area may have interference from other electronic devices. Choose the clearest channel to help optimize the performance and coverage of your wireless network.

802.11 Mode

If all of the wireless devices you want to connect with this router can connect in the same transmission mode, you can improve performance slightly by choosing the appropriate "Only" mode. If you have some devices that use a different transmission mode, choose the appropriate "Mixed" mode.

Channel Width

The "Auto 20/40 MHz" option is usually best. The other options are available for special circumstances. Note that when 20/40MHz option is selected, an extended channel will be used to extend the data rate.

Transmission Rate

By default the fastest possible transmission rate will be selected. You have the option of selecting the speed if necessary.

Visibility Status

The Invisible option allows you to hide your wireless network. When this option is set to Visible, your wireless network name is broadcast to anyone within the range of your signal. If you're not using encryption then they could connect to your network. When Invisible mode is enabled, you must enter the Wireless Network Name (SSID) on the client manually to connect to the network.

Security Mode (NONE, WEP, WPA-Personal, WPA-Enterprise)

Unless one of these encryption modes is selected, wireless transmissions to and from your wireless network can be easily intercepted and interpreted by unauthorized users.

WEP

A method of encrypting data for wireless communication intended to provide the same level of privacy as a wired network. WEP is not as secure as WPA encryption. To gain access to a WEP network, you must know the key. The key is a string of characters that you create. When using WEP, you must determine the level of encryption. The type of encryption determines the key length. 128-bit encryption requires a longer key than 64-bit encryption. Keys are defined by entering in a string in HEX (hexadecimal - using characters 0-9, A-F) or ASCII (American Standard Code for Information Interchange - alphanumeric characters) format. ASCII format is provided so you can enter a string that is easier to remember. The ASCII string is converted to HEX for use over the network. Four keys can be defined so that you can change keys easily. A default key is selected for use on the network.

Example:

64-bit hexadecimal keys are exactly 10 characters in length. (12345678FA is a valid string of 10 characters for 64-bit encryption.)

128-bit hexadecimal keys are exactly 26 characters in length. (456FBCDF123400122225271730 is a valid string of 26 characters for 128-bit encryption.)

64-bit ASCII keys are up to 5 characters in length (DMODE is a valid string of 5 characters for 64-bit encryption.)

128-bit ASCII keys are up to 13 characters in length (2002HALOSWIN1 is a valid string of 13 characters for 128-bit encryption.)

Note that, if you enter fewer characters in the WEP key than required, the remainder of the key is automatically padded with zeros.

WPA-Personal and WPA-Enterprise

Both of these options select some variant of Wi-Fi Protected Access (WPA) -- security standards published by the Wi-Fi Alliance. The **WPA Mode** further refines the variant that the router should employ.

WPA Mode: WPA is the older standard; select this option if the clients that will be used with the router only support the older standard. WPA2 is the newer implementation of the stronger IEEE 802.11i security standard. With the "WPA or WPA2" option, the router tries WPA2 first, but falls back to WPA if the client only supports WPA. The strongest cipher that the client supports will be used. With the "WPA2 Only" option, the router associates only with clients that also support WPA2 security. If the clients support the AES cipher, it will be used across the wireless network to ensure best security.

Group Key Update Interval: The amount of time before the group key used for broadcast and multicast data is changed.

WPA-Personal

This option uses Wi-Fi Protected Access with a Pre-Shared Key (PSK).

Pre-Shared Key: The key is entered as a pass-phrase of up to 63 alphanumeric characters in ASCII (American Standard Code for Information Interchange) format at both ends of the wireless connection. It cannot be shorter than eight characters, although for proper security it needs to be of ample length and should not be a commonly known phrase. This phrase is used to generate session keys that are unique for each wireless client.

Example:

Wireless Networking technology enables ubiquitous communication

WPA-Enterprise

This option works with a RADIUS Server to authenticate wireless clients. Wireless clients should have established the necessary credentials before attempting to authenticate to the Server through this Gateway. Furthermore, it may be necessary to configure the RADIUS Server to allow this Gateway to authenticate users.

Authentication Timeout: Amount of time before a client will be required to re-authenticate.

RADIUS Server IP Address: The IP address of the authentication server.

RADIUS Server Port: The port number used to connect to the authentication server.

RADIUS Server Shared Secret: A pass-phrase that must match with the authentication server.

MAC Address Authentication: If this is selected, the user must connect from the same computer whenever logging into the wireless network.

Advanced:**Optional Backup RADIUS Server**

This option enables configuration of an optional second RADIUS server. A second RADIUS server can be used as backup for the primary RADIUS server. The second RADIUS server is consulted only when the primary server is not available or not responding. The fields **Second RADIUS Server IP Address**, **RADIUS Server Port**, **Second RADIUS server Shared Secret**, **Second MAC Address Authentication** provide the corresponding parameters for the second RADIUS Server.

Basic_Network Settings

Use this section to configure the internal network settings of your router. The IP Address that is configured here is the IP Address that you use to access the Web-based management interface. If you change the IP Address here, you may need to adjust your PC's network settings to access the network again.

The screenshot shows the SMC Networks web interface for the SMCWGBR14-N Draft 11n Wireless Gigabit 4-port Broadband Router. The interface is divided into several sections:

- Header:** SMC Networks logo and product name SMCWGBR14-N.
- Navigation:** BASIC (selected), ADVANCED, TOOLS, STATUS, HELP.
- Left Sidebar:** BASIC (selected), WIZARD, INTERNET, WIRELESS, NETWORK SETTINGS.
- NETWORK SETTINGS:** A section with a description: "Use this section to configure the internal network settings of your router and also to configure the built-in DHCP Server to assign IP addresses to the computers on your network. The IP Address that is configured here is the IP Address that you use to access the Web-based management interface. If you change the IP Address here, you may need to adjust your PC's network settings to access the network again." Below the text are two buttons: "Save Settings" and "Don't Save Settings".
- WAN PORT MODE:** A section with the label "WAN Port Mode:" and two radio buttons: "Router Mode" (selected) and "Bridge Mode".
- ROUTER SETTINGS:** A section with a description: "Use this section to configure the internal network settings of your router. The IP Address that is configured here is the IP Address that you use to access the Web-based management interface. If you change the IP Address here, you may need to adjust your PC's network settings to access the network again." Below the text are three input fields: "Router IP Address:" (192.168.2.1), "Subnet Mask:" (255.255.255.0), and "Local Domain Name:" (optional). Below these is a checkbox for "Enable DNS Relay:" which is checked.
- RIP (ROUTING INFORMATION PROTOCOL):** A section with a description: "Use this section to configure RIP for automatic management of routes." Below the text is a checkbox for "Enable RIP:" which is unchecked.

Router Settings

These are the settings of the LAN (Local Area Network) interface for the router. The router's local network (LAN) settings are configured based on the IP Address and Subnet Mask assigned in this section. The IP address is also used to access this Web-based management interface. It is recommended that you use the default settings if you do not have an existing network.

IP Address

The IP address of your router on the local area network. Your local area network settings are based on the address assigned here. For example, 192.168.2.1.

Subnet Mask

The subnet mask of your router on the local area network.

Local Domain Name

This entry is optional. Enter a domain name for the local network. The router's DHCP server will give this domain name to the computers on the wireless LAN. So, for example, if you enter **mynetwork.net** here, and you have a wireless laptop with a name of **chris**, that laptop will be known as **chris.mynetwork.net**. Note, however, if the router's settings specify "DHCP (Dynamic)" Address, and the router's DHCP server assigns a domain name to the AP, that domain name will override any name you enter here.

DNS Relay

When DNS Relay is enabled, the router plays the role of a DNS server. DNS requests sent to the router are forwarded to the ISP's DNS server. This provides a constant DNS address that LAN computers can use, even when the router obtains a different DNS server address from the ISP upon re-establishing the WAN connection. You should disable DNS relay if you implement a LAN-side DNS server as a virtual server.

RIP (Routing Information Protocol)

Used to broadcast routing information among routers.

Enable RIP

Enable RIP if required by the ISP, if the LAN has multiple routers, or if the LAN has auto-IP devices.

RIP Operating mode

This router supports both version 2 and version 1 of the RIP specification.

V1. Use if none of the routers supports Version 2.

V2 Broadcast. Use if some routers are capable of Version 2, but some are only capable of Version 1.

V2 Multicast. Use if this is the only router on the LAN or if all the routers support Version 2.

Router Metric

The additional cost of routing a packet through this router. The normal value for a simple network is 1. This metric is added to routes learned from other routers; it is not added to static or system routes.

Act as default router

Make this router the preferred destination for packets that are not otherwise destined.

Allow RIP updates from WAN

For security, disable this option unless required by the ISP.

RIP Password

RIP Version 2 supports the use of a password to limit access to routers through the RIP protocol. If the ISP or other LAN router requires a RIP password, enter the password here.

DHCP Server Settings

DHCP stands for Dynamic Host Configuration Protocol. The DHCP section is where you configure the built-in DHCP Server to assign IP addresses to the computers and other devices on your local area network (LAN).

Enable DHCP Server

Once your router is properly configured and this option is enabled, the DHCP Server will manage the IP addresses and other network configuration information for computers and other devices connected to your Local Area Network. There is no need for you to do this yourself.

The computers (and other devices) connected to your LAN also need to have their TCP/IP configuration set to "DHCP" or "Obtain an IP address automatically".

When you set **Enable DHCP Server**, the following options are displayed.

DHCP IP Address Range

These two IP values (*from* and *to*) define a range of IP addresses that the DHCP Server uses when assigning addresses to computers and devices on your Local Area Network. Any addresses that are outside of this range are not managed by the DHCP Server; these could, therefore, be used for manually configured devices or devices that cannot use DHCP to obtain network address details automatically.

It is possible for a computer or device that is manually configured to have an address that does reside within this range. In this case the address should be reserved (see [Static DHCP Client](#) below), so that the DHCP Server knows that this specific address can only be used by a specific computer or device.

Your router, by default, has a static IP address of 192.168.2.1. This means that addresses 192.168.2.2 to 192.168.2.254 can be made available for allocation by the DHCP Server.

Example:

Your router uses 192.168.2.1 for the IP address. You've assigned a computer that you want to designate as a Web server with a static IP address of 192.168.2.3. You've assigned another computer that you want to designate as an FTP server with a static IP address of 192.168.2.4. Therefore the starting IP address for your DHCP IP address range needs to be 192.168.2.5 or greater.

Example:

Suppose you configure the DHCP Server to manage addresses From: 192.168.2.100 To: 192.168.2.199. This means that 192.168.2.3 to 192.168.2.99 and 192.168.2.200 to 192.168.2.254 are NOT managed by the DHCP Server. Computers or devices that use addresses from these ranges are to be manually configured. Suppose you have a web server computer that has a manually configured address of 192.168.2.100. Because this falls within the "managed range" be sure to create a reservation for this address and match it to the relevant computer (see [Static DHCP Client](#) below).

DHCP Lease Time

The amount of time that a computer may have an IP address before it is required to renew the lease. The lease functions just as a lease on an apartment would. The initial lease designates the amount of time before the lease expires. If the tenant wishes to retain the address when the lease is expired then a new lease is established. If the lease expires and the address is no longer needed than another tenant may use the address.

Always Broadcast

If all the computers on the LAN successfully obtain their IP addresses from the router's DHCP server as expected, this option can remain disabled. However, if one of the computers on the LAN fails to obtain an IP address from the router's DHCP server, it may have an old DHCP client that incorrectly turns off the broadcast flag of DHCP packets. Enabling this option will cause the router to always broadcast its responses to all clients, thereby working around the problem, at the cost of increased broadcast traffic on the LAN.

Add/Edit DHCP Reservation

This option lets you reserve IP addresses, and assign the same IP address to the network device with the specified MAC address any time it requests an IP address. This is almost the same as when a device has a static IP address except that the device must still request an IP address from the router. The router will provide the device the same IP address every time. DHCP Reservations are helpful for server computers on the local network that are hosting applications such as Web and FTP. Servers on your network should either use a static IP address or use this option.

Computer Name

You can assign a name for each computer that is given a reserved IP address. This may help you keep track of which computers are assigned this way. Example: **Game Server**.

IP Address:

The LAN address that you want to reserve.

MAC Address

To input the MAC address of your system, enter it in manually or connect to the router's Web-Management interface from the system and click the **Copy Your PC's MAC Address** button.

A MAC address is usually located on a sticker on the bottom of a network device. The MAC address is comprised of twelve digits. Each pair of hexadecimal digits are usually separated by dashes or colons such as 00-0D-88-11-22-33 or 00:0D:88:11:22:33. If your network device is a computer and the network card is already located inside the computer, you can connect to the router from the computer and click the **Copy Your PC's MAC Address** button to enter the MAC address.

As an alternative, you can locate a MAC address in a specific operating system by following the steps below:

Windows 98 Windows Me	Go to the Start menu, select Run, type in winipcfg , and hit Enter. A popup window will be displayed. Select the appropriate adapter from the pull-down menu and you will see the Adapter Address. This is the MAC address of the device.
Windows 2000 Windows XP	Go to your Start menu, select Programs, select Accessories, and select Command Prompt. At the command prompt type ipconfig /all and hit Enter. The physical address displayed for the adapter connecting to the router is the MAC address.
Mac OS X	Go to the Apple Menu, select System Preferences, select Network, and select the Ethernet Adapter connecting to the router. Select the Ethernet button and the Ethernet ID will be listed. This is the same as the MAC address.

DHCP Reservations List

This shows clients that you have specified to have reserved DHCP addresses. An entry can be changed by clicking the Edit icon, or deleted by clicking the Delete icon. When you click the Edit icon, the item is highlighted, and the "Edit DHCP Reservation" section is activated for editing.

Number of Dynamic DHCP Clients

In this section you can see what LAN devices are currently leasing IP addresses.

Revoke

The **Revoke** option is available for the situation in which the lease table becomes full or nearly full, you need to recover space in the table for new entries, and you know that some of the currently allocated leases are no longer needed. Clicking **Revoke** cancels the lease for a specific LAN device and frees an entry in the lease table. Do this only if the device no longer needs the leased IP address, because, for example, it has been removed from the network.

Reserve

The **Reserve** option converts this dynamic IP allocation into a DHCP Reservation and adds the corresponding entry to the DHCP Reservations List.

Advanced

The Advanced tab provides the following configuration options: **Virtual Server, Special Applications, Gaming, StreamEngine, Routing, Access Control, WEB Filter, MAC Address Filter, Firewall, Inbound Filter, Advanced Wireless and Advanced Network.**

Advanced_Virtual Server

The Virtual Server option gives Internet users access to services on your LAN. This feature is useful for hosting online services such as FTP, Web, or game servers. For each Virtual Server, you define a public port on your router for redirection to an internal LAN IP Address and LAN port.

SMC Networks Draft 11n Wireless Gigabit 4-port Broadband Router **SMCWGBR14-N**

BASIC **ADVANCED** TOOLS STATUS HELP

ADVANCED

VIRTUAL SERVER

SPECIAL APPLICATIONS

GAMING

STREAMENGINE

ROUTING

ACCESS CONTROL

WEB FILTER

MAC ADDRESS FILTER

FIREWALL

INBOUND FILTER

ADVANCED WIRELESS

ADVANCED NETWORK

WISH

WI-FI PROTECTED SETUP

VIRTUAL SERVER

The Virtual Server option allows you to define a single public port on your router for redirection to an internal LAN IP Address and Private LAN port if required. This feature is useful for hosting online services such as FTP or Web Servers.

Save Settings Don't Save Settings

ADD VIRTUAL SERVER RULE

Enable:

Name: << Application Name

IP Address: 0.0.0.0 << Computer Name...

Protocol: TCP

Public port: 0

Private port: 0

Inbound Filter: Allow All

Details: Everyone allowed

Schedule: Always

Details: Always

Save Clear

VIRTUAL SERVER LIST

Name	IP Address	Protocol / Ports	Schedule	Inbound Filter	Edit	Delete
------	------------	------------------	----------	----------------	------	--------

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Example:

You are hosting a Web Server on a PC that has LAN IP Address of 192.168.2.50 and your ISP is blocking Port 80.

1. Name the Virtual Server (for example: **Web Server**)
2. Enter the IP Address of the machine on your LAN (for example: **192.168.2.50**)
3. Enter the Private Port as [80]
4. Enter the Public Port as [8888]

5. Select the Protocol (for example **TCP**).
6. Ensure the schedule is set to **Always**
7. Click **Save** to add the settings to the Virtual Servers List
8. Repeat these steps for each Virtual Server Rule you wish to add. After the list is complete, click **Save Settings** at the top of the page.

With this Virtual Server entry, all Internet traffic on Port 8888 will be redirected to your internal web server on port 80 at IP Address 192.168.2.50.

Virtual Server Parameters

Name

Assign a meaningful name to the virtual server, for example **Web Server**. Several well-known types of virtual server are available from the "Application Name" drop-down list. Selecting one of these entries fills some of the remaining parameters with standard values for that type of server.

IP Address

The IP address of the system on your internal network that will provide the virtual service, for example **192.168.2.50**. You can select a computer from the list of DHCP clients in the "Computer Name" drop-down menu, or you can manually enter the IP address of the server computer.

Protocol

Select the protocol used by the service. The common choices -- UDP, TCP, and both UDP and TCP -- can be selected from the drop-down menu. To specify any other protocol, select "Other" from the list, then enter the corresponding protocol number ([as assigned by the IANA](#)) in the **Protocol** box.

Private Port

The port that will be used on your internal network.

Public Port

The port that will be accessed from the Internet.

Inbound Filter

Select a filter that controls access as needed for this virtual server. If you do not see the filter you need in the list of filters, go to the [Advanced → Inbound Filter](#) screen and create a new filter.

Schedule

Select a schedule for when the service will be enabled. If you do not see the schedule you need in the list of schedules, go to the [Tools → Schedules](#) screen and create a new schedule.

Add/Edit Virtual Server

In this section you can add an entry to the Virtual Servers List below or edit an existing entry.

Enable

Entries in the list can be either active (enabled) or inactive (disabled).

Save

Saves the new or edited virtual server entry in the following list. When finished updating the virtual server entries, you must still click the **Save Settings** button at the top of the page to make the changes effective and permanent.

Virtual Servers List

The section shows the currently defined virtual servers. A Virtual Server can be changed by clicking the Edit icon, or deleted by clicking the Delete icon. When you click the Edit icon, the item is highlighted, and the "Edit Virtual Server" section is activated for editing.



You might have trouble accessing a virtual server using its public identity (WAN-side IP-address of the gateway or its dynamic DNS name) from a machine on the LAN. Your requests may not be looped back or you may be redirected to the "Forbidden" page.

This will happen if you have an Access Control Rule configured for this LAN machine.

The requests from the LAN machine will not be looped back if Internet access is blocked at the time of access. To work around this problem, access the LAN machine using its LAN-side identity.

Requests may be redirected to the "Forbidden" page if web access for the LAN machine is restricted by an Access Control Rule. Add the WAN-side identity (WAN-side IP-address of the router or its dynamic DNS name) on the [Advanced → Web Filter](#) screen to work around this problem.

Advanced_Special Applications

An application rule is used to open single or multiple ports on your router when the router senses data sent to the Internet on a "trigger" port or port range. An application rule applies to all computers on your internal network.

SMC Networks Draft 11n Wireless Gigabit 4-port Broadband Router **SMCWGBR14-N**

BASIC **ADVANCED** **TOOLS** **STATUS** **HELP**

ADVANCED

- VIRTUAL SERVER
- SPECIAL APPLICATIONS
- GAMING
- STREAMENGINE
- ROUTING
- ACCESS CONTROL
- WEB FILTER
- MAC ADDRESS FILTER
- FIREWALL
- INBOUND FILTER
- ADVANCED WIRELESS
- ADVANCED NETWORK
- WISH
- WI-FI PROTECTED SETUP

SPECIAL APPLICATIONS

This option is used to open single or multiple ports on your router when the router senses data sent to the Internet on a "trigger" port or port range. Special Applications rules apply to all computers on your internal network.

[Save Settings](#) [Don't Save Settings](#)

ADD GAME RULE

Enable :

Name : << Application Name

Trigger Port Range : (ex. 100-200, 588)

Trigger Protocol : Both

Input Port Range : (ex. 100-200, 588)

Input Protocol : Both

Schedule : Always

Details : Always

[Save](#) [Clear](#)

APPLICATION RULES

Enable	Rule Name	Trigger Ports	Firewall Ports	Schedule	Edit	Delete
--------	-----------	---------------	----------------	----------	------	--------

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Parameters for an Application Rule

Example:

You need to configure your router to allow a software application running on any computer on your network to connect to a web-based server or another user on the Internet.

Name

Enter a name for the Special Application Rule, for example **Game App**, which will help you identify the rule in the future. Alternatively, you can select from the **Application** list of common applications.

Application

Instead of entering a name for the Special Application rule, you can select from this list of common applications, and the remaining configuration values will be filled in accordingly.

Trigger Port Range

Enter the outgoing port range used by your application (for example **6500-6700**).

Trigger Protocol

Select the outbound protocol used by your application (for example **Both**).

Input Port Range

Enter the port range that you want to open up to Internet traffic (for example **6000-6200**).

Input Protocol

Select the protocol used by the Internet traffic coming back into the router through the opened port range (for example **Both**).

Schedule

Select a schedule for when this rule is in effect. If you do not see the schedule you need in the list of schedules, go to the [Tools → Schedules](#) screen and create a new schedule.

With the above example application rule enabled, the router will open up a range of ports from 6000-6200 for incoming traffic from the Internet, whenever any computer on the internal network opens up an application that sends data to the Internet using a port in the range of 6500-6700.

Add/Edit Special Applications Rule

This section is where you define and edit Special Applications Rules.

Save

Saves the new or edited Special Applications Rule in the following list. When finished updating the special applications rules, you must still click the **Save Settings** button at the top of the page to make the changes effective and permanent.

Special Applications Rules List

The section shows the currently defined special applications rules. A special applications rule can be changed by clicking the Edit icon, or deleted by clicking the Delete icon. When you click the Edit icon, the item is highlighted, and the "Edit Special Applications Rule" section is activated for editing.

Advanced_Gaming

Multiple connections are required by some applications, such as internet games, video conferencing, Internet telephony, and others. These applications have difficulties working through NAT (Network Address Translation). This section is used to open multiple ports or a range of ports in your router and redirect data through those ports to a single PC on your network. You can enter ports in various formats:

Range (50-100)

Individual (80, 68, 888)

Mixed (1020-5000, 689)

The screenshot shows the SMC Networks web interface for the SMCWGBR14-N router. The navigation bar includes BASIC, **ADVANCED**, TOOLS, STATUS, and HELP. The left sidebar lists various configuration options, with **ADVANCED** selected. The main content area is titled **GAMING** and contains the following sections:

GAMING
 This option is used to open multiple ports or a range of ports in your router and redirect data through those ports to a single PC on your network. This feature allows you to enter ports in various formats including, Port Ranges (100-150), Individual Ports (80, 68, 888), or Mixed (1020-5000, 689).
 Buttons: [Save Settings](#) [Don't Save Settings](#)

ADD GAME RULE

Enabled:

Name: << Application Name

IP Address: << Computer Name

TCP Ports to Open:

UDP Ports to Open:

Inbound Filter:
 Details: Everyone allowed

Schedule:
 Details: Always

Buttons: [Save](#) [Clear](#)

GAME RULES LIST

Enabled	Name	IP Address	TCP Ports	UDP Ports	Schedule	Inbound Filter	Edit	Delete

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Example:

Suppose you are hosting an online game server that is running on a PC with a private IP Address of 192.168.2.50. This game requires that you open multiple ports (6159-6180, 99) on the router so Internet users can connect.

Port Forwarding Fields

Name

Give the rule a name that is meaningful to you, for example **Game Server**. You can also select from a list of popular games, and many of the remaining configuration values will be filled in accordingly. However, you should check whether the port values have changed since this list was created, and you must fill in the IP address field.

IP Address

Enter the local network IP address of the system hosting the server, for example **192.168.2.50**.

TCP Ports To Open

Enter the TCP ports to open (for example **6159-6180, 99**).

UDP Ports To Open

Enter the UDP ports to open (for example **6159-6180, 99**).

Inbound Filter

Select a filter that controls access as needed for this rule. If you do not see the filter you need in the list of filters, go to the [Advanced → Inbound Filter](#) screen and create a new filter.

Schedule

Select a schedule for the times when this rule is in effect. If you do not see the schedule you need in the list of schedules, go to the [Tools → Schedules](#) screen and create a new schedule.

With the above example values filled in and this Gaming Rule enabled, all TCP and UDP traffic on ports 6159 through 6180 and port 99 is passed through the router and redirected to the Internal Private IP Address of your Game Server at 192.168.2.50.

Edit/Add Game Rule

Here you can add entries to the Game Rules List below, or edit existing entries.

Enable

Each entry in Game Rules List can be active (enabled) or inactive (disabled)

Save

Saves the new or edited Game Rule in the following list. When finished updating the game rules, you must still click the **Save Settings** button at the top of the page to make the changes effective and permanent.

Game Rules List

The section shows the currently defined game rules. A game rule can be changed by clicking the Edit icon, or deleted by clicking the Delete icon. When you click the Edit icon, the item is highlighted, and the "Edit Game Rule" section is activated for editing.

Advanced_StreamEngine

The StreamEngine feature helps improve your network gaming performance by prioritizing the data flows of network applications.

ADVANCED

- VIRTUAL SERVER
- SPECIAL APPLICATIONS
- GAMING
- STREAMENGINE**
- ROUTING
- ACCESS CONTROL
- WEB FILTER
- MAC ADDRESS FILTER
- FIREWALL
- INBOUND FILTER
- ADVANCED WIRELESS
- ADVANCED NETWORK
- WISH
- WI-FI PROTECTED SETUP

STREAMENGINE

Use this section to configure StreamEngine™ Technology. StreamEngine improves your online gaming experience by ensuring that your game traffic is prioritized over other network traffic, such as FTP or Web. For best performance, use the Automatic Classification option to automatically set the priority for your applications.

More...

Save Settings

Don't Save Settings

WAN TRAFFIC SHAPING

Enable Traffic Shaping:

Automatic Uplink Speed:

Measured Uplink Speed: 405 kbps

Manual Uplink Speed: 128 kbps <<

128 kbps

Connection Type: Auto-detect

Detected xDSL or Other Frame Relay Network: Yes

STREAMENGINE SETUP

Enable StreamEngine:

Automatic Classification:

Dynamic Fragmentation:

ADD STREAMENGINE RULE

Enable:

Name:

Priority: (1..255, 255 is the lowest priority)

Protocol: 6 << TCP

Local IP Range: to

Local Port Range: to

Remote IP Range: to

Remote Port Range: to

StreamEngine Setup

Enable StreamEngine

Enable this option for better performance and experience with online games and other interactive applications, such as VoIP.

Automatic Classification

This option is enabled by default so that your router will automatically determine which programs should have network priority.

Dynamic Fragmentation

This option should be enabled when you have a slow Internet uplink. It helps to reduce the impact that large low priority network packets can have on more urgent ones by breaking the large packets into several smaller packets.

Automatic Uplink Speed

When enabled, this option causes the router to automatically measure the useful uplink bandwidth each time the WAN interface is re-established (after a reboot, for example).

Measured Uplink Speed

This is the uplink speed measured when the WAN interface was last re-established. The value may be lower than that reported by your ISP as it does not include all of the network protocol overheads associated with your ISP's network. Typically, this figure will be between 87% and 91% of the stated uplink speed for xDSL connections and around 5 kbps lower for cable network connections.

Manual Uplink Speed

If Automatic Uplink Speed is disabled, this options allows you to set the uplink speed manually. Uplink speed is the speed at which data can be transferred from the router to your ISP. This is determined by your ISP. ISPs often specify speed as a downlink/uplink pair; for example, 1.5Mbps/284kbps. For this example, you would enter "284". Alternatively you can test your uplink speed with a service such as www.dslreports.com. Note however that sites such as DSL Reports, because they do not consider as many network protocol overheads, will generally note speeds slightly lower than the Measured Uplink Speed or the ISP rated speed.

Connection Type

By default, the router automatically determines whether the underlying connection is an xDSL/Frame-relay network or some other connection type (such as cable modem or Ethernet), and it displays the result as **Detected xDSL or Frame Relay Network**. If you have an unusual network connection in which you are actually connected via xDSL but for which you configure either "Static" or "DHCP" in the WAN settings, setting this option to **xDSL or Other Frame Relay Network** ensures that the router will recognize that it needs to shape traffic slightly differently in order to give the best performance. Choosing **xDSL or Other Frame Relay Network** causes the measured uplink speed to be

reported slightly lower than before on such connections, but gives much better results.

Detected xDSL or Frame Relay Network

When **Connection Type** is set to **Auto-detect**, the automatically detected connection type is displayed here.

StreamEngine Rules

A StreamEngine Rule identifies a specific message flow and assigns a priority to that flow. For most applications, automatic classification will be adequate, and specific StreamEngine Rules will not be required.

Conflicting rules are not permitted. Conflicting rules are those that share any combination of source address/port, destination address/port, and protocol. Rejecting conflicting rules ensures that every flow defined in a rule receives the expected priority and avoids indeterminate prioritization that could reduce QoS effectiveness.

Name

Create a name for the rule that is meaningful to you.

Priority

The priority of the message flow is entered here -- 1 receives the highest priority (most urgent) and 255 receives the lowest priority (least urgent). Priority 0 is reserved. Flows that are not prioritized by any rule receive lowest priority.

Protocol

The protocol used by the messages. The common choices can be selected from the drop-down menu. To specify any other protocol, enter its protocol number ([as assigned by the IANA](#)) in the **Protocol** box.

Source IP Range

The rule applies to a flow of messages whose LAN-side IP address falls within the range set here.

Source Port Range

The rule applies to a flow of messages whose LAN-side port number is within the range set here.

Destination IP Range

The rule applies to a flow of messages whose WAN-side IP address falls within the range set here.

Destination Port Range

The rule applies to a flow of messages whose WAN-side port number is within the range set here.

Add/Edit StreamEngine Rule

Enable

Each entry in StreamEngine Rules List can be active (enabled) or inactive (disabled)

Save

Saves the new or edited StreamEngine Rule in the following list. When finished updating the StreamEngine rules, you must still click the **Save Settings** button at the top of the page to make the changes effective and permanent.

StreamEngine Rules List

The section shows the currently defined StreamEngine rules. A StreamEngine rule can be changed by clicking the Edit icon, or deleted by clicking the Delete icon. When you click the Edit icon, the item is highlighted, and the "Edit StreamEngine Rule" section is activated for editing.

Advanced_Routing

SMC Networks Draft 11n Wireless Gigabit 4-port Broadband Router **SMCWGBR14-N**

BASIC **ADVANCED** TOOLS STATUS HELP

ADVANCED

- VIRTUAL SERVER
- SPECIAL APPLICATIONS
- GAMING
- STREAMENGINE
- ROUTING**
- ACCESS CONTROL
- WEB FILTER
- MAC ADDRESS FILTER
- FIREWALL
- INBOUND FILTER
- ADVANCED WIRELESS
- ADVANCED NETWORK
- WISH
- WI-FI PROTECTED SETUP

ROUTING

The Routing option allows you to define fixed routes to defined destinations.

[Save Settings](#) [Don't Save Settings](#)

ADD ROUTE

Enable:

Name:

Destination IP:

Netmask:

Gateway:

Metric:

Interface:

[Save](#) [Clear](#)

ROUTES LIST

Name	Destination IP	Netmask	Gateway	Metric	Interface
------	----------------	---------	---------	--------	-----------

EXISTING ROUTES

Destination IP	Netmask	Gateway	Metric	Interface	Creator
192.168.10.0	255.255.255.0	0.0.0.0	1	WAN	System
0.0.0.0	0.0.0.0	192.168.10.1	15	WAN	System
192.168.2.0	255.255.255.0	0.0.0.0	1	LAN	System

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Add/Edit Route

Adds a new route to the IP routing table or edits an existing route.

Enable: Specifies whether the entry will be enabled or disabled.

Destination IP: The IP address of packets that will take this route.

Netmask: One bits in the mask specify which bits of the IP address must match.

Gateway: Specifies the next hop to be taken if this route is used. A gateway of 0.0.0.0 implies there is no next hop, and the IP address matched is directly connected to the router on the interface specified: LAN or WAN.

Interface: Specifies the interface -- LAN or WAN -- that the IP packet must use to transit out of the router, when this route is used.

Metric: The route metric is a value from 1 to 16 that indicates the cost of using this route. A value of 1 is the lowest cost, and 15 is the highest cost. A value of 16 indicates that the route is not reachable from this router. When trying to reach a particular destination, computers on your network will select the best route, ignoring unreachable routes.

Save: Saves the new or edited route in the following list. When finished updating the routing table, you must still click the **Save Settings** button at the top of the page to make the changes effective and permanent.

Routes List

The section shows the current routing table entries. Certain required routes are predefined and cannot be changed. Routes that you add can be changed by clicking the Edit icon, or deleted by clicking the Delete icon. When you click the Edit icon, the item is highlighted, and the "Edit Route" section is activated for editing.

Advanced_Access Control

The Access Control section allows you to control access in and out of devices on your network. Use this feature as Parental Controls to only grant access to approved sites, limit web access based on time or dates, and/or block access from applications such as peer-to-peer utilities or games.



The screenshot shows the SMC Networks web interface for the SMCWGBR14-N router. The top navigation bar includes 'BASIC', 'ADVANCED' (highlighted), 'TOOLS', 'STATUS', and 'HELP'. The left sidebar lists various settings, with 'ADVANCED' selected. The main content area is titled 'ACCESS CONTROL' and contains the following text: 'The Access Control option allows you to control access in and out of your network. Use this feature as Access Controls to only grant access to approved sites, limit web access based on time or dates, and/or block internet access for applications like P2P utilities or games.' Below this text are two buttons: 'Save Settings' and 'Don't Save Settings'. A second 'ACCESS CONTROL' section below shows 'Enable Access Control : '. The footer of the page reads 'Copyright © 2004-2007 SMC, Inc.'

Enable

By default, the Access Control feature is disabled. If you need Access Control, check this option.



When Access Control is disabled, every device on the LAN has unrestricted access to the Internet. However, if you enable Access Control, Internet access is restricted for those devices that have an Access Control Policy configured for them. All other devices have unrestricted access to the Internet.

Policy Wizard

The Policy Wizard guides you through the steps of defining each access control policy. A policy is the "Who, What, When, and How" of access control -- whose computer will be affected by the control, what internet addresses are controlled,

when will the control be in effect, and how is the control implemented. You can define multiple policies. The Policy Wizard starts when you click the button below and also when you edit an existing policy.

Add Policy

Click this button to start creating a new access control policy.

Policy Table

This section shows the currently defined access control policies. A policy can be changed by clicking the Edit icon, or deleted by clicking the Delete icon. When you click the Edit icon, the Policy Wizard starts and guides you through the process of changing a policy. You can enable or disable specific policies in the list by clicking the "Enable" checkbox.

Advanced_WEB Filter

This section is where you add the Web sites to be used for Access Control. The Web sites listed here are used when the Web Filter option is enabled in [Access Control](#).

The Web Filter section is one of two means by which you can specify the web sites you want to allow. You also have the alternative of using the Sentinel Parental Controls Service, which allows you to specify broad categories of web sites and saves you the trouble of entering specific web site URLs. For more information about the Sentinel service, refer to [Tools → Sentinel](#).

The screenshot shows the SMC Networks web interface for the Draft 11n Wireless Gigabit 4-port Broadband Router (SMCWGBR14-N). The interface is divided into several sections:

- Navigation Bar:** Includes tabs for BASIC, **ADVANCED** (highlighted), TOOLS, STATUS, and HELP.
- Left Sidebar:** Lists various configuration options, with **ADVANCED** highlighted. Other options include VIRTUAL SERVER, SPECIAL APPLICATIONS, GAMING, STREAMENGINE, ROUTING, ACCESS CONTROL, WEB FILTER, MAC ADDRESS FILTER, FIREWALL, INBOUND FILTER, ADVANCED WIRELESS, ADVANCED NETWORK, WISH, and WI-FI PROTECTED SETUP.
- WEB FILTER Section:**
 - WEB FILTER:** A header section with a description: "The Web Filter option allows you to set up a list of allowed Web sites that can be used by multiple users. When Web Filter is enabled, all Web sites not listed on this page will be blocked. To use this feature, you must also select the 'Apply Web Filter' checkbox in the Access Control section." Below the text are two buttons: "Save Settings" and "Don't Save Settings".
 - ADD WEB FILTERING RULE:** A form section with an "Enable" checkbox (unchecked), a "Web Site" text input field (with a placeholder "(e.g.: www.SMC.com)"), and "Save" and "Clear" buttons.
 - WEBSITE FILTERING RULES:** A table header with columns for "Enable" and "Web Site".
- Footer:** Copyright © 2004-2007 SMC, Inc.

Web Filter Parameters

Web Site

Enter the address of the web site that you want to allow; for example: **google.com**. Do not enter the **http://** preceding the address. Enter the most inclusive domain; for example, enter **u-media.com** and access will be permitted to both **www.u-media.com** and **support.u-media.com**.



Many web sites construct pages with images and content from other web sites. Access will be forbidden if you do not enable all the web sites used to construct a page. For example, to access

my.yahoo.com, you need to enable access to **yahoo.com**, **yimg.com**, and **doubleclick.net**.

Add/Edit Web Site

This is where you can add Web sites to the Allowed Web Site List or change entries in the Allowed Web Site List.

Enable

Entries in the Allowed Web Site List can be activated or deactivated with this checkbox. New entries are activated by default.

Save

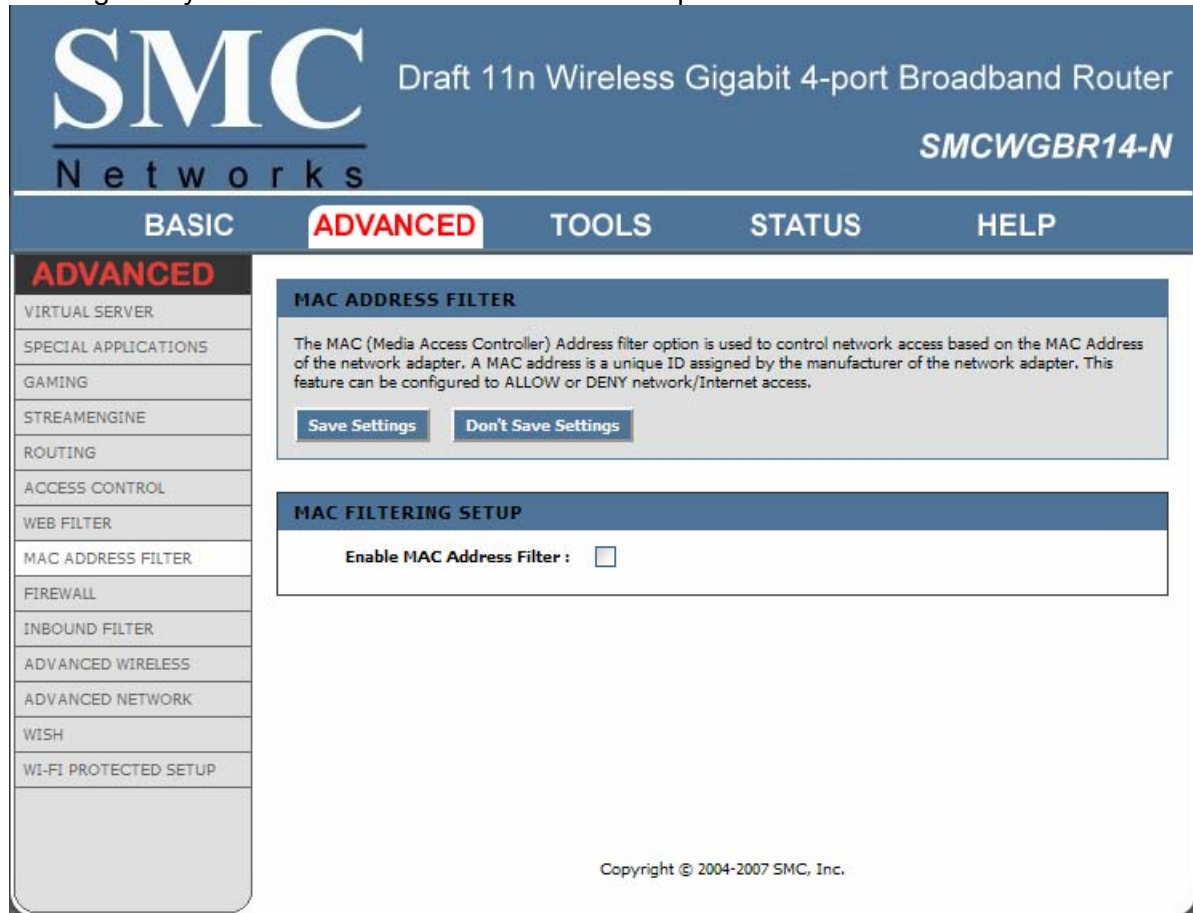
Saves the new or edited Allowed Web Site in the following list. When finished updating the Allowed Web Site List, you must still click the **Save Settings** button at the top of the page to make the changes effective and permanent.

Allowed Web Site List

The section lists the currently allowed web sites. An allowed web site can be changed by clicking the Edit icon, or deleted by clicking the Delete icon. When you click the Edit icon, the item is highlighted, and the "Edit Web Site" section is activated for editing.

Advanced_MAC Address Filter

The MAC address filter section can be used to filter network access by machines based on the unique MAC addresses of their network adapter(s). It is most useful to prevent unauthorized wireless devices from connecting to your network. A MAC address is a unique ID assigned by the manufacturer of the network adapter.



The screenshot shows the SMC Networks web interface for a Draft 11n Wireless Gigabit 4-port Broadband Router (SMCWGBR14-N). The interface is divided into several sections:

- Header:** SMC Networks logo and product name.
- Navigation:** BASIC, **ADVANCED** (highlighted), TOOLS, STATUS, HELP.
- Left Sidebar:** A list of menu items including VIRTUAL SERVER, SPECIAL APPLICATIONS, GAMING, STREAMENGINE, ROUTING, ACCESS CONTROL, WEB FILTER, MAC ADDRESS FILTER (highlighted), FIREWALL, INBOUND FILTER, ADVANCED WIRELESS, ADVANCED NETWORK, WISH, and WI-FI PROTECTED SETUP.
- Main Content Area:**
 - MAC ADDRESS FILTER:** A section with a blue header. It contains a paragraph explaining the feature: "The MAC (Media Access Controller) Address filter option is used to control network access based on the MAC Address of the network adapter. A MAC address is a unique ID assigned by the manufacturer of the network adapter. This feature can be configured to ALLOW or DENY network/Internet access." Below the text are two buttons: "Save Settings" and "Don't Save Settings".
 - MAC FILTERING SETUP:** A section with a blue header. It contains a single line of text: "Enable MAC Address Filter : ".
- Footer:** Copyright © 2004-2007 SMC, Inc.

Enable MAC Address Filter

When this is enabled, computers are granted or denied network access depending on the mode of the filter.



NOTE

Misconfiguration of this feature can prevent any machine from accessing the network. In such a situation, you can regain access by activating the factory defaults button on the router itself.

Filter Settings

Mode

When "only allow listed machines" is selected, only computers with MAC addresses listed in the MAC Address List are granted network access. When

"only deny listed machines" is selected, any computer with a MAC address listed in the MAC Address List is refused access to the network.

Filter Wireless Clients

When this is selected, the MAC address filters will be applied to wireless network clients.

Filter Wired Clients

When this is selected, the MAC address filters will be applied to wired network clients.

Add/Edit MAC Address

In this section, you can add entries to the MAC Address List below, or edit existing entries.

Enable

MAC address entries can be activated or deactivated with this checkbox.

MAC Address

Enter the MAC address of the desired computer or connect to the router from the desired computer and click the **Copy Your PC's MAC Address** button.

Save

Saves the new or edited MAC Address entry in the following list. When finished updating the MAC Address List, you must still click the **Save Settings** button at the top of the page to make the changes effective and permanent.

MAC Address List

The section lists the current MAC Address filters. A MAC Address entry can be changed by clicking the Edit icon, or deleted by clicking the Delete icon. When you click the Edit icon, the item is highlighted, and the "Edit MAC Address" section is activated for editing.

Advanced_Firewall

The router provides a tight firewall by virtue of the way NAT works. Unless you configure the router to the contrary, the NAT does not respond to unsolicited incoming requests on any port, thereby making your LAN invisible to Internet cyber attackers. However, some network applications cannot run with a tight firewall. Those applications need to selectively open ports in the firewall to function correctly. The options on this page control several ways of opening the firewall to address the needs of specific types of applications. See also [Virtual Server](#), [Port Forwarding](#), [Application Rules](#), and [UPnP](#) for related options.

SMC

Draft 11n Wireless Gigabit 4-port Broadband Router

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 ADVANCED WIRELESS
 ADVANCED NETWORK
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FIREWALL

The Firewall Settings allow you to set a single computer on your network outside of the router.

Save Settings
Don't Save Settings

FIREWALL SETTINGS

Enable SPI :

NAT ENDPOINT FILTERING

UDP Endpoint Filtering:
 Endpoint Independent
 Address Restricted
 Port And Address Restricted

TCP Endpoint Filtering:
 Endpoint Independent
 Address Restricted
 Port And Address Restricted

DMZ HOST

The DMZ (Demilitarized Zone) option lets you set a single computer on your network outside of the router. If you have a computer that cannot run Internet applications successfully from behind the router, then you can place the computer into the DMZ for unrestricted Internet access.

Note: Putting a computer in the DMZ may expose that computer to a variety of security risks. Use of this option is only recommended as a last resort.

Enable DMZ:

NON-UDP/TCP/ICMP LAN SESSIONS

Enable :

APPLICATION LEVEL GATEWAY (ALG) CONFIGURATION

PPTP :
 IPSec (VPN) :
 RTSP :
 Windows/MSN Messenger : (automatically disabled if UPnP is enabled)
 FTP :
 H.323 (NetMeeting) :
 SIP :
 Wake-On-LAN :
 MMS :

Firewall Settings

Enable SPI

SPI ("stateful packet inspection" also known as "dynamic packet filtering") helps to prevent cyber attacks by tracking more state per session. It validates that the

traffic passing through that session conforms to the protocol. When the protocol is TCP, SPI checks that packet sequence numbers are within the valid range for the session, discarding those packets that do not have valid sequence numbers.

Whether SPI is enabled or not, the router always tracks TCP connection states and ensures that each TCP packet's flags are valid for the current state.

NAT Endpoint Filtering

The NAT Endpoint Filtering options control how the router's NAT manages incoming connection requests to ports that are already being used.

Endpoint Independent

Once a LAN-side application has created a connection through a specific port, the NAT will forward any incoming connection requests with the same port to the LAN-side application regardless of their origin. This is the least restrictive option, giving the best connectivity and allowing some applications (P2P applications in particular) to behave almost as if they are directly connected to the Internet.

Address Restricted

The NAT forwards incoming connection requests to a LAN-side host only when they come from the same IP address with which a connection was established. This allows the remote application to send data back through a port different from the one used when the outgoing session was created.

Port And Address Restricted

The NAT does not forward any incoming connection requests with the same port address as an already establish connection.

Note that some of these options can interact with other port restrictions. Endpoint Independent Filtering takes priority over inbound filters or schedules, so it is possible for an incoming session request related to an outgoing session to enter through a port in spite of an active inbound filter on that port. However, packets will be rejected as expected when sent to blocked ports (whether blocked by schedule or by inbound filter) for which there are no active sessions. Port and Address Restricted Filtering ensures that inbound filters and schedules work precisely, but prevents some level of connectivity, and therefore might require the use of port triggers, virtual servers, or port forwarding to open the ports needed by the application. Address Restricted Filtering gives a compromise position, which avoids problems when communicating with certain other types of NAT router (symmetric NATs in particular) but leaves inbound filters and scheduled access working as expected.

UDP Endpoint Filtering

Controls endpoint filtering for packets of the UDP protocol.

TCP Endpoint Filtering

Controls endpoint filtering for packets of the TCP protocol.

DMZ Host

DMZ means "Demilitarized Zone." If an application has trouble working from behind

the router, you can expose one computer to the Internet and run the application on that computer.

When a LAN host is configured as a DMZ host, it becomes the destination for all incoming packets that do not match some other incoming session or rule. If any other ingress rule is in place, that will be used instead of sending packets to the DMZ host; so, an active session, virtual server, active port trigger, or port forwarding rule will take priority over sending a packet to the DMZ host. (The DMZ policy resembles a default port forwarding rule that forwards every port that is not specifically sent anywhere else.)

The router provides only limited firewall protection for the DMZ host. The router does not forward a TCP packet that does not match an active DMZ session, unless it is a connection establishment packet (SYN). Except for this limited protection, the DMZ host is effectively "outside the firewall". Anyone considering using a DMZ host should also consider running a firewall on that DMZ host system to provide additional protection.

Packets received by the DMZ host have their IP addresses translated from the WAN-side IP address of the router to the LAN-side IP address of the DMZ host. However, port numbers are not translated; so applications on the DMZ host can depend on specific port numbers.

The DMZ capability is just one of several means for allowing incoming requests that might appear unsolicited to the NAT. In general, the DMZ host should be used only if there are no other alternatives, because it is much more exposed to cyber attacks than any other system on the LAN. Thought should be given to using other configurations instead: a virtual server, a port forwarding rule, or a port trigger. Virtual servers open one port for incoming sessions bound for a specific application (and also allow port redirection and the use of ALGs). Port forwarding is rather like a selective DMZ, where incoming traffic targeted at one or more ports is forwarded to a specific LAN host (thereby not exposing as many ports as a DMZ host). Port triggering is a special form of port forwarding, which is activated by outgoing traffic, and for which ports are only forwarded while the trigger is active.

Few applications truly require the use of the DMZ host. Following are examples of when a DMZ host might be required:

- A host needs to support several applications that might use overlapping ingress ports such that two port forwarding rules cannot be used because they would potentially be in conflict.
- To handle incoming connections that use a protocol other than ICMP, TCP, UDP, and IGMP (also GRE and ESP, when these protocols are enabled by the PPTP and IPsec ALGs).

Enable DMZ



Putting a computer in the DMZ may expose that computer to a variety of security risks. Use of this option is only recommended as a last resort.

DMZ IP Address

Specify the LAN IP address of the LAN computer that you want to have unrestricted Internet communication. If this computer obtains its address Automatically using DHCP, then you may want to make a static reservation on the [Basic → Network Settings](#) page so that the IP address of the DMZ computer does not change.

Non-UDP/TCP/ICMP LAN Sessions

When a LAN application that uses a protocol other than UDP, TCP, or ICMP initiates a session to the Internet, the router's NAT can track such a session, even though it does not recognize the protocol. This feature is useful because it enables certain applications (most importantly a single VPN connection to a remote host) without the need for an ALG.

Note that this feature does not apply to the DMZ host (if one is enabled). The DMZ host always handles these kinds of sessions.

Enable

Enabling this option (the default setting) enables single VPN connections to a remote host. (But, for multiple VPN connections, the appropriate VPN ALG must be used.) Disabling this option, however, only disables VPN if the appropriate VPN ALG is also disabled.

Application Level Gateway (ALG) Configuration

Here you can enable or disable ALGs. Some protocols and applications require special handling of the IP payload to make them work with network address translation (NAT). Each ALG provides special handling for a specific protocol or application. A number of ALGs for common applications are enabled by default.

PPTP

Allows multiple machines on the LAN to connect to their corporate networks using PPTP protocol. When the PPTP ALG is enabled, LAN computers can establish PPTP VPN connections either with the same or with different VPN servers. When the PPTP ALG is disabled, the router allows VPN operation in a restricted way -- LAN computers are typically able to establish VPN tunnels to different VPN Internet servers but not to the same server. The advantage of disabling the PPTP ALG is to increase VPN performance. Enabling the PPTP ALG also allows incoming VPN connections to a LAN side VPN server (refer to [Virtual Server](#)).

IPSec (VPN)

Allows multiple VPN clients to connect to their corporate networks using IPSec. Some VPN clients support traversal of IPSec through NAT. This option may interfere with the operation of such VPN clients. If you are having trouble connecting with your corporate network, try disabling this option.

Check with the system administrator of your corporate network whether your VPN client supports NAT traversal.

Note that L2TP VPN connections typically use IPSec to secure the connection.

To achieve multiple VPN pass-through in this case, the IPSec ALG must be enabled.

RTSP

Allows applications that use Real Time Streaming Protocol to receive streaming media from the internet. QuickTime and Real Player are some of the common applications using this protocol.

Windows/MSN Messenger

Supports use on LAN computers of Microsoft Windows Messenger (the Internet messaging client that ships with Microsoft Windows) and MSN Messenger. The SIP ALG must also be enabled when the Windows Messenger ALG is enabled.

FTP

Allows FTP clients and servers to transfer data across NAT. Refer to the [Advanced → Virtual Server](#) page if you want to host an FTP server.

H.323 (Netmeeting)

Allows H.323 (specifically Microsoft Netmeeting) clients to communicate across NAT. Note that if you want your buddies to call you, you should also set up a virtual server for NetMeeting. Refer to the [Advanced → Virtual Server](#) page for information on how to set up a virtual server.

SIP

Allows devices and applications using VoIP (Voice over IP) to communicate across NAT. Some VoIP applications and devices have the ability to discover NAT devices and work around them. This ALG may interfere with the operation of such devices. If you are having trouble making VoIP calls, try turning this ALG off.

Wake-On-LAN

This feature enables forwarding of "magic packets" (that is, specially formatted wake-up packets) from the WAN to a LAN computer or other device that is "Wake on LAN" (WOL) capable. The WOL device must be defined as such on the [Advanced → Virtual Server](#) page. The LAN IP address for the virtual server is typically set to the broadcast address 192.168.2.255. The computer on the LAN whose MAC address is contained in the magic packet will be awakened.

MMS

Allows Windows Media Player, using MMS protocol, to receive streaming media from the internet.

Advanced_Inbound Filter

When you use the Virtual Server, Gaming, or Remote Administration features to open specific ports to traffic from the Internet, you could be increasing the exposure of your LAN to cyber attacks from the Internet. In these cases, you can use Inbound Filters to limit that exposure by specifying the IP addresses of internet hosts that you trust to access your LAN through the ports that you have opened. You might, for example, only allow access to a game server on your home LAN from the computers of friends whom you have invited to play the games on that server.

Inbound Filters can be used for limiting access to a server on your network to a system or group of systems. Filter rules can be used with Virtual Server, Gaming, or Remote Administration features. Each filter can be used for several functions; for example a "Game Clan" filter might allow all of the members of a particular gaming group to play several different games for which gaming entries have been created. At the same time an "Admin" filter might only allows systems from your office network to access the WAN admin pages and an FTP server you use at home. If you add an IP address to a filter, the change is effected in all of the places where the filter is used.

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FIREWALL

INBOUND FILTER

ADVANCED WIRELESS

ADVANCED NETWORK

WISH

WI-FI PROTECTED SETUP

INBOUND FILTER

Inbound Filter Rules

The Inbound Filter option is an advanced method of controlling data received from the Internet. With this feature you can configure inbound data filtering rules that control data based on an IP address range.

Inbound Filters can be used for limiting access to a server on your network to a system or group of systems. Filter rules can be used with Virtual Server, Gaming, or Remote Administration features.

ADD INBOUND FILTER RULE

Name :

Action : Deny

Source IP Range	Enable	Source IP Start	Source IP End
<input type="checkbox"/>	<input type="checkbox"/>	<input style="width: 80px;" type="text" value="0.0.0.0"/>	<input style="width: 80px;" type="text" value="255.255.255.255"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input style="width: 80px;" type="text" value="0.0.0.0"/>	<input style="width: 80px;" type="text" value="255.255.255.255"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input style="width: 80px;" type="text" value="0.0.0.0"/>	<input style="width: 80px;" type="text" value="255.255.255.255"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input style="width: 80px;" type="text" value="0.0.0.0"/>	<input style="width: 80px;" type="text" value="255.255.255.255"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input style="width: 80px;" type="text" value="0.0.0.0"/>	<input style="width: 80px;" type="text" value="255.255.255.255"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input style="width: 80px;" type="text" value="0.0.0.0"/>	<input style="width: 80px;" type="text" value="255.255.255.255"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input style="width: 80px;" type="text" value="0.0.0.0"/>	<input style="width: 80px;" type="text" value="255.255.255.255"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input style="width: 80px;" type="text" value="0.0.0.0"/>	<input style="width: 80px;" type="text" value="255.255.255.255"/>

INBOUND FILTER RULES LIST

Name	Action	Source IP Range

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Add/Edit Inbound Filter Rule

Here you can add entries to the Inbound Filter Rules List below, or edit existing entries.

Name

Enter a name for the rule that is meaningful to you.

Action

The rule can either Allow or Deny messages.

Source IP Range

Define the ranges of Internet addresses this rule applies to. For a single IP address, enter the same address in both the **Start** and **End** boxes. Up to eight

ranges can be entered. The **Enable** checkbox allows you to turn on or off specific entries in the list of ranges.

Save

Saves the new or edited Inbound Filter Rule in the following list. When finished updating the Inbound Filter Rules List, you must still click the **Save Settings** button at the top of the page to make the changes effective and permanent.

Inbound Filter Rules List

The section lists the current Inbound Filter Rules. An Inbound Filter Rule can be changed by clicking the Edit icon, or deleted by clicking the Delete icon. When you click the Edit icon, the item is highlighted, and the "Edit Inbound Filter Rule" section is activated for editing.

In addition to the filters listed here, two predefined filters are available wherever inbound filters can be applied:

Allow All

Permit any WAN user to access the related capability.

Deny All

Prevent all WAN users from accessing the related capability. (LAN users are not affected by Inbound Filter Rules.)

Advanced_Advanced Wireless

The screenshot shows the SMC Networks web interface for the SMCWGBR14-N Draft 11n Wireless Gigabit 4-port Broadband Router. The interface has a blue header with the SMC Networks logo and the product name. Below the header is a navigation bar with tabs for BASIC, ADVANCED (selected), TOOLS, STATUS, and HELP. On the left is a sidebar menu with various configuration options, including ADVANCED WIRELESS (selected). The main content area is titled 'ADVANCED WIRELESS' and contains a warning message: 'If you are not familiar with these Advanced Wireless settings, please read the help section before attempting to modify these settings.' Below the warning are two buttons: 'Save Settings' and 'Don't Save Settings'. The 'ADVANCED WIRELESS SETTINGS' section contains the following configuration options:

Transmit Power :	High	
Beacon Period :	100	(20..1000)
RTS Threshold :	2346	(1..65535)
Fragmentation Threshold :	2346	(256..65535)
DTIM Interval :	1	(1..255)
A-MPDU Aggregation :	<input checked="" type="checkbox"/>	
Short GI :	<input checked="" type="checkbox"/>	
WDS Enable :	<input type="checkbox"/>	

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Transmit Power

Normally the wireless transmitter operates at 100% power. In some circumstances, however, there might be a need to isolate specific frequencies to a smaller area. By reducing the power of the radio, you can prevent transmissions from reaching beyond your corporate/home office or designated wireless area.

Beacon Period

Beacons are packets sent by a wireless router to synchronize wireless devices. Specify a Beacon Period value between 20 and 1000. The default value is set to 100 milliseconds.

RTS Threshold

This setting should remain at its default value of 2346. If you encounter inconsistent data flow, only minor modifications to the value are recommended.

Fragmentation Threshold

This setting should remain at its default value of 2346. Setting the Fragmentation value too low may result in poor performance.

DTIM Interval

A DTIM is a countdown informing clients of the next window for listening to broadcast and multicast messages. When the wireless router has buffered broadcast or multicast messages for associated clients, it sends the next DTIM with a DTIM Interval value. Wireless clients detect the beacons and awaken to receive the broadcast and multicast messages. The default value is 1. Valid settings are between 1 and 255.

Short GI

Using a short (400ns) guard interval can increase throughput. However, it can also increase error rate in some installations, due to increased sensitivity to radio-frequency reflections. Select the option that works best for your installation.

Extra Wireless Protection

Extra protection for neighboring 11b wireless networks. Turn this option off to reduce the adverse effect of legacy wireless networks on 802.11ng performance.

WDS Enable

When WDS is enabled, this access point functions as a wireless repeater and is able to wirelessly communicate with other APs via WDS links. Note that WDS is incompatible with WPA -- both features cannot be used at the same time. A WDS link is bidirectional; so this AP must know the MAC Address (creates the WDS link) of the other AP, and the other AP must have a WDS link back to this AP. Make sure the APs are configured with same channel number.

WDS AP MAC Address

Specifies one-half of the WDS link. The other AP must also have the MAC address of this AP to create the WDS link back to this AP. Enter a MAC address for each of the other APs that you want to connect with WDS.

Advanced_Network

The screenshot displays the configuration interface for an SMC Networks router. The top navigation bar includes 'BASIC', 'ADVANCED' (highlighted), 'TOOLS', 'STATUS', and 'HELP'. A left sidebar lists various configuration options, with 'ADVANCED NETWORK' selected. The main content area is divided into several sections:

- ADVANCED NETWORK:** A warning message states, "If you are not familiar with these Advanced Network settings, please read the help section before attempting to modify these settings." Below this are two buttons: "Save Settings" and "Don't Save Settings".
- UPnP:** A section titled "Universal Plug and Play (UPnP) supports peer-to-peer Plug and Play functionality for network devices." It includes a checkbox for "Enable UPnP" which is checked.
- WAN PING:** A section titled "If you enable this feature, the WAN port of your router will respond to ping requests from the Internet that are sent to the WAN IP Address." It includes a checkbox for "Enable WAN Ping Respond" which is unchecked, and a "WAN Ping Inbound Filter" dropdown menu set to "Allow All" with a "Details" link set to "Everyone allows".
- WAN PORT SPEED:** A section with a "WAN Port Speed" dropdown menu set to "Auto 10/100/1000Mbps".
- MULTICAST STREAMS:** A section with a checkbox for "Enable Multicast Streams" which is checked.

At the bottom of the page, the copyright notice reads: "Copyright © 2004-2007 SMC, Inc."

UPnP

UPnP is short for Universal Plug and Play, which is a networking architecture that provides compatibility among networking equipment, software, and peripherals. This router has optional UPnP capability, and can work with other UPnP devices and software.

Enable UPnP

If you need to use the UPnP functionality, you can enable it here.

WAN Ping

Pinging public WAN IP addresses is a common method used by hackers to test whether your WAN IP address is valid.

Enable WAN Ping Respond

If you leave this option unchecked, you are causing the router to ignore **ping** commands for the public WAN IP address of the router.

WAN Port Speed

Normally, this is set to "auto". If you have trouble connecting to the WAN, try the other settings.

Multicast Streams

The router uses the IGMP protocol to support efficient multicasting -- transmission of identical content, such as multimedia, from a source to a number of recipients.

Enable Multicast Streams

This option must be enabled if any applications on the LAN participate in a multicast group. If you have a multimedia LAN application that is not receiving content as expected, try enabling this option.

Advanced_WISH

WISH is short for Wireless Intelligent Stream Handling, a technology developed to enhance your experience of using a wireless network by prioritizing the traffic of different applications.

SMC Draft 11n Wireless Gigabit 4-port Broadband Router
Networks *SMCWGBR14-N*

BASIC **ADVANCED** **TOOLS** **STATUS** **HELP**

ADVANCED

- VIRTUAL SERVER
- SPECIAL APPLICATIONS
- GAMING
- STREAMENGINE
- ROUTING
- ACCESS CONTROL
- WEB FILTER
- MAC ADDRESS FILTER
- FIREWALL
- INBOUND FILTER
- ADVANCED WIRELESS
- ADVANCED NETWORK
- WISH
- WI-FI PROTECTED SETUP

WISH

WISH (Wireless Intelligent Stream Handling) prioritizes the traffic of various wireless applications.

WISH

Enable WISH :

PRIORITY CLASSIFIERS

HTTP :
 Windows Media Center :
 Automatic : (default if not matched by anything else)

ADD WISH RULE

Enable :
 Name :
 Priority : Background (BK)
 Protocol : << Other
 Host 1 IP Range : -
 Host 1 Port Range : -
 Host 2 IP Range : -
 Host 2 Port Range : -

WISH RULES

Name	Priority	Host 1 IP Range	Host 2 IP Range	Protocol / Ports

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WISH

Enable WISH

Enable this option if you want to allow WISH to prioritize your traffic.

Priority Classifiers

HTTP

Allows the router to recognize HTTP transfers for many common audio and video streams and prioritize them above other traffic. Such streams are frequently used by digital media players.

Windows Media Center

Enables the router to recognize certain audio and video streams generated by a Windows Media Center PC and to prioritize these above other traffic. Such streams are used by systems known as Windows Media Extenders, such as the Xbox 360.

Automatic

When enabled, this option causes the router to automatically attempt to prioritize traffic streams that it doesn't otherwise recognize, based on the behaviour that the streams exhibit. This acts to deprioritize streams that exhibit bulk transfer characteristics, such as file transfers, while leaving interactive traffic, such as gaming or VoIP, running at a normal priority.

Add/Edit WISH Rule

A WISH Rule identifies a specific message flow and assigns a priority to that flow. For most applications, the priority classifiers ensure the right priorities and specific WISH Rules are not required.

WISH supports overlaps between rules. If more than one rule matches for a specific message flow, the rule with the highest priority will be used.

Enable

Specifies whether the entry will be active or inactive.

Name

Create a name for the rule that is meaningful to you.

Priority

The priority of the message flow is entered here. Four priorities are defined:

- BK: Background (least urgent).
- BE: Best Effort.
- VI: Video.
- VO: Voice (most urgent).

Protocol

The protocol used by the messages.

Host 1 IP Range

The rule applies to a flow of messages for which one computer's IP address falls within the range set here.

Host 1 Port Range

The rule applies to a flow of messages for which host 1's port number is within the range set here.

Host 2 IP Range

The rule applies to a flow of messages for which the other computer's IP address falls within the range set here.

Host 2 Port Range

The rule applies to a flow of messages for which host 2's port number is within the range set here.

Save/Update

Record the changes you have made into the following list.

Clear

Re-initialize this area of the screen, discarding any changes you have made.

WISH Rules

This section lists the defined WISH Rules. Click the Enable checkbox at the left to directly activate or de-activate the entry. An entry can be changed by clicking the Edit icon or can be deleted by clicking the Delete icon. When you click the Edit icon, the item is highlighted, and the "Edit WISH Rule" section is activated for editing.

Advanced_Wi-Fi PROTECTED SETUP

The screenshot shows the configuration interface for the SMC Networks Draft 11n Wireless Gigabit 4-port Broadband Router (SMCWGBR14-N). The page is titled "Advanced_Wi-Fi PROTECTED SETUP" and features a navigation menu with options: BASIC, **ADVANCED**, TOOLS, STATUS, and HELP. The left sidebar lists various configuration categories, with "ADVANCED" selected. The main content area is divided into three sections:

- WI-FI PROTECTED SETUP**: A section with a description: "Wi-Fi Protected Setup is used to easily add devices to a network using a PIN or button press. Devices must support Wi-Fi Protected Setup in order to be configured by this method." It includes two buttons: "Save Settings" and "Don't Save Settings".
- WI-FI PROTECTED SETUP**: A section with two checkboxes: "Enable : " and "Lock Wireless Security Settings : ".
- PIN SETTINGS (ADMINISTRATOR ACCESS ONLY)**: A section showing the "Current PIN : 00000000" and two buttons: "Reset PIN to Default" and "Generate New PIN".
- ADD WIRELESS STATION (ADMINISTRATOR ACCESS ONLY)**: A section with a button: "Add Wireless Device Wizard".

At the bottom of the page, the copyright notice reads: "Copyright © 2004-2007 SMC, Inc."

Wi-Fi Protected Setup

Enable

Enable the Wi-Fi Protected Setup feature.

Lock Wireless Security Settings

Locking the wireless security settings prevents the settings from being changed by any new external registrar using its PIN. Devices can still be added to the wireless network using Wi-Fi Protected Setup. It is still possible to change wireless network settings with [Manual Wireless Network Setup](#), or [Wireless Network Setup Wizard](#), or an existing external WLAN Manager Registrar.

PIN Settings

A PIN is a unique number that can be used to add the router to an existing network or to create a new network. The default PIN is printed on the bottom of the router. For extra security, a new PIN can be generated. You can restore the default PIN at any time. Only the Administrator ("admin" account) can change or reset the PIN.

Current PIN

Shows the current value of the router's PIN.

Reset PIN to Default

Restore the default PIN of the router.

Generate New PIN

Create a random number that is a valid PIN. This becomes the router's PIN. You can then copy this PIN to the user interface of the registrar.

Add Wireless Station

This Wizard helps you add wireless devices to the wireless network.

The wizard will either display the wireless network settings to guide you through manual configuration, prompt you to enter the PIN for the device, or ask you to press the configuration button on the device. If the device supports Wi-Fi Protected Setup and has a configuration button, you can add it to the network by pressing the configuration button on the device and then on the router within 60 seconds. The WPS status LED on the router will become solid if the device has been successfully added to the network.

There are several ways to add a wireless device to your network. Access to the wireless network is controlled by a "registrar". A registrar only allows devices onto the wireless network if you have entered the PIN, or pressed a special Wi-Fi Protected Setup button on the device. The router acts as a registrar for the network, although other devices may act as a registrar as well.

Add Wireless Device Wizard

Start the wizard.

Tools

The Tools tab provides the following configuration options: **Admin, Time, Syslog, Email Settings, System, Firmware, Dynamic DNS, Windows Connect Now, System Check & Schedules.**

Tools_Admin

The Admin option is used to set a password for access to the Web-based management. By default there is no password configured. It is highly recommended that you create a password to keep your new router secure.

SMC
Draft 11n Wireless Gigabit 4-port Broadband Router
SMCWGBR14-N

BASIC
ADVANCED
TOOLS
STATUS
HELP

TOOLS

ADMIN
 TIME
 SYSLOG
 EMAIL SETTINGS
 SYSTEM
 FIRMWARE
 DYNAMIC DNS
 SYSTEM CHECK
 SCHEDULES
 PRINT SERVER
 SCANNER

ADMINISTRATOR SETTINGS
 The 'admin' and 'user' accounts can access the management interface. The admin has read/write access and can change passwords, while the user has read-only access.
 By default password is smcadmin. It is highly recommended that you change a password to keep your router secure.

Save Settings
Don't Save Settings

ADMIN PASSWORD
 Please enter the same password into both boxes, for confirmation.
 Password :
 Verify Password :

USER PASSWORD
 Please enter the same password into both boxes, for confirmation.
 Password :
 Verify Password :

SYSTEM NAME
 Gateway Name :

ADMINISTRATION
 Inactivity Time Out : (minutes)
 Enable Remote Management :
 Remote Admin Port :
 Remote Admin Inbound Filter :
 Details :

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Admin Password

Enter a password for the user "admin", who will have full access to the Web-based management interface.

User Password

Enter a password for the user "user", who will have read-only access to the Web-based management interface.

Gateway Name

The name of the router can be changed here.

Enable Remote Management

Enabling Remote Management allows you to manage the router from anywhere on the Internet. Disabling Remote Management allows you to manage the router only from computers on your LAN.

Remote Admin Port

The port that you will use to address the management interface from the Internet. For example, if you specify port 1080 here, then, to access the router from the Internet, you would use a URL of the form: **http://my.domain.com:1080/**.

Remote Admin Inbound Filter

Select a filter that controls access as needed for this admin port. If you do not see the filter you need in the list of filters, go to the [Advanced → Inbound Filter](#) screen and create a new filter.

Tools_Time

The Time Configuration option allows you to configure, update, and maintain the correct time on the router's internal system clock. From this section you can set the time zone that you are in and set the Time Server. Daylight saving can also be configured to automatically adjust the time when needed.

The screenshot displays the SMC Networks web interface for the SMCWGBR14-N router. The top navigation bar includes 'BASIC', 'ADVANCED', 'TOOLS' (highlighted), 'STATUS', and 'HELP'. A left sidebar lists various configuration options, with 'TOOLS' selected. The main content area is titled 'TIME' and contains three sections:

- TIME Configuration:** A text box explaining the function of the time configuration, followed by 'Save Settings' and 'Don't Save Settings' buttons.
- TIME CONFIGURATION:** A section showing the 'Current Router Time' as 31 January 2004 12:05:54, a 'Time Zone' dropdown menu set to '(GMT-08:00) Pacific Time (US/Canada), Tijuana', and an 'Enable Daylight Saving' checkbox which is unchecked.
- AUTOMATIC TIME CONFIGURATION:** A section with an 'Enable NTP Server' checkbox which is unchecked.
- SET THE DATE AND TIME MANUALLY:** A section with 'Date And Time' fields for Year (2004), Month (Jan), Day (31), Hour (12), Minute (05), Second (52), and PM, along with a 'Copy Your Computer's Time Settings' button.

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Time Configuration

Current Router Time

Displays the time currently maintained by the router. If this is not correct, use the following options to configure the time correctly.

Time Zone

Select your local time zone from pull down menu.

Enable Daylight Saving

Check this option if your location observes daylight saving time.

Daylight Saving Offset

Select the time offset, if your location observes daylight saving time.

DST Start and DST End

Select the starting and ending times for the change to and from daylight saving time. For example, suppose for DST Start you select Month="Oct", Week="3rd", Day="Sun" and Time="2am". This is the same as saying: "Daylight saving starts on the third Sunday of October at 2:00 AM."

Automatic Time Configuration

Enable NTP Server

Select this option if you want to synchronize the router's clock to a Network Time Server over the Internet. If you are using schedules or logs, this is the best way to ensure that the schedules and logs are kept accurate.

NTP Server Used

Select a Network Time Server for synchronization. You can type in the address of a time server or select one from the list. If you have trouble using one server, select another.

Set the Date and Time Manually

If you do not have the NTP Server option in effect, you can either manually set the time for your router here, or you can click the **Copy Your Computer's Time Settings** button to copy the time from the computer you are using. (Make sure that computer's time is set correctly.)

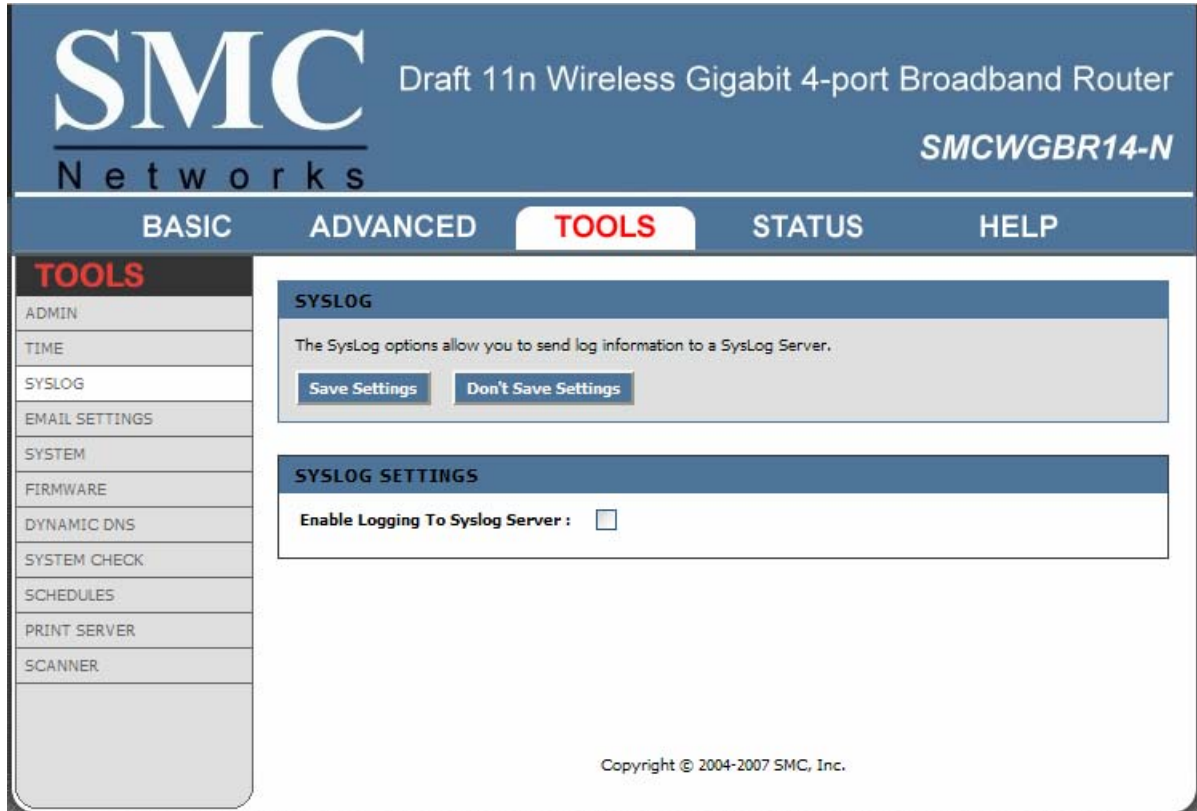


NOTE

If the router loses power for any reason, it cannot keep its clock running, and will not have the correct time when it is started again. To maintain correct time for schedules and logs, either you must enter the correct time after you restart the router, or you must enable the NTP Server option.

Tools_Syslog

This section allows you to archive your log files to a Syslog Server.



SMC Draft 11n Wireless Gigabit 4-port Broadband Router
Networks SMCWGBR14-N

BASIC ADVANCED **TOOLS** STATUS HELP

TOOLS

- ADMIN
- TIME
- SYSLOG**
- EMAIL SETTINGS
- SYSTEM
- FIRMWARE
- DYNAMIC DNS
- SYSTEM CHECK
- SCHEDULES
- PRINT SERVER
- SCANNER

SYSLOG

The SysLog options allow you to send log information to a SysLog Server.

[Save Settings](#) [Don't Save Settings](#)

SYSLOG SETTINGS

Enable Logging To Syslog Server :

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Enable Logging to Syslog Server

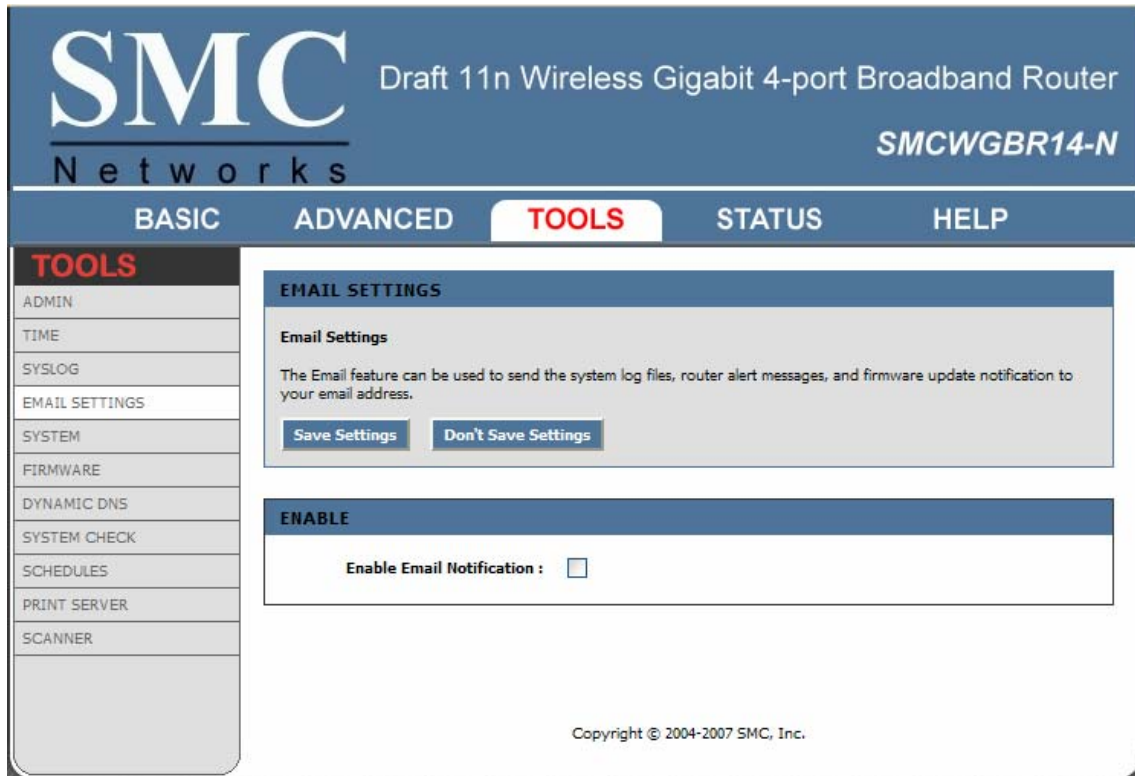
Enable this option if you have a syslog server currently running on the LAN and wish to send log messages to it.

Syslog Server IP Address

Enter the LAN IP address of the Syslog Server.

Tools_Email Settings

The Email feature can be used to send the system log files, router alert messages, and firmware update notification to your email address.



The screenshot shows the SMC Networks web interface for a Draft 11n Wireless Gigabit 4-port Broadband Router (SMCWGBR14-N). The navigation menu includes BASIC, ADVANCED, TOOLS (selected), STATUS, and HELP. The TOOLS menu is expanded, showing options like ADMIN, TIME, SYSLOG, EMAIL SETTINGS (selected), SYSTEM, FIRMWARE, DYNAMIC DNS, SYSTEM CHECK, SCHEDULES, PRINT SERVER, and SCANNER. The main content area is titled 'EMAIL SETTINGS' and contains the following text: 'Email Settings' followed by 'The Email feature can be used to send the system log files, router alert messages, and firmware update notification to your email address.' Below this text are two buttons: 'Save Settings' and 'Don't Save Settings'. Further down, there is an 'ENABLE' section with the text 'Enable Email Notification : '. At the bottom of the page, there is a copyright notice: 'Copyright © 2004-2007 SMC, Inc.'

Enable

Enable Email Notification

When this option is enabled, router activity logs or firmware upgrade notifications can be emailed to a designated email address, and the following parameters are displayed.

Email Settings

From Email Address

This email address will appear as the sender when you receive a log file or firmware upgrade notification via email.

To Email Address

Enter the email address where you want the email sent.

SMTP Server Address

Enter the SMTP server address for sending email.

Enable Authentication

If your SMTP server requires authentication, select this option.

Account Name

Enter your account for sending email.

Password

Enter the password associated with the account.

Verify Password

Re-type the password associated with the account.

Email Log When Full or on Schedule**On Log Full**

Select this option if you want logs to be sent by email when the log is full.

On Schedule

Select this option if you want logs to be sent by email according to a schedule.

Schedule

If you selected the On Schedule option, select one of the defined schedule rules. If you do not see the schedule you need in the list of schedules, go to the [Tools -> Schedules](#) screen and create a new schedule.

**NOTE**

Normally email is sent at the start time defined for a schedule, and the schedule end time is not used. However, rebooting the router during the schedule period will cause additional emails to be sent.

Tools_System

This section allows you to manage the router's configuration settings, reboot the router, and restore the router to the factory default settings. Restoring the unit to the factory default settings will erase all settings, including any rules that you've created.

The screenshot shows the SMC Networks web interface for a Draft 11n Wireless Gigabit 4-port Broadband Router (SMCWGBR14-N). The navigation menu includes BASIC, ADVANCED, TOOLS (selected), STATUS, and HELP. The TOOLS menu is expanded, showing options like ADMIN, TIME, SYSLOG, EMAIL SETTINGS, SYSTEM (selected), FIRMWARE, DYNAMIC DNS, SYSTEM CHECK, SCHEDULES, PRINT SERVER, and SCANNER. The SYSTEM SETTINGS section contains the following text and controls:

SYSTEM SETTINGS

The System Settings section allows you to reboot the device, or restore the router to the factory default settings. Restoring the unit to the factory default settings will erase all settings, including any rules that you have created.

The current system settings can be saved as a file onto the local hard drive. The saved file or any other saved setting file created by device can be uploaded into the unit.

SYSTEM SETTINGS

Save To Local Hard Drive:

Load From Local Hard Drive:

Restore To Factory Default:

Reboot The Device:

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Save Settings To Local Hard Drive

This option allows you to save the router's configuration to a file on your computer. Be sure to save the configuration before performing a firmware upgrade.

Load Settings From Local Hard Drive

Use this option to restore previously saved router configuration settings.

Restore To Factory Default Settings

This option restores all configuration settings back to the settings that were in effect at the time the router was shipped from the factory. Any settings that have not been saved will be lost. If you want to save your router configuration settings, use the Save Settings option above.

Reboot The Device

This restarts the router. Useful for restarting when you are not near the device.

Tools_Firmware

The Firmware Upgrade section can be used to update to the latest firmware code to improve functionality and performance. To check for the latest firmware, click the **Check Online Now** button. If you would like to be notified when new firmware is released, place a checkmark in the box next to **Email Notification of Newer Firmware Version**.

The screenshot shows the SMC Networks web interface for a Draft 11n Wireless Gigabit 4-port Broadband Router (SMCWGBR14-N). The interface is divided into several sections:

- Header:** SMC Networks logo and product name.
- Navigation:** BASIC, ADVANCED, **TOOLS**, STATUS, HELP.
- Left Sidebar:** TOOLS (selected), ADMIN, TIME, SYSLOG, EMAIL SETTINGS, SYSTEM, FIRMWARE, DYNAMIC DNS, SYSTEM CHECK, SCHEDULES, PRINT SERVER, SCANNER.
- FIRMWARE Section:** Use the Firmware section to install the latest firmware code to improve functionality and performance. Includes buttons for Save Settings and Don't Save Settings.
- FIRMWARE INFORMATION Section:** Current Firmware Version : 1.0.0.13.
- FIRMWARE UPGRADE Section:** Note: Some firmware upgrades reset the configuration options to the factory defaults. Before performing an upgrade, be sure to save the current configuration from the Tools ->System screen. To upgrade the firmware, your PC must have a wired connection to the router. Enter the name of the firmware upgrade file, and click on the Upload button. Includes an Upload field with a Browse... button and an Upload button.
- Footer:** Copyright © 2004-2007 SMC, Inc.

To upgrade the firmware, follow these steps:

1. Click the **Browse** button to locate the upgrade file on your computer.
2. Once you have found the file to be used, click the **Upload** button below to start the firmware upgrade process. This can take a minute or more.
3. Wait for the router to reboot. This can take another minute or more.
4. Confirm updated firmware revision on status page.


Firmware Information


Here are displayed the version numbers of the firmware currently installed in your router and the most recent upgrade that is available.

Check Online

This option will check support site to see if you have the latest version of the firmware available. If a newer version is available, download instructions will be displayed.

Firmware Upgrade

to  **NOTE** Firmware upgrade cannot be performed from a wireless device. To perform an upgrade, ensure that you are using a PC that is connected to the router by wire.

 **NOTE** Some firmware upgrades reset the configuration options to the factory defaults. Before performing an upgrade, be sure to save the current configuration from the [Tools -> Admin](#) screen.

Upload

Once you have a firmware update on your computer, use this option to browse for the file and then upload the information into the router.

Tools_Dynamic DNS

The Dynamic DNS feature allows you to host a server (Web, FTP, Game Server, etc.) using a domain name that you have purchased (www.whateveryournameis.com) with your dynamically assigned IP address. Most broadband Internet Service Providers assign dynamic (changing) IP addresses. When you use a Dynamic DNS service provider, your friends can enter your host name to connect to your server, no matter what your IP address is.

SMC Draft 11n Wireless Gigabit 4-port Broadband Router
Networks SMCWGBR14-N

BASIC ADVANCED **TOOLS** STATUS HELP

TOOLS

- ADMIN
- TIME
- SYSLOG
- EMAIL SETTINGS
- SYSTEM
- FIRMWARE
- DYNAMIC DNS
- SYSTEM CHECK
- SCHEDULES
- PRINT SERVER
- SCANNER

DYNAMIC DNS

Dynamic DNS (DDNS)

The DDNS feature allows you to host a server (Web, FTP, Game Server, etc...) using a domain name that you have purchased (www.whateveryournameis.com) with your dynamically assigned IP address. Most broadband Internet Service Providers assign dynamic (changing) IP addresses. Using a DDNS service provider, your friends can enter your host name to connect to your game server no matter what your IP address is.

[Save Settings](#) [Don't Save Settings](#)

DYNAMIC DNS

Enable Dynamic DNS:

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Enable Dynamic DNS

Enable this option only if you have purchased your own domain name and registered with a dynamic DNS service provider. The following parameters are displayed when the option is enabled.

Server Address

Select a dynamic DNS service provider from the pull-down list.

Host Name

Enter your host name, fully qualified; for example: **myhost.mydomain.net**.

Username or Key

Enter the username or key provided by your service provider. If the Dynamic DNS provider supplies only a key, enter that key in all three fields.

Password or Key

Enter the password or key provided by your service provider. If the Dynamic DNS provider supplies only a key, enter that key in all three fields.

Verify Password or Key

Re-type the password or key provided by your service provider. If the Dynamic DNS provider supplies only a key, enter that key in all three fields.

Timeout

The time between periodic updates to the Dynamic DNS, if your dynamic IP address has not changed. The timeout period is entered in hours.



If a dynamic DNS update fails for any reason (for example, when incorrect parameters are entered), the router automatically disables the Dynamic DNS feature and records the failure in the log.



After configuring the router for dynamic DNS, you can open a browser and navigate to the URL for your domain (for example **<http://www.mydomain.info>**) and the router will attempt to forward the request to port 80 on your LAN. If, however, you do this from a LAN-side computer and there is no virtual server defined for port 80, the router will return the router's configuration home page. Refer to the [Advanced -> Virtual Server](#) configuration page to set up a virtual server.

Tools_System Check

The screenshot displays the SMC Networks web interface for a Draft 11n Wireless Gigabit 4-port Broadband Router (SMCWGBR14-N). The interface has a blue header with the SMC Networks logo and the router model. Below the header is a navigation menu with tabs for BASIC, ADVANCED, TOOLS (highlighted in red), STATUS, and HELP. On the left side, there is a vertical menu under the heading 'TOOLS' with options: ADMIN, TIME, SYSLOG, EMAIL SETTINGS, SYSTEM, FIRMWARE, DYNAMIC DNS, SYSTEM CHECK, SCHEDULES, PRINT SERVER, and SCANNER. The main content area is titled 'PING TEST' and contains the following text: 'Ping Test sends "ping" packets to test a computer on the Internet.' Below this is a form with a label 'Host Name or IP Address :', an input field, and two buttons: 'Ping' and 'Stop'. A 'PING RESULT' section below the form contains the text: 'Enter a host name or IP address above and click "Ping"'. At the bottom of the page, there is a copyright notice: 'Copyright © 2004-2007 SMC, Inc.'

Ping Test

"Ping" is an Internet utility function that sends a series of short messages to a target computer and reports the results. You can use it to test whether a computer is running, and to get an idea of the quality of the connection to that computer, based on the speed of the responses.

Host Name or IP Address

Enter either the IP address of the target computer or enter its fully qualified domain name.

Ping

Start pinging the specified host.

Stop

The host is pinged repeatedly until you press this button.

Example:

Host Name or IP Address

www.whitehouse.gov

Ping Result

Please wait, resolving www.whitehouse.gov....

Resolved to 205.161.7.102.

Response from 205.161.7.102 received in 7 milliseconds.

Response from 205.161.7.102 received in 6 milliseconds.

Response from 205.161.7.102 received in 7 milliseconds.

User stopped ping.

Tools_Schedules

Schedules can be created for use with enforcing rules. For example, if you want to restrict web access to Mon-Fri from 3pm to 8pm, you could create a schedule selecting Mon, Tue, Wed, Thu, and Fri and enter a Start Time of 3pm and End Time of 8pm.

SMC Networks Draft 11n Wireless Gigabit 4-port Broadband Router **SMCWGBR14-N**

BASIC ADVANCED **TOOLS** STATUS HELP

TOOLS

- ADMIN
- TIME
- SYSLOG
- EMAIL SETTINGS
- SYSTEM
- FIRMWARE
- DYNAMIC DNS
- SYSTEM CHECK
- SCHEDULES**
- PRINT SERVER
- SCANNER

SCHEDULES

The Schedule configuration option is used to manage schedule rules for various firewall and parental control features.

ADD SCHEDULE RULE

Name :

Day(s) : All Week Select Day(s)

Sun Mon Tue Wed Thu Fri Sat

All Day - 24 hrs :

Start Time : : AM (hour:minute, 12 hour time)

End Time : : AM (hour:minute, 12 hour time)

SCHEDULE RULES LIST

Name	Day(s)	Time Frame
------	--------	------------

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Add/Edit Schedule Rule

In this section you can add entries to the Schedule Rules List below or edit existing entries.

Name

Give the schedule a name that is meaningful to you, such as "Weekday rule".

Day(s)

Place a checkmark in the boxes for the desired days or select the All Week radio button to select all seven days of the week.

All Day - 24 hrs

Select this option if you want this schedule in effect all day for the selected day(s).

Start Time

If you don't use the All Day option, then you enter the time here. The start time is entered in two fields. The first box is for the hour and the second box is for the minute. Email events are normally triggered only by the start time.

End Time

The end time is entered in the same format as the start time. The hour in the first box and the minutes in the second box. The end time is used for most other rules, but is not normally used for email events.

Save

Saves the new or edited Schedule Rule in the following list. When finished updating the Schedule Rules, you must still click the **Save Settings** button at the top of the page to make the changes effective and permanent.

Schedule Rules List

This section shows the currently defined Schedule Rules. A Schedule Rule can be changed by clicking the Edit icon, or deleted by clicking the Delete icon. When you click the Edit icon, the item is highlighted, and the "Edit Schedule Rule" section is activated for editing.

Tools_Print Server

The router can support both "TCP Raw" and "LPD/LPR" printing protocols. Enable one or both as required by the devices on the LAN.

The screenshot displays the SMC Networks web interface for a Draft 11n Wireless Gigabit 4-port Broadband Router (SMCWGBR14-N). The interface is divided into several sections:

- Header:** SMC Networks logo and product name.
- Navigation:** BASIC, ADVANCED, TOOLS (selected), STATUS, HELP.
- Left Sidebar:** A list of menu items including ADMIN, TIME, SYSLOG, EMAIL SETTINGS, SYSTEM, FIRMWARE, DYNAMIC DNS, SYSTEM CHECK, SCHEDULES, PRINT SERVER (highlighted), and SCANNER.
- PRINT SERVER Section:**
 - Print Server Setup:** A text box explaining the integrated print server and a "Print Wizard" link. Below it are "Save Settings" and "Don't Save Settings" buttons.
 - RAW TCP PORT PRINTING:** A section with a blue header. It includes a description and a checkbox for "Enable Raw Port Printing" which is checked. Below it, the printer's IP address and TCP port number are listed as 192.168.2.1:9100.
 - LPD/LPR PRINTING:** A section with a blue header. It includes a description and a checkbox for "Enable LPD/LPR Printing" which is unchecked. Below it, the printer's IP address and queue name are listed as 192.168.2.1:No Printer.
- Footer:** Copyright © 2004-2007 SMC, Inc.

Enable Raw Port Printing

Causes the router to support TCP raw (also known as Port 9100). Printers are identified by port numbers (9100 being the customary starting port number). This option must be enabled for the Print Wizard to function.

Enable LPD/LPR Printing

Causes the router to support the LPD/LPR protocol. Printers are identified by a symbolic queue name. This option is disabled by default; enable it if required by the devices on the LAN. This method of printing is generally preferred for Unix or Macintosh (starting with Mac OS 8.1).

Tools_Scanner

SMC Networks Draft 11n Wireless Gigabit 4-port Broadband Router
SMCWGBR14-N

BASIC ADVANCED **TOOLS** STATUS HELP

TOOLS

- ADMIN
- TIME
- SYSLOG
- EMAIL SETTINGS
- SYSTEM
- FIRMWARE
- DYNAMIC DNS
- SYSTEM CHECK
- SCHEDULES
- PRINT SERVER
- SCANNER

PREVIEW SCAN

Select the location of the document to scan. Press *Preview Scan* to get a quick preview of the scanner bed contents. If you select *ADF*, also specify the document size.

Scan Device : No Scanner Detected

location of document to scan : Scanner Bed Automatic Document Feeder (ADF)

Document Size : Letter

Preview Scan

SCAN

Click and drag on the scanner bed preview window to select the area you wish to scan. Make any adjustments to resolution, color, and file format. Then press *Scan*.

Scan Area Size : Full Bed Letter Executive A4 Custom 8.5x11.7

Offset : 0,0 inches mm

Resolution : Highest High Medium Low

Copy Color : Color Black & White

File Format : JPEG PDF

Scan

PREVIEW WINDOW

Scan Device:

Select the scanner type by clicking the radio button for Scanner Bed (most common) or Auto Document Feeder (ADF). If you select ADF, select the document size from the drop-down menu.

Scan Area Size:

You can select from the following list of preset scan sizes. Please note that you can also dynamically adjust the scan size by clicking and dragging the dotted box that appears on the image on the right.

- Full Bed - Scans the entire bed of the scanner
- Letter - This selection will scan an 8.5x11 portion of your scanner bed
- Executive - This selection will scan an area roughly 7.5x10 on the scanner bed
- A4 - This selection will scan an area roughly 8x11
- Custom - This selection allows you to choose a size you specifically want
-

Offset:

Enter an offset in inches or millimeters.

Resolution:

Select the resolution from Low to Highest. The highest resolution is recommended for photo's that will be enlarged or just images that are going to be cropped. The lowest setting should be used for images that are not quality dependant, or even to send sketches over email.

Copy Color:

Select color or black & white for the output of your scan.

File Format:

Select from either JPEG or PDF format. Both are very popular and can be viewed on many computers. Please note that you will need at least Adobe Reader to view files scanned into PDF format.

Scan Button:

Once all your settings are set, click the Scan button to scan your document or picture!

Status

The Status tab provides the following configuration options: **Device Info, Wireless, Routing, Logs, Statistics and Active Sessions.**

Status_Device info

All of your Internet and network connection details are displayed on the Device Info page. The firmware version is also displayed here.



Some browsers have limitations that make it impossible to update the WAN status display when the status changes. Some browsers require that you refresh the display to obtain updated status. Some browsers report an error condition when trying to obtain WAN status.

SMC
Draft 11n Wireless Gigabit 4-port Broadband Router
SMCWGBR14-N

BASIC
ADVANCED
TOOLS
STATUS
HELP

STATUS

DEVICE INFO

WIRELESS

ROUTING

LOGS

STATISTICS

ACTIVE SESSIONS

WISH SESSIONS

PRINT SERVER

DEVICE INFORMATION

All of your Internet and network connection details are displayed on this page. The firmware version is also displayed here.

GENERAL

Time : 31 January 2004 12:28:39
Firmware Version : 1.0.0.13, 22 Jun 2007

WAN

Connection Type : DHCP Client
Streamengine : Active
Cable Status : Connected
Network Status : Established
Connection Up Time : 0 Day 1 Hour 56 Min 31 Sec
[DHCP Renew](#) [DHCP Release](#)

MAC Address : 00:11:E0:02:DF:A2
Authentication & Security :
IP Address : 192.168.10.110
Subnet Mask : 255.255.255.0
Default Gateway : 192.168.10.1
Primary DNS Server : 192.168.10.1
Secondary DNS Server : 0.0.0.0
BigPond Server Name :
BigPond Status :

LAN

MAC Address : 00:11:E0:02:DF:A2
IP Address : 192.168.2.1
Subnet Mask : 255.255.255.0
DHCP Server : Enabled

WIRELESS LAN

Wireless Radio : Enabled
WISH : Active
MAC Address : 00:11:E0:02:DF:A2
Network Name (SSID) : SMC
Channel : 11
Security Mode : Disabled
Wi-Fi Protected Setup : Enabled/Not Configured

Depending on the type of WAN connection, you can take one of the following sets of actions:

DHCP Connection

Clicking the **DHCP Release** button unassigns the router's IP address. The router will not respond to IP messages from the WAN side until you click the **DHCP Renew** button or power-up the router again. Clicking the **DHCP Renew** button causes the router to request a new IP address from the ISP's server.

PPPoE, PPTP, L2TP Connection

Depending on whether the WAN connection is currently established, you can click either the **Connect** to attempt to establish the WAN connection or the **Disconnect** to break the WAN connection.

BigPond Connection

Depending on whether you are currently logged in to BigPond, you can click either the **BigPond Login** to attempt to establish the WAN connection or the **BigPond Logout** to break the WAN connection.

LAN Computers

This area of the screen continually updates to show all DHCP enabled computers and devices connected to the LAN side of your router. The detection "range" is limited to the address range as configured in DHCP Server. Computers that have an address outside of this range will not show. If the DHCP Client (i.e. a computer configured to "Automatically obtain an address") supplies a Host Name then that will also be shown. Any computer or device that has a static IP address that lies within the detection "range" may show, however its host name will not.

IGMP Multicast memberships

If IGMP is enabled, this area of the screen show all multicast groups of which any LAN devices are members.

Status_Wireless

The wireless section allows you to view the wireless clients that are connected to your wireless router.

The screenshot shows the SMC Networks web interface. At the top, it says 'SMC Networks Draft 11n Wireless Gigabit 4-port Broadband Router SMCWGBR14-N'. Below this is a navigation menu with 'BASIC', 'ADVANCED', 'TOOLS', 'STATUS', and 'HELP'. The 'STATUS' page is active, showing a sidebar with 'STATUS' selected and other options like 'DEVICE INFO', 'ROUTING', etc. The main content area is titled 'WIRELESS' and contains an 'Associated Wireless Client List' section with the instruction: 'Use this option to view the wireless clients that are connected to your wireless router.' Below this, it states 'NUMBER OF WIRELESS CLIENTS : 0'. A table is provided with the following columns: 'MAC Address', 'IP Address', 'Mode', 'Rate', and 'Signal (%)'. The table is currently empty. At the bottom, there is a copyright notice: 'Copyright © 2004-2007 SMC, Inc.'

MAC Address

The Ethernet ID (MAC address) of the wireless client.

IP Address

The LAN-side IP address of the client.

Mode

The transmission standard being used by the client. Values are 11a, 11b, or 11g for 802.11a, 802.11b, or 802.11g respectively.

Rate

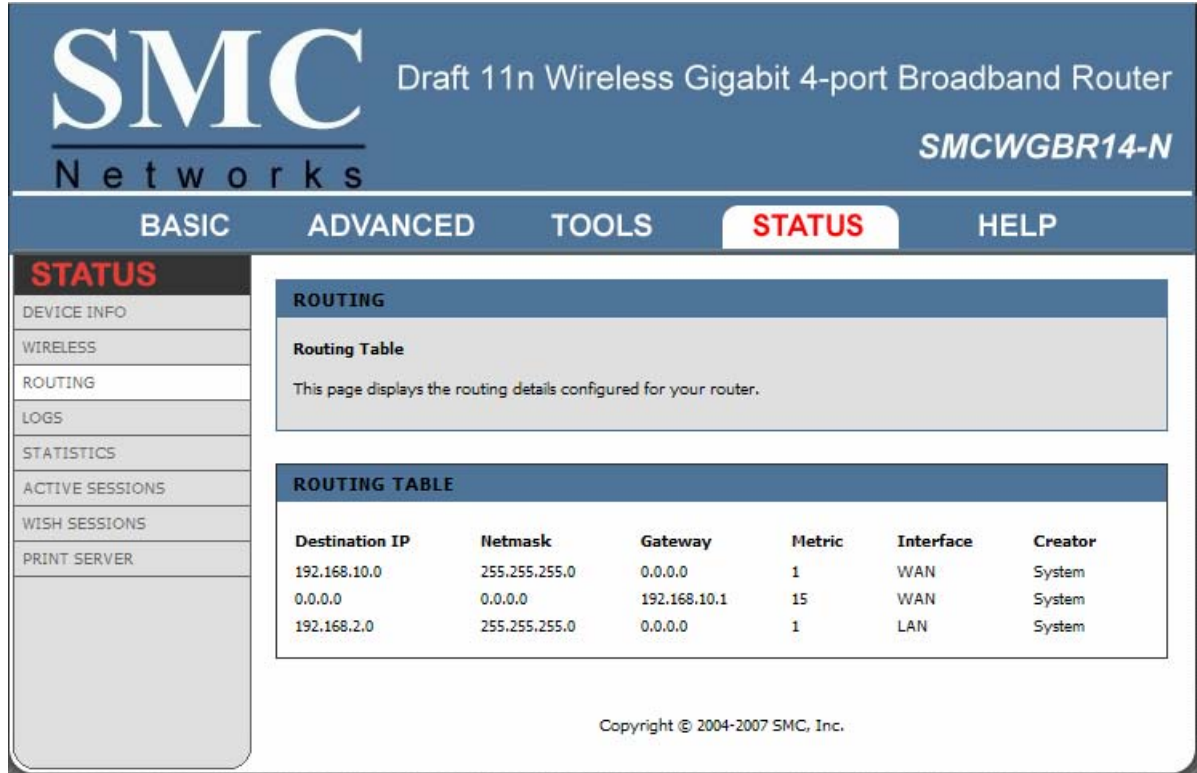
The actual transmission rate of the client in megabits per second.

Signal

This is a relative measure of signal quality. The value is expressed as a percentage of theoretical best quality. Signal quality can be reduced by distance, by interference from other radio-frequency sources (such as cordless telephones or neighboring wireless networks), and by obstacles between the router and the wireless device.

Status_Routing

The routing section displays all of the routing details configured for your router.



SMC Networks Draft 11n Wireless Gigabit 4-port Broadband Router
SMCWGBR14-N

BASIC ADVANCED TOOLS **STATUS** HELP

STATUS

- DEVICE INFO
- WIRELESS
- ROUTING**
- LOGS
- STATISTICS
- ACTIVE SESSIONS
- WISH SESSIONS
- PRINT SERVER

ROUTING

Routing Table

This page displays the routing details configured for your router.

ROUTING TABLE

Destination IP	Netmask	Gateway	Metric	Interface	Creator
192.168.10.0	255.255.255.0	0.0.0.0	1	WAN	System
0.0.0.0	0.0.0.0	192.168.10.1	15	WAN	System
192.168.2.0	255.255.255.0	0.0.0.0	1	LAN	System

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A value of 0.0.0.0 for gateway means there is no next hop, and the IP address is directly connected to the router on the interface specified: LAN or WAN. A value of 0.0.0.0 in both the destination IP and netmask means that this is the default route.

Status_Logs

The router automatically logs (records) events of possible interest in its internal memory. If there is not enough internal memory for all events, logs of older events are deleted, but logs of the latest events are retained. The Logs option allows you to view the router logs. You can define what types of events you want to view and the level of events to view. This router also has external Syslog Server support so you can send the log files to a computer on your network that is running a Syslog utility.

The screenshot displays the SMC Networks web interface for a Draft 11n Wireless Gigabit 4-port Broadband Router (SMCWGBR14-N). The interface features a navigation menu with tabs for BASIC, ADVANCED, TOOLS, STATUS (highlighted), and HELP. On the left, a sidebar menu lists various status options: STATUS (highlighted), DEVICE INFO, WIRELESS, ROUTING, LOGS, STATISTICS, ACTIVE SESSIONS, WISH SESSIONS, and PRINT SERVER. The main content area is titled 'LOGS' and includes a 'System Logs' section with a descriptive paragraph. Below this is the 'LOG OPTIONS' section, which allows users to select 'What to View' (Firewall & Security, System, Router Status) and 'View Levels' (Critical, Warning, Informational) using checkboxes. An 'Apply Log Settings Now' button is provided. The 'LOG DETAILS' section contains buttons for 'Refresh', 'Clear', 'Email Now', and 'Save Log', along with two log entries: '[INFO] Sat Jan 31 12:30:56 2004 Log viewed by IP address 192.168.2.198' and '[INFO] Sat Jan 31 12:30:55 2004 Log cleared by IP address 192.168.2.198'. The footer of the page reads 'Copyright © 2004-2007 SMC, Inc.'

What to View

Select the kinds of events that you want to view.

- Firewall and Security
- System
- Router Status

View Levels

Select the level of events that you want to view.

- Critical
- Warning
- Informational

Apply Log Settings Now

Click this button after changing Log Options to make them effective and permanent.

Refresh

Clicking this button refreshes the display of log entries. There may be new events since the last time you accessed the log.

Clear

Clicking this button erases all log entries.

Email Now

If you provided email information with the [Tools -> Email](#) screen, clicking the **Email Now** button sends the router log to the configured email address.

Save Log

Select this option to save the router log to a file on your computer.

Status_Statistics

The Statistics page displays all of the LAN, WAN, and Wireless packet transmit and receive statistics.

SMC Networks Draft 11n Wireless Gigabit 4-port Broadband Router
SMCWGBR14-N

BASIC ADVANCED TOOLS **STATUS** HELP

STATUS

- DEVICE INFO
- WIRELESS
- ROUTING
- LOGS
- STATISTICS
- ACTIVE SESSIONS
- WISH SESSIONS
- PRINT SERVER

TRAFFIC STATISTICS

Network Traffic Stats

Traffic Statistics display Receive and Transmit packets passing through your router.

[Refresh Statistics](#) [Clear Statistics](#)

LAN STATISTICS

Sent :	54919	Received :	20646
TX Packets Dropped :	0	RX Packets Dropped :	0
Collisions :	0	Errors :	0

WAN STATISTICS

Sent :	18746	Received :	78185
TX Packets Dropped :	0	RX Packets Dropped :	0
Collisions :	0	Errors :	0

WIRELESS STATISTICS

Sent :	30840	Received :	0
TX Packets Dropped :	0	RX Packets Dropped :	0
Errors :	0		

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Sent

The number of packets sent from the router.

Received

The number of packets received by the router.

TX Packets Dropped

The number of packets that were dropped while being sent, due to errors, collisions, or router resource limitations.

RX Packets Dropped

The number of packets that were dropped while being received, due to errors, collisions, or router resource limitations.

Collisions

The number of packets that were dropped due to Ethernet collisions (two or more devices attempting to use an Ethernet circuit at the same time).

Errors

The number of transmission failures that cause loss of a packet. A noisy radio-frequency environment can cause a high error rate on the wireless LAN.

Status_Active Sessions

The Active Sessions page displays full details of active sessions through your router. A session is a conversation between a program or application on a LAN-side computer and a program or application on a WAN-side computer.

SMC Networks Draft 11n Wireless Gigabit 4-port Broadband Router
SMCWGBR14-N

BASIC ADVANCED TOOLS **STATUS** HELP

STATUS

- DEVICE INFO
- WIRELESS
- ROUTING
- LOGS
- STATISTICS
- ACTIVE SESSIONS**
- WISH SESSIONS
- PRINT SERVER

ACTIVE SESSIONS

This page displays the full details of active internet sessions to your router.

ACTIVE SESSIONS

Internal	Protocol	External	NAT	Priority	State	Dir	Time Out
192.168.2.198:36798	UDP	80.180.49.104:53030	36798	128	-	Out	292
192.168.2.198:36798	UDP	83.128.50.214:36165	36798	128	-	Out	283
192.168.2.198:36798	UDP	217.117.229.164:2182	36798	128	-	Out	283
192.168.2.198:36798	UDP	69.81.182.135:56335	36798	129	-	Out	283
192.168.2.198:36798	UDP	91.65.0.96:41807	36798	128	-	Out	264
192.168.2.198:36798	UDP	82.112.133.142:7097	36798	128	-	Out	257
192.168.2.198:36798	UDP	213.22.95.76:1777	36798	128	-	Out	253
192.168.2.198:36798	UDP	68.196.191.204:1967	36798	128	-	Out	238
192.168.2.198:36798	UDP	83.85.79.162:59528	36798	128	-	Out	231
192.168.2.198:36798	UDP	72.213.43.143:30952	36798	128	-	Out	219
192.168.2.198:36798	UDP	84.108.56.236:60686	36798	128	-	Out	212
192.168.2.198:36798	UDP	71.196.41.100:19870	36798	128	-	Out	205
192.168.2.198:36798	UDP	84.138.79.79:55060	36798	128	-	Out	198
192.168.2.198:1028	UDP	192.168.70.1:161	1028	128	-	Out	210
192.168.2.198:1028	UDP	192.168.10.1:161	1028	128	-	Out	192
192.168.2.198:36798	UDP	130.83.20.132:23309	36798	128	-	Out	185
192.168.2.198:36798	UDP	85.50.123.253:64306	36798	128	-	Out	179
192.168.2.198:36798	UDP	89.129.59.119:1423	36798	128	-	Out	179
192.168.2.198:36798	UDP	83.14.101.61:57353	36798	130	-	Out	166
192.168.2.198:36798	UDP	82.45.96.31:16137	36798	128	-	Out	154
192.168.2.198:36798	UDP	88.104.124.137:8419	36798	128	-	Out	147
192.168.2.198:36798	UDP	66.214.226.84:55855	36798	128	-	Out	135
192.168.2.198:36798	UDP	89.243.140.140:25969	36798	128	-	Out	128
192.168.2.198:36798	UDP	129.89.58.125:54196	36798	128	-	Out	116
192.168.2.198:36798	UDP	87.240.23.117:55518	36798	128	-	Out	109
192.168.2.198:36798	UDP	82.245.232.26:54284	36798	128	-	Out	97
192.168.2.198:36798	UDP	149.156.82.81:32737	36798	128	-	Out	90

Internal

The IP address and port number of the LAN-side application.

Protocol

The communications protocol used for the conversation.

External

The IP address and port number of the WAN-side application.

NAT

The port number of the LAN-side application as viewed by the WAN-side application.

Priority

The preference given to outbound packets of this conversation by the StreamEngine logic. Smaller numbers represent higher priority.

State

State for sessions that use the TCP protocol.

- **NO:** None -- This entry is used as a placeholder for a future connection that may occur.
- **SS:** SYN Sent -- One of the systems is attempting to start a connection.
- **EST:** Established -- the connection is passing data.
- **FW:** FIN Wait -- The client system has requested that the connection be stopped.
- **CW:** Close Wait -- the server system has requested that the connection be stopped.
- **TW:** Time Wait -- Waiting for a short time while a connection that was in FIN Wait is fully closed.
- **LA:** Last ACK -- Waiting for a short time while a connection that was in Close Wait is fully closed.
- **CL:** Closed -- The connection is no longer active but the session is being tracked in case there are any retransmitted packets still pending.

Dir

The direction of initiation of the conversation:

Out

Initiated from LAN to WAN.

In

Initiated from WAN to LAN.

Time Out

The number of seconds of idle time until the router considers the session terminated. The initial value of Time Out depends on the type and state of the connection.

300 seconds

UDP connections.

20 seconds

Reset or closed TCP connections. The connection does not close instantly so that lingering packets can pass or the connection can be re-established.

120 seconds

Opening or closing TCP connections.

7800 seconds

Established TCP connections.

Status_WISH Sessions

The WISH Sessions page displays full details of active local wireless sessions through your router when WISH has been enabled. A WISH session is a conversation between a program or application on a wirelessly connected LAN-side computer and another computer, however connected.

The screenshot shows the web interface of an SMC Networks router. The top navigation bar includes 'BASIC', 'ADVANCED', 'TOOLS', 'STATUS' (highlighted), and 'HELP'. A left sidebar menu lists 'STATUS' (highlighted), 'DEVICE INFO', 'WIRELESS', 'ROUTING', 'LOGS', 'STATISTICS', 'ACTIVE SESSIONS', 'WISH SESSIONS', and 'PRINT SERVER'. The main content area is titled 'WISH SESSIONS' and contains a descriptive paragraph: 'The WISH Sessions page displays full details of active local wireless sessions through your router when WISH has been enabled. A WISH session is a conversation between a program or application on a wirelessly connected LAN-side computer and another computer, however connected.' Below this is a table with the following headers: 'Originator', 'Target', 'Protocol', 'State', 'Priority', and 'Time Out'. The table is currently empty. At the bottom of the page, it says 'Copyright © 2004-2007 SMC, Inc.'

Originator

The IP address and, where appropriate, port number of the computer that originated a network connection.

Target

The IP address and, where appropriate, port number of the computer to which a network connection has been made.

Protocol

The communications protocol used for the conversation.

State

State for sessions that use the TCP protocol.

- NO: None -- This entry is used as a placeholder for a future connection that may occur.
- SS: SYN Sent -- One of the systems is attempting to start a connection.
- EST: Established -- the connection is passing data.
- FW: FIN Wait -- The client system has requested that the connection be stopped.
- CW: Close Wait -- the server system has requested that the connection be stopped.
- TW: Time Wait -- Waiting for a short time while a connection that was in FIN Wait is fully closed.
- LA: Last ACK -- Waiting for a short time while a connection that was in Close Wait is fully closed.
- CL: Closed -- The connection is no longer active but the session is being tracked in case there are any retransmitted packets still pending.

Priority

The priority given to packets sent wirelessly over this conversation by the WISH logic. The priorities are:

- BK: Background (least urgent).
- BE: Best Effort.
- VI: Video.
- VO: Voice (most urgent).

Time Out

The number of seconds of idle time until the router considers the session terminated. The initial value of Time Out depends on the type and state of the connection.

300 seconds

UDP connections.

240 seconds

Reset or closed TCP connections. The connection does not close instantly so that lingering packets can pass or the connection can be re-established.

7800 seconds

Established or closing TCP connections.

Status_Print Server

Shows the status of the printer attached to the router.

The screenshot displays the SMC Networks web interface for a Draft 11n Wireless Gigabit 4-port Broadband Router (SMCWGBR14-N). The navigation menu includes BASIC, ADVANCED, TOOLS, STATUS (highlighted), and HELP. The left sidebar lists various status pages, with PRINT SERVER selected. The main content area is divided into four sections:

- PRINT SERVER**: Contains a "Print Server Status" section with a description of the integrated print server and a note to launch the Printer Wizard from the Print Wizard page.
- PRINTER STATUS**: States "The following printer is attached to your router." and shows a message: "**LICENSE INVALID** No Printer".
- RAW TCP PORT PRINTING**: Shows "Raw Port Printing: Enabled" and "The printer's IP address and TCP port number are: 192.168.2.1 : 9100".
- LPD/LPR PRINTING**: Shows "LPD/LPR Printing : Disabled" and "The printer's IP address and queue name are : 192.168.2.1 : No Printer".

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Raw TCP Port Printing

Shows the "IP Address" and "TCP Port" values that you need to enter when you configure your computer to use the printer in TCP Raw mode.

LPD/LPR Printing

Shows the "IP Address" and "Queue Name" values that you need to enter when you configure your computer to use the printer in LPR/LPD mode.

Using the USB2.0 Multi-function Print Server

Introduction

The SMCWGBR14-N Multi-Functional (MFP) Print Server allows networked PCs to access and share the networked printer or All-In-One printer using the USB port on your SMCWGBR14-N.

For supported MFP devices, both printing and scanning features can be accessed from any PC on the network.

This MFP Print Server was designed to use a web based **Printer Setup Wizard** that makes network printer installation easy.

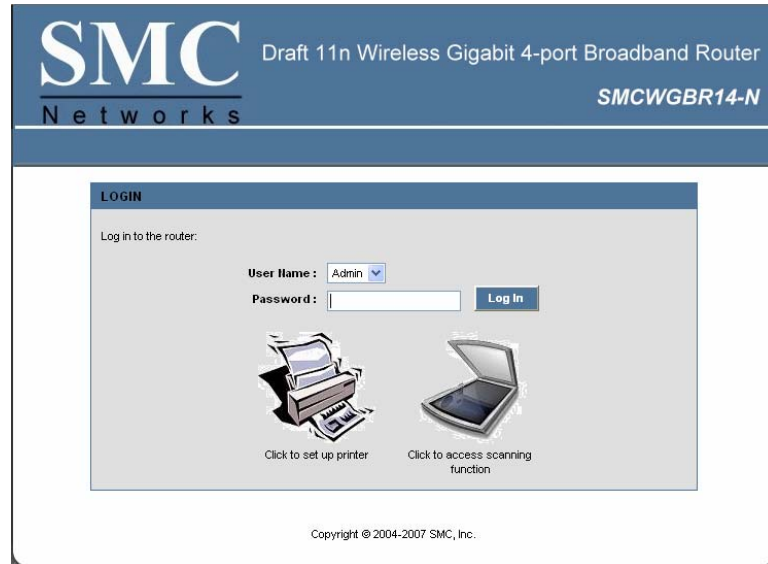
System Setup

To use the MFP print server, first use the SMCWGBR14-N instructions for the basic setup of your network.

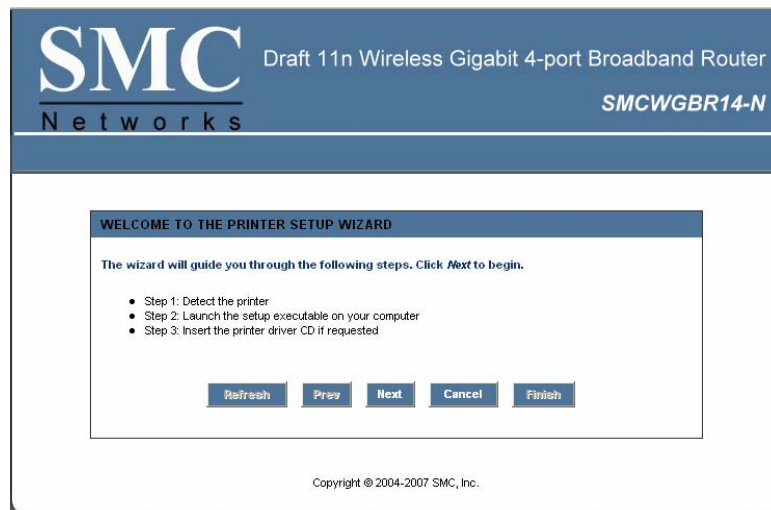
Next, run the **Printer Setup Wizard** to install the correct printer driver onto your PC(s) and configure for network printing.

Printer Wizard

The Print Server provides a **Printer Setup Wizard** that makes this process extremely simple to set up the PC for network printing.

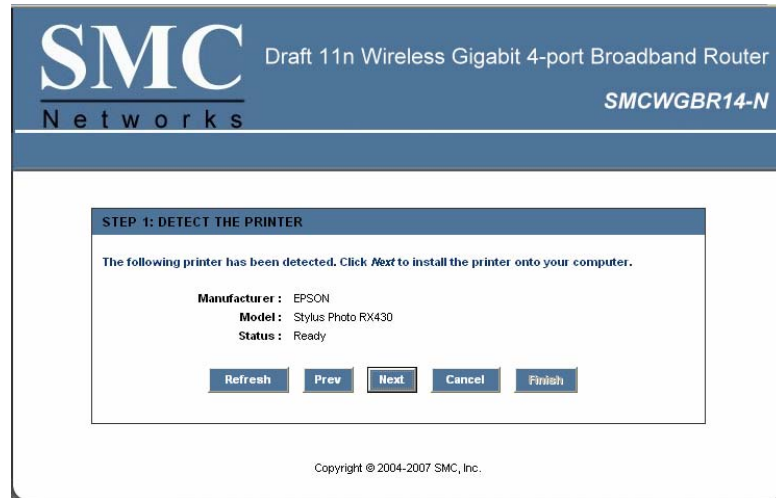


From the SMCWGBR14-N home page (LOGIN page), select the Printer Icon to start the installation of your printer. Review the 3 simple steps, and press **Next**.



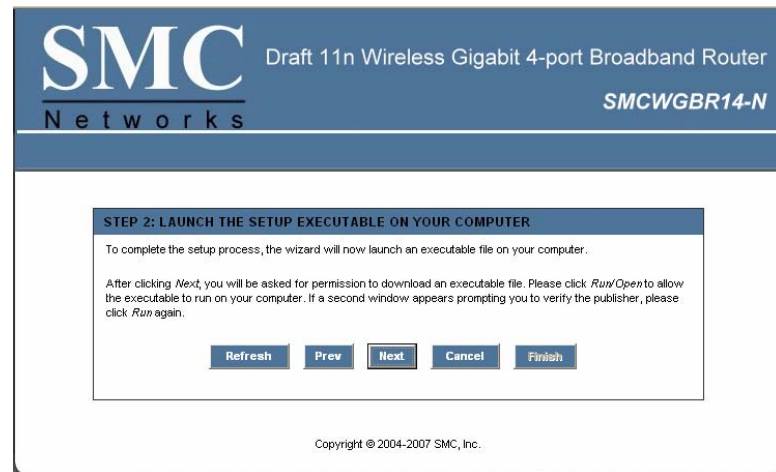
Step ① of the **Printer Setup Wizard** requires you to verify the printer to install. Press **Next** to install this printer.

Note: the printer must be powered on to be visible in this setup page.

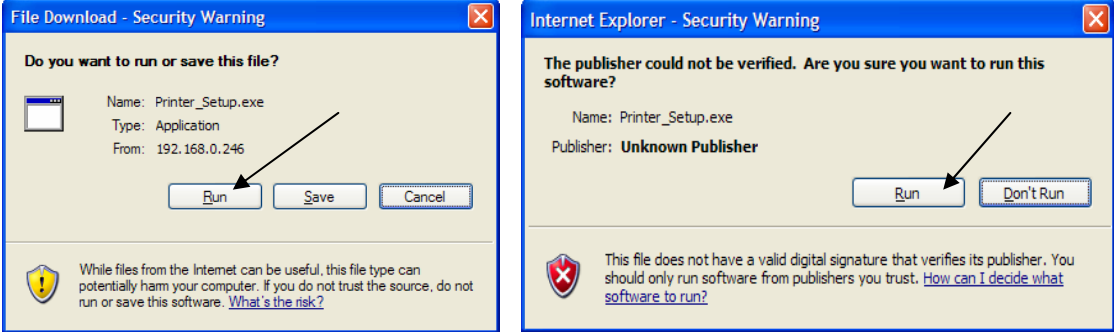


Step ② is to launch the **Printer Setup Wizard** application. This application executes on your PC, finds and loads the correct print driver and then configures the driver for network printing.

If the printer driver has been loaded onto the PC before, the wizard will find it. If this printer is new to this PC, you may be asked to place the printer CD that came with the printer into the CD drive of the PC. Alternatively, one can download the printer driver from the printer manufacturer's web site prior to running the wizard. Press **Next** to launch the install **Printer Setup Wizard** application.



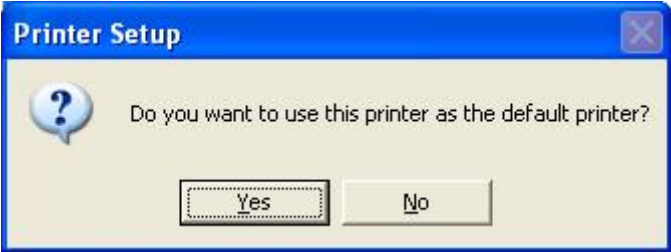
Since the **Print Setup Wizard** application runs on the PC, the Security Warning popup boxes shown below will be displayed. Select **RUN** in both instances.



The Wizard will execute showing progress with the following popup.

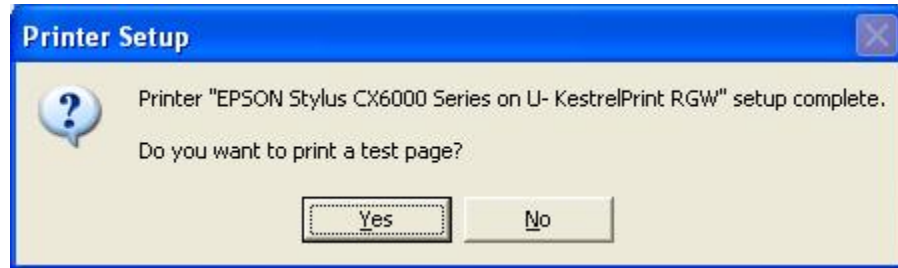


Once the printer driver is installed, the **Printer Setup Wizard** will ask if you would like to make this printer the default printer. The default printer can be changed at anytime through the Windows Control Panel for Printers and Faxes.



The **Printer Setup Wizard** application also creates a shortcut to the SMCWGBR14-N web page on your PC desktop. This shortcut can be used to quickly access the SMCWGBR14-N web page in the future, especially to use the scan function on the MFP.

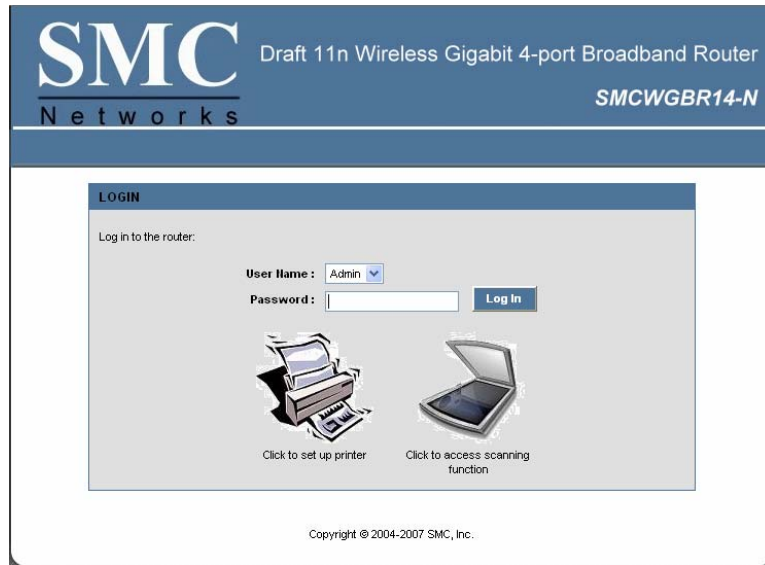
Finally, the **Printer Setup Wizard** application will ask if you would like to print a test page. This is helpful to ensure everything is set up and working properly.



Press the **Finish** button to conclude the **Printer Setup Wizard**.

Scanning Webpage

If you have connected a supported Multifunctional (MFP) device to the Print Server, you can access the scan feature now without loading any driver software.



From the SMCWGBR14-N home page (LOGIN), select the Scan Icon. The following Scan page will be displayed. Follow the numbered steps to quickly obtain a scan image.

Step ① Press **Preview Scan** to initiate a quick scan to check the position and alignment of the scan document.

Note: Preview Scan is unavailable when using Automatic Document Feeder.

SMC Draft 11n Wireless Gigabit 4-port Broadband Router
Networks **SMCWGBR14-N**

[Back](#)

PREVIEW SCAN

Select the location of the document to scan. Press *Preview Scan* to get a quick preview of the scanner bed contents. If you select *ADF*, also specify the document size.

Scan Device : EPSON Stylus Photo RX430

Location of document to scan : Scanner Bed Automatic Document Feeder (ADF)

Document Size : Letter

[Preview Scan](#)

SCAN

Click and drag on the scanner bed preview window to select the area you wish to scan. Make any adjustments to resolution, color, and file format. Then press *Scan*.

Scan Area Size : Full Bed Letter Executive A4 Custom 8.5x11.7

Offset : 0,0 inches mm

Resolution : Highest High Medium Low

Copy Color : Color Black & White

File Format : BMP PDF

[Scan](#)

PREVIEW WINDOW

Preview Window

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Step ② is to select your final scan parameters.

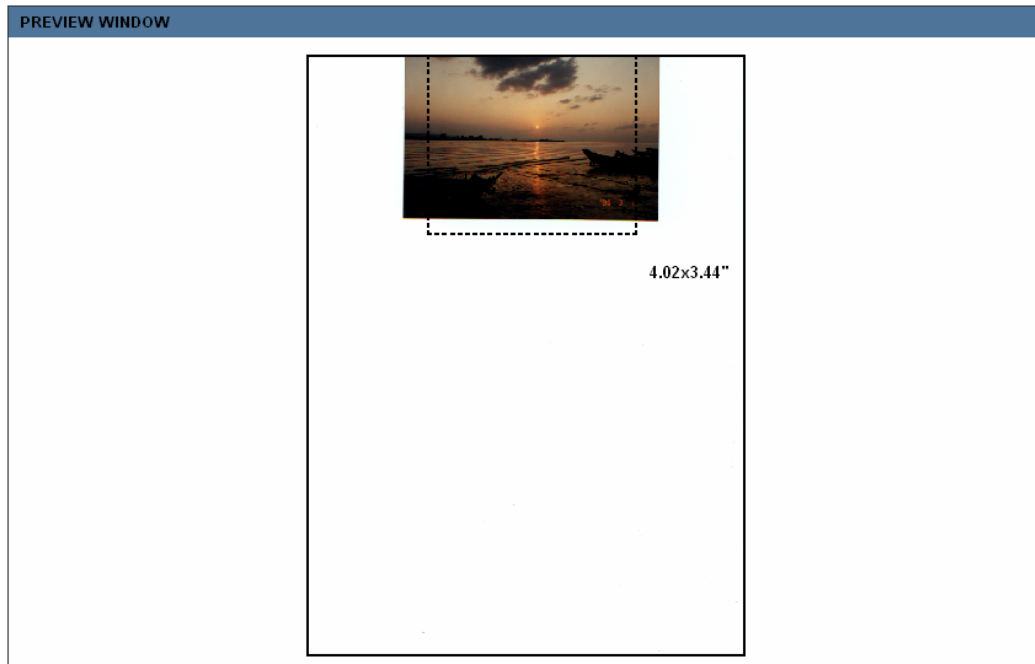
Size: Select Full Bed, Letter, Executive, A4, or use the mouse to select a custom scan area.

Resolution: Select a desired resolution from Low to Highest.

Color: Select either Color or Black & White.

File Format: Select the desired file format.

Now press the **Scan** button.



Step ③ is the process of scanning the final image. This image is displayed on a new page as shown below. Use the **Back** button if you would like to resize or change scan parameters and rescan.

☺Hint: The do not use the Browser's **Back** button, use the **Back** button under Step④ to go back to the initial scan page.

Back

SCAN INFORMATION

Review the scan settings below, then wait while the scan completes. Press *Cancel* to abort the scan.

Source : EPSON Stylus Photo RX430 Scanner Bed
Quality : High Resolution Color Scan
Scan Area : 4.96x3.15" Offset 1.66,8.55"
File Format : BMP

Scan Status : Scan Complete

Cancel

SCAN IMAGE

Right click on the image and select *Save Picture As...* or drag and drop the image to your file browser or desktop.

Back

Image



Back

Step ④ is saving the image. To save the image, move the mouse over the image area and right click to bring up options for saving the image to your PC. The image will be saved in the file format selected in **Step ②**.

Appendix A: Printer compatibility list

The following printer models have been tested for compatibility with the SMCWGBR14-N:

Hewlett Packard Printer Models Tested

MODEL NUMBER	SCANNING SUPPORTED
DJ3650	N/A
DJ3915	N/A
DJ5150	N/A
DJ5440	N/A
DJ5650	N/A
DJ6122	N/A
DJ822	N/A
DJ840	N/A
DJ F380	YES
Inkjet1200D	N/A
LJ1012	N/A
LJ1022	N/A
LJ1320	N/A
LJ3015	NO
OJd135 (2002)	NO
OJk60 (2002)	NO
OJ4110	YES
OJ4215	YES
OJ5510	YES
OJ5610	YES
OJ6110	YES
OJ6210	YES
OJ7130	YES
OJ7210	YES
Photosmart325	N/A
Photosmart3310	YES
Photosmart7260	N/A
Photosmart7960	N/A
Photosmart8050	N/A
Photosmart C3180	YES
Photosmart C4180	YES
PSC1210	YES
PSC1315	YES
PSC1350	YES
PSC1410	YES
PSC1510	YES
PSC1610	YES
PSC2175	YES
PSC2355	YES
PSC2510	YES
PSC750/950 (2001)	NO

Brother Printer Models Tested

MODEL NUMBER	SCANNING SUPPORTED
DCP 1400	NO
HL1440	N/A
HL5140	N/A
MFC3220	NO
MFC420	NO
MFC4800	NO

Canon Printer Models Tested

MODEL NUMBER	SCANNING SUPPORTED
i350	N/A
i475	N/A
i560	N/A
i70	N/A
i80	N/A
i860	N/A
i960	N/A
IP1600	N/A
MP390	NO
MP450	NO
MP730	NO

Epson Printer Models Tested

MODEL NUMBER	SCANNING SUPPORTED
Stylus 1280	N/A
Stylus C84	N/A
Stylus C86	N/A
Stylus C88	N/A
Stylus CX3810	YES
Stylus CX4800	YES
Stylus CX6400	YES
Stylus RX600	YES
Stylus R220	N/A
Stylus R300	N/A
Stylus R800	N/A
Photo 820	N/A

SAMSUNG Printer Models Tested

MODEL NUMBER	SCANNING SUPPORTED
ML1740	N/A

Lexmark and Dell printer models not recommended for use with the SMCWGBR14-N.

Glossary

A

Access Control List

ACL. This is a database of network devices that are allowed to access resources on the network.

Access Point

AP. Device that allows wireless clients to connect to it and access the network

ActiveX

A Microsoft specification for the interaction of software components.

Ad-hoc network

Peer-to-Peer network between wireless clients

Address Resolution Protocol

ARP. Used to map MAC addresses to IP addresses so that conversions can be made in both directions.

ADSL

Asymmetric Digital Subscriber Line

Advanced Encryption Standard

AES. Government encryption standard

Alphanumeric

Characters A-Z and 0-9

Antenna

Used to transmit and receive RF signals.

AppleTalk

A set of Local Area Network protocols developed by Apple for their computer systems

AppleTalk Address Resolution Protocol

AARP. Used to map the MAC addresses of Apple computers to their AppleTalk network addresses, so that conversions can be made in both directions.

Application layer

7th Layer of the OSI model. Provides services to applications to ensure that they can communicate properly with other applications on a network.

ASCII

American Standard Code for Information Interchange. This system of characters is most commonly used for text files

Attenuation

The loss in strength of digital and analog signals. The loss is greater when the signal is being transmitted over long distances.

Authentication

To provide credentials, like a Password, in order to verify that the person or device is really who they are claiming to be

Automatic Private IP Addressing

APIPA. An IP address that that a Windows computer will assign itself when it is configured to obtain an IP address automatically but no DHCP server is available on the network

B

Backward Compatible

The ability for new devices to communicate and interact with older legacy devices to guarantee interoperability

Bandwidth

The maximum amount of bytes or bits per second that can be transmitted to and from a network device

Basic Input/Output System

BIOS. A program that the processor of a computer uses to startup the system once it is turned on

Baud

Data transmission speed

Beacon

A data frame by which one of the stations in a Wi-Fi network periodically broadcasts network control data to other wireless stations.

Bit rate

The amount of bits that pass in given amount of time

Bit/sec

Bits per second

BOOTP

Bootstrap Protocol. Allows for computers to be booted up and given an IP address with no user intervention

Bottleneck

A time during processes when something causes the process to slowdown or stop all together

Broadband

A wide band of frequencies available for transmitting data

Broadcast

Transmitting data in all directions at once

Browser

A program that allows you to access resources on the web and provides them to you graphically

C

Cable modem

A device that allows you to connect a computer up to a coaxial cable and receive Internet access from your Cable provider

CardBus

A newer version of the PC Card or PCMCIA interface. It supports a 32-bit data path, DMA, and consumes less voltage

CAT 5

Category 5. Used for 10/100 Mbps or 1Gbps Ethernet connections

Client

A program or user that requests data from a server

Collision

When do two devices on the same Ethernet network try and transmit data at the exact same time.

Cookie

Information that is stored on the hard drive of your computer that holds your preferences to the site that gave your computer the cookie

D

Data

Information that has been translated into binary so that it can be processed or moved to another device

Data Encryption Standard

Uses a randomly selected 56-bit key that must be known by both the sender and the receiver when information is exchanged

Data-Link layer

The second layer of the OSI model. Controls the movement of data on the physical link of a network

Database

Organizes information so that it can be managed updated, as well as easily accessed by users or applications.

DB-25

A 25 pin male connector for attaching External modems or RS-232 serial devices

DB-9

A 9 pin connector for RS-232 connections

dBd

Decibels related to dipole antenna

dBi

Decibels relative to isotropic radiator

dBm

Decibels relative to one milliwatt

Decrypt

To unscramble an encrypted message back into plain text

Default

A predetermined value or setting that is used by a program when no user input has been entered for this value or setting

Demilitarized zone

DMZ: A single computer or group of computers that can be accessed by both users on the Internet as well as users on the Local Network, but that is not protected by the same security as the Local Network.

DHCP

Dynamic Host Configuration Protocol: Used to automatically assign IP addresses from a predefined pool of addresses to computers or devices that request them

Digital certificate:

An electronic method of providing credentials to a server in order to have access to it or a network

Direct Sequence Spread Spectrum

DSSS: Modulation technique used by 802.11b wireless devices

DMZ

"Demilitarized Zone". A computer that logically sits in a "no-mans land" between the LAN and the WAN. The DMZ computer trades some of the protection of the router's security mechanisms for the convenience of being directly addressable from the Internet.

DNS

Domain Name System: Translates Domain Names to IP addresses

Domain name

A name that is associated with an IP address

Download

To send a request from one computer to another and have the file transmitted back to the requesting computer

DSL

Digital Subscriber Line. High bandwidth Internet connection over telephone lines

Duplex

Sending and Receiving data transmissions at the same time

Dynamic DNS service

Dynamic DNS is provided by companies to allow users with Dynamic IP addresses to obtain a Domain Name that will always be linked to their changing IP address. The IP address is updated by either client software running on a computer or by a router that supports Dynamic DNS, whenever the IP address changes

Dynamic IP address

IP address that is assigned by a DHCP server and that may change. Cable Internet providers usually use this method to assign IP addresses to their customers.

E

EAP

Extensible Authentication Protocol

Email

Electronic Mail is a computer-stored message that is transmitted over the Internet

Encryption

Converting data into cyphertext so that it cannot be easily read

Ethernet

The most widely used technology for Local Area Networks.

F

Fiber optic

A way of sending data through light impulses over glass or plastic wire or fiber

File server

A computer on a network that stores data so that the other computers on the network can all access it

File sharing

Allowing data from computers on a network to be accessed by other computers on the network with different levels of access rights

Firewall

A device that protects resources of the Local Area Network from unauthorized users outside of the local network

Firmware

Programming that is inserted into a hardware device that tells it how to function

Fragmentation

Breaking up data into smaller pieces to make it easier to store

FTP

File Transfer Protocol. Easiest way to transfer files between computers on the Internet

Full-duplex

Sending and Receiving data at the same time

G

Gain

The amount an amplifier boosts the wireless signal

Gateway

A device that connects your network to another, like the internet

Gbps

Gigabits per second

Gigabit Ethernet

Transmission technology that provides a data rate of 1 billion bits per second

GUI

Graphical user interface

H

H.323

A standard that provides consistency of voice and video transmissions and compatibility for videoconferencing devices

Half-duplex

Data cannot be transmitted and received at the same time

Hashing

Transforming a string of characters into a shorter string with a predefined length

Hexadecimal

Characters 0-9 and A-F

Hop

The action of data packets being transmitted from one router to another

Host

Computer on a network

HTTP

Hypertext Transfer Protocol is used to transfer files from HTTP servers (web servers) to HTTP clients (web browsers)

HTTPS

HTTP over SSL is used to encrypt and decrypt HTTP transmissions

Hub

A networking device that connects multiple devices together

ICMP

Internet Control Message Protocol

IEEE

Institute of Electrical and Electronics Engineers

IGMP

Internet Group Management Protocol is used to make sure that computers can report their multicast group membership to adjacent routers

IIS

Internet Information Server is a WEB server and FTP server provided by Microsoft

IKE

Internet Key Exchange is used to ensure security for VPN connections

Infrastructure

In terms of a wireless network, this is when wireless clients use an Access Point to gain access to the network

Internet

A system of worldwide networks which use TCP/IP to allow for resources to be accessed from computers around the world

Internet Explorer

A World Wide Web browser created and provided by Microsoft

Internet Protocol

The method of transferring data from one computer to another on the Internet

Internet Protocol Security

IPsec provides security at the packet processing layer of network communication

Internet Service Provider

An ISP provides access to the Internet to individuals or companies

Intranet

A private network

Intrusion Detection

A type of security that scans a network to detect attacks coming from inside and outside of the network

IP

Internet Protocol

IP address

A 32-bit number, when talking about Internet Protocol Version 4, that identifies each computer that transmits data on the Internet or on an Intranet

IPsec

Internet Protocol Security

IPX

Internetwork Packet Exchange is a networking protocol developed by Novell to enable their Netware clients and servers to communicate

ISP

Internet Service Provider

Java

A programming language used to create programs and applets for web pages

K

Kbps

Kilobits per second

Kbyte

Kilobyte

L

LAN

Local Area Network

Latency

The amount of time that it takes a packet to get from the one point to another on a network. Also referred to as delay

LED

Light Emitting Diode

Legacy

Older devices or technology

Local Area Network

A group of computers in a building that usually access files from a server

LPR/LPD

"Line Printer Requestor"/"Line Printer Daemon". A TCP/IP protocol for transmitting streams of printer data.

L2TP

Layer 2 Tunneling Protocol

M

MAC address

A unique hardware ID assigned to every Ethernet adapter by the manufacturer.

Mbps

Megabits per second

MDI

Medium Dependent Interface is an Ethernet port for a connection to a straight-through cable

MDIX

Medium Dependent Interface Crossover, is an Ethernet port for a connection to a crossover cable

MIB

Management Information Base is a set of objects that can be managed by using SNMP

Modem

A device that Modulates digital signals from a computer to an analog signal in order to transmit the signal over phone lines. It also Demodulates the analog signals coming from the phone lines to digital signals for your computer

MPPE

Microsoft Point-to-Point Encryption is used to secure data transmissions over PPTP connections

MTU

Maximum Transmission Unit is the largest packet that can be transmitted on a packet-based network like the Internet

Multicast

Sending data from one device to many devices on a network

N**NAT**

Network Address Translation allows many private IP addresses to connect to the Internet, or another network, through one IP address

NetBEUI

NetBIOS Extended User Interface is a Local Area Network communication protocol. This is an updated version of NetBIOS

NetBIOS

Network Basic Input/Output System

Netmask

Determines what portion of an IP address designates the Network and which part designates the Host

Network Interface Card

A card installed in a computer or built onto the motherboard that allows the computer to connect to a network

Network Layer

The third layer of the OSI model which handles the routing of traffic on a network

Network Time Protocol

Used to synchronize the time of all the computers in a network

NIC

Network Interface Card

NTP

Network Time Protocol

O

OFDM

Orthogonal Frequency-Division Multiplexing is the modulation technique for both 802.11a and 802.11g

OSI

Open Systems Interconnection is the reference model for how data should travel between two devices on a network

OSPF

Open Shortest Path First is a routing protocol that is used more than RIP in larger scale networks because only changes to the routing table are sent to all the other routers in the network as opposed to sending the entire routing table at a regular interval, which is how RIP functions

P

Password

A sequence of characters that is used to authenticate requests to resources on a network

Personal Area Network

The interconnection of networking devices within a range of 10 meters

Physical layer

The first layer of the OSI model. Provides the hardware means of transmitting electrical signals on a data carrier

Ping

A utility program that verifies that a given Internet address exists and can receive messages. The utility sends a control packet to the given address and waits for a response.

PoE

Power over Ethernet is the means of transmitting electricity over the unused pairs in a category 5 Ethernet cable

POP3

Post Office Protocol 3 is used for receiving email

Port

A logical channel endpoint in a network. A computer might have only one physical channel (its Ethernet channel) but can have multiple ports (logical channels) each identified by a number.

PPP

Point-to-Point Protocol is used for two computers to communicate with each over a serial interface, like a phone line

PPPoE

Point-to-Point Protocol over Ethernet is used to connect multiple computers to a remote server over Ethernet

PPTP

Point-to-Point Tunneling Protocol is used for creating VPN tunnels over the Internet between two networks

Preamble

Used to synchronize communication timing between devices on a network

Q

QoS

Quality of Service

R

RADIUS

Remote Authentication Dial-In User Service allows for remote users to dial into a central server and be authenticated in order to access resources on a network

Reboot

To restart a computer and reload it's operating software or firmware from nonvolatile storage.

Rendezvous

Apple's version of UPnP, which allows for devices on a network to discover each other and be connected without the need to configure any settings

Repeater

Retransmits the signal of an Access Point in order to extend it's coverage

RIP

Routing Information Protocol is used to synchronize the routing table of all the routers on a network

RJ-11

The most commonly used connection method for telephones

RJ-45

The most commonly used connection method for Ethernet

RS-232C

The interface for serial communication between computers and other related devices

RSA

Algorithm used for encryption and authentication

S**Server**

A computer on a network that provides services and resources to other computers on the network

Session key

An encryption and decryption key that is generated for every communication session between two computers

Session layer

The fifth layer of the OSI model which coordinates the connection and communication between applications on both ends

Simple Mail Transfer Protocol

Used for sending and receiving email

Simple Network Management Protocol

Governs the management and monitoring of network devices

SIP

Session Initiation Protocol. A standard protocol for initiating a user session that involves multimedia content, such as voice or chat.

SMTP

Simple Mail Transfer Protocol

SNMP

Simple Network Management Protocol

SOHO

Small Office/Home Office

SPI

Stateful Packet Inspection

SSH

Secure Shell is a command line interface that allows for secure connections to remote computers

SSID

Service Set Identifier is a name for a wireless network

Stateful inspection

A feature of a firewall that monitors outgoing and incoming traffic to make sure that only valid responses to outgoing requests are allowed to pass through the firewall

Subnet mask

Determines what portion of an IP address designates the Network and which part designates the Host

Syslog

System Logger -- a distributed logging interface for collecting in one place the logs from different sources. Originally written for UNIX, it is now available for other operating systems, including Windows.

T

TCP

Transmission Control Protocol

TCP/IP

Transmission Control Protocol/Internet Protocol

TCP Raw

A TCP/IP protocol for transmitting streams of printer data.

TFTP

Trivial File Transfer Protocol is a utility used for transferring files that is simpler to use than FTP but with less features

Throughput

The amount of data that can be transferred in a given time period

Traceroute

A utility displays the routes between your computer and specific destination

U

UDP

User Datagram Protocol

Unicast

Communication between a single sender and receiver

Universal Plug and Play

A standard that allows network devices to discover each other and configure themselves to be a part of the network

Upgrade

To install a more recent version of a software or firmware product

Upload

To send a request from one computer to another and have a file transmitted from the requesting computer to the other

UPnP

Universal Plug and Play

URL

Uniform Resource Locator is a unique address for files accessible on the Internet

USB

Universal Serial Bus

UTP

Unshielded Twisted Pair

V

Virtual Private Network

VPN: A secure tunnel over the Internet to connect remote offices or users to their company's network

VLAN

Virtual LAN

Voice over IP

Sending voice information over the Internet as opposed to the PSTN

VoIP

Voice over IP

W

Wake on LAN

Allows you to power up a computer through its Network Interface Card

WAN

Wide Area Network

WCN

Windows Connect Now. A Microsoft method for configuring and bootstrapping wireless networking hardware (access points) and wireless clients, including PCs and other devices.

WDS

Wireless Distribution System. A system that enables the interconnection of access points wirelessly.

Web browser

A utility that allows you to view content and interact with all of the information on the World Wide Web

WEP

Wired Equivalent Privacy is security for wireless networks that is supposed to be comparable to that of a wired network

Wi-Fi

Wireless Fidelity

Wi-Fi Protected Access

An updated version of security for wireless networks that provides authentication as well as encryption

Wide Area Network

The larger network that your LAN is connected to, which may be the Internet itself, or a regional or corporate network

Wireless ISP

A company that provides a broadband Internet connection over a wireless connection

Wireless LAN

Connecting to a Local Area Network over one of the 802.11 wireless standards

WISP

Wireless Internet Service Provider

WLAN

Wireless Local Area Network

WPA

Wi-Fi Protected Access. A Wi-Fi security enhancement that provides improved data encryption, relative to WEP.

X

xDSL

A generic term for the family of digital subscriber line (DSL) technologies, such as ADSL, HDSL, RADSL, and SDSL.

Y

Yagi antenna

A directional antenna used to concentrate wireless signals on a specific location

Z

#

1

802.11

A family of specifications for wireless local area networks (WLANs) developed by a working group of the Institute of Electrical and Electronics Engineers (IEEE).



TECHNICAL SUPPORT

From U.S.A. and Canada (24 hours a day, 7 days a week)
Phn: (800) SMC-4-YOU / (949) 679-8000
Fax: (949) 679-1481

ENGLISH

Technical Support information available at www.smc.com

FRENCH

Informations Support Technique sur www.smc.com

DEUTSCH

Technischer Support und weitere Information unter www.smc.com

SPANISH

En www.smc.com Ud. podrá encontrar la información relativa a servicios de soporte técnico

DUTCH

Technische ondersteuningsinformatie beschikbaar op www.smc.com

PORTUGUES

Informações sobre Suporte Técnico em www.smc.com

SWEDISH

Information om Teknisk Support finns tillgängligt på www.smc.com

INTERNET

E-mail address: techsupport@smc.com

Driver updates

http://www.smc.com/index.cfm?action=tech_support_drivers_downloads

World Wide Web

<http://www.smc.com/>

A decorative graphic in the top right corner of the blue footer area, consisting of a grid of small, light blue diamonds arranged in a pattern that tapers to the right.

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